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Water Resources Data Ohio Water Year 1990

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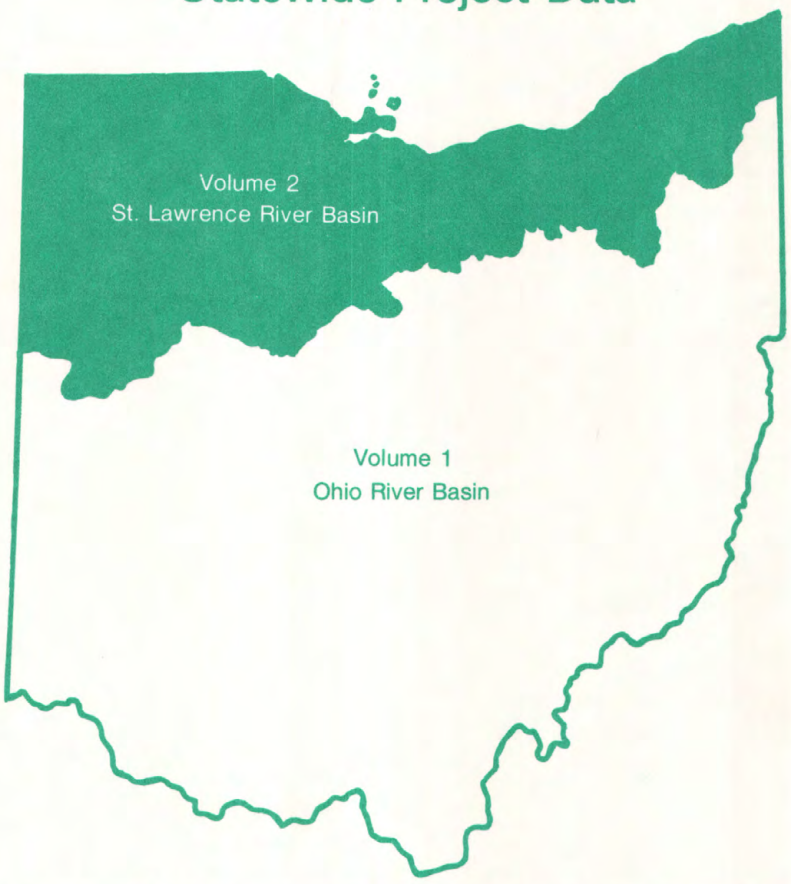

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OH-90-1
Prepared in cooperation with the State of Ohio
and with other agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER

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1990

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Water Resources Data
Ohio
Water Year 1990

Volume 2. St. Lawrence River Basin
Statewide Project Data

by H.L. Shindel, J.H. Klingler, J.P. Mangus, and L.E. Trimble

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OH-90-2
Prepared in cooperation with the State of Ohio
and with other agencies

DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., SECRETARY

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Ohio write to:

District Chief
Water Resources Division
U.S. Geological Survey
975 West Third Avenue
Columbus, OH 43212-3192

1991

PREFACE

This volume of the annual hydrologic data report of Ohio is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networksin each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provides the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Ohio are contained in two volumes:

Volume 1. Ohio River Basin
Volume 2. St. Lawrence River Basin - Statewide Project Data

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

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This report was prepared in cooperation with the State of Ohio and with other agencies under the general supervision of S.M. Hindall District Chief, Ohio.

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15. Supplementary Notes

Prepared in cooperation with the State of Ohio and with other agencies.

16. Abstract (Limit: 200 words)

Water-resources data for the 1990 water year for Ohio consists of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs; and water levels and water quality of ground-water wells. This report, in two volumes, contains records for water discharge at 131 gaging stations, 67 wells, and 39 partial-record sites; and water levels at 229 observation wells. Also included are data from miscellaneous sites. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Ohio.

17. Document Analysis a. Descriptors

*Ohio, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rates, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperature, Sampling sites, Water levels, Water analyses, Streamflow, Water wells.

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CONTENTS

ILLUSTRATIONS

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

(Letter after station name designates type of data: (c) miscellaneous chemical measurements, (C) daily chemical data, (d) discharge, (e) contents and (or) elevation, (HBM) hydrologic bench mark, (M) water-quality monitor, (m) microbiological, (NASQAN) National stream-quality accounting network, (r) radio-chemical, (s) miscellaneous sediment measurements, (S) daily suspended-sediment data, (t) temperature.)

ST. LAWRENCE RIVER BASIN

DISCONTINUED STATIONS

The following continuous-record streamflow, water quality, or stage stations in Ohio have been discontinued. Daily streamflow, water quality, and stage records were collected and published for the period of record shown for each station. Abbreviations used for characteristics measured are as follows: COND, specific conductance; DIS, discharge; DO, dissolved oxygen; G HT, gage height; PH, pH; and TEMP, temperature. Short term project stations of one or two years not included.

Station number	Station name	Characteristic measured	Period of record
04177500	ST JOSEPH R NR BLAKESLEE	DIS	1926-32
04181000	ST MARYS R NR WILLSHIRE	DIS	1925-32
04183500	MAUMEE R AT ANTWERP	DIS	1939-82
		TEMP	1948-49
04184000	MAUMEE R NR SHERWOOD	DIS	1903-06
04184100	MAUMEE RIVER AT DEFIANCE	TEMP	1966-78
		COND	1966-78
		DO	1966-78
		PH	1973-78
04184500	BEAN C AT POWERS	DIS	1940-81
04185300	TIFFIN RIVER AT EVANSPORT	TEMP	1968-78
		COND	1968-78
		DO	1971-78
		PH	1968-78
04185500	TIFFIN R NR BRUNERSBURG	DIS	1928-35
04186000	MIAMI & ERIE CA AT DELPHOS	DIS	1928-33
04187500	OTTAWA R AT ALLENTOWN	DIS	1923-35
			1943-82
		TEMP	1969-82
		COND	1969-82
		DO	1977-82
		PH	1977-82
04188000	OTTAWA R AT KALIDA	DIS	1930-35
04188200	AUGLAIZE R AT CLOVERDALE	TEMP	1967-78
		COND	1967-78
		DO	1967-78
		PH	1967-78
04188500	EAGLE CR NR FINDLAY	DIS	1947-57
04189500	BLANCHARD R AT GLANDORF	DIS	1921-28
			1947-51
04190000	BLANCHARD R AT DUPONT	DIS	1928-35
04190500	ROLLER CR AT OHIO CITY	DIS	1946-48
04191000	TOWN CR NR VAN WERT	DIS	1945-53
04191500	AUGLAIZE R NR DEFIANCE	TEMP	1966-76
		COND	1966-76
		DO	1966-76
		PH	1966-76
		SED	1936-36
04192000	MIAMI & ERIE CA NR DEFIANCE	DIS	1924-29
			1952-69
04192900	KEITZ RUN AT WATERVILLE	PRECIP	1981-86
04193000	MIAMI & ERIE CA AT WATERVILLE	DIS	1921-29
04193500	MAUMEE RIVER AT WATERVILLE	TEMP	1974-77
		COND	1974-77
		DO	1974-77
		PH	1974-77
04194000	SWAN C AT TOLEDO	DIS	1940-48
04194023	MAUMEE R AT MOUTH AT TOLEDO	TEMP	1967-75
		COND	1967-75
		DO	1967-75
		PH	1967-75
04194310	M B PORTAGE R NR PORTAGE	TEMP	1969-75
		COND	1969-75
04194500	PORTAGE R NR PEMBERVILLE	DIS	1930-35
04195000	N B PORTAGE R NR BOWLING GREEN	DIS	1923-32
04195600	PORTAGE R AT RR BRIDGE AT WOODVILLE	TEMP	1968-80
		COND	1968-80
		DO	1970-80
		PH	1968-80
		SED	1950-53
04195800	PORTAGE R AT ELMORE	TEMP	1950-52
04196000	SANDUSKY R NR BUCYRUS	DIS	1925-35
			1938-51
			1964-81
04196200	BROKEN SWORD C AT NEVADA	DIS	1976-81
04196500	SANDUSKY R NR UPPER SANDUSKY	DIS	1921-35
			1938-81
		TEMP	1969-79
		COND	1969-80
		DO	1969-79
		PH	1969-79

DISCONTINUED STATIONS--Continued

Station number	Station name	Characteristic measured	Period of record
04196600	TYMOCHTEE C NR MARSEILLES	DIS	1969-74
04196800	TYMOCHTEE C AT CRAWFORD	TEMP	1968-75
		COND	1968-75
		DO	1968-75
		PH	1968-75
04196990	SANDUSKY R AT ST JOHNS BRIDGE NR MEXICO	TEMP	1969-76
		COND	1969-76
		DO	1969-76
04197000	SANDUSKY RIVER NR MEXICO	DIS	1928-35
			1938-82
04197300	WOLF C AT BETTSVILLE	DIS	1976-81
04197450	E B WOLF C NR BETTSVILLE	DIS	1976-81
04197500	HAVENS C AT HAVENS	DIS	1946-49
04198000	SANDUSKY RIVER NR FREMONT	TEMP	1950-66
		COND	1964-66
		SED	1978-84
04198001	SANDUSKY RIVER AT FREMONT	TEMP	1947-48
			1950
04198005	SANDUSKY RIVER BL FREMONT	TEMP	1966-80
		COND	1966-80
		DO	1966-80
		PH	1966-67
			1969-75
04198018	W B HURON R NR WILLARD	TEMP	1968-75
		COND	1968-75
04198019	SANDHILL C NR MONROEVILLE	PRECIP	1981-86
04199100	HURON RIVER BL MILAN	TEMP	1968-78
		COND	1968-78
		DO	1968-78
		PH	1968-78
04199160	OLD WOMANS C AB US 6 AT HURON	G HT	1980-84
04199170	LAKE ERIE AT HURON	G HT	1980-84
04199500	VERMILION R NR VERMILION	TEMP	1969-80
		COND	1969-80
		DO	1969-80
		PH	1969-80
		DIS	1950-81
04199900	E B BLACK R AT GRAFTON	TEMP	1969-75
		COND	1969-75
04200000	E B BLACK R AT ELYRIA	DIS	1922-35
04200400	W B BLACK R NR ELYRIA	TEMP	1970-75
		COND	1969-70
04200430	W B BLACK R AB LAKE ST AT ELYRIA	DIS	1980-84
		SED	1980-81
04200500	BLACK R AT ELYRIA	TEMP	1962-70
		COND	1964-70
		SED	1980-81
04200550	BLACK R BL ELYRIA	TEMP	1966-70
		COND	1966-82
		DO	1967-82
		PH	1976-82
04202500	CUYAHOGA RIVER NR KENT	DIS	1933-35
04203000	BREAKNECK C NR KENT	DIS	1927-35
04204000	L CUYAHOGA R AT MOGADORE	DIS	1945-78
04204500	L CUYAHOGA R AT MASSILLON RD AKRON	DIS	1945-74
04205000	SPRINGFIELD LAKE OUTLET AT AKRON	DIS	1945-74
04205500	L CUYAHOGA R AT AKRON	DIS	1920
			1927-34
04205700	L CUYAHOGA R BL OHIO CA AT AKRON	DIS	1973-79
04206000	CUYAHOGA R AT OLD PORTAGE	TEMP	1970-84
		COND	1970-84
		DO	1970-84
		PH	1970-84
		SED	1972-81
04206200	CUYAHOGA R AT BATZUM	TEMP	1947-49
04206250	CUYAHOGA R AT IRA	DIS	1973-79
04207000	OHIO CANAL FEEDER AT BRECKSVILLE	DIS	1923-24
04207200	TINKERS C AT BEDFORD	SED	1972-79
04207500	OHIO CA AT INDEPENDENCE	DIS	1921-23
			1927-35
			1940-41
			1948-81
04206200	CUYAHOGA R AT BATZUM	TEMP	1947-49
04206250	CUYAHOGA R AT IRA	DIS	1973-79
04207000	OHIO CANAL FEEDER AT BRECKSVILLE	DIS	1923-24
04207200	TINKERS C AT BEDFORD	SED	1972-79
04207500	OHIO CA AT INDEPENDENCE	DIS	1921-23
			1927-35
			1940-41
			1948-81

Station number	Station name	Characteristic measured	Period of record
04208502	BIG C AT CLEVELAND	DIS	1972-86
		SED	1978
04208505	CUYAHOGA R AT DUPONT INTAKE IN CLEVELAND	COND	1964-75
04208510	CUYAHOGA R AT CNTR ST BRDGE IN CLEVELAND	TEMP	1964-66
		COND	1964-66
		DO	1964-66
		PH	1964-66
04208690	EUCLID C NR EUCLID	DIS	1977-80
			1984-85
04209000	CHAGRIN R AT WILLOUGHBY	DIS	1925-35
			1939-84
		TEMP	1950-50
		SED	1969-74
04209500	GRAND R NR NORTH BRISTOL	DIS	1942-47
04210000	PHELPS C NR WINDSOR	DIS	1942-59
04210500	GRAND RIVER NR ROME	DIS	1942-47
04211000	ROCK C NR ROCK CREEK	DIS	1948-66
04211500	MILL C NR JEFFERSON	DIS	1942-74
04212000	GRAND R NR MADISON	DIS	1922-35
			1938-74
04212200	GRAND RIVER AT PAINESVILLE	TEMP	1966-82
		COND	1966-82
		DO	1966-82
		PH	1966-82
04212500	ASHTABULA R NR ASHTABULA	DIS	1924-35
			1939-47
			1950-80
04212700	ASHTABULA R AT ASHTABULA	TEMP	1968-79
		COND	1968-79
		DO	1968-79
		PH	1968-79

GROUND-WATER STATIONS FOR WHICH RECORDS ARE PUBLISHED

VOLUME 2: ST. LAWRENCE RIVER BASIN
STATEWIDE PROJECT DATA

INTRODUCTION

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

This report (in two volumes) includes records on surface water and ground water in the State. Specifically, it contains: (1) Discharge records for 131 streamflow-gaging stations, 65 miscellaneous sites; (2) stage and content records for 8 streams, lakes, and reservoirs; (3) water-quality data for 35 streamflow-gaging stations, 67 wells, and 39 partial-record sites; and (4) water levels for 229 observation wells. Locations of lake- and streamflow-gaging stations, water-quality stations, and observation wells for which data are presented in this volume are shown in figure 9.

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

Prior to introduction of this series and for several years concurrent with it, water-resources data for Ohio were published in a series of U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage through September 1960 were published annually under the title "Surface-Water Supply of the United States, Parts 3 and 4." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on the chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above-mentioned Water-Supply Papers can be consulted in the libraries of the principal cities of the United States, and can be purchased from the Books and Open-File Reports Section, U.S. Geological Survey, Box 24525, Federal Center, Denver, CO 80225.

Publications similar to this report are published annually by the USGS for all States. These official USGS reports are identified by means of a number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report OH-90-2." For archiving and general distribution, the reports for 1971-74 water years are also identified as water-data reports. These water-data reports can be purchased in paper copy or in microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information for ordering specific reports, including current prices, may be obtained by writing the District Chief at the address given on the back of title page or by telephoning (614) 469-5553.

COOPERATION

The U.S. Geological Survey and agencies of the State of Ohio have had cooperative agreements for the collection of water-resource data since 1898. Organizations that assist in collecting data in this report are: Ohio Department of Natural Resources, Frances Buchholzer, Director; Ohio Environmental Protection Agency, R. L. Shank, Director; Ohio Department of Transportation, William Edwards, Research and Development; Miami Conservancy District, J. L. Rozelle, General Manager and Chief Engineer; City of Columbus Department of Public Service, J. R. Doutt, Administrator; City of Canton Water Department, J. D. Williams, Superintendent; Ross County, James Kennard, Adminstrative Assistant; Seneca Soil and Water Conservation District, Norman Daniel, Board Chairman; University of Toledo, R. Gallagher; City of Fremont, R. W. Lash, Safety Service Director; City of Akron, K. Kostura; City of Lima, A. Godsey, City Sanitary Engineer; Eastgate Development and Transportation Agency, J. Wells, Environment Project Manager; University of Cincinnati, J. Maynard, Department Head; Office Surface Mining, P. B. Schultz, Contracting Office; U.S. Air Force, Air Force Logistics Command, A. F. Sculimbrene, Office of Environmental Management; Toledo Metropolitan Area Council of Governments, K. Erickson, Director of Regional Planning; and Ohio State University, Ohio Agricultural Research and Development Center (OARDC), Professor Warren Dick; U.S. Department of Energy, Ronald O. Hultgren, Deputy Assistant Manager for Enriching Operations. Funds or services were provided by the U.S. Army Corps of Engineers in collecting data for 72 hydrologic-data stations in this report. The Miami Conservancy District, U.S. Army Corps of Engineers, and Ohio Department of Natural Resources aided in collecting data.

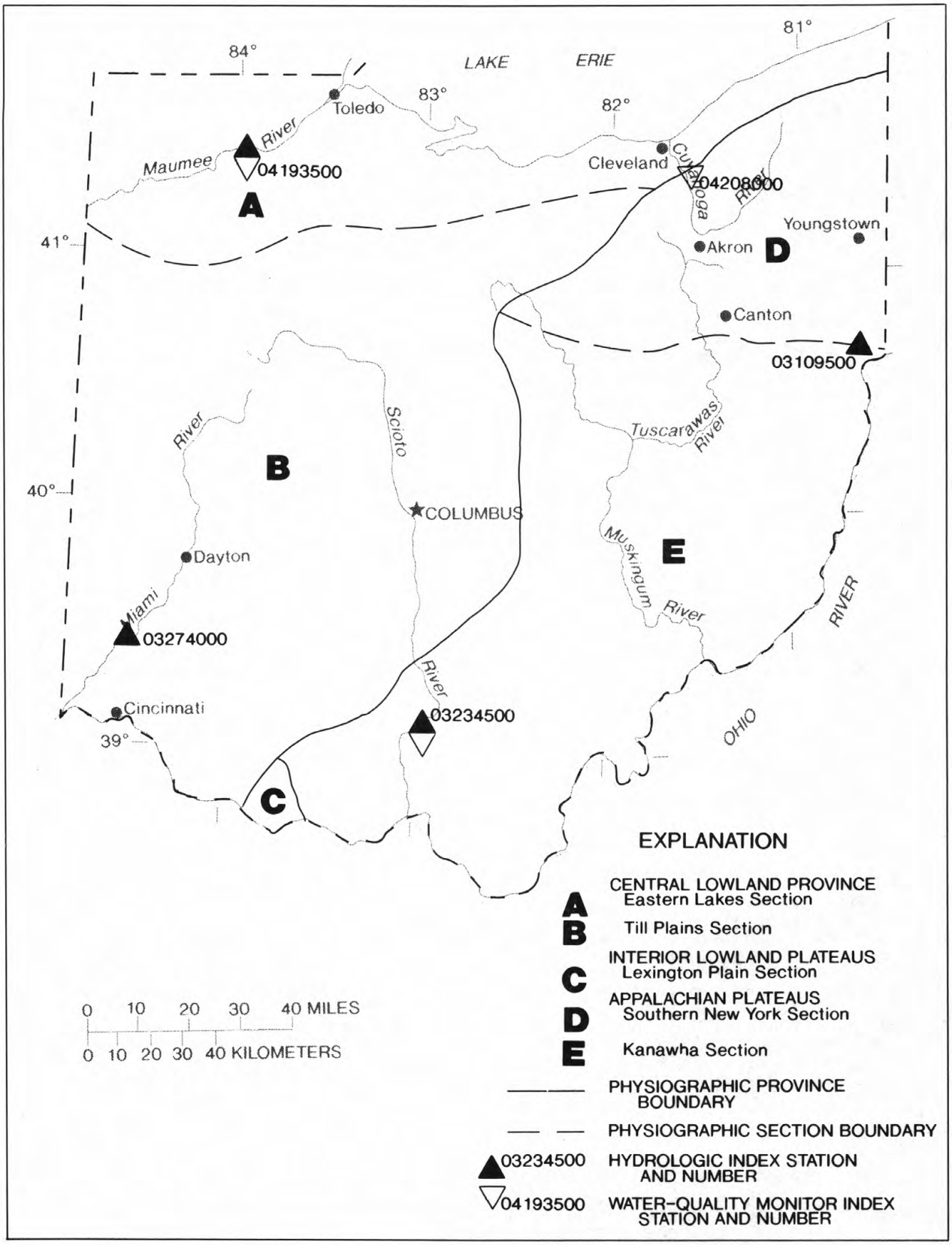

Figure 1.--Physiographic divisions and location of Hydrologic Index Stations.

SUMMARY OF HYDROLOGIC CONDITIONS

Ohio is located in three physiographic provinces, each with its own distinctive hydrologic characteristics. The topography of the Till Plains section of the Central Lowlands physiographic province (fig. 1) consists of gently rolling ground moraine, bands of terminal moraine, and outwash-filled valleys. Glaciation altered the courses of most streams in this area. The Eastern Lake Plains section (fig. 1) consists of wide expanses of level or nearly level land interrupted only by the sporadic sandy ridges that are the last visible remnants of glacial-lake beaches. Much of the area was swamp prior to development, and marshes are still present along Lake Erie near Toledo. The Lexington Plains section of the Interior Low Plateau province (fig. 1) is characterized by rolling terrain and a few isolated large hills and ridges. The "barbed" drainage pattern formed when small streams were captured as their headwaters cut back into the hills over time. Streams have carved the Kanawha section of the Appalachian Plateaus province (fig. 1) into an intricate series of hollows and steep-sided ridges. Only the large streams in the section have any appreciable flood plain. In the southern New York section (fig. 1), successive waves of glaciation have subdued the relief, buried many preglacial valleys, and rerouted many streams.

Precipitation

The average annual precipitation in Ohio is about 38 inches. The rainfall decreases from around 42 inches on the southern border to about 32 inches in the northwest. An anomalous area of high precipitation (as much as 44 inches) in northeastern Ohio results from air masses that pick up moisture and heat from Lake Erie and subsequently release precipitation over a range of hills stretching northeastward from Cleveland.

Monthly precipitation typically is greatest from May through July and least in October, December, and February. Of the approximate 38 inches of average annual precipitation, about 10 inches runs off immediately, 2 inches is retained at or near the surface and evaporates and transpires, and 26 inches enters the ground. Of the 26 inches that enters the ground, 20 inches is retained in the unsaturated zone and is later lost by evapotranspiration. The remaining 6 inches reaches the water table. Of this 6 inches, 2 inches eventually discharges to streams, and the rest is lost by evapotranspiration and consumptive use. Average runoff ranges from about 15 to 18 inches along the southern border to about 8 to 12 inches along most of the northern border, except in the northeast, where runoff is as much as 20 inches. The pattern of streamflow differs from the pattern of precipitation because of the contributions of snowmelt to streamflow in the early spring and the reduction in flows by evapotranspiration from June through September.

Surface Water

Streamflow

Streamflow-data-collection stations are distributed irregularly throughout the State, and tend to be concentrated on the main river systems. The stations are used to sample a wide variety of conditions. The drainage areas range from 12 to 7,420 square miles and represent a wide diversity of topography, and other physical characteristics. Streamflow ranges from unreglated to highly regulated.

Statewide streamflow, water year 1990

At the beginning of water year 1990, streamflow was above normal[1] in most of the State; streamflow during the preceding 3 months was generally normal, although scattered thunderstorms caused above-normal streamflow in some areas. Streamflow in October was above normal for most of the State except for the north-central area, where it was below normal. Streamflow in November continued above normal for most of the State except for the extreme eastern part; in the extreme southwestern and central parts of the State, streamflow was considered excessive. Streamflow in December declined to below normal in most of the State because of a combination of below-average precipitation and frozen ground. Streamflow in January was mostly above normal in response to precipitation and snowmelt at the very end of December. Streams continued to rise, and streamflow for February was excessive throughout the State; flooding occurred in the northwestern and northcentral parts of the State. March streamflow was below normal in most places. Streamflow in April was below normal for most of the State, but it was greater than the streamflow recorded in March. Although starting below normal throughout the State, streamflow in May was above normal by the end of the month mainly because of unusually heavy precipitation; streamflow was great enough to be considered excessive in all but a far eastern part of the State. Moderate to locally severe flooding occurred in May in the Scioto and Hocking River basins. Streamflow in June was above normal throughout most of the State except in the extreme north-central and northeastern parts; flooding occurred during the middle of the month in the central part of the State. Streamflow then declined toward the end of June.

In mid-July a series of localized thunderstorms caused severe damage in Jefferson, Harrison, and Belmont Counties in the eastern part of the State (This flooding is described in detail in the next section.) Statewide, streamflow increased throughout July and was generally above normal by the end of the month. Above-normal streamflow continued through August and September, although streamflow in September was less than that in August. During water year 1990, flood disaster declarations were issued in 20 of Ohio's 88 counties.

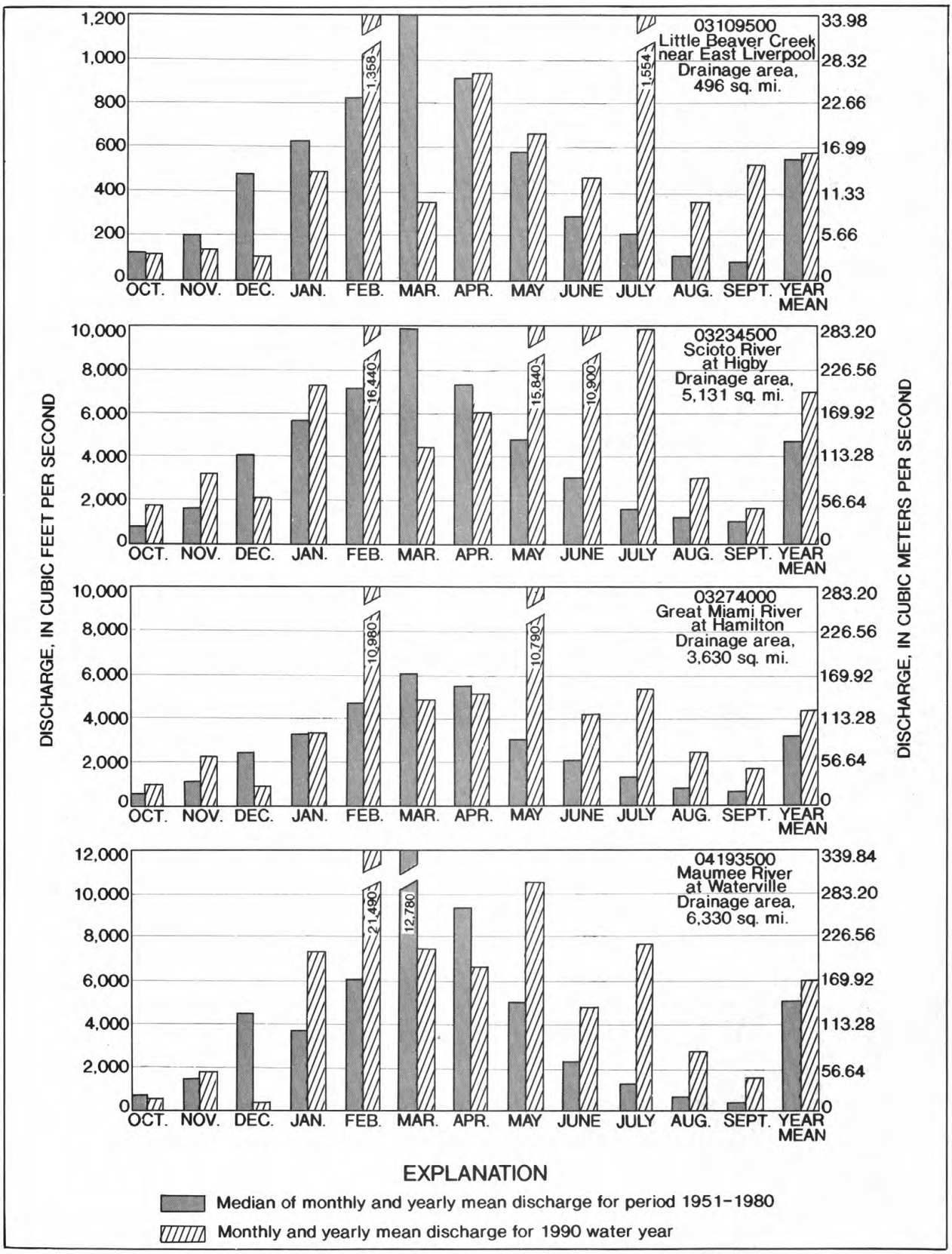

Figure 2.--Runoff during 1990 water year compared with median runoff for period 1951-1980 for four representative gaging stations.

Flood of June 14-15, 1990

A series of violent thunderstorms caused severe damage through the central and eastern parts of the State during a 24-hour period June 14-15. The hardest-hit areas were in Belmont, Harrison, and Jefferson Counties. In the Pipe and Wegee Creek basins in Belmont County, 26 deaths were reported and property damage exceeded $11 million. Maximum discharge near the mouth of Pipe Creek (drainage area, 11-28 square miles) was determined by indirect measurement to be 15,000 cubic feet per second (1,330 cubic feet per second per square mile). Maximum discharge near the mouth of Wegee Creek (drainage area, 5.46 square miles) was determined by indirect measurement to be 12,000 cubic feet per second (2,200 cubic feet per second per square mile). Flooding was very localized; recurrence intervals for peak streamflows at stations within 22 miles of each other ranged from 2 years to greater than 100 years. Peak streamflow at a gaging station about 5 miles from the site of the Pipe Creek indirect measurement was 45.4 cubic feet per second per square mile, which corresponds to a 2-year recurrence interval.

Water Quality

On a short-term basis, water-quality data in Ohio are collected in conjunction with local or regional studies. On a long-term basis, water-quality data in Ohio are collected from 10 fixed stations. Nine NASQAN (National Stream Quality Accounting Network) stations are located in nine major river basins and one Hydrologic Benchmark station is located in a small, relatively pristine basin. Samples are collected either monthly, bimonthly, or quarterly and are analyzed for major anions and cations, trace metals, nutrients, suspended sediment, and selected physical properties. Within the fixed-interval framework, sampling time is varied so that samples are collected over a range of streamflow conditions in any given year.

In figure 3, box plots for 11 years of record (1980-90) show statistical distributions of values for nitrite plus nitrate, dissolved oxygen, total phosphorus, and instantaneous discharge at four NASQAN sites, each representing physiographic and land-use characteristics of their drainage areas. The sites are Muskingum River at McConnelsville (principally cropland, pasture, and woodland), Great Miami River at New Baltimore (mostly row crops but some urban areas, pastures, and woodland), Cuyahoga River at Independence (pasture and woodlands in the headwaters and extensively urbanized and industrialized metropolitan area downstream), and Grand River near Painesville (orchard and nursery crops and some urban and industrial areas).

Water year 1990 was, according to the Ohio Department of Natural Resources, the seventh wettest year in 107 years of recordkeeping. Because water year 1990 was unusually wet, the mean instantaneous discharges for 1990 at each of the four sites in fig. 3 are high compared to the median instantaneous discharges for the entire 11 years. Only the mean discharge for the Muskingum River was less than 75th percentile for the 11-year period. Mean discharges ranged from a low of 1,083 cubic feet per second at the Sandusky River site to a high of 9,985 cubic feet per second at the Muskingum River site; the 11-year medians were 723 and 6,718 cubic feet per second, respectively.

For water year 1990, concentrations of three selected chemical constituents are represented by solid circles on their respective box plots. Total-phosphorus concentrations generally were at or below the 11-year median concentration of 0.365 milligram per liter for the Great Miami River and 0.13 milligram per liter for the Cuyahoga River. Concentrations for the Great Miami River ranged from 0.20 to 0.6 milligram per liter. Concentrations for the Cuyahoga River ranged from 0.06 to 0.13 milligram per liter. Two of the six total-phosphorus concentrations measured in the Muskingum River were greater than the 11-year median of 0.1 milligram per liter; concentrations ranged from 0.041 to 0.12 milligram per liter. Total-phosphorus concentrations for the Sandusky River ranged from 0.08 to 0.21 milligram per liter; concentrations in two samples were greater than the 75th percentile.

Dissolved-oxygen concentrations for all four sites were greater than the 11-year median concentrations except for one concentration at the Great Miami River site and one concentration at the Cuyahoga River site. Median concentrations ranged from 8.0 milligrams per liter at the Muskingum River site to 10.0 milligrams per liter at the Great Miami River site. No concentrations below 4.0 milligrams per liter[2] were measured.

Nitrite plus nitrate concentrations differed among the four sites. Concentrations in the Muskingum and Cuyahoga Rivers did not vary greatly and were generally less than 3 milligrams per liter. Concentrations in the Sandusky River and the Great Miami River, however, were highly variable and ranged from 3.9 to 14.0 milligrams per liter.

Water-quality monitors at three of the NASQAN stations (fig. 3) continuously measure temperature, dissolved-oxygen concentration, pH, and specific conductance. Data from the three water-quality monitors were used to calculate annual median temperature, dissolved-oxygen concentration, pH, and specific conductance for water year 1990. These were compared with the average of annual medians from the 1982-89 reference period (fig. 4). Annual median specific conductance and temperature for 1990 were slightly less than the 1982-89 average at all three sites, but annual median dissolved-oxygen concentration for 1990 was higher than average at all three sites. Annual median pH for 1990 was slightly higher than the 1982-89 average at the Maumee River and Scioto River sites, although it was about average at the Cuyahoga River site.

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[2]The Ohio Environmental Protection Agency dissolved-oxygen standard for warmwater habitat.

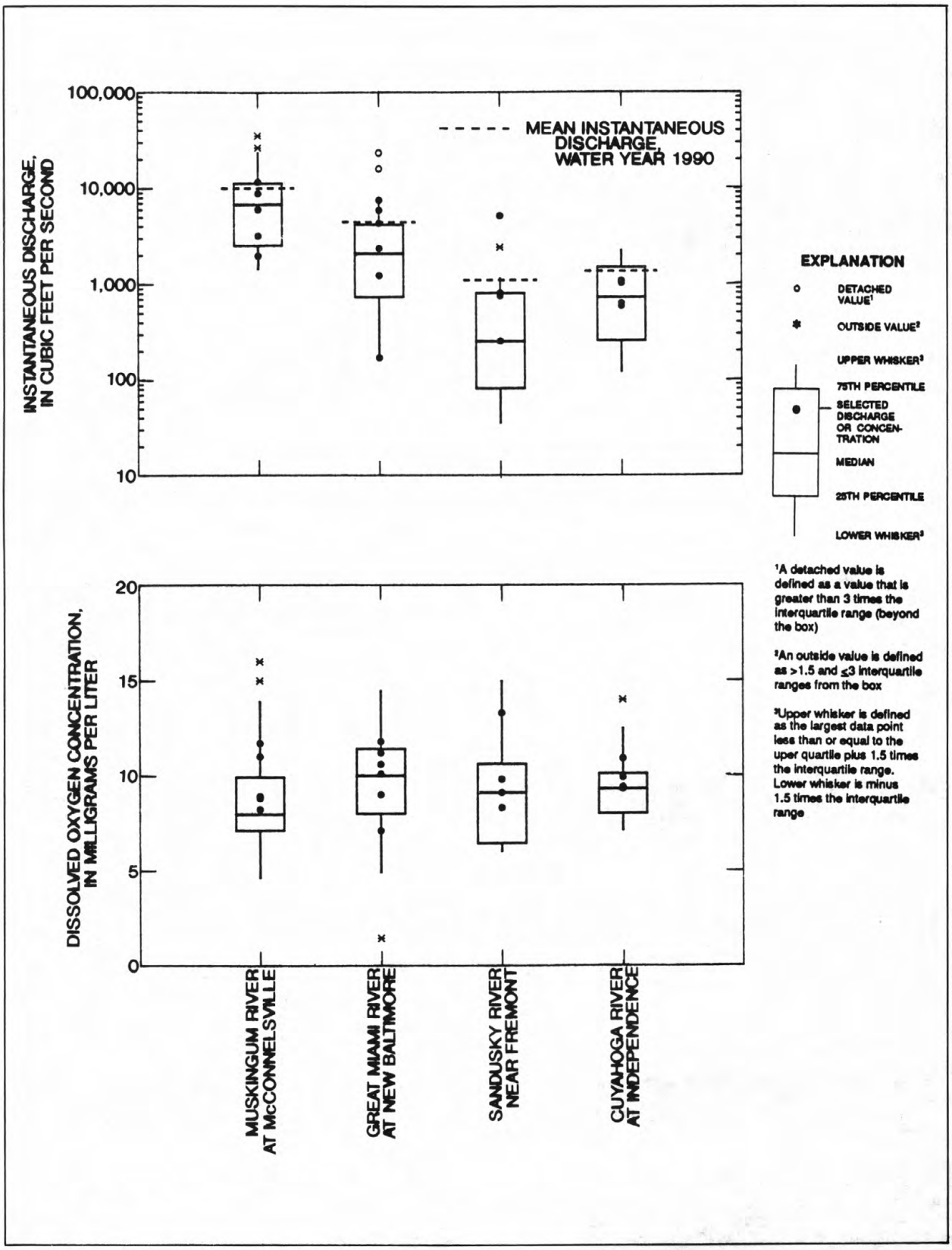

Figure 3.--Discharge and chemical concentrations measured in water year 1990 and the distribution of those constituents from measurements made during 1980-90 at selected NASQAN sites.

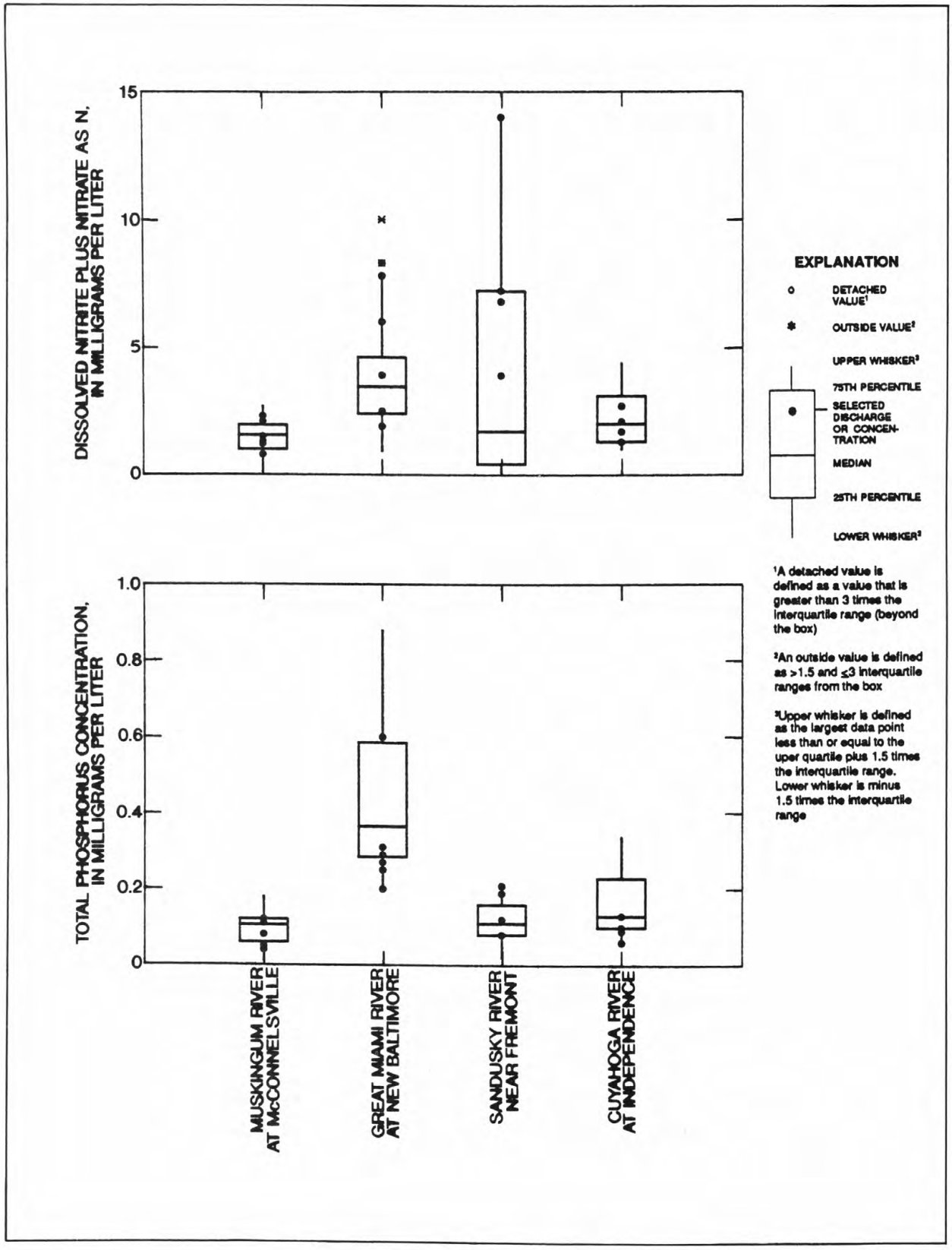

Figure 3.-- Discharge and chemical concentrations measured in water year 1990 and the distribution of those constituents from measurements made during 1980–90 at selected NASQAN sites--Continued.

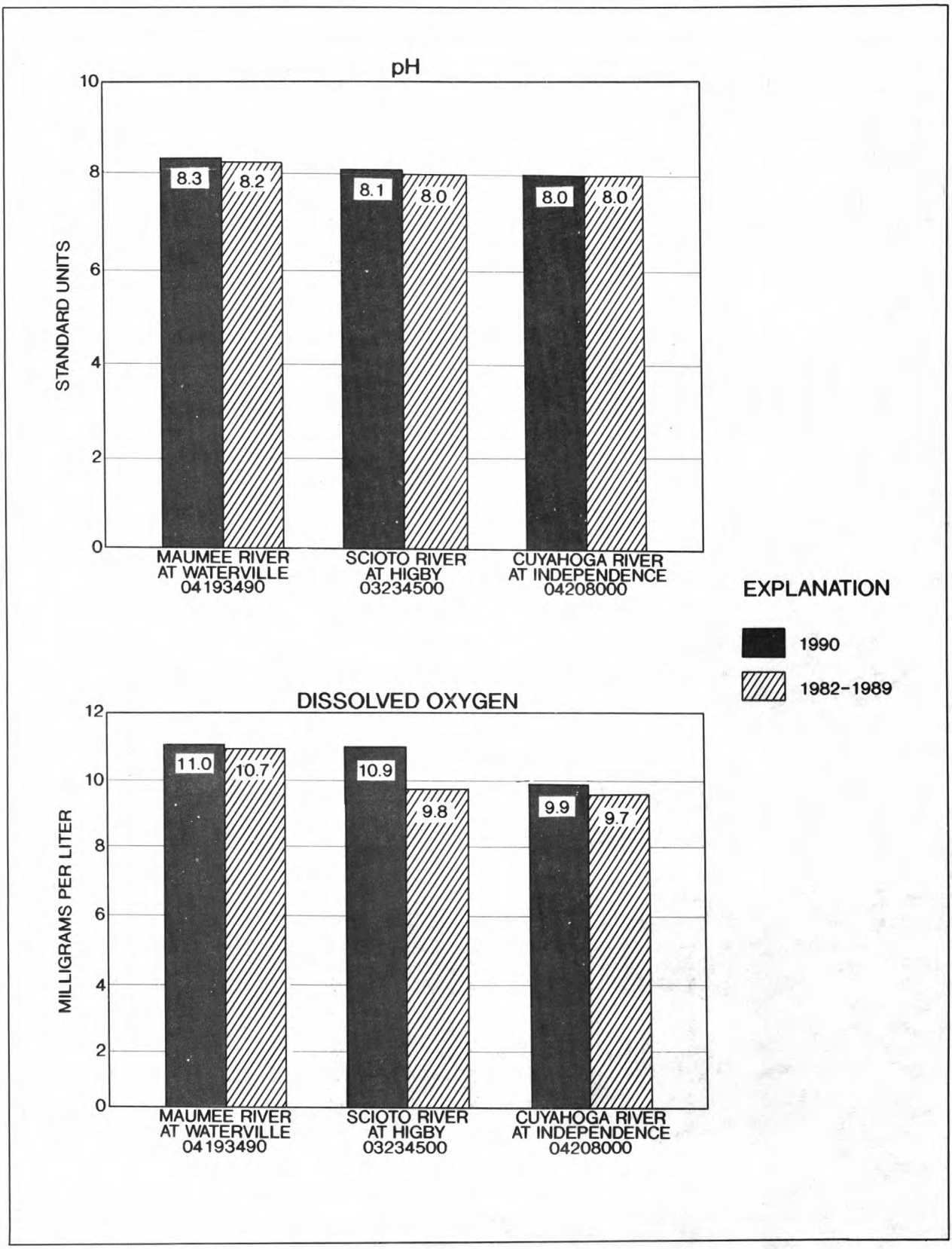

Figure 4.-- Comparison of 1990 mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982-1989 for three water-quality-monitor index stations in Ohio.

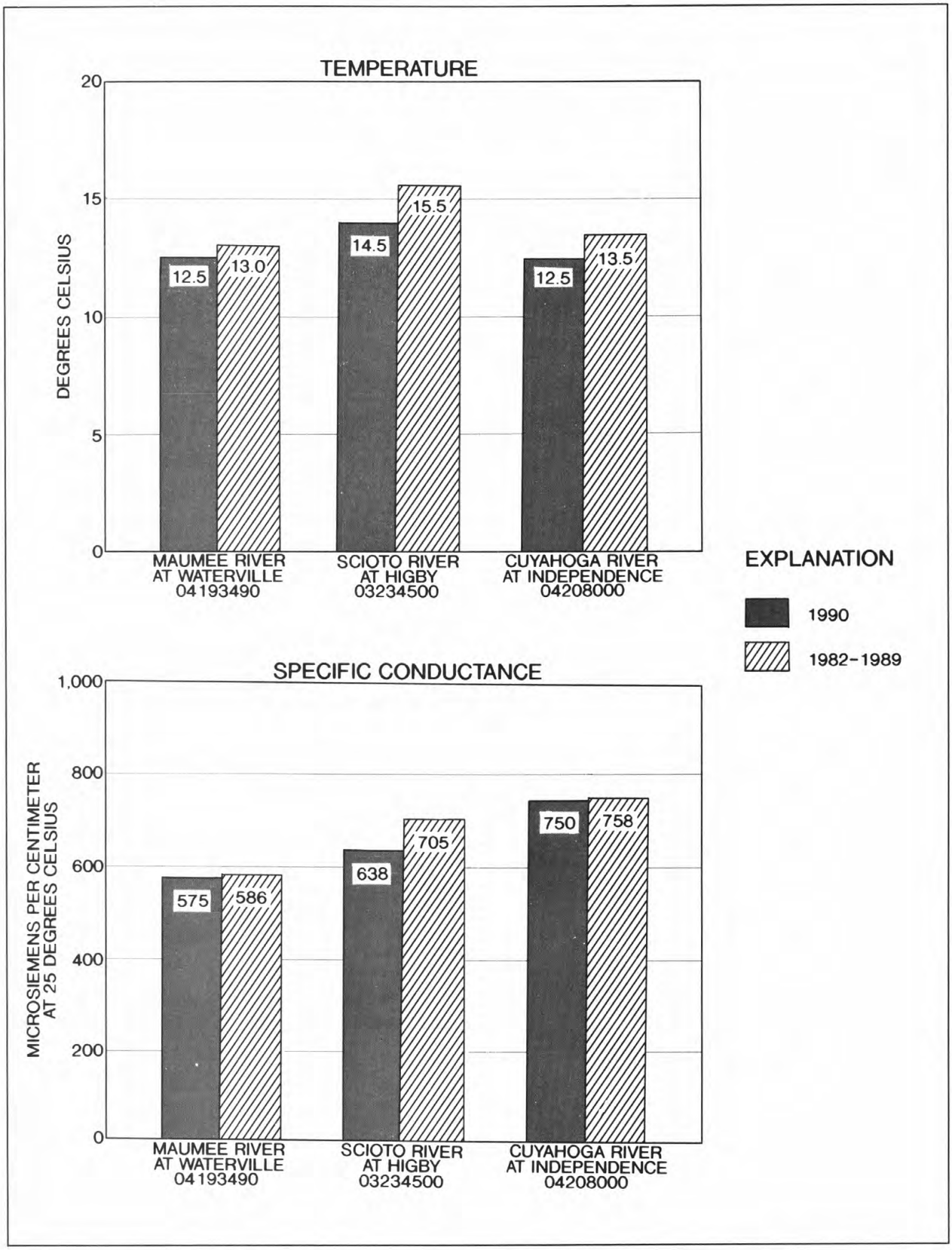

Figure 4.-- Comparison of 1990 mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982-1989 for three water-quality-monitor index stations in Ohio--Continued.

Ground Water

Ground water serves the needs of 42 percent of Ohio's population. An estimated 740 million gallons of ground water per day is withdrawn for domestic, industrial, and agricultural purposes. Many people in Ohio depend on ground water as the only practical source of supply.

Ohio's unconsolidated aquifers are composed of either coarse- or fine-grained sediments. Both types are composed mainly of materials of glacial origin. The coarse-grained unconsolidated aquifers generally consist of highly permeable sand and gravel; much of the sand and gravel is alluvium derived from glaciofluvial outwash along the courses of some modern streams; thus, these aquifers sometimes are referred to as "watercourse" aquifers. Coarse-grained unconsolidated aquifers in the northwestern corner of the State (fig. 5) underlie glacial till, are locally confined under artesian pressure and are highly productive. Extensive kame-terrace deposits of water-bearing gravel and sand are widely used ground water sources in northeastern Ohio. The fine-grained unconsolidated aquifers are similar to the coarse-grained unconsolidated aquifers in form and origin but are less permeable because of higher percentages of mixed fine sand, silt, and clay. Included in the fine-grained unconsolidated aquifers are tills that contain thin or localized stratified lenses of sand and gravel.

Ground-water supply for much of the unglaciated upland area of southeastern Ohio is from bedrock aquifers composed of shaly sandstone and thin limestone. These strata, which range from Mississippian to Permian in age, are dominated by low-yielding shales and shaly sandstones that include numerous coal-bearing strata. In some places, small water supplies are available from fractured coal beds. Several sandstone aquifers in northeastern Ohio are of regional extent and are major ground-water sources for individual and small public supplies. These include the Berea and Black Hand Sandstones of Mississippian age and several sandstone members of the Pottsville and Allegheny Formations of Pennsylvanian age. The Lake Erie coastline of northeastern Ohio is underlain by shale of Devonian and Mississippian age (fig. 5) that yields only small amounts of water to wells. Silurian-age limestone and dolomite and Devonian limestone comprise the carbonate aquifer system (fig. 5) of much of western Ohio. Glacial cover is uneven and consists of valley fill and terminal moraine in some places. The northeastern part of western Ohio contains an area of high-yielding wells that tap a preferentially weathered zone, which developed when carbonate section was periodically exposed as land mass during the Paleozoic Era. The southwestern corner of Ohio near Cincinnati is underlain by shale and a thin limestone aquifer of Ordovician age. Away from the watercourse (coarse unconsolidated) aquifers that traverse the area, the rocks that form the uplands yield only very small amounts of ground water.

Ground-Water Levels

Most of the ground-water observation wells in Ohio tap unconsolidated sand and gravel aquifers in buried valleys of watercourse systems associated with the State's principal streams. Sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated sand-and-gravel aquifer are shown in figure 6. The observation-well network also includes some bedrock wells in areas where consolidated aquifers are heavily used water supplies, such as the carbonate-rock region of northwestern Ohio and various sandstone units of eastern Ohio. Sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer are shown in figure 7. The yearly low for most wells occurs during the winter months, especially in cold, dry years or near the end of the growing season. Highs for the year usually occur from March through June, which is the peak of the recharge season. The yearly water-level fluctuation due to climatic conditions in water-table and confined-aquifer wells is commonly 3 to 5 ft.

Ground water levels at the beginning of the 1990 water year were predominantly normal to above normal[3] throughout the State with the exception of sand and gravel aquifers in areas of below-average precipitation. This condition prevailed until December when below average precipitation and temperatures caused declines into the normal or below-normal range through January. Ground-water levels returned to normal or above normal in February in response to well above average precipitation. Generally, normal to below normal levels prevailed through April. Higher than average precipitation in May caused ground-water levels to return to the normal or above-normal range. Seasonal declines prevailed for the remainder of the year, but ground-water levels generally remained above or near normal.

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[3]For ground-water levels, "normal" is defined as being between the 25th and 75th percentiles of the range of values recorded during the reference period 1960-75.

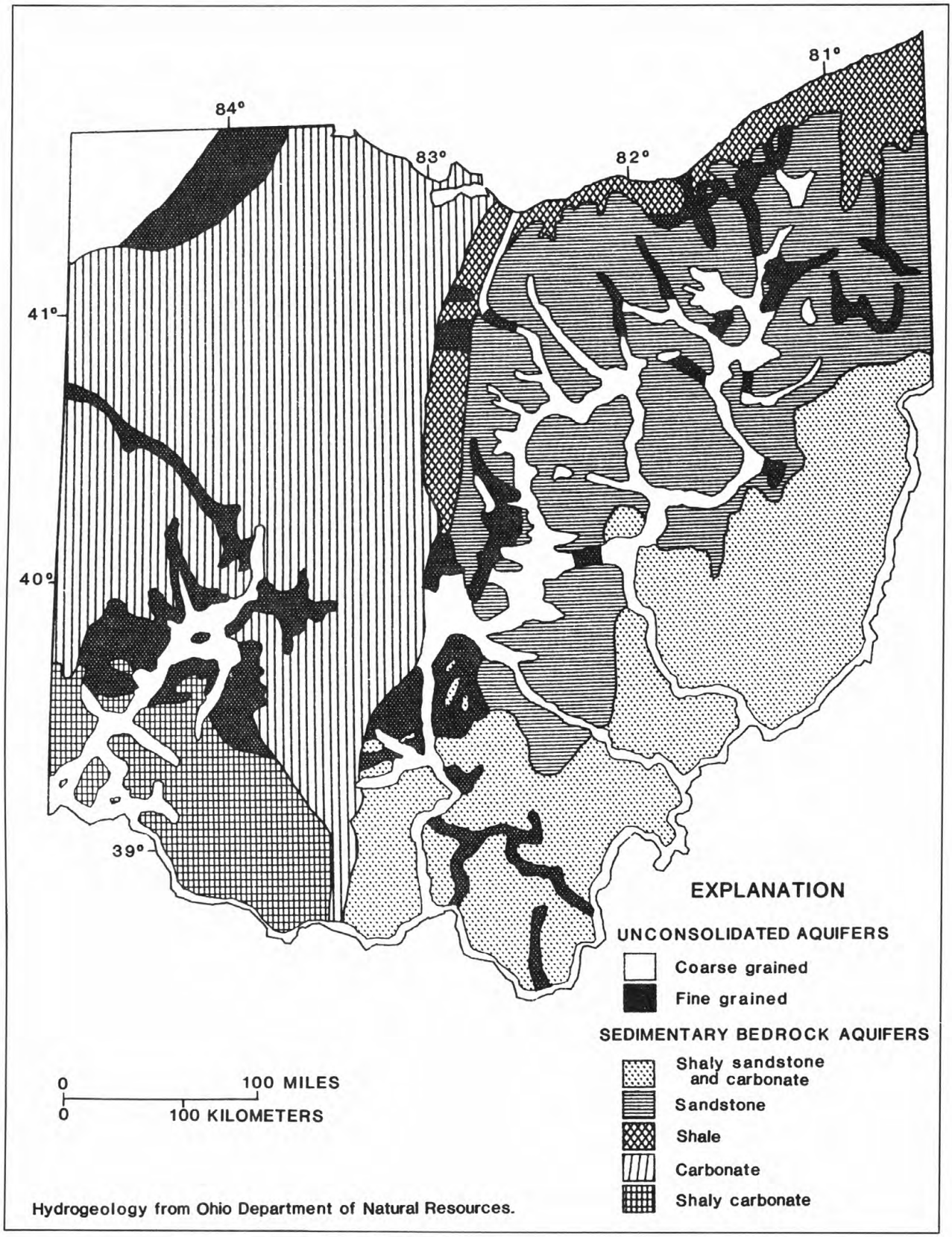
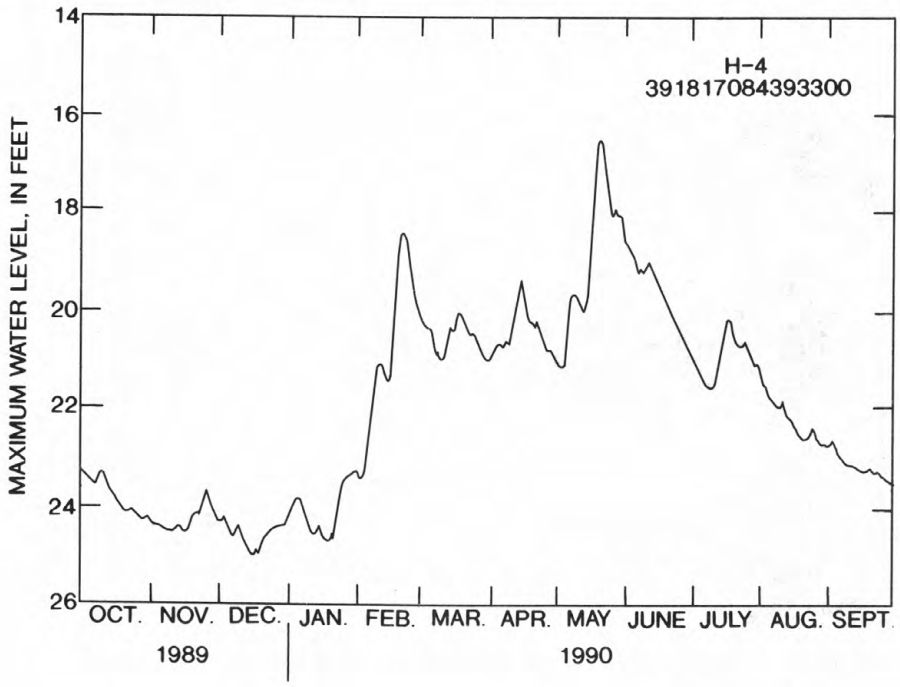


Figure 5.--Geographic distribution of principal aquifers in Ohio.



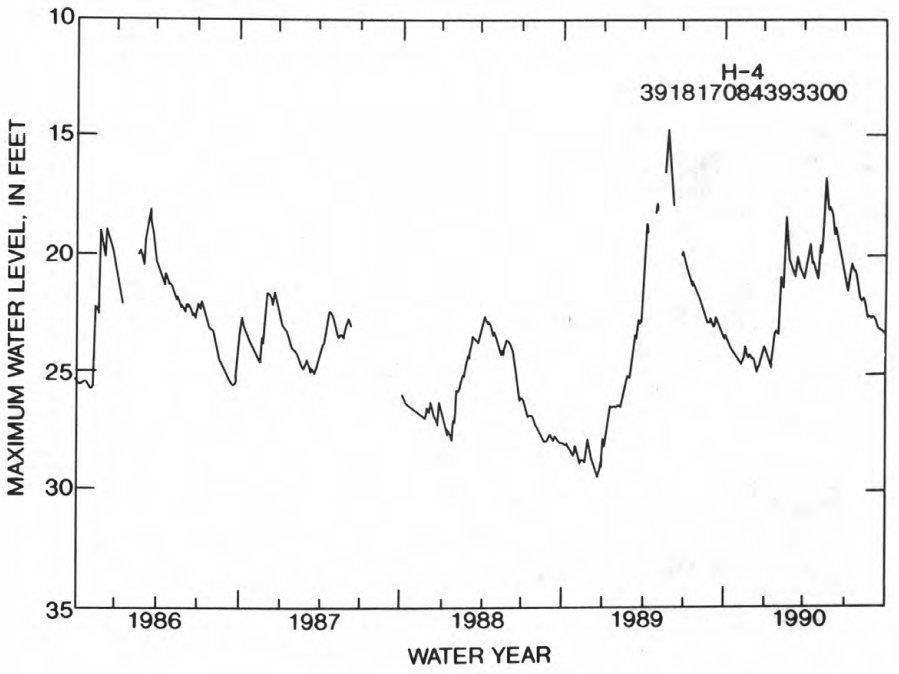
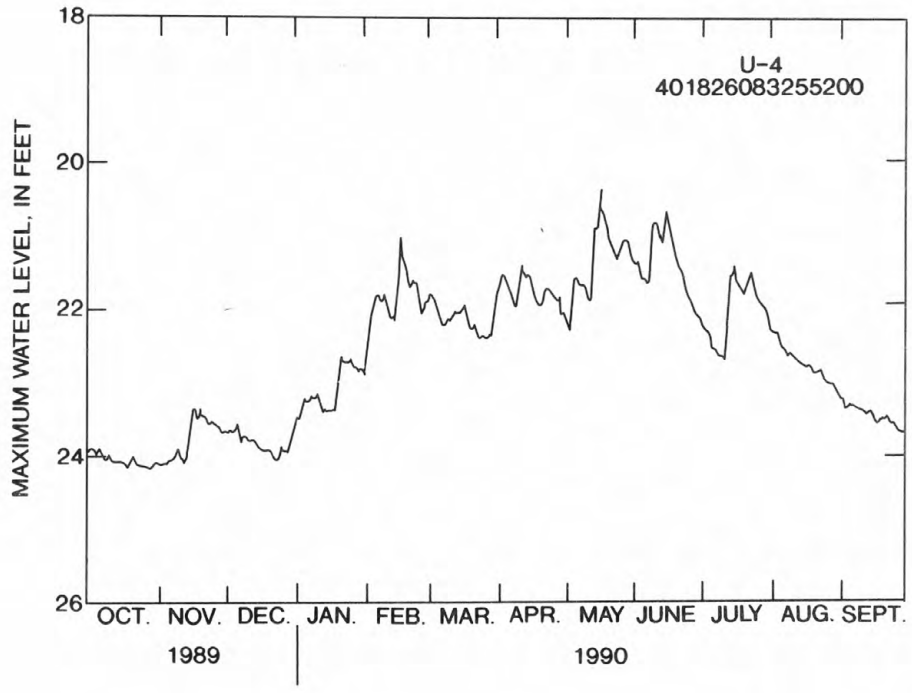


Figure 6.--Sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated aquifer.



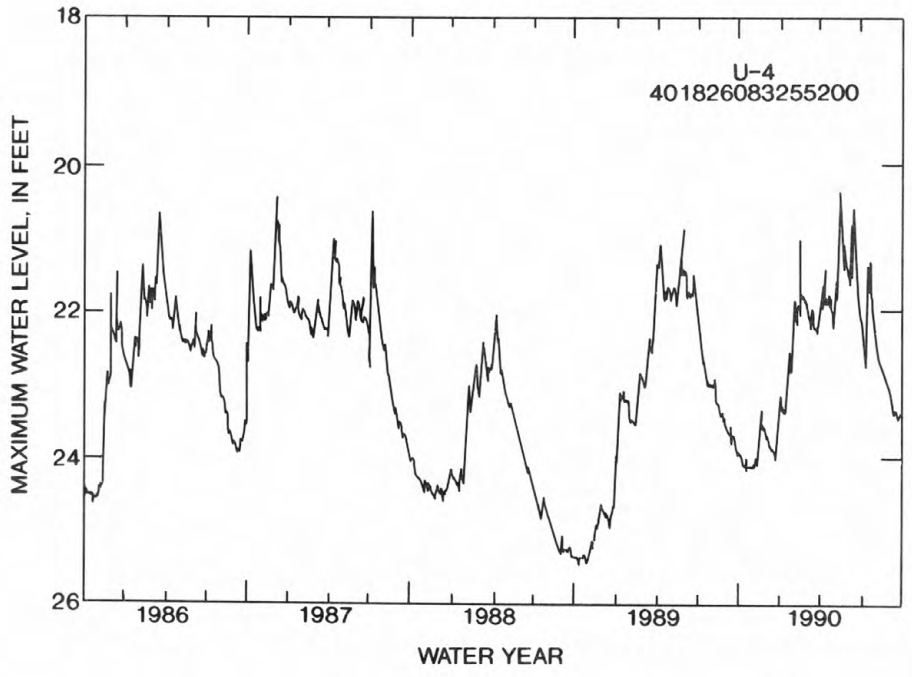


Figure 7.--Sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer.

SPECIAL NETWORKS AND PROGRAM

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

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

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

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The records in this report are for the 1987 water year that began October 1, 1986 and ended September 30, 1987. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order System

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station such as 04041000, which appears just to the left of the station name, includes the two-digit part number "04" plus the six-digit downstream order number "041000". The part number designates the major river basin; for example, part "03" is the Ohio River Basin, and part "04" is the St. Lawrence River Basin.

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[2] For ground-water levels, "normal" is defined as being between the 25th and 75th percentiles of the range of values recorded during the reference period 1960-75.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial indentification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 8.)

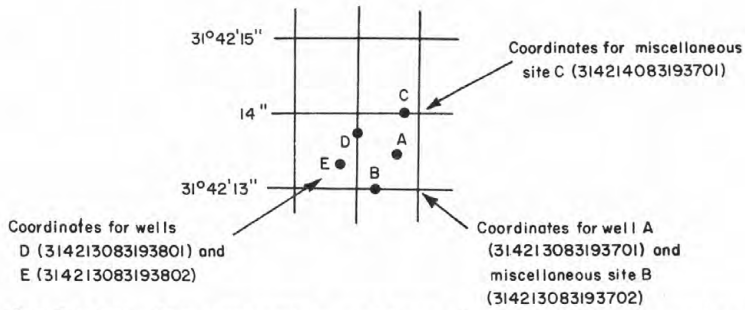

Figure 8.--System for numbering wells and miscellaneous sites (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharge may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir contents, 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 mean daily discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of a partial record is indicated by table titles such as "crest-stage partial records," or "low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage stations for which data are given in this volume are shown in figure 9.

Data Collection and Computation

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

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage, or with digital recorders that punch stage values on paper tapes or store stage data on cassette 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, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

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

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curve 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 relation 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.

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at the 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.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or contents. 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 U.S. Geological Survey.

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

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

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

Manuscript information for lakes 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 is often expressed in cubic feet per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are usually presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second, when collected, is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in time of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of 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 hundredths 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 three 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 other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Records of discharge, ground-water, reservoir contents, and water-quality not published by the Geological Survey are collected in Ohio at several sites by State and other Federal agencies. The National Water Data Exchange (NAWDEX), U.S. Geological Survey, Reston, VA 22092, maintains an index of these sites as well as an index of records of discharge collected by other agencies but not published by the Geological Survey. Information on records at specific sites can be obtained from that that office upon request.

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

Records of Surface-Water Quality

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

Classification of Records

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

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recording; however, because of cost, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this volume are shown in figure 9.

Arrangement of Records

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

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern is 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 on site 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 sample to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations" (TWRI), Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed on p. 21-22 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

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

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

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

Water Temperatures

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

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

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharge for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge values differ from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

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

Laboratory Measurements

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

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

Data Presentation

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

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

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

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

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

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

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

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 and minimums may not have been sampled. Extremes, when given, are 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 remarks 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 acceptable range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organisms may be observed rather than counted)
M	Presence of material verified but not quantified
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Water-level data from a network of observation wells (as well as project wells) are given in this report. The network well data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Ohio are shown in figure 9. Water-level data for specific projects are reported under those projects.

Data Collection and Computation

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

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is a 15-digit number that is based on latitude and longitude. The secondary identification number is the local well number, which is provided for local needs.

Water-level measurements in this report are given in feet with reference to land-surface datum (LSD). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in each well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description.

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

Data Presentation

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

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

AQUIFER.--This entry describes the aquifer by age and composition.

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

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

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

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

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

A table of water levels follows the station description for each well. Water levels are reported in feet below (or above) land-surface datum. All periodic measurements of water levels for wells are listed. For wells equipped with recorders, daily water-level lows are published. The highest and lowest daily water levels of the water year are shown on a line below the table. Because only daily lows are published for wells with recorders, the extreme instantaneaous high may be a value that is not listed in the table. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that, for most sampling sites, they consist of only one set of measurements. The quality of ground water ordinarily changes slowly, so that frequent measuring of the same parameter is not necessary unless one is concerned with a particular problem such as monitoring for trends of a particular constituent.

Data Collection and Computation

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

Most methods for collecting and analyzing water samples are described in the TWRI manuals listed on p. 21-22. The data presented in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and the material comprising the casings.

Data Presentation

The records of ground-water quality are published intermixed with the ground-water-level data for network wells and with the specific project for project wells.

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, VA.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices. (See address given on the back of the title page.)

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, VA 22092

DEFINITION OF TERMS

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

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

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

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

Algal growth potential (AGP) is the maximum dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

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

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

Cubic foot per second (cfs, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

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

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

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

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

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

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

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

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

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

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

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

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

Hydrologic Index Stations, in this report, refers to four continuous record gaging stations that have been selected as representative of streamflow patterns for their respective regions of Ohio. Station locations are shown in figure 1.

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

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

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

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

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Microgram per kiligram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (kilogram) of bottom material.

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

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

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

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

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

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

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

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

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

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

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

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

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	0.004 - 0.062	Sedimentation.
Sand.....	0.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

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

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

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

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

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

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

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

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

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

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

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

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

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2/time)] for periphyton and macrophytes and [mg C/(m^3/time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2/time)] for periphyton and macrophytes and [mg O_2/(m^3/time)] for phytoplankton are the units for expressing primary productivity. They diffine production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

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

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45-micrometer filter.

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

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

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

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms

have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....Animal
Phylum.....Arthropoda
Class.....Insecta
Order.....Ephemeroptera
Family.....Ephemeridae
Genus.....Hexagenia
Species.....Hexagenia limbata

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

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

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

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

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

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

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

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published after 1975.

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

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

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

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

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

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

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3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3. Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

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3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

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3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.

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3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow*, by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.

3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

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4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

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5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

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5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

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7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

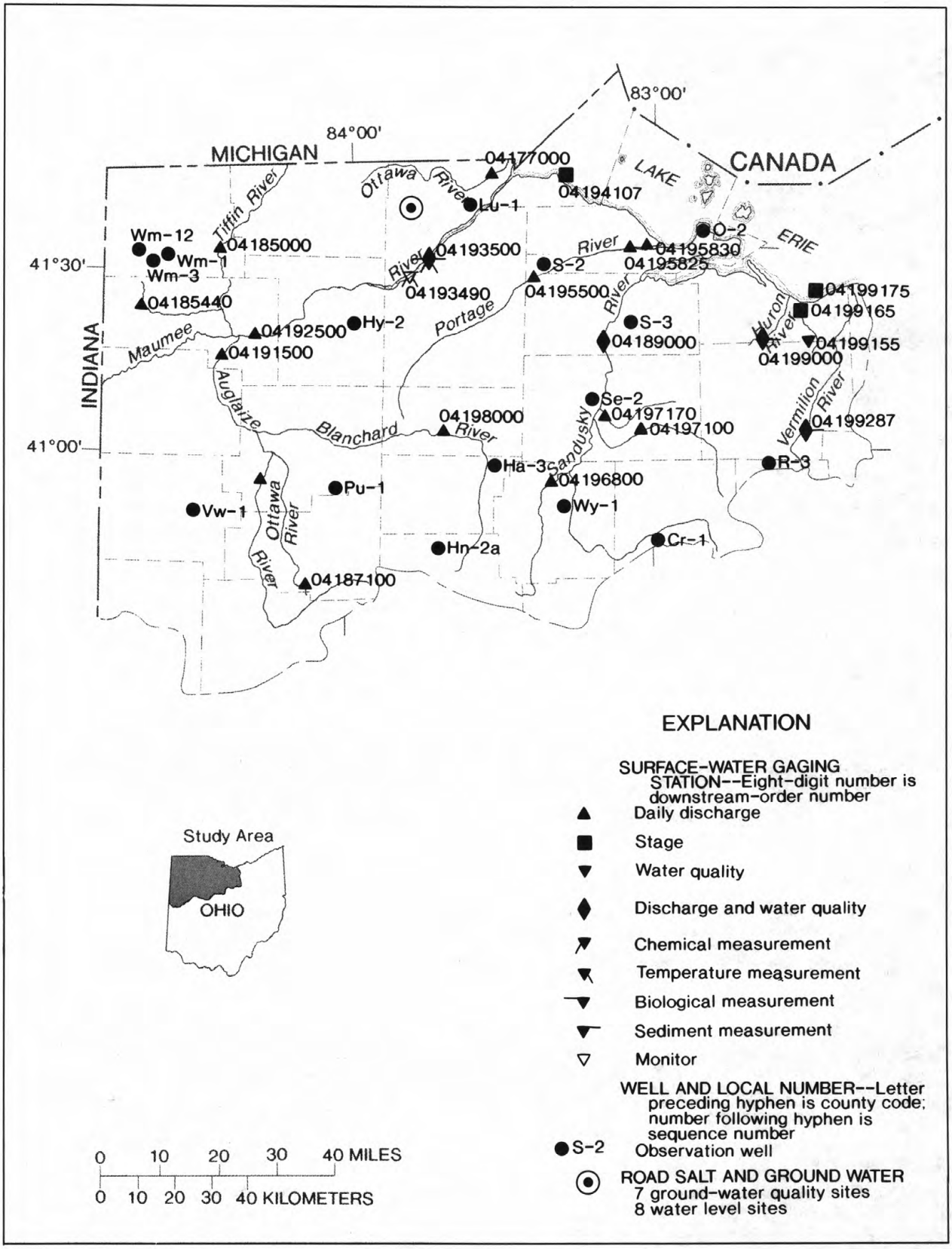


Figure 9a.--Location of data-collection stations.

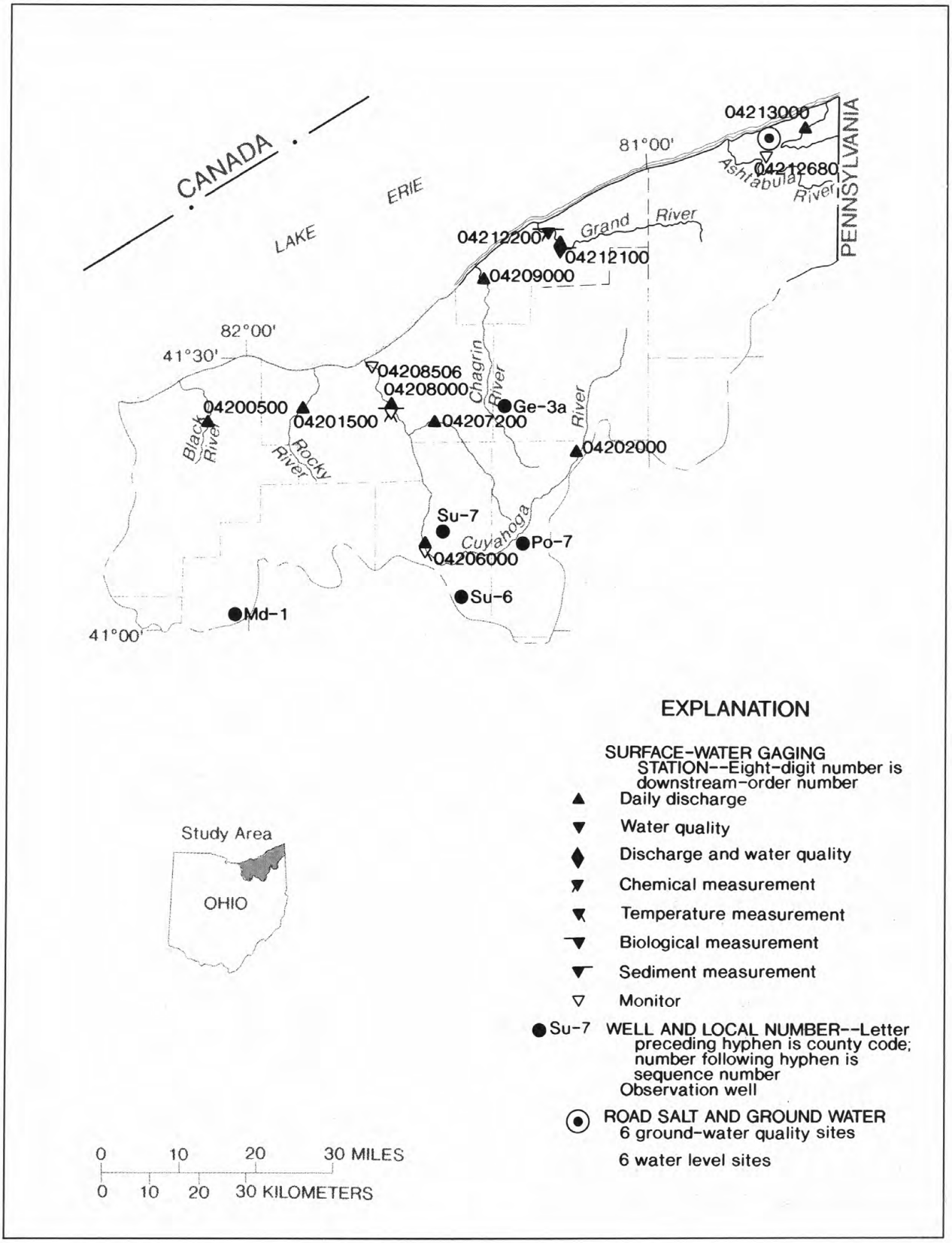


Figure 9b.--Location of data-collection stations.

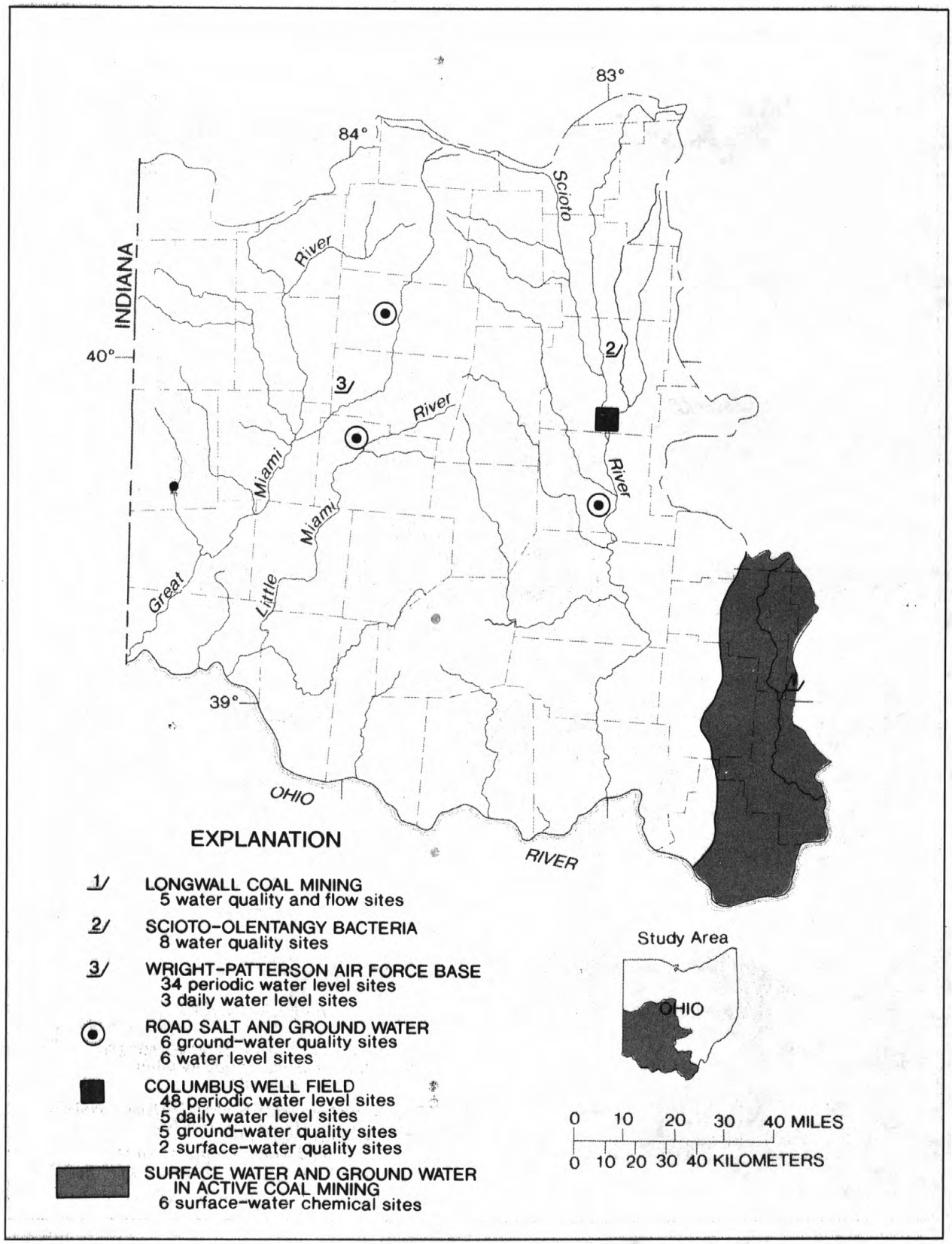


Figure 9c.--Location of data-collection stations for projects, Ohio River basin.

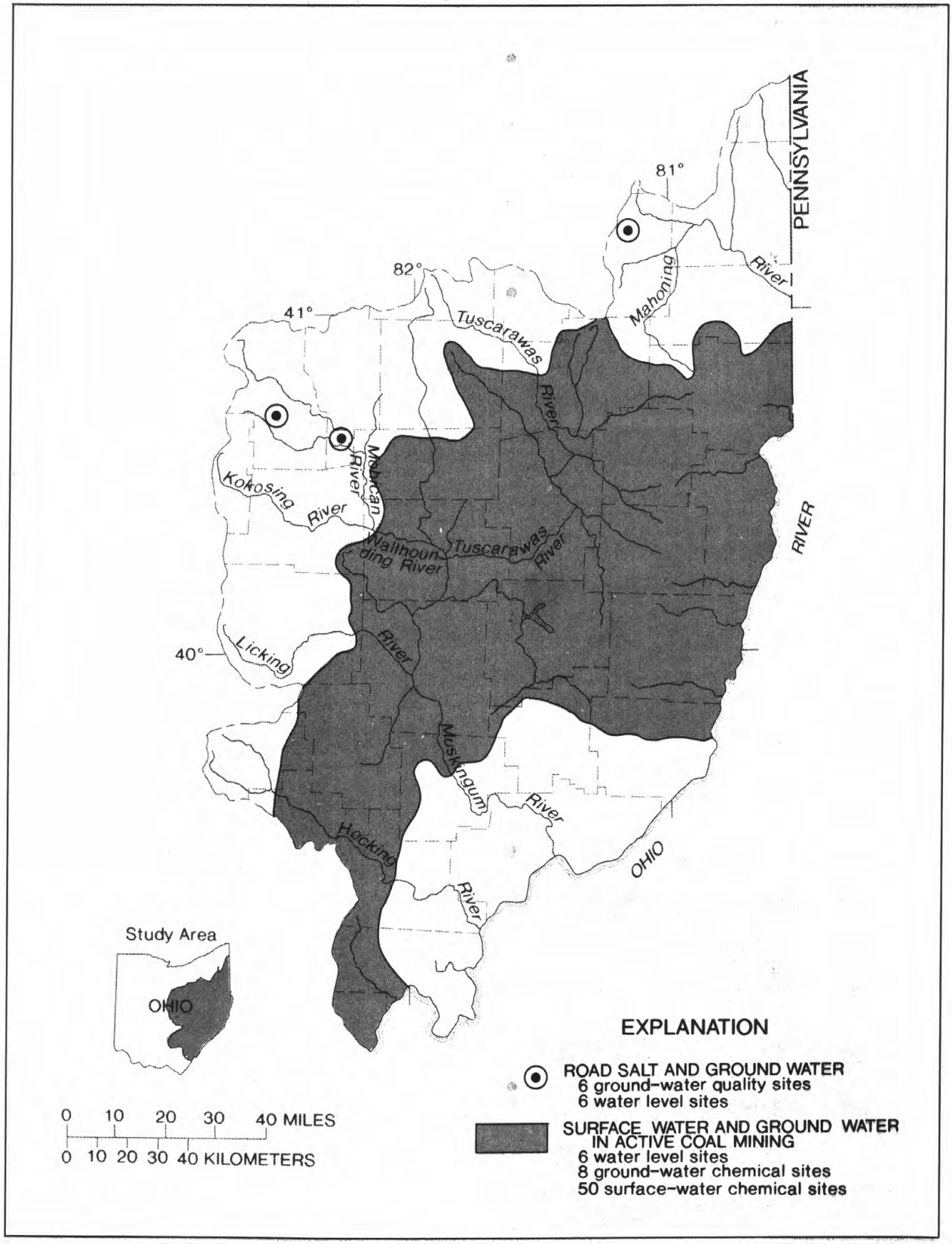


Figure 9d.--Location of data-collections stations for projects, Ohio River basin.

STREAMS TRIBUTARY TO LAKE ERIE

04177000 OTTAWA RIVER AT TOLEDO UNIVERSITY, TOLEDO, OH

LOCATION.--Lat 41°39'36", long 83°36'44", in NE 1/4 sec. 32, T.9 S., R.7 E., Lucas County, Hydrologic Unit 04100001, on left bank at auto bridge at Toledo University, Toledo, Ohio., 0.4 mi downstream from Deline Ditch, 5.6 mi upstream from Sibley Creek, and 10.9 mi upstream from mouth.

DRAINAGE AREA.--150 mi². Area at site used prior to Sept. 30, 1948, 150 mi², revised.

PERIOD OF RECORD.--March 1945 to September 1948 (published as "Tenmile Creek at Toledo"), August 1976 to current year.

REVISED RECORDS.--WSP 1307: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 576.28 ft above National Geodetic Vertical Datum of 1929. (From Aug. 1976 to July, 1979 at site 500 ft downstream. Prior to Sept. 30, 1948 water-stage recorder at site 2,500 ft upstream at datum 3.72 ft higher.

REMARKS.--Estimated daily discharges: Dec. 6-Jan. 3. Records good except estimated daily discharges which are fair. Water-quality data collected at this site 1977.

AVERAGE DISCHARGE.--17 years (1946-48, 1977-90) 126 ft³/s, 11.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,950 ft³/s Mar. 14, 1982, gage height, 14.54 ft; minimum, no flow Aug. 24 to Sept. 19, 1945, July 7-15, Aug. 12-15, Sept. 1-9, 16-22, Oct. 5-10, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1943 reached a stage of 15.1 ft present datum, from floodmark, Lucas County Sanitary Engineers, discharge, 3,400 ft³/s. Flood of Apr. 25, 1950 reached a stage of 15.0 ft present datum, from floodmark, discharge, 3,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	0400	1,160	9.10	May 17	1400	1,570	10.36
Feb. 24	0300	*2,830	*12.97				

Minimum daily discharge, 4.9 ft³/s Sept. 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	13	36	9.2	65	348	300	44	37	36	7.3	8.1
2	12	10	34	9.0	400	309	300	41	41	30	9.6	8.0
3	12	9.5	31	3.0	980	312	247	38	119	23	7.9	7.0
4	11	9.6	28	162	526	225	174	151	64	15	13	6.7
5	10	9.4	27	332	277	166	136	375	54	12	16	9.2
6	14	12	22	183	235	116	104	300	47	12	9.2	8.7
7	13	13	20	104	256	100	84	133	39	11	6.7	43
8	12	14	19	80	228	102	74	87	59	11	8.0	12
9	11	14	18	73	177	288	68	69	78	11	6.3	10
10	25	11	17	141	138	699	218	66	79	10	6.7	6.8
11	15	10	16	172	109	947	785	59	52	37	8.1	5.3
12	11	10	15	120	84	650	604	60	44	31	48	4.9
13	11	9.5	14	85	71	362	253	218	36	15	191	7.0
14	12	21	14	70	74	241	186	577	38	34	26	35
15	16	128	13	55	93	184	158	279	31	23	21	32
16	15	172	13	55	140	292	125	731	26	13	16	20
17	23	142	12	178	220	375	104	1440	25	13	12	11
18	22	77	12	826	190	224	83	1180	23	12	13	8.1
19	61	56	12	996	213	180	72	460	21	10	82	25
20	33	48	11	436	201	139	92	245	17	17	28	12
21	27	44	11	326	155	115	148	152	19	7.2	37	9.5
22	21	41	11	306	1130	110	144	102	35	52	20	13
23	18	35	10	285	2540	112	116	81	39	23	18	8.4
24	16	32	10	247	2160	89	92	70	27	12	17	8.0
25	14	30	10	224	825	79	79	73	23	11	14	8.2
26	12	31	10	217	689	74	71	105	18	11	12	7.0
27	11	30	9.9	149	497	67	65	75	17	8.5	24	7.2
28	11	59	9.7	115	406	63	60	65	61	8.0	10	8.4
29	11	43	9.6	94	---	63	55	57	40	9.5	12	8.1
30	11	40	9.5	82	---	177	50	48	50	20	12	7.8
31	17	---	9.4	71	---	241	---	41	---	16	10	---
TOTAL	519	1174.0	494.1	6205.2	13079	7449	5047	7422	1259	554.2	721.8	365.4
MEAN	16.7	39.1	15.9	200	467	240	168	239	42.0	17.9	23.3	12.2
MAX	61	172	36	996	2540	947	785	1440	119	52	191	43
MIN	10	9.4	9.4	3.0	65	63	50	38	17	7.2	6.3	4.9
CFSM	.11	.26	.11	1.33	3.11	1.60	1.12	1.60	.28	.12	.16	.08
IN.	.13	.29	.12	1.54	3.24	1.85	1.25	1.84	.31	.14	.18	.09

CAL YR 1989 TOTAL 35554.1 MEAN 97.4 MAX 1720 MIN 9.4 CFSM .65 IN. 8.82
WTR YR 1990 TOTAL 44289.7 MEAN 121 MAX 2540 MIN 3.0 CFSM .81 IN. 10.98

STREAMS TRIBUTARY TO LAKE ERIE

04185000 TIFFIN RIVER AT STRYKER, OH

LOCATION.--Lat 41°30'16", long 84°25'47", in SE 1/4 sec. 5, T.6 N., R.4 E., Williams County, Hydrologic Unit 04100006, on left bank 0.5 mi downstream from bridge on State Highway 191 at west edge of Stryker, 0.6 mi upstream from Penn Central bridge, and 1.6 mi downstream from Leatherwood Creek.

DRAINAGE AREA.--410 mi².

PERIOD OF RECORD.--September 1921 to September 1928 (published as "near Stryker"), October 1940 to current year.

REVISED RECORDS.--WSP 1144: 1922-28. WSP 1387: 1925. WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 685.1 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1928, nonrecording gage at site 3.5 mi downstream at different datum. Oct. 13, 1940 to Jan. 17, 1941, nonrecording gage and Jan. 18, 1941 to Sept. 30, 1953, water-stage recorder, at site 0.5 mi downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 6-Jan. 17 and Feb. 18-21. Records fair. Small diversion 12.5 mi upstream from gage for municipal supply of Archbold. Diversion averaged 2.26 ft³/s is returned as sewage to Brush Creek which flows into Tiffin River about 15 mi downstream from station. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1969 to 1974.

AVERAGE DISCHARGE.--57 years, 328 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,800 ft³/s Mar. 15, 1982, gage height, 18.36 ft; minimum daily discharge, 2.5 ft³/s July 18, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 16.0 ft, from floodmarks, discharge, 7,600 ft³/s. Flood in 1937 reached a stage of 15.0 ft, from information by local resident, discharge, 6,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,850 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 24	1400	*5,030	*15.87	May 18	0300	3,430	14.33
Mar. 13	0200	2,430	12.95				

Minimum daily discharge, 29 ft³/s Sept. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	69	192	35	277	1920	483	163	131	578	37	60
2	41	70	168	35	659	1590	588	148	118	350	35	49
3	38	68	153	60	1150	1270	605	133	245	224	36	41
4	36	65	136	100	1310	1090	570	171	530	163	37	36
5	34	63	140	300	1380	979	481	485	667	127	41	33
6	34	62	115	700	1230	818	380	566	595	103	41	31
7	35	64	95	800	955	594	311	473	359	87	45	33
8	35	66	85	700	801	434	271	313	261	76	43	37
9	35	75	78	600	714	481	246	239	448	69	37	36
10	36	119	71	650	624	920	346	198	558	63	33	36
11	38	128	66	700	563	1770	940	175	387	61	38	34
12	44	117	63	500	500	2280	1090	152	231	68	48	31
13	44	102	59	400	418	2400	1200	357	172	67	200	29
14	44	89	57	350	358	2260	1110	757	142	118	450	31
15	42	112	55	300	333	2030	858	937	125	171	383	41
16	43	419	52	290	477	1780	618	2060	109	145	216	45
17	42	694	50	500	640	1440	477	3200	96	118	128	45
18	44	766	48	1300	590	1210	371	3310	87	91	94	43
19	51	671	47	1440	540	1030	306	2720	76	76	75	41
20	59	478	46	1500	500	799	275	2200	70	70	71	42
21	73	359	44	1440	450	598	356	1720	67	72	85	42
22	86	337	43	1180	1600	474	484	1140	72	90	127	44
23	103	312	42	891	3940	406	495	615	130	143	152	52
24	105	260	41	698	4860	379	397	353	148	123	156	80
25	102	221	40	638	3980	380	322	261	127	99	127	85
26	93	198	39	723	3420	352	273	284	96	77	103	75
27	85	183	38	769	2780	314	245	290	77	61	85	63
28	77	220	37	681	2250	281	225	263	146	53	73	52
29	72	247	37	515	---	260	204	222	586	48	78	45
30	71	212	36	404	---	286	182	182	726	44	86	39
31	70	---	35	323	---	382	---	151	---	40	80	---
TOTAL	1756	6846	2208	19522	37299	31207	14709	24238	7582	3675	3240	1351
MEAN	56.6	228	71.2	630	1332	1007	490	782	253	119	105	45.0
MAX	105	766	192	1500	4860	2400	1200	3310	726	578	450	85
MIN	34	62	35	35	277	260	182	133	67	40	33	29

CAL YR 1989 TOTAL 121923 MEAN 334 MAX 5280 MIN 29
WTR YR 1990 TOTAL 153633 MEAN 421 MAX 4860 MIN 29

STREAMS TRIBUTARY TO LAKE ERIE

04185440 UNNAMED TRIBUTARY TO LOST CREEK NR FARMER, OH

LOCATION.--Lat 41°21'42", long 84°41'28", Defiance County, Hydrologic Unit 04100006, on right bank 400 ft above bridge on Rosedale Rd., 0.5 mi above mouth and 2.0 mi from Farmer.

DRAINAGE AREA.--4.23 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 760 ft above National Geodetic Vertical Datum of 1929 from topographic map.

REMARKS.--Estimated daily discharges: Dec. 10-31, Jan. 1, 2, 5-9, 27-31, Feb. 1, Aug. 13-20. Records fair except for periods of estimated daily discharges which are poor.

AVERAGE DISCHARGE.--5 years, 4.57 ft³/s, 14.67 in./yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 757 ft³/s Oct. 3, 1987, gage height, 5.74 ft; minimum discharge 0.00 ft³/s many days in 1987, 1988, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 120 ft³/s and maximum (*).

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 18	0300	161	3.52	May 17	1000	139	3.37
Feb. 22	1230	*636	*5.49	July 22	1345	206	3.80
Apr. 10	1900	145	3.41	Aug. 11	2100	285	4.21
May 16	1115	501	5.10				

Minimum daily discharge, 0.06 ft³/s Oct. 4, Dec. 24-Jan. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.07	.27	.06	.80	6.4	26	1.0	.76	.41	.25	.28
2	.07	.07	.25	.06	49	5.7	15	.96	.73	.29	.19	.26
3	.07	.07	.22	.21	13	4.9	6.7	.95	.76	.23	.17	.24
4	.06	.07	.21	33	11	3.0	4.0	11	.71	.27	.40	.26
5	.07	.07	.23	10	8.7	2.7	2.7	11	.61	.52	.57	.25
6	.07	.07	.22	2.5	9.0	2.2	5.3	3.7	.55	1.1	.28	.25
7	.07	.09	.17	1.5	6.5	1.8	1.9	2.2	.51	1.4	.21	.46
8	.08	.09	.15	1.0	4.1	1.7	1.7	1.7	28	1.5	.17	.42
9	.09	.08	.14	3.5	3.0	10	1.5	1.4	8.0	.97	.15	.31
10	.12	.08	.12	15	2.1	17	49	1.3	2.6	.51	.14	.27
11	.12	.07	.11	5.2	1.5	28	26	1.1	1.4	15	62	.25
12	.11	.07	.10	2.9	1.2	8.7	8.3	1.2	.94	4.7	148	.26
13	.10	.07	.09	1.5	1.1	4.8	4.8	22	.72	1.0	18	.25
14	.11	.09	.09	1.1	1.0	3.2	4.8	8.0	.62	1.4	8.4	.90
15	.11	9.7	.08	.97	12	2.4	4.1	4.5	.56	1.1	5.2	1.2
16	.13	22	.08	2.3	55	15	3.1	153	.44	.56	3.6	.65
17	.15	5.6	.07	30	25	5.2	2.4	60	.39	.37	2.6	.54
18	.17	1.7	.07	62	21	2.7	1.8	11	.32	.26	2.0	.37
19	.24	.96	.07	9.1	18	2.6	1.7	5.9	.28	.20	1.6	.60
20	.29	.83	.07	7.0	7.0	2.0	2.7	4.0	.31	5.4	1.2	.72
21	.32	.73	.07	11	4.2	1.7	19	2.4	.31	8.8	1.6	.45
22	.34	.53	.07	9.4	244	1.6	5.3	1.9	.77	66	1.1	.55
23	.28	.41	.07	6.4	44	1.6	3.1	1.5	.99	16	.89	.53
24	.24	.34	.06	7.3	17	1.3	2.3	1.2	.51	4.0	.74	.41
25	.20	.32	.06	6.2	9.4	1.2	1.9	1.3	.30	1.6	.62	.34
26	.19	.33	.06	4.1	8.0	1.0	1.6	16	.26	.95	.58	.30
27	.13	.30	.06	1.7	7.7	.93	1.5	3.7	.28	.69	.46	.27
28	.07	.38	.06	1.3	8.0	.89	1.4	1.9	2.2	.52	.41	.25
29	.07	.32	.06	1.0	---	.97	1.2	1.3	1.6	.40	.38	.25
30	.07	.28	.06	.90	---	30	1.1	1.0	.68	.35	.34	.25
31	.07	---	.06	.80	---	22	---	.86	---	.30	.31	---
TOTAL	4.28	45.79	3.50	239.00	592.30	193.19	211.9	338.97	57.11	136.80	262.56	12.34
MEAN	.14	1.53	.11	7.71	21.2	6.23	7.06	10.9	1.90	4.41	8.47	.41
MAX	.34	22	.27	62	244	30	49	153	28	66	148	1.2
MIN	.06	.07	.06	.06	.80	.89	1.1	.86	.26	.20	.14	.24
CFSM	.03	.36	.03	1.82	5.00	1.47	1.67	2.58	.45	1.04	2.00	.10
IN.	.04	.40	.03	2.10	5.21	1.70	1.86	2.98	.50	1.20	2.31	.11

CAL YR 1989 TOTAL 889.22 MEAN 2.44 MAX 89 MIN .00 CFSM .58 IN. 7.82
WTR YR 1990 TOTAL 2097.74 MEAN 5.75 MAX 244 MIN .06 CFSM 1.36 IN. 18.45

STREAMS TRIBUTARY TO LAKE ERIE

04186500 AUGLAIZE RIVER NEAR FORT JENNINGS, OH

LOCATION.--Lat 40°56'55", long 84°15'58", in SE 1/4 sec. 15, T.1 S., R.5. E., Putnam County, Hydrologic Unit 04100007, on left bank 200 ft upstream from bridge on U. S. Highway 224, 3.5 mi northeast of Fort Jennings, 6 mi upstream from Ottawa River, and 7.3 mi downstream from Jennings Creek.

DRAINAGE AREA.--332 mi².

PERIOD OF RECORD.--August 1921 to December 1935. October 1940 to current year.

REVISED RECORDS.--WSP 744: 1932. WSP 974: 1930(M). WSP 1307: 1922-24(M), 1926-27(M), 1929(M). WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 713.6 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 6, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 5-31, Mar. 16-Apr. 19. Records fair except for estimated discharges, which are poor. Beginning Jan. 4, 1971, water was diverted at a point 24.3 mi upstream from station into Lake Bresler. Storage in Lake Bresler is available for low-flow augmentation and water supply of city of Lima, in Ottawa River basin. Net withdrawal totaled 5,551 mil gal, equivalent to a mean withdrawal of 23.5 ft³/s. No releases have been made for low-flow augmentation. Some diversion from Grand Lake to Auglaize River basin through Miami and Erie Canal into Jennings Creek at a point 9.2 mi upstream from station. Annual figures of runoff are considered to be within 10 percent of natural yield. Sediment data collected at this site 1970 to 1974. Water-quality data collected at this site 1968 to 1978. National Weather Service gage height Handar telemeter at station.

AVERAGE DISCHARGE.--64 years, 284 ft³/s, 11.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 12,000 ft³/s Jan. 23, 1959; maximum gage height, 20.30 ft Jan. 23, 1959, from floodmark (ice jam); minimum daily discharge, .94 ft³/s Oct. 10, 11, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1630	4,540	13.80	July 23	1800	*6,950	*16.07
May 17	1730	3,110	11.74				

Minimum daily discharge, 16 ft³/s Oct. 15.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	35	83	1130	118	643	280	114	120	120	108	98
2	21	34	73	600	984	479	450	104	129	82	95	93
3	22	35	65	365	2470	412	330	95	1260	85	83	74
4	22	35	67	330	2150	343	240	137	1210	80	74	64
5	22	33	55	775	2140	269	185	739	468	67	74	59
6	23	35	50	617	1280	228	190	1070	249	60	292	55
7	21	39	47	301	694	181	140	524	203	55	252	57
8	20	46	43	180	517	187	115	278	551	51	124	59
9	20	46	40	142	421	223	140	180	2360	51	84	274
10	20	53	37	261	458	401	380	190	2410	53	79	1590
11	21	56	35	333	351	431	1200	190	1910	62	74	566
12	21	53	33	245	250	304	900	155	520	148	69	200
13	20	48	31	150	228	201	660	891	323	1520	126	136
14	20	43	30	130	228	179	500	2020	199	2180	393	102
15	16	47	28	116	427	575	370	1130	137	1370	701	533
16	19	592	27	92	2470	650	290	1210	191	784	262	404
17	22	1410	26	98	4260	700	240	2860	182	365	137	241
18	33	648	25	280	3540	360	170	1980	130	211	107	148
19	51	263	24	343	1070	260	150	660	108	152	152	110
20	48	147	23	282	590	190	163	374	97	147	208	115
21	48	136	23	960	395	160	280	250	90	171	167	141
22	80	113	22	1070	755	145	625	180	88	1710	637	142
23	115	88	22	549	1740	150	433	146	89	6130	883	309
24	98	68	22	334	1390	115	246	136	90	5780	1050	270
25	70	71	22	252	813	93	172	121	87	3230	352	149
26	55	79	21	206	499	115	171	287	78	602	153	95
27	46	74	21	188	427	93	168	494	75	292	93	72
28	42	75	21	164	618	90	152	372	73	217	74	76
29	38	68	21	141	---	110	141	215	113	186	101	68
30	36	82	21	133	---	145	128	153	156	148	231	61
31	36	---	100	127	---	205	---	132	---	123	173	---
TOTAL	1148	4552	1158	10894	31283	8637	9609	17387	13696	26232	7408	6361
MEAN	37.0	152	37.4	351	1117	279	320	561	457	846	239	212
MAX	115	1410	100	1130	4260	700	1200	2860	2410	6130	1050	1590
MIN	16	33	21	92	118	90	115	95	73	51	69	55
CFSM	.11	.46	.11	1.06	3.37	.84	.96	1.69	1.38	2.55	.72	.64
IN.	.13	.51	.13	1.22	3.51	.97	1.08	1.95	1.53	2.94	.83	.71

CAL YR 1989 TOTAL 86385 MEAN 237 MAX 4120 MIN 16 CFSM .71 IN. 9.68
WTR YR 1990 TOTAL 138365 MEAN 379 MAX 6130 MIN 16 CFSM 1.14 IN. 15.50

04187100 OTTAWA RIVER AT LIMA, OH

LOCATION.--Lat 40°43'29", long 84°07'35", Allen County, Hydrologic Unit 04100007, on right bank, 70 ft downstream of Erie Lockawanna RR bridge, 300 ft upstream of bridge to Lima STP, 0.7 mi downstream from Collett Street at Lima, Ohio.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--June 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 820.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 3-30. Records good except for estimated discharges which are fair. Water diverted upstream of gage for City of Lima and Sohio Chemical Co. Water is returned to stream below gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,430 ft³/s May 26, 1989, Feb. 16, 1990; maximum gage height, 14.76 ft; minimum daily discharge, 0.18 ft³/s June 12, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	2100	*2,430	*14.76	July 23	0330	1,320	13.04
June 9	1730	1,700	13.61	Sept. 9	0500	2,060	14.16

Minimum daily discharge, 3.8 ft³/s Nov. 1.

REVISIONS.--Revised figures for discharge for water years 1988-1989, superceding those published in the 1989 annual report are given herein.

EXTREMES FOR WATER YEARS 1988 AND 1989.--Peak discharges above base discharge of 1,300 ft³/s and maximum (*):

Water year	Date	Time	Discharge (ft³/s)	Gage height (ft)	Water year	Date	Time	Discharge (ft³/s)	Gage height (ft)
1988	July 18, 1988	1700	472	12.08	1989	Apr. 4, 1989	0930	2,120	14.25
						May 26, 1989	0930	*2,430	*14.76

Water year 1988: Minimum daily discharge, .18 ft³/s June 12, 1988.

Water year 1989: Minimum daily discharge, .50 ft³/s Oct. 26, 1989.

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	---	---	---	---	---	---	---	---	16	5.4	4.2	5.6
2	---	---	---	---	---	---	---	---	21	5.4	5.2	5.9
3	---	---	---	---	---	---	---	---	15	5.4	3.6	5.2
4	---	---	---	---	---	---	---	---	10	5.5	3.6	8.2
5	---	---	---	---	---	---	---	---	8.8	5.9	6.0	9.4
6	---	---	---	---	---	---	---	---	7.8	6.0	6.6	4.5
7	---	---	---	---	---	---	---	---	7.4	6.0	4.1	5.5
8	---	---	---	---	---	---	---	---	7.0	6.1	3.9	5.7
9	---	---	---	---	---	---	---	---	7.0	6.1	5.2	4.7
10	---	---	---	---	---	---	---	---	8.4	6.4	7.2	3.8
11	---	---	---	---	---	---	---	---	1.0	7.0	16	4.6
12	---	---	---	---	---	---	---	---	.18	7.3	9.3	26
13	---	---	---	---	---	---	---	---	2.4	7.7	13	13
14	---	---	---	---	---	---	---	---	8.0	7.7	8.6	4.3
15	---	---	---	---	---	---	---	---	6.1	7.3	8.1	5.7
16	---	---	---	---	---	---	---	---	5.5	7.2	6.9	6.1
17	---	---	---	---	---	---	---	---	5.5	6.3	5.1	4.9
18	---	---	---	---	---	---	---	---	5.4	64	4.5	3.8
19	---	---	---	---	---	---	---	---	5.8	64	5.4	3.5
20	---	---	---	---	---	---	---	---	8.9	47	3.3	7.8
21	---	---	---	---	---	---	---	---	9.4	17	2.1	4.6
22	---	---	---	---	---	---	---	---	5.4	27	3.0	4.1
23	---	---	---	---	---	---	---	---	5.9	27	19	3.7
24	---	---	---	---	---	---	---	---	7.4	11	5.5	3.5
25	---	---	---	---	---	---	---	---	6.3	8.6	4.4	4.7
26	---	---	---	---	---	---	---	---	8.0	6.4	4.3	4.9
27	---	---	---	---	---	---	---	---	7.2	6.2	3.8	4.6
28	---	---	---	---	---	---	---	---	5.7	7.9	39	4.6
29	---	---	---	---	---	---	---	---	5.2	6.4	8.4	6.1
30	---	---	---	---	---	---	---	---	5.4	8.8	7.4	5.1
31	---	---	---	---	---	---	---	---	---	12	7.0	---
TOTAL	---	---	---	---	---	---	---	---	223.08	422.0	233.7	184.1
MEAN	---	---	---	---	---	---	---	---	7.44	13.6	7.54	6.14
MAX	---	---	---	---	---	---	---	---	21	64	39	26
MIN	---	---	---	---	---	---	---	---	.18	5.4	2.1	3.5

04187100 OTTAWA RIVER AT LIMA, OH

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	.72	6.6	14	22	7.4	372	33	39	17	17	41
2	5.3	4.4	6.1	17	17	7.4	115	31	55	14	16	14
3	8.1	4.7	5.6	14	17	10	912	30	153	19	18	12
4	7.5	11	5.9	14	21	21	1770	30	140	20	27	12
5	7.1	49	5.7	12	23	45	943	35	125	20	17	11
6	6.4	15	4.8	96	17	63	454	37	66	20	13	11
7	7.0	8.5	7.7	328	14	33	320	37	25	22	9.6	11
8	6.7	7.7	9.4	1080	12	31	215	30	14	19	8.6	9.6
9	4.9	9.6	7.4	394	11	30	198	25	20	17	13	16
10	6.1	38	6.3	27	11	25	130	25	30	14	11	18
11	5.6	6.6	5.8	16	12	29	82	18	26	10	7.7	12
12	6.1	7.9	5.3	12	14	36	50	15	31	12	8.7	12
13	5.9	15	5.0	10	17	34	39	39	37	38	10	11
14	1.2	13	4.6	8.9	30	32	39	170	32	37	8.2	55
15	2.5	7.6	4.3	8.0	32	43	55	145	14	29	6.5	23
16	4.1	7.8	4.1	7.6	24	33	50	65	35	23	11	20
17	8.1	8.4	3.9	7.4	18	13	43	62	69	17	12	16
18	19	5.8	3.7	7.2	13	16	39	54	40	12	10	13
19	6.5	5.0	3.6	23	11	18	49	43	31	18	7.9	12
20	5.2	81	3.6	27	15	28	20	43	25	34	14	11
21	5.1	33	3.6	16	54	87	24	46	22	24	9.6	10
22	5.9	12	4.3	9.0	29	27	37	45	21	25	8.8	11
23	7.0	12	5.6	9.4	30	13	34	61	19	22	9.0	9.1
24	7.3	12	7.0	10	22	25	28	154	18	17	30	9.4
25	1.0	9.6	10	17	14	26	51	284	17	19	13	10
26	.50	8.4	11	110	11	18	51	1920	15	18	12	9.4
27	3.0	16	12	82	9.0	13	31	1260	14	51	11	10
28	3.4	13	395	28	8.0	25	22	545	18	32	11	10
29	3.5	9.1	98	23	---	31	45	201	19	21	9.8	8.4
30	4.2	7.8	40	18	---	389	43	91	21	24	8.8	8.1
31	4.9	---	29	24	---	510	---	45	---	16	8.4	---
TOTAL	173.10	439.62	724.9	2469.5	528.0	1718.8	6261	5619	1191	681	377.6	436.0
MEAN	5.58	14.7	23.4	79.7	18.9	55.4	209	181	39.7	22.0	12.2	14.5
MAX	19	81	395	1080	54	510	1770	1920	153	51	30	55
MIN	.50	.72	3.6	7.2	8.0	7.4	20	15	14	10	6.5	8.1

WTR YR 1989 TOTAL 20619.52 MEAN 56.5 MAX 1920 MIN .50

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	3.8	22	152	56	112	130	44	47	53	46	29
2	10	6.2	23	38	977	93	132	41	51	41	39	29
3	10	5.7	17	19	946	96	113	35	151	33	34	28
4	4.7	5.5	13	72	939	76	87	149	141	28	34	27
5	4.0	6.3	12	154	639	63	83	836	38	28	218	26
6	3.9	7.7	11	39	194	64	72	619	41	27	151	25
7	4.0	11	10	19	81	57	63	190	75	24	31	31
8	5.8	8.9	9.6	16	42	56	55	105	896	23	26	26
9	7.3	7.5	9.2	14	55	61	49	76	1400	22	38	735
10	5.9	8.0	8.6	27	137	69	222	64	1030	35	34	238
11	5.7	5.9	8.2	17	98	77	974	62	376	49	32	88
12	4.4	5.4	7.8	26	73	82	608	76	140	407	31	59
13	4.9	5.2	7.4	15	62	76	216	704	89	459	327	47
14	5.3	5.4	7.0	18	66	66	133	619	285	523	607	109
15	6.5	52	6.6	26	729	61	114	202	290	361	146	236
16	12	533	6.4	24	2110	148	89	566	68	174	83	109
17	14	63	6.2	23	1590	95	77	546	50	81	59	76
18	8.1	17	6.0	42	704	50	66	239	44	58	75	61
19	23	13	5.8	40	345	55	57	114	40	47	59	58
20	19	21	5.7	94	183	63	74	83	36	56	47	65
21	18	30	5.6	481	110	57	325	65	34	54	442	65
22	19	25	5.5	197	237	56	245	57	38	509	866	134
23	18	23	5.4	25	537	55	117	51	45	1150	317	149
24	15	20	5.3	22	455	49	88	47	43	700	95	74
25	14	19	5.2	20	167	46	72	58	37	150	69	51
26	12	17	5.1	31	115	44	61	216	33	70	53	43
27	8.5	16	5.0	53	102	41	53	281	32	53	43	46
28	7.7	35	5.0	45	139	39	50	115	81	48	44	41
29	7.1	45	8.0	42	---	41	50	81	160	41	38	39
30	6.4	29	25	38	---	51	45	65	58	45	34	36
31	4.3	---	341	40	---	79	---	55	---	39	30	---
TOTAL	297.8	1050.5	618.6	1869	11888	2078	4520	6461	5849	5388	4148	2780
MEAN	9.61	35.0	20.0	60.3	425	67.0	151	208	195	174	134	92.7
MAX	23	533	341	481	2110	148	974	836	1400	1150	866	735
MIN	3.9	3.8	5.0	14	42	39	45	35	32	22	26	25

CAL YR 1989 TOTAL 21248.8 MEAN 58.2 MAX 1920 MIN 3.8
WTR YR 1990 TOTAL 46947.9 MEAN 129 MAX 2110 MIN 3.8

STREAMS TRIBUTARY TO LAKE ERIE

04189000 BLANCHARD RIVER NEAR FINDLAY, OH

LOCATION.--Lat 41°03'21", long 83°41'17", on east line of sec. 10, T.1 N., R.10 E., Hancock County, Hydrologic Unit 04100008, on left bank at upstream side of county road bridge, 2 mi west of Findlay, 3 mi downstream from Eagle Creek, and 3 mi upstream from Aurand Run.

DRAINAGE AREA.--346 mi².

PERIOD OF RECORD.--October 1923 to December 1935, October 1940 to current year. Monthly discharge only for October 1923, published in WSP 1307.

REVISED RECORDS.--WSP 974: 1942. WSP 1054: 1927-30, 1933(M), 1945. WSP 1387: 1926, 1928(M), 1930(M), 1952. WSP 1912: Drainage area. WRD-OH-81-2: 1959, 1975 (M).

GAGE.--Water-stage recorder. Datum of gage is 754.55 ft above National Geodetic Vertical Datum of 1929. Prior to July 24, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 11-29. Records good except for estimated discharges, which are fair. Water is diverted upstream from station into Findlay Reservoir. Storage in Findlay Reservoir used for water supply of city of Findlay, and is available for low-flow augmentation. All water returns to stream upstream from station. No releases have been made for low-flow augmentation. Sediment data collected at this site 1970-74. Water-quality data collected at this site 1968 to 1980.

AVERAGE DISCHARGE.--62 years, 253 ft³/s, 9.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s June 14, 1981, gage height, 17.43 ft from measurement made on peak; minimum daily, 0.4 ft³/s Aug. 27, Sept. 3, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18.5 ft; discharge, 22,000 ft³/s, from rating curve extended above 10,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1030	*4,960	*11.15	July 23	1000	3,590	9.33
June 10	2000	4,340	10.40				

Minimum daily discharge, 15 ft³/s Oct. 1, 7, 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	26	33	443	66	337	207	102	124	95	119	57
2	17	23	44	306	1500	303	348	92	117	67	118	55
3	16	23	42	142	2360	337	427	85	304	54	95	53
4	16	21	40	471	2360	274	260	206	262	45	105	51
5	17	21	40	895	1870	210	205	1450	193	42	104	51
6	16	31	35	443	1150	178	163	1160	138	39	489	52
7	15	39	34	181	629	149	150	512	116	37	342	68
8	15	33	32	121	465	142	128	273	370	35	158	50
9	16	30	30	113	366	179	114	198	2150	36	110	288
10	21	29	35	248	401	208	187	164	3710	39	89	331
11	21	30	31	263	316	271	1700	137	2950	199	81	201
12	18	30	27	206	222	239	1830	125	516	587	72	113
13	17	28	23	134	150	198	996	296	247	1050	256	85
14	18	27	22	114	133	178	455	925	186	1360	1090	81
15	22	103	21	94	635	162	349	947	146	1630	435	146
16	24	635	20	56	3550	195	272	1040	115	795	203	240
17	32	616	19	69	4780	274	220	1540	96	261	134	182
18	23	293	19	267	3390	277	187	980	89	155	104	146
19	92	159	18	288	1090	195	157	427	81	107	107	124
20	82	114	18	212	521	152	160	261	74	218	120	100
21	151	95	18	706	341	133	333	196	71	883	101	104
22	109	81	17	758	798	122	678	155	74	1690	92	113
23	76	69	17	354	1460	125	350	125	71	3360	189	213
24	58	59	17	232	1140	108	219	109	72	2150	176	175
25	47	55	17	182	611	98	186	109	76	751	118	112
26	38	55	17	157	332	87	165	1120	62	300	94	89
27	32	52	17	140	326	84	147	1210	54	211	82	80
28	28	58	17	118	337	82	135	574	134	162	74	72
29	26	51	22	100	---	82	123	287	135	130	69	65
30	26	52	54	80	---	95	111	187	152	120	62	66
31	31	---	204	71	---	114	---	152	---	119	59	---
TOTAL	1135	2938	1000	7964	31299	5588	10962	15144	12885	16727	5447	3563
MEAN	36.6	97.9	32.3	257	1118	180	365	489	429	540	176	119
MAX	151	635	204	895	4780	337	1830	1540	3710	3360	1090	331
MIN	15	21	17	56	66	82	111	85	54	35	59	50
CFSM	.11	.28	.09	.74	3.23	.52	1.06	1.41	1.24	1.56	.51	.34
IN.	.12	.32	.11	.86	3.37	.60	1.18	1.63	1.39	1.80	.59	.38

CAL YR 1989 TOTAL 71470 MEAN 196 MAX 3600 MIN 15 CFSM .57 IN. 7.68
WTR YR 1990 TOTAL 114652 MEAN 314 MAX 4780 MIN 15 CFSM .91 IN. 12.33

STREAMS TRIBUTARY TO LAKE ERIE

04191500 AUGLAIZE RIVER NEAR DEFIANCE, OH

LOCATION.--Lat 41°14'14", long 84°23'59", in NE 1/4 sec. 9, T.3 N. R.4 E., Defiance County, Hydrologic Unit 04100007, on right bank 125 ft downstream from hydroelectric dam of Hydro-Corporation, 0.2 mi upstream from Jackson ditch, and 3 mi south of Defiance.

DRAINAGE AREA.--2,318 mi².

PERIOD OF RECORD.--May to August 1903 (gage heights only), April 1915 to current year. Monthly discharges only for some periods, published in WSP 1307.

REVISED RECORDS.--WSP 954: 1941. WSP 1912: Drainage area. WRD OH-72-1: 1966 (M).

GAGE.--Water-stage recorder. Datum of gage is 659.70 ft above National Geodetic Vertical Datum of 1929. May 20 to Aug. 8, 1903, non-recording gage at site 1.8 mi downstream at different datum. April 13, 1915, to Dec. 6, 1933, nonrecording gage near right bank on downstream side of dam at datum 6.00 ft higher, and auxiliary tailwater staff gage near right bank on downstream side of dam at present datum. Oct. 1982 to Nov. 1984 at dam 125 ft upstream, at present datum.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated by dam at powerplant at station; reservoir capacity, 9,800 acre-ft. Plant shut down except for occassional gate operation, Jan. 10, 1963 to Sept. 7, 1985. Some deversion by Miami and Erie Canal from Grand Lake into Jennings Creek, tributary to Auglaize River 70 mi upstream from station. Water-quality data collected at this site 1966 to 1977.

AVERAGE DISCHARGE.--75 years, 1,741 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,500 ft³/s Feb.16, 1950, Feb. 12, 1959, gage height, 26.4 ft, from graph based on hourly powerplant tailwater-gage readings, and gage readings respectively; maximum gage height 27.65 ft Feb. 13, 1959, from flood mark (ice jam). Minimum daily discharge, 0.5 ft³/s Oct. 13, 14, 1952 during repair to powerplant dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1913 reached a stage of 38.8 ft, from reading on powerplant tailwater gage at present datum; discharge, 120,000 ft³/s, from rating curve extended above 51,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,800 ft³/s July 24 gage height 18.90; minimum daily, 22 ft³/s Dec. 9, 17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	40	377	495	845	3730	1550	985	825	882	667	366
2	70	44	191	2150	3550	3240	2670	496	924	746	474	311
3	67	344	29	2090	12900	2970	3000	563	2030	578	577	213
4	61	205	304	1980	12100	2480	2570	1020	6170	525	654	223
5	134	35	184	3490	13200	2030	2110	3160	4230	240	675	164
6	65	30	31	4060	10600	1490	1480	7390	2390	190	716	162
7	63	180	377	3230	7710	1330	1510	6430	1580	247	1160	252
8	63	123	268	2210	5640	1010	1020	4230	1500	216	958	79
9	63	197	22	1590	3760	1190	945	2490	6220	328	817	390
10	64	435	23	1390	3270	1370	1230	1680	9330	117	577	2630
11	63	116	297	2140	2940	1980	4630	1280	8700	671	351	3700
12	192	33	23	2280	2340	2880	8320	1220	6290	1310	935	1950
13	60	301	345	1450	1720	2550	7500	2150	4640	2930	1500	860
14	59	268	191	657	1560	2170	5100	7330	2660	6910	1690	799
15	53	399	348	935	2370	1690	3370	6880	1560	7930	2130	851
16	51	609	190	777	11700	1630	2330	7210	1740	5840	2210	1840
17	52	2760	22	1060	18000	3520	1780	14700	1320	3760	1150	1210
18	50	3200	23	1310	17600	3630	1530	13300	849	2170	690	926
19	51	2040	24	2740	13800	2600	1230	6730	731	1100	1020	834
20	458	1570	26	2470	8570	1880	955	4820	671	910	980	517
21	241	405	27	3460	5650	1490	1210	2740	531	1350	927	715
22	58	386	230	5440	9700	1260	2070	1710	610	7260	1650	387
23	517	552	157	4460	22200	1110	2560	1170	427	21400	2840	1010
24	490	469	26	3040	22300	981	2370	971	437	25100	2250	607
25	262	192	27	2090	15400	1080	1750	904	523	19000	1550	687
26	478	31	28	1380	7680	662	1320	2910	512	9660	615	537
27	368	594	28	1140	5240	783	1150	5340	463	5010	560	402
28	56	387	265	692	3980	619	802	4880	526	2040	339	401
29	158	30	126	740	---	615	1050	3480	767	1120	412	365
30	162	222	178	630	---	937	784	2150	1150	802	505	197
31	429	---	25	627	---	1050	---	1490	---	614	558	---
TOTAL	5032	16197	4412	62203	246325	55957	69896	121809	70306	130956	32137	23585
MEAN	162	540	142	2007	8797	1805	2330	3929	2344	4224	1037	786
MAX	517	3200	377	5440	22300	3730	8320	14700	9330	25100	2840	3700
MIN	50	30	22	495	845	615	784	496	427	117	339	79

CAL YR 1989 TOTAL 535308 MEAN 1467 MAX 21700 MIN 22
WTR YR 1990 TOTAL 838815 MEAN 2298 MAX 25100 MIN 22

STREAMS TRIBUTARY TO LAKE ERIE

04192500 MAUMEE RIVER NEAR DEFIANCE, OH

LOCATION.--Lat 41°17'30", long 84°16'52", in NW 1/4 sec. 22, T.4 N., R.5 E., Defiance County, Hydrologic Unit 04100009, on left bank 40 ft. upstream from Independence Dam, 4 mi downstream from mouth of Auglaize River, and 4.5 mi east of Defiance.

DRAINAGE AREA.--5,545 mi².

PERIOD OF RECORD.--October 1924 to December 1935, March 1939 to September 1974, October 1978 to current year.

REVISED RECORDS.--WSP 974: 1926-27, 1930. WSP 1387: 1925-28, 1946. WRD Ohio, 1970: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is 658.56 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 13, 1924, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 7-Jan. 3. Records good except for estimated daily discharge, which are fair. Flow affected by regulation of Auglaize River at hydroelectric plant of the Hydro-Corporation, 7 mi upstream. Operation of hydroelectric plant there was discontinued Jan. 10, 1963 to Sept. 7, 1985. Low flow slightly regulated by powerplant at Ft. Wayne, Indiana. Slight diversion 275 ft upstream into Miami and Erie Canal through a 24 inch conduit which bypasses station.

AVERAGE DISCHARGE.--58 years, 4,255 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104,000 ft³/s Mar. 15, 1982, gage height, 15.87 ft; minimum discharge, 2 ft³/s Sept. 3, 1925; minimum gage height, 1.09 ft Sept. 26, 1928.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 3	2100	24,000	5.84	May 18	0100	33,700	6.96
Feb. 17	1500	29,400	6.48	July 24	0400	34,100	7.00
Feb. 24	0200	*52,400	*9.20				

Minimum daily discharge, 237 ft³/s Oct. 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	400	545	1270	500	3090	15300	5730	1980	2510	3010	1310	1900
2	409	453	1310	1100	7070	12700	7480	1510	2150	2620	1050	1160
3	367	568	818	1900	21500	10800	8000	1260	2850	2250	738	726
4	332	652	868	3950	22400	8840	6780	2060	7820	1660	807	592
5	389	374	921	7340	22900	7150	5500	5970	7950	1200	1150	649
6	351	340	697	10600	19700	5660	4140	12000	6210	1140	1900	661
7	300	402	840	10200	16500	4930	3860	10600	4680	727	1680	674
8	269	473	640	7430	13600	3820	2700	7320	4840	579	1280	508
9	237	471	580	6140	10800	4790	2450	4790	9760	655	1180	983
10	327	648	530	6290	9260	5110	3320	3530	15100	483	750	1960
11	285	539	490	7690	8220	7950	11300	2880	14400	1100	649	3950
12	360	436	460	7570	6750	11200	16000	2570	11600	2420	1090	3280
13	314	679	440	5690	5290	11200	14000	3720	9210	4270	2000	1930
14	269	791	410	4120	4370	9930	10400	11600	6680	9560	4350	1770
15	261	1330	390	3400	5520	8750	8110	12700	4590	10700	5050	1650
16	239	2760	380	3060	18500	8260	6920	17000	4100	7570	5190	2340
17	268	7350	370	4000	28500	10100	5870	30300	2730	5800	3330	2130
18	339	8250	350	9860	27500	10100	4730	31700	2000	4910	2460	1640
19	845	5950	340	14000	22700	7880	3700	23600	1650	4010	2410	1420
20	949	4900	330	11800	16500	6280	2830	20000	1230	3370	3220	870
21	886	3330	330	11500	13400	5160	3270	16500	1110	3270	4420	956
22	633	2860	320	13700	22700	4360	4590	12900	1130	11400	3820	1080
23	1170	3280	310	12300	46000	3700	5420	9110	1570	31000	5030	910
24	1310	2610	300	9710	50800	3230	5340	6360	1450	33200	5120	786
25	1110	2000	300	7650	40900	2960	4110	4450	1340	25800	3760	1010
26	1160	1470	290	6670	29500	2320	2890	6760	1080	15300	2000	994
27	1050	1620	290	6230	24100	2150	2740	10600	959	10400	1620	598
28	726	1570	280	5180	19000	2040	2360	9190	1460	7190	1650	472
29	714	1050	280	4220	---	1740	2390	6850	1950	5600	1310	504
30	656	1190	270	3980	---	2520	1910	4660	2900	3620	2150	278
31	851	---	270	3350	---	4200	---	3410	---	1930	2530	---
TOTAL	17776	58891	15674	211130	537070	205130	168840	297880	137009	216744	75004	38381
MEAN	573	1963	506	6811	19180	6617	5628	9609	4567	6992	2419	1279
MAX	1310	8250	1310	14000	50800	15300	16000	31700	15100	33200	5190	3950
MIN	237	340	270	500	3090	1740	1910	1260	959	483	649	278

CAL YR 1989 TOTAL 1409283 MEAN 3861 MAX 35600 MIN 237
WTR YR 1990 TOTAL 1979529 MEAN 5423 MAX 50800 MIN 237

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

LOCATION.--Lat 41°28'34", long 83°44'20", Lucas County, Hydrologic Unit 04100009, in Bowling Green water-treatment plant, 2.0 mi upstream from discharge station at Waterville.

DRAINAGE AREA.--6,313 mi².

PERIOD OF RECORD.--Water years 1950 to 1976 (published as Maumee River at Waterville) 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1963 to current year.
pH: May 1963 to current year.
WATER TEMPERATURES: March 1950 to current year.
DISSOLVED OXYGEN: March 1963 to current year.

INSTRUMENTATION.--Water-quality monitor since May 1963. Prior to June 1974 water-quality monitor located in water-treatment plant 2,500 ft upstream from discharge station. Prior to May 1963 alcohol-actuated thermograph located at discharge station. Digital recorder set for one-hour-interval punches since July 1972.

REMARKS.--Interruptions in the water-quality record were due to malfunction of the instrument. Prior to October 1976, records published as 04193500, Maumee River at Waterville, Ohio. See records of daily discharge for gaging station at Waterville (04193500).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,260 microsiemens, Feb. 16, 1977; minimum, 156 microsiemens, July 20, 1973.
pH: Maximum, 11.4 units Jan. 16, 1965; minimum, 5.0 units Nov. 24, 1968.
WATER TEMPERATURES: Maximum, 34.0°C July 1, 1963; minimum, 0.0°C on many days during winters.
DISSOLVED OXYGEN: Maximum, >20.0 mg/L several days in water years 1980 thru 1990; minimum, 0.3 mg/L Nov. 10, 1965.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 998 microsiemens Jan. 4; minimum, 240 microsiemens, Feb. 23, 24.
PH: Maximum, 9.4 units Oct. 16; minimum, 7.6 units on several days.
WATER TEMPERATURES: Maximum, 30.5°C July 9; minimum, 0.0°C on many days during winter.
DISSOLVED OXYGEN: Maximum, >20.0 mg/L, Oct. 27, July 9, 10, Aug. 10, 11; minimum, 6.2 mg/L Sept. 7.

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	566	560	563	722	684	707	646	636	642	880	862	873
2	566	560	562	724	720	722	646	636	642	906	880	888
3	580	564	572	726	720	723	644	624	633	966	916	936
4	582	560	573	736	724	726	646	640	643	998	698	886
5	578	562	572	742	726	737	664	644	656	824	722	756
6	578	560	568	740	726	735	666	660	664	838	698	746
7	582	560	573	744	720	731	676	660	664	702	580	640
8	578	542	563	746	724	741	696	678	683	586	560	575
9	556	520	535	766	742	758	700	686	697	586	562	574
10	540	520	525	780	760	766	702	686	696	586	560	569
11	526	502	517	784	762	778	706	700	705	586	560	573
12	506	480	491	806	784	793	718	700	703	578	560	566
13	506	462	489	806	800	804	722	706	717	584	560	572
14	498	444	466	806	800	802	742	716	725	606	580	596
15	466	442	458	818	766	801	758	738	746	620	616	617
16	464	444	450	806	720	749	766	738	760	622	620	621
17	466	440	455	822	800	806	778	760	765	624	620	621
18	466	440	457	846	760	817	786	778	782	626	616	621
19	486	460	475	816	742	781	784	776	779	642	542	615
20	522	482	499	802	680	734	786	780	782	636	540	588
21	544	520	534	716	676	698	784	782	782	640	624	635
22	566	540	554	676	640	655	798	782	785	626	616	622
23	566	560	561	642	616	632	816	800	806	664	616	645
24	600	562	579	656	640	645	826	820	823	666	640	645
25	606	582	598	646	640	643	836	822	827	660	642	651
26	624	600	615	646	640	643	842	820	830	656	644	648
27	626	604	619	666	640	652	842	840	841	644	640	642
28	646	600	632	658	640	646	846	840	842	660	640	646
29	664	640	649	646	640	643	860	840	848	660	640	654
30	686	658	678	642	622	632	864	842	855	666	640	648
31	706	680	693	---	---	---	866	860	863	662	640	653
MONTH	706	440	551	846	616	723	866	624	748	998	540	662
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	660	640	652	442	400	420	666	658	662	644	582	619
2	664	600	626	484	440	457	664	618	641	618	580	600
3	626	578	603	504	480	490	646	620	636	600	576	586
4	604	558	567	520	484	504	646	640	643	602	580	585
5	546	516	530	526	520	523	656	640	645	626	600	611
6	526	504	517	544	520	531	644	618	639	622	600	607
7	536	522	525	566	520	542	646	640	644	646	600	621
8	546	520	540	584	560	568	646	640	641	616	602	606
9	564	540	556	604	560	582	656	640	650	622	600	608
10	584	562	573	606	560	587	646	562	630	606	576	597
11	596	580	584	586	560	573	566	522	548	606	576	588
12	624	596	607	586	560	578	558	500	531	606	576	597
13	640	620	628	584	560	572	562	520	546	606	560	580
14	644	618	638	586	542	572	546	522	535	620	600	608
15	622	524	591	546	522	532	526	520	523	626	600	619
16	558	498	528	566	522	538	526	520	523	620	462	522
17	520	440	472	566	520	540	544	524	534	466	422	447
18	460	404	432	564	536	552	566	520	552	424	378	405
19	426	400	416	606	560	588	576	562	565	398	380	385
20	440	400	420	606	602	604	566	562	564	404	380	390
21	464	440	448	606	600	603	616	576	590	418	400	406
22	482	320	400	606	600	604	626	602	609	426	400	422
23	326	240	277	606	600	602	626	602	621	446	422	435
24	266	240	251	620	602	608	642	620	624	466	440	453
25	304	258	281	626	600	615	666	640	655	482	456	472
26	326	286	310	626	620	624	666	642	659	536	480	491
27	366	320	343	642	616	635	662	640	655	546	486	522
28	406	360	382	646	640	643	646	622	638	584	522	559
29	---	---	---	646	638	643	626	600	621	564	520	534
30	---	---	---	660	642	654	642	600	632	566	520	550
31	---	---	---	666	656	662	---	---	---	584	564	579
MONTH	664	240	489	666	400	572	666	500	605	646	378	536

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	582	560	576	626	600	618	338	320	327	498	458	483
2	586	564	581	644	604	630	326	320	324	518	482	502
3	586	562	579	644	562	603	336	322	327	522	506	517
4	620	560	577	626	560	596	344	336	339	506	484	502
5	644	566	610	666	604	644	346	320	337	526	504	516
6	684	500	608	680	656	674	400	344	365	546	522	529
7	524	480	501	682	656	673	418	400	403	546	520	531
8	544	520	530	676	620	656	442	400	423	542	520	530
9	566	536	551	626	544	597	480	442	454	536	520	523
10	566	500	523	600	544	572	486	440	470	578	520	528
11	580	440	501	600	562	579	462	400	441	606	480	521
12	466	416	443	696	566	617	446	400	430	556	498	522
13	422	400	409	676	602	618	498	438	467	622	560	588
14	426	400	415	626	606	621	564	484	536	662	602	642
15	424	404	417	666	580	622	582	560	565	698	578	662
16	406	400	404	580	406	473	666	560	629	560	484	510
17	418	400	406	426	404	412	578	542	559	562	482	513
18	440	400	412	478	422	448	546	506	527	586	560	577
19	444	404	422	524	480	495	516	498	505	578	422	479
20	460	440	449	566	522	548	520	482	502	442	420	429
21	484	440	467	538	504	526	542	480	518	466	440	451
22	504	484	492	506	424	464	444	338	379	506	462	484
23	536	486	514	426	280	367	464	416	438	526	498	518
24	562	522	549	286	244	269	466	400	442	546	520	534
25	582	536	564	306	266	288	484	404	448	560	536	551
26	600	564	579	338	298	325	538	480	506	564	546	558
27	604	586	600	342	320	322	546	520	540	566	560	562
28	598	560	583	366	338	353	546	520	537	566	562	565
29	604	562	593	366	326	351	520	482	504	566	564	565
30	606	600	604	346	324	338	486	458	482	566	560	563
31	---	---	---	338	320	327	482	456	470	---	---	---
MONTH	684	400	515	696	244	504	666	320	458	698	420	532
YEAR	998	240	575									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.9	8.5	8.7	8.7	8.5	8.6	8.5	8.3	8.4	8.4	8.3	8.4
2	8.9	8.7	8.8	8.8	8.5	8.7	8.5	8.3	8.4	8.5	8.3	8.4
3	8.9	8.7	8.8	8.9	8.6	8.7	8.4	8.4	8.4	8.5	8.2	8.4
4	9.1	8.6	8.8	8.9	8.7	8.8	8.5	8.4	8.5	8.2	7.9	8.1
5	9.0	8.8	8.9	8.9	8.8	8.9	8.5	8.4	8.5	8.0	7.9	7.9
6	9.1	8.9	9.0	8.9	8.8	8.8	8.5	8.4	8.5	8.0	7.8	7.9
7	9.1	8.9	9.0	8.8	8.6	8.7	8.5	8.4	8.5	7.9	7.8	7.9
8	9.1	8.8	8.9	8.8	8.7	8.8	8.6	8.4	8.5	7.9	7.8	7.9
9	9.0	8.4	8.8	8.8	8.7	8.8	8.6	8.4	8.5	8.0	7.9	8.0
10	9.0	8.8	8.9	8.9	8.8	8.8	8.7	8.4	8.6	8.0	7.8	7.9
11	9.1	8.8	8.9	8.9	8.6	8.8	8.6	8.4	8.5	8.0	7.9	8.0
12	9.2	8.8	9.0	8.9	8.8	8.8	8.6	8.5	8.5	8.1	8.0	8.0
13	9.3	8.6	8.9	9.0	8.8	8.9	8.6	8.0	8.5	8.1	8.0	8.1
14	9.3	8.8	9.1	8.9	8.8	8.9	8.6	8.5	8.6	8.1	8.1	8.1
15	9.2	9.0	9.1	8.8	8.4	8.7	8.6	8.5	8.6	8.2	8.1	8.1
16	9.4	9.0	9.2	8.4	8.2	8.3	8.5	8.4	8.5	8.2	8.1	8.2
17	9.2	8.9	9.1	8.4	8.2	8.3	8.5	8.4	8.5	8.2	8.0	8.1
18	9.3	8.8	9.0	8.5	8.3	8.4	8.5	8.3	8.4	8.0	7.9	8.0
19	9.1	8.8	9.0	8.3	8.2	8.2	8.5	8.4	8.5	8.1	8.0	8.0
20	9.0	8.8	9.0	8.2	8.2	8.2	8.4	8.4	8.4	8.1	8.0	8.1
21	9.0	8.8	8.9	8.3	8.2	8.2	8.4	8.4	8.4	8.1	8.0	8.0
22	9.2	9.0	9.1	8.2	8.2	8.2	8.5	8.4	8.4	8.1	8.0	8.1
23	9.3	9.0	9.2	8.2	8.2	8.2	8.4	8.4	8.4	8.1	8.0	8.1
24	9.3	9.0	9.2	8.3	8.2	8.2	8.4	8.4	8.4	8.4	8.0	8.1
25	9.2	9.0	9.1	8.3	8.2	8.2	8.4	8.3	8.4	8.2	8.2	8.2
26	9.2	9.0	9.1	8.3	8.2	8.3	8.4	8.4	8.4	8.2	8.2	8.2
27	9.2	9.0	9.1	8.3	8.2	8.3	8.4	8.2	8.3	8.3	8.2	8.3
28	9.1	9.0	9.0	8.3	8.2	8.2	8.4	8.4	8.4	8.3	8.2	8.3
29	9.0	8.8	8.9	8.4	8.2	8.3	8.4	8.3	8.3	8.4	8.2	8.3
30	8.8	8.6	8.8	8.4	8.3	8.4	8.4	8.2	8.4	8.3	8.2	8.2
31	8.7	8.5	8.7	---	---	---	8.4	8.3	8.4	8.3	8.2	8.3
MONTH	9.4	8.4	9.0	9.0	8.2	8.5	8.7	8.0	8.5	8.5	7.8	8.1

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.3	8.2	8.3	8.0	8.0	8.0	8.6	8.4	8.5	8.8	8.5	8.6
2	8.3	7.8	8.1	8.1	8.0	8.1	8.4	8.2	8.3	8.9	8.5	8.7
3	8.1	7.8	8.0	8.1	8.0	8.1	8.3	8.2	8.3	8.7	8.4	8.6
4	8.0	7.9	7.9	8.1	8.0	8.1	8.3	8.2	8.3	8.5	8.4	8.5
5	7.9	7.9	7.9	8.2	8.1	8.2	8.3	8.2	8.3	8.5	8.2	8.3
6	8.0	7.9	7.9	8.3	8.2	8.2	8.3	8.2	8.3	8.2	8.1	8.2
7	8.0	8.0	8.0	8.4	8.2	8.3	8.4	8.2	8.3	8.1	7.9	8.0
8	8.1	8.0	8.0	8.3	8.2	8.3	8.4	8.3	8.4	8.0	7.8	7.9
9	8.1	8.1	8.1	8.3	8.2	8.2	8.5	8.4	8.5	8.0	7.8	7.9
10	8.1	8.1	8.1	8.2	8.1	8.2	8.5	8.2	8.4	8.1	7.9	8.0
11	8.1	8.1	8.1	8.1	8.0	8.0	8.2	7.8	8.0	8.2	8.0	8.1
12	8.2	8.1	8.2	8.1	8.0	8.1	8.1	8.0	8.0	8.2	8.0	8.1
13	8.2	8.2	8.2	8.1	8.0	8.1	8.1	8.0	8.0	8.1	7.8	7.9
14	8.3	8.2	8.2	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.8	7.9
15	8.3	8.0	8.2	8.0	7.9	8.0	8.1	8.0	8.0	8.0	7.8	7.9
16	8.0	7.8	7.9	8.0	7.8	8.0	8.1	8.1	8.1	7.9	7.6	7.7
17	8.0	7.8	7.9	8.0	7.8	7.9	8.2	8.1	8.1	7.7	7.6	7.6
18	7.9	7.8	7.9	8.1	8.0	8.1	8.2	8.2	8.2	7.7	7.6	7.7
19	8.0	7.8	7.9	8.2	8.0	8.1	8.2	8.1	8.2	7.7	7.6	7.7
20	8.0	8.0	8.0	8.2	8.1	8.1	8.2	8.1	8.2	7.7	7.6	7.7
21	8.1	8.0	8.0	8.2	8.1	8.2	8.2	8.0	8.1	7.8	7.7	7.7
22	8.1	7.8	8.0	8.2	8.2	8.2	8.2	8.0	8.1	7.8	7.7	7.8
23	7.9	7.8	7.9	8.3	8.2	8.3	8.4	8.1	8.2	7.8	7.8	7.8
24	7.9	7.8	7.9	8.4	8.2	8.3	8.3	8.1	8.3	7.8	7.8	7.8
25	7.9	7.8	7.9	8.4	8.2	8.3	8.5	8.2	8.3	7.9	7.8	7.9
26	7.9	7.8	7.9	8.5	8.4	8.4	8.5	8.2	8.4	8.0	7.9	8.0
27	8.0	7.8	7.9	8.6	8.4	8.5	8.6	8.2	8.4	8.0	7.8	7.9
28	8.0	7.9	8.0	8.7	8.6	8.6	8.5	8.3	8.4	8.0	7.8	7.9
29	---	---	---	8.7	8.6	8.6	8.6	8.3	8.4	7.9	7.8	7.9
30	---	---	---	8.7	8.6	8.6	8.7	8.4	8.5	8.0	7.8	7.9
31	---	---	---	8.6	8.5	8.6	---	---	---	8.0	8.0	8.0
MONTH	8.3	7.8	8.0	8.7	7.8	8.2	8.7	7.8	8.2	8.9	7.6	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	8.0	8.0	8.5	8.2	8.4	8.1	7.8	8.0	8.5	8.2	8.3
2	8.1	8.0	8.0	8.5	8.2	8.4	8.1	8.0	8.0	8.5	8.2	8.4
3	8.2	8.0	8.1	8.5	8.2	8.4	8.6	8.0	8.3	8.6	8.3	8.5
4	8.1	8.0	8.1	8.4	8.2	8.3	8.2	8.1	8.1	8.7	8.5	8.6
5	8.2	8.1	8.1	8.4	8.2	8.3	8.4	8.2	8.3	8.6	8.2	8.4
6	8.1	7.9	8.0	8.5	8.2	8.4	8.3	8.0	8.2	8.6	8.3	8.5
7	8.0	7.9	8.0	8.7	8.4	8.5	8.4	8.2	8.2	8.6	8.2	8.4
8	8.0	7.9	8.0	8.8	8.4	8.6	8.5	8.1	8.3	8.5	8.2	8.4
9	7.9	7.8	7.8	8.7	8.2	8.5	8.6	8.2	8.4	8.7	8.4	8.5
10	7.9	7.8	7.8	8.6	8.2	8.4	9.0	8.5	8.7	8.8	8.4	8.6
11	7.9	7.6	7.7	8.3	8.1	8.3	9.0	8.4	8.7	8.7	8.4	8.6
12	7.7	7.6	7.7	8.5	8.2	8.4	9.0	8.6	8.8	8.7	8.6	8.7
13	7.8	7.7	7.7	8.3	8.2	8.2	8.8	8.4	8.7	8.8	8.6	8.7
14	7.8	7.7	7.8	8.2	8.2	8.2	8.8	8.6	8.7	8.7	8.4	8.6
15	7.8	7.8	7.8	8.1	7.9	8.0	8.9	8.4	8.6	8.5	8.3	8.4
16	7.8	7.8	7.8	7.9	7.8	7.8	8.7	8.3	8.5	8.2	8.1	8.2
17	7.9	7.8	7.8	7.9	7.8	7.8	8.2	8.0	8.1	8.3	8.0	8.2
18	7.9	7.8	7.9	7.9	7.8	7.9	8.1	7.9	8.0	8.4	8.3	8.3
19	8.0	7.9	8.0	8.0	7.9	7.9	8.1	7.9	8.0	8.4	8.0	8.1
20	8.0	8.0	8.0	8.0	7.8	7.9	8.1	8.0	8.0	8.2	8.0	8.1
21	8.1	8.0	8.1	8.0	7.9	8.0	8.1	7.9	8.0	8.3	8.0	8.2
22	8.2	8.1	8.1	8.0	7.8	7.9	7.9	7.7	7.8	8.3	8.1	8.2
23	8.2	8.2	8.2	7.8	7.6	7.8	7.9	7.8	7.8	8.4	8.2	8.3
24	8.3	8.2	8.2	7.7	7.6	7.7	7.9	7.8	7.9	8.6	8.3	8.4
25	8.3	8.2	8.3	7.6	7.6	7.6	8.0	7.8	7.9	8.5	8.4	8.4
26	8.5	8.2	8.3	7.7	7.6	7.6	8.1	7.8	8.0	8.6	8.4	8.5
27	8.7	8.3	8.5	7.7	7.6	7.6	8.3	8.0	8.1	8.6	8.4	8.5
28	8.6	8.4	8.5	7.8	7.6	7.7	8.4	8.1	8.3	8.6	8.4	8.5
29	8.5	8.3	8.4	7.8	7.7	7.8	8.3	8.0	8.2	8.5	8.4	8.4
30	8.3	8.2	8.3	7.8	7.7	7.8	8.3	8.0	8.2	8.7	8.4	8.6
31	---	---	---	7.9	7.8	7.9	8.3	8.0	8.2	---	---	---
MONTH	8.7	7.6	8.0	8.8	7.6	8.1	9.0	7.7	8.2	8.8	8.0	8.4
YEAR	9.4	7.6	8.3									

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.5	16.5	17.0	11.5	10.0	10.5	1.5	1.0	1.0	.0	.0	.0
2	18.5	17.0	17.5	10.0	9.0	9.5	2.0	1.5	1.5	.0	.0	.0
3	18.0	16.0	17.5	9.5	8.5	9.0	1.5	.0	.5	.0	.0	.0
4	17.0	14.5	15.5	8.0	7.5	8.0	.5	.0	.5	.0	.0	.0
5	14.5	13.5	14.0	8.5	7.0	8.0	.0	.0	.0	.0	.0	.0
6	15.0	13.5	14.5	9.0	8.5	8.5	.5	.0	.0	.0	.0	.0
7	14.5	13.0	13.5	8.5	8.0	8.5	.5	.0	.5	.0	.0	.0
8	14.0	12.5	13.0	8.5	8.0	8.5	.5	.0	.0	.0	.0	.0
9	13.5	11.5	12.5	8.0	7.5	8.0	.5	.0	.0	.0	.0	.0
10	13.0	12.0	12.5	7.5	7.0	7.5	.5	.0	.0	.5	.0	.5
11	13.5	11.0	12.5	7.0	6.0	6.5	.0	.0	.0	.5	.0	.5
12	16.5	12.0	13.5	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
13	16.0	13.0	14.0	8.0	6.5	7.5	.5	.0	.0	.0	.0	.0
14	16.5	13.0	15.0	9.5	8.0	8.5	.5	.0	.0	.0	.0	.0
15	17.0	15.5	16.5	10.5	9.5	10.0	.0	.0	.0	.5	.0	.0
16	18.5	16.0	17.0	10.0	6.5	8.5	.0	.0	.0	1.0	.0	.5
17	17.5	14.0	15.5	6.0	4.5	5.0	.0	.0	.0	3.0	1.0	1.5
18	14.0	11.0	13.0	5.0	3.5	4.5	.0	.0	.0	3.0	1.5	2.5
19	11.0	9.0	10.0	4.0	3.0	3.5	.0	.0	.0	2.5	1.0	2.0
20	9.0	7.0	7.5	5.5	4.0	4.5	.0	.0	.0	2.5	2.5	2.5
21	7.5	6.0	7.0	4.5	3.0	3.5	.0	.0	.0	3.0	2.5	2.5
22	9.0	7.0	8.0	3.0	2.5	3.0	.0	.0	.0	2.5	2.0	2.5
23	10.0	8.0	9.0	2.5	1.5	2.0	.0	.0	.0	2.5	2.0	2.0
24	12.0	10.5	11.0	1.5	1.0	1.5	.0	.0	.0	3.5	2.0	2.5
25	13.0	11.5	12.5	2.5	1.5	2.0	.0	.0	.0	3.5	3.0	3.0
26	13.0	12.0	12.5	3.0	2.5	3.0	.0	.0	.0	2.5	2.0	2.0
27	13.0	12.0	12.5	4.5	3.0	3.5	.0	.0	.0	3.0	1.5	2.0
28	13.0	12.0	12.5	5.0	3.5	4.0	.0	.0	.0	3.0	2.0	2.5
29	13.5	12.5	13.0	3.5	1.0	2.5	.0	.0	.0	2.5	1.0	2.0
30	13.5	12.5	13.0	1.5	.5	1.0	.0	.0	.0	2.0	1.0	1.5
31	13.5	11.5	13.0	---	---	---	.0	.0	.0	2.0	1.0	1.5
MONTH	18.5	6.0	13.0	11.5	.5	6.0	2.0	.0	.0	3.5	.0	1.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	1.0	2.0	2.0	.5	1.5	8.0	7.0	7.5	20.5	18.5	19.5
2	2.5	2.0	2.5	3.0	1.0	2.0	7.5	6.5	7.0	18.5	17.0	18.0
3	2.5	2.0	2.5	3.0	2.0	2.5	6.5	6.0	6.0	18.5	17.5	18.0
4	2.5	2.0	2.5	2.5	1.5	2.0	7.5	5.5	6.5	17.5	14.0	16.0
5	2.5	2.0	2.5	2.5	1.5	2.0	7.0	6.0	6.5	15.0	13.5	14.0
6	2.5	2.0	2.5	2.0	1.0	1.5	8.0	5.5	6.5	15.0	13.0	14.0
7	3.5	2.5	3.0	2.0	.0	1.5	7.0	5.0	6.0	15.5	13.0	14.5
8	4.0	3.0	3.5	2.0	1.0	1.5	7.5	5.0	6.0	17.0	14.0	15.5
9	5.5	4.0	5.0	5.0	2.0	3.5	8.0	6.5	7.0	17.5	15.0	16.5
10	5.0	4.0	4.5	6.0	4.0	5.0	7.5	7.0	7.5	17.5	14.0	16.0
11	4.5	4.0	4.5	7.5	5.5	6.0	7.5	6.0	7.0	15.5	12.0	13.5
12	5.0	3.5	4.0	10.0	7.5	8.5	7.0	6.0	6.5	15.0	13.0	14.0
13	6.5	4.5	5.5	11.5	9.0	10.0	8.0	6.0	7.0	13.5	12.5	13.0
14	6.0	3.0	4.5	13.0	11.0	12.0	8.0	7.0	7.5	14.5	12.0	13.5
15	3.0	2.0	2.5	14.0	12.0	13.0	8.0	7.0	7.5	15.0	14.0	14.5
16	3.5	2.5	3.0	13.5	12.0	13.0	9.5	7.0	8.0	15.0	14.0	14.5
17	3.0	2.0	2.0	12.5	10.5	11.5	9.0	8.0	8.5	15.5	15.0	15.5
18	2.5	1.0	2.0	10.5	10.0	10.0	10.0	7.0	8.5	16.0	15.0	15.5
19	2.5	2.0	2.0	10.0	8.0	9.5	10.5	8.5	9.5	16.0	15.5	16.0
20	2.5	1.0	2.0	9.0	7.0	8.0	10.5	10.0	10.5	17.0	16.0	16.5
21	2.5	1.5	2.0	8.5	7.0	7.5	13.5	10.5	12.0	16.5	15.5	16.0
22	3.5	2.0	3.0	8.5	7.5	8.0	14.5	11.5	13.0	17.0	15.0	16.0
23	3.5	3.0	3.5	8.0	7.0	7.5	15.5	13.0	14.5	17.5	15.0	16.5
24	3.5	2.0	3.0	7.5	5.5	6.5	17.5	14.0	15.5	18.0	16.5	17.0
25	2.0	1.0	1.5	7.5	5.5	6.5	19.5	16.0	17.5	17.5	16.5	17.0
26	1.0	.5	1.0	7.0	5.5	6.5	20.5	18.0	19.0	18.0	16.5	17.0
27	1.5	.5	1.0	8.0	5.5	6.5	21.0	19.0	20.0	18.5	16.0	17.0
28	1.5	.5	1.0	7.5	6.5	7.0	21.0	20.0	20.5	18.0	16.5	17.5
29	---	---	---	7.5	6.5	7.0	20.5	19.0	20.0	18.0	16.0	17.0
30	---	---	---	7.0	6.5	6.5	21.0	19.0	20.0	18.5	15.0	17.0
31	---	---	---	7.0	7.0	7.0	---	---	---	20.0	16.5	18.5
MONTH	6.5	.5	3.0	14.0	.0	6.5	21.0	5.0	10.5	20.5	12.0	16.0

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	21.0	18.0	19.5	26.0	24.0	25.0	25.0	23.5	24.5	26.5	24.5	25.5
2	21.0	20.0	21.0	26.5	24.0	25.0	25.0	23.5	24.5	26.5	25.0	26.0
3	21.0	19.5	20.0	27.0	25.0	26.0	27.0	24.5	25.5	26.5	24.5	25.0
4	19.5	17.5	18.5	27.5	25.0	26.5	25.5	24.0	24.5	25.5	24.0	25.0
5	19.0	17.0	18.0	27.5	27.0	27.0	25.0	23.5	24.5	25.5	24.0	25.0
6	19.5	18.0	19.0	27.0	24.5	25.5	25.0	23.0	24.0	26.5	24.5	25.5
7	21.0	18.5	19.5	25.5	23.0	24.0	24.0	22.5	23.5	26.5	25.0	25.5
8	21.0	19.5	20.0	26.5	24.0	25.0	26.0	23.0	24.0	25.0	23.0	24.0
9	21.5	19.5	20.5	30.5	26.0	27.5	25.5	23.0	24.0	24.0	23.0	23.5
10	21.0	19.5	20.5	28.5	26.5	27.5	27.5	24.0	25.5	25.0	23.0	24.5
11	22.0	20.0	21.0	27.0	23.5	25.5	26.5	24.5	25.5	25.0	23.0	24.0
12	22.0	20.0	21.0	23.0	22.0	22.5	25.0	24.0	24.5	25.0	23.5	24.5
13	23.5	20.5	22.0	22.0	20.5	21.0	24.5	23.0	24.0	25.0	24.0	24.5
14	23.0	21.0	22.5	21.0	20.5	21.0	25.0	23.0	24.0	25.0	23.5	24.0
15	24.5	22.0	23.0	22.0	20.5	21.0	25.0	23.0	24.0	23.0	21.5	22.0
16	25.5	22.5	24.0	21.5	19.5	20.5	25.0	23.5	24.5	21.5	19.5	20.5
17	26.0	24.0	25.0	23.0	20.0	21.5	25.0	23.0	24.0	20.5	18.5	19.5
18	26.5	25.0	25.5	24.0	21.5	23.0	25.0	24.0	24.5	20.0	18.5	19.0
19	25.0	23.0	24.0	25.5	23.0	24.0	25.0	24.5	25.0	19.0	18.0	18.5
20	24.0	23.0	23.5	25.5	24.0	24.5	24.0	23.0	23.5	19.5	18.0	18.5
21	25.0	22.5	24.0	26.0	24.0	25.0	23.0	22.5	23.0	19.5	18.5	19.0
22	24.5	23.0	24.0	25.5	21.5	23.5	22.0	21.0	21.0	19.0	18.0	18.5
23	22.5	19.5	21.0	21.5	20.0	21.0	21.5	21.0	21.5	18.0	15.5	16.5
24	21.0	19.0	19.5	21.0	20.0	20.5	23.0	21.0	22.0	15.5	14.0	15.0
25	22.5	20.0	21.0	22.5	20.5	21.5	24.0	21.5	23.0	15.5	14.0	15.0
26	23.5	21.0	22.5	23.0	21.0	22.0	25.5	23.0	24.0	18.0	15.5	16.5
27	25.0	22.5	23.5	23.5	22.0	22.5	26.5	24.0	25.5	18.5	17.0	18.0
28	24.0	23.0	23.5	25.0	22.0	23.5	27.0	25.5	26.0	19.0	18.0	18.0
29	24.5	22.5	23.5	25.5	23.0	24.5	26.0	25.0	25.5	18.5	18.0	18.5
30	26.0	23.5	24.5	25.5	24.5	25.0	25.5	24.0	25.0	18.5	17.5	18.0
31	---	---	---	25.5	24.0	24.5	25.5	24.0	24.5	---	---	---
MONTH	26.5	17.0	22.0	30.5	19.5	24.0	27.5	21.0	24.0	26.5	14.0	21.0
YEAR	30.5	.0	12.5									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	10.4	9.2	10.0	14.1	13.2	13.6	14.5	12.8	13.6
2	---	---	---	10.6	10.0	10.3	14.6	13.2	13.8	15.7	12.7	13.9
3	11.7	10.3	10.8	11.2	9.8	10.4	13.4	12.8	13.1	15.7	13.6	14.7
4	12.8	10.9	11.6	11.0	10.4	10.6	14.2	12.8	13.6	14.4	13.0	13.7
5	14.1	12.5	13.1	10.9	10.2	10.5	14.6	12.8	13.6	13.4	12.8	13.1
6	14.2	12.0	13.2	10.8	10.2	10.4	14.3	13.2	13.7	13.0	12.4	12.7
7	13.5	12.0	12.8	10.4	10.0	10.1	14.4	13.4	14.0	12.8	12.4	12.7
8	13.7	12.5	13.2	10.4	10.0	10.2	15.5	13.6	14.6	13.1	12.5	12.8
9	13.4	11.6	12.6	10.5	10.0	10.2	16.0	14.2	15.1	13.2	13.0	13.1
10	14.5	12.8	13.7	10.6	10.0	10.3	16.2	14.2	15.4	13.2	12.8	12.9
11	16.0	13.1	14.3	10.4	9.8	10.2	15.2	13.8	14.5	13.3	13.2	13.2
12	17.0	15.3	16.1	10.6	10.0	10.3	15.2	13.8	14.4	13.5	13.2	13.3
13	16.7	15.0	15.8	10.6	10.0	10.3	15.6	13.8	14.9	13.6	13.4	13.5
14	16.7	15.2	16.0	10.6	10.2	10.4	15.6	14.0	14.9	13.7	13.6	13.6
15	16.6	14.7	15.4	11.8	10.0	10.4	16.1	14.4	15.5	13.8	13.6	13.6
16	15.2	13.3	14.2	---	---	---	15.2	13.8	14.5	13.8	13.6	13.6
17	14.2	11.8	12.7	---	---	---	15.4	14.6	15.1	13.6	13.0	13.4
18	12.4	11.6	11.8	---	---	---	16.8	13.8	14.9	13.0	12.5	12.8
19	12.1	11.3	11.7	---	---	---	16.6	15.0	15.3	19.0	12.5	15.7
20	11.7	11.0	11.5	---	---	---	15.3	14.4	14.8	18.4	13.2	14.8
21	12.5	10.9	11.6	---	---	---	16.9	14.4	14.8	13.5	13.2	13.3
22	12.8	11.6	12.1	---	---	---	14.6	14.0	14.3	13.4	12.4	13.0
23	12.8	12.0	12.4	---	---	---	14.7	14.0	14.3	12.8	12.4	12.7
24	13.0	11.6	12.3	---	---	---	16.8	14.4	15.0	12.6	12.4	12.5
25	13.0	11.6	12.3	---	---	---	17.5	14.0	15.4	12.6	12.4	12.4
26	12.6	11.8	12.2	---	---	---	19.0	14.2	16.2	12.8	12.6	12.8
27	20.0	11.4	13.2	---	---	---	14.4	13.6	14.0	13.1	12.8	12.9
28	11.7	10.8	11.3	---	---	---	14.4	13.2	13.7	13.0	12.8	12.8
29	11.2	10.4	10.7	---	---	---	13.4	12.6	13.0	12.8	12.4	12.7
30	10.7	10.0	10.4	14.0	12.8	13.6	14.2	12.8	13.5	13.1	12.4	12.8
31	10.6	9.0	9.9	---	---	---	14.4	13.2	13.7	13.2	12.6	12.9
MONTH	20.0	9.0	12.7	14.0	9.2	10.5	19.0	12.6	14.4	19.0	12.4	13.3

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	12.6	12.8	13.3	12.8	13.0	13.9	12.8	13.3	15.5	9.4	12.0
2	12.6	12.0	12.3	13.6	12.8	13.0	13.0	11.8	12.1	18.6	10.0	13.6
3	12.4	12.0	12.2	13.2	12.8	12.9	12.4	11.8	12.0	17.6	12.8	15.4
4	12.4	12.0	12.1	13.2	12.8	13.0	12.8	11.8	12.2	15.8	10.2	12.1
5	12.4	12.2	12.3	13.1	12.8	13.0	12.6	11.6	12.0	10.5	9.0	9.7
6	12.6	12.4	12.5	13.4	13.0	13.2	13.0	11.7	12.3	10.4	9.4	9.8
7	12.6	12.2	12.5	14.0	13.2	13.4	13.4	11.6	12.4	9.6	8.8	9.2
8	12.5	12.0	12.3	13.4	13.2	13.3	15.0	12.2	13.2	9.6	9.0	9.2
9	12.2	12.0	12.1	13.3	12.6	13.0	14.6	12.8	13.6	9.0	8.4	8.7
10	12.2	12.0	12.0	12.4	11.8	12.3	13.6	12.3	12.9	9.0	8.0	8.6
11	12.1	12.0	12.0	11.8	11.2	11.6	12.4	11.4	11.9	10.2	8.8	9.4
12	12.3	12.0	12.1	11.6	10.8	11.4	12.3	11.6	12.0	9.7	8.8	9.1
13	12.0	11.5	11.8	10.9	10.2	10.6	12.5	12.0	12.3	9.6	8.8	9.2
14	12.3	11.4	11.8	10.1	9.6	9.9	12.3	12.0	12.2	10.5	9.4	9.9
15	12.6	12.1	12.4	9.6	9.2	9.3	12.2	12.0	12.0	10.2	9.6	9.7
16	12.2	11.7	12.0	9.5	9.2	9.3	12.2	11.8	12.0	9.7	8.6	9.2
17	12.5	12.0	12.3	10.0	9.2	9.6	12.0	11.4	11.7	8.6	8.4	8.5
18	12.7	12.2	12.5	10.4	10.0	10.2	12.2	8.0	11.2	8.6	8.4	8.5
19	13.0	12.4	12.7	11.0	10.4	10.6	11.6	10.9	11.3	8.5	8.2	8.4
20	13.2	12.8	13.0	12.2	11.0	11.5	10.8	10.4	10.5	8.5	8.2	8.3
21	13.5	13.0	13.2	11.8	11.1	11.4	10.8	10.0	10.3	8.3	8.0	8.2
22	13.2	12.0	12.6	11.5	11.2	11.3	11.2	9.6	10.3	8.8	8.4	8.5
23	11.9	11.2	11.4	12.0	11.2	11.6	12.0	9.6	10.6	8.9	8.4	8.6
24	11.6	10.8	11.1	13.0	11.8	12.2	11.4	9.4	10.4	8.9	8.4	8.6
25	12.3	11.6	11.9	13.7	11.8	12.5	13.1	9.0	10.6	8.6	8.2	8.4
26	12.8	12.2	12.6	14.2	12.4	13.2	13.6	8.6	10.6	8.9	8.4	8.6
27	12.9	12.4	12.6	16.1	12.8	14.1	12.6	8.8	10.5	9.0	8.4	8.6
28	13.1	12.8	12.9	16.6	13.8	15.1	11.5	8.4	9.7	8.9	8.4	8.6
29	---	---	---	15.6	13.9	14.7	12.2	8.2	9.8	9.0	8.5	8.7
30	---	---	---	14.8	12.6	13.7	13.8	8.8	10.8	9.7	8.6	9.1
31	---	---	---	14.6	12.3	13.5	---	---	---	10.0	8.8	9.3
MONTH	13.5	10.8	12.3	16.6	9.2	12.2	15.0	8.0	11.6	18.6	8.0	9.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.8	8.6	9.2	12.8	7.6	9.7	9.2	7.6	8.2	9.7	6.8	8.0
2	9.4	8.4	8.7	12.6	7.7	9.9	9.2	7.8	8.5	9.5	6.8	8.1
3	9.2	8.1	8.6	10.1	7.6	8.7	13.0	8.2	9.8	9.8	6.8	8.3
4	9.3	8.2	8.5	9.4	7.0	8.1	9.1	7.6	8.2	12.6	7.8	10.0
5	10.0	8.6	9.2	9.6	6.8	8.2	10.3	7.6	8.6	10.1	6.8	8.2
6	9.4	8.5	8.8	10.8	7.3	8.8	10.0	8.0	9.1	11.4	7.2	8.8
7	8.8	8.4	8.5	16.0	7.9	10.3	10.3	8.0	8.9	9.7	6.2	7.6
8	8.6	8.0	8.3	17.6	10.8	13.4	11.6	8.2	9.5	9.0	7.0	7.7
9	8.1	7.8	8.0	20.0	11.3	17.5	12.1	7.8	9.8	9.8	7.5	8.6
10	8.0	8.0	8.0	20.0	10.0	15.4	20.0	9.5	15.0	12.0	7.0	9.5
11	8.1	7.6	7.8	12.4	7.6	9.7	20.0	12.4	18.1	10.5	7.0	8.6
12	7.8	7.6	7.7	8.7	7.4	8.0	18.0	13.6	15.9	10.6	6.8	8.5
13	7.8	7.4	7.7	8.2	7.6	7.9	16.4	7.6	12.5	12.5	7.0	9.3
14	7.7	7.4	7.6	8.5	8.0	8.2	14.8	9.0	11.8	10.0	7.0	8.1
15	7.6	7.4	7.5	8.6	7.8	8.2	14.2	7.2	10.5	9.0	6.8	7.9
16	7.4	7.2	7.3	8.8	8.4	8.6	11.7	8.0	9.7	8.2	6.9	7.5
17	7.3	6.9	7.1	9.4	8.6	8.9	8.0	6.4	7.2	9.6	7.2	8.2
18	7.3	6.8	7.0	9.0	8.4	8.7	7.6	6.4	6.9	9.6	8.0	8.8
19	7.5	7.2	7.3	8.6	7.8	8.3	7.4	6.4	6.9	9.6	7.6	8.2
20	7.4	7.2	7.3	8.0	7.4	7.8	7.4	6.6	7.0	9.2	7.6	8.1
21	7.9	7.2	7.6	8.6	7.6	7.9	7.4	6.8	7.1	9.3	8.0	8.6
22	7.8	7.2	7.5	8.2	7.2	7.7	7.2	6.8	7.1	9.6	7.6	8.7
23	8.6	7.8	8.2	8.2	7.2	7.7	7.4	7.2	7.2	9.8	8.2	9.0
24	9.4	8.2	8.7	8.2	7.2	7.5	7.5	7.2	7.3	10.8	9.2	9.9
25	9.9	8.8	9.2	8.1	7.6	7.8	8.0	7.2	7.5	10.6	10.0	10.2
26	10.9	8.8	9.9	8.3	8.0	8.1	8.6	6.8	7.6	11.0	9.2	10.2
27	14.8	8.3	10.4	8.8	7.6	8.1	9.3	7.1	8.1	11.8	9.2	10.3
28	12.5	8.4	9.9	8.9	8.0	8.2	9.9	7.0	8.2	11.2	9.2	10.1
29	10.4	8.0	8.8	8.2	7.6	7.9	8.6	6.4	7.2	9.8	8.4	9.0
30	10.2	7.6	8.7	8.1	7.6	7.8	9.2	6.6	7.6	10.8	8.8	9.5
31	---	---	---	8.5	7.6	8.0	9.0	6.8	7.7	---	---	---
MONTH	14.8	6.8	8.3	20.0	6.8	9.1	20.0	6.4	9.2	12.6	6.2	8.8
YEAR	20.0	6.2	11.0									

04193500 MAUMEE RIVER AT WATERVILLE, OH
(National stream quality accounting network station)

LOCATION.--Lat 41°30'00", long 83°42'46", Lucas County, Hydrologic Unit 04100009, on downstream side of first pier from left end of bridge on State Highway 64 at Waterville, 3 mi downstream from Tontogany Creek, and 20.7 mi upstream from mouth.

DRAINAGE AREA.--6,330 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1898 to December 1901, August 1921 to December 1935, March 1939 to current year.

REVISED RECORDS.--WSP 894: 1930(M). WSP 1084: 1946. WSP 1387: 1900(M), 1922-23, 1933. WDR OH-68-1: 1967. WDR OH-70-1: Drainage area. WRD-OH-82-2: 1981.

GAGE.--Water-stage recorder with auxilliary crest-stage gage. Datum of gage is 595.71 ft above National Geodetic Datum of 1929. Nov. 19, 1898 to Dec. 31, 1901, Aug. 26, 1921 to July 31, 1930, nonrecording gage Aug. 1, 1930 to Dec. 31, 1935, water-stage recorder, Mar. 14, 1939 to Mar. 12, 1940, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Nov. 5-8, Dec. 7-9, Dec. 12- Jan. 31, and Feb. 10-16. Records fair except for estimated daily discharges which are poor. Satellite telemeter at station.

AVERAGE DISCHARGE.--65 years (1921-35, 1939-90), 4,944 ft³/s, 10.60 in/yr includes flow in Miami and Erie Canal at Waterville 1922-29; canal was abandoned in 1929 and was filled in prior to March 1939.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s Mar. 14, 1982, gage height, 14.96 ft recorder-manometer; 17.18 ft from floodmark. Practically no flow at times prior to June 30, 1929, when entire river flow was being diverted by canal; minimum daily since canal was abandoned, 17 ft³/s June 30, 1988, probably as a result of heavy upstream withdrawals.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 19.9 ft, from information by local resident, estimated discharge, 180,000 ft³/s, from rating curve extended above 94,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65,000 ft³/s February 24 gage height, 12.16 ft; minimum daily, 318 ft³/s, Oct. 17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	530	838	987	400	3520	16800	6600	2210	3110	3930	1780	2600
2	558	520	1420	1100	5410	13900	8490	2120	2420	4100	1500	1860
3	470	490	829	2500	20600	11800	9170	1520	2680	5520	1100	1240
4	421	584	657	4500	26100	9850	8170	2070	5700	2090	1080	1030
5	364	670	817	7000	26300	8070	6690	6890	7840	1300	1310	894
6	504	520	766	13000	25300	6740	5260	12900	7030	992	1840	1070
7	413	410	650	12000	19200	5770	4500	12900	5090	1040	1890	995
8	366	500	600	9600	14000	4870	3690	9510	4970	747	1670	933
9	340	617	570	8000	10000	5580	2840	6310	8820	677	1600	1110
10	393	467	829	7200	8700	7360	3390	4760	14600	728	1300	1490
11	333	601	704	8200	7800	10000	12900	3180	15000	651	1070	3870
12	330	450	630	9800	7000	12200	17700	2780	12800	2370	925	4150
13	354	468	580	7000	6100	12800	16500	4330	9700	4040	1970	3130
14	404	638	540	5200	5600	10900	12500	10800	7740	6750	3690	2130
15	374	1040	520	4200	5200	9870	9780	13500	5490	12400	5190	2450
16	348	2920	490	3600	17200	9340	8080	19900	4520	9070	5720	2170
17	318	4990	470	4100	32700	10900	7180	34700	3720	6760	4620	3060
18	373	7750	460	8000	31800	11000	5950	35700	2590	5580	3200	2010
19	543	6220	440	13000	26600	9370	4830	27200	1850	4760	2460	2340
20	1020	4870	430	16000	19100	7620	3950	21400	1760	3750	2960	1680
21	1210	3600	420	12000	14800	6240	4150	17600	1590	3320	5000	1250
22	800	2550	410	10000	21900	5370	5550	14200	1240	5700	5890	1800
23	762	2850	400	16000	57300	4550	6200	10400	1860	30000	5460	1020
24	1300	2560	390	11000	62500	3930	6520	7300	1590	38300	5880	1400
25	1350	2080	380	8000	48100	3450	5400	5140	1200	31900	4940	994
26	1000	1560	370	6000	33000	2820	4190	5340	955	19400	3420	1490
27	1150	1270	360	5200	25200	2430	3040	10500	720	12100	2060	1210
28	1020	1720	350	4500	20800	2350	3050	9800	906	8390	1770	861
29	732	1180	350	4000	---	2020	2680	7930	2290	6380	1900	843
30	716	964	340	3700	---	2520	2550	5710	2630	4740	1640	848
31	750	---	340	3300	---	4940	---	4030	---	2930	2790	---
TOTAL	19546	55897	17499	228100	601830	235360	201500	332630	142411	240415	87625	51928
MEAN	631	1863	564	7358	21490	7592	6717	10730	4747	7755	2827	1731
MAX	1350	7750	1420	16000	62500	16800	17700	35700	15000	38300	5890	4150
MIN	318	410	340	400	3520	2020	2550	1520	720	651	925	843
CFSM	.10	.29	.09	1.16	3.40	1.20	1.06	1.70	.75	1.23	.45	.27
IN.	.11	.33	.10	1.34	3.54	1.38	1.18	1.95	.84	1.41	.51	.31

CAL YR 1989 TOTAL 1540758 MEAN 4221 MAX 42700 MIN 318 CFSM .67 IN. 9.05
WTR YR 1990 TOTAL 2214741 MEAN 6068 MAX 62500 MIN 318 CFSM .96 IN. 13.02

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1950 to current year.

PERIOD OF DAILY RECORD.--
CHLORIDE: October 1987 to current year.
NITROGEN, NITRITE + NITRATE: October 1987 to current year.
NITROGEN, AMMONIA + ORGANIC: October 1987 to current year.
PHOSPHORUS: October 1987 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 1950 to September 1984. October 1987 to current year.

INSTRUMENTATION.--Refrigerated water-quality pumping sampler since 1987. Sampler located at station 04193490.

REMARKS.--Water-quality samples were collected by pumping sampler three times daily. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Alachlor concentrations for 1989-1990 will be published in the 1991 WDR.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 110 mg/L July 31-Aug. 6, 1988; minimum daily mean, <10 mg/L July 24-26, 1990.
DISSOLVED CHLORIDE LOADS: Maximum daily, 3,490 tons May 27, 1989; minimum daily, 10.5 tons June 28, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 24.1 mg/L May 13, 1990; minimum daily mean, <.100 mg/L on many days during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 1300 tons April 5, 1989; minimum daily, .01 ton many days during 1988 water year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 6.6 mg/L Feb. 23, 1990; minimum daily mean, .33 mg/L Feb. 26, 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 1030 tons Feb. 23, 1990; minimum daily, .25 ton June 28, 30, July 1, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.95 mg/L Feb. 4, 1990; minimum daily mean, .072 mg/L Oct. 26, 1987.
TOTAL PHOSPHORUS LOADS: Maximum daily, 284 tons Feb. 24, 1990; minimum daily, .040 ton July 16, 1988.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,240 mg/L March 26, 1954; minimum daily mean, 1 mg/L on many days during 1953, 1955, 1963.
SEDIMENT LOADS: Maximum daily, 300,000 tons Feb. 24, 1990; minimum daily, 0.26 ton Sept. 18, 1955.

EXTREMES FOR 1989 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 84 mg/L Oct. 14, 15; minimum daily mean, 14 mg/L June 5.
DISSOLVED CHLORIDE LOADS: Maximum daily, 3490 tons May 27; minimum daily, 45.5 tons Aug. 22.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 16.1 mg/L Nov. 7; minimum daily mean, .175 mg/L Aug. 31.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 1300 tons April 5; minimum daily, .29 ton Oct. 16.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 3.8 mg/L Jan. 9; minimum daily mean, .33 mg/L Feb. 26.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 385 ton May 28; minimum daily, 1.47 ton Aug. 22.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.19 mg/L May 28; minimum daily mean, .100 mg/L May 20.
TOTAL PHOSPHORUS LOADS: Maximum daily, 113 tons May 28; minimum daily, .17 ton Oct. 16, Aug. 22.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1240 mg/L May 28; minimum daily mean, 10 mg/L Dec. 19, 20.
SEDIMENT LOADS: Maximum daily, 126,000 tons June 4; minimum daily, 18 tons Oct. 16.

EXTREMES FOR CURRENT YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 76.0 mg/L Jan. 3; minimum daily mean, <10.0 mg/L July 24-26.
DISSOLVED CHLORIDE LOADS: Maximum daily, 2510 tons Feb. 18; minimum daily, 33.6 tons Oct. 11.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 24.1 mg/L May 13; minimum daily mean, .38 Oct. 26.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 1100 tons May 17; minimum daily, .47 ton Nov. 7.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 6.6 mg/L Feb. 23; minimum daily mean, .79 mg/L April 19.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 1030 tons Feb. 23; minimum daily, .74 ton Dec. 31.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.95 mg/L Feb. 4; minimum daily mean, .106 mg/L Dec. 12, 29-31.
TOTAL PHOSPHORUS LOADS: Maximum daily, 284 tons Feb. 24; minimum daily, .097 ton Dec. 30, 31.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,770 mg/L Feb. 24; minimum daily mean, 5 mg/L Dec. 30, 31, Jan. 1.
SEDIMENT LOADS: Maximum daily, 300,000 tons Feb. 24; minimum daily, 4.8 tons Dec. 31.

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
25...	1315	1500	620	9.2	23.0	15.0	31	--	134	K20	K170
MAR											
06...	1245	6620	550	8.2	-1.0	1.0	67	13.3	95	K430	K540
JUN											
04...	1145	5980	630	8.2	--	16.5	45	9.3	99	K620	K620
JUL											
24...	1245	38800	285	7.8	25.0	21.5	530	7.3	84	K4000	K10000

DATE	HARD-NESS TOTAL (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)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
25...	210	47	23	34	6.3	103	29	136	89	54	0.4
MAR											
06...	240	68	18	13	2.9	178	0	146	60	29	0.4
JUN											
04...	300	84	21	14	3.3	212	0	179	78	33	0.3
JUL											
24...	130	38	8.4	6.0	3.9	100	0	83	21	11	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
OCT											
25...	0.11	336	0.01	0.52	0.03	<0.01	1.9	0.15	0.02	0.02	10
MAR											
06...	6.4	350	0.05	6.10	0.16	0.14	1.2	0.02	0.05	0.05	60
JUN											
04...	6.7	407	0.05	9.50	0.04	0.03	1.1	0.12	0.08	0.07	20
JUL											
24...	7.0	201	0.07	5.20	0.04	0.02	3.0	0.19	0.10	0.08	70

DATE	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)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT										
25...	<1	24	<0.5	<1.0	<1	<3	6	9	<1	7
MAR										
06...	<1	33	<0.5	1.0	<5	<3	<10	68	<10	5
JUN										
04...	1	44	<0.5	<1.0	<1	<3	4	21	<1	8
JUL										
24...	1	24	<0.5	<1.0	<1	<3	8	77	<1	6

DATE	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)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)
OCT										
25...	2	<0.1	<10	4	<1	<1.0	860	<6	16	42
MAR										
06...	10	<0.1	<10	<10	<1	<1.0	490	<6	12	63
JUN										
04...	5	<0.1	<10	2	<1	<1.0	700	<6	8	84
JUL										
24...	4	0.1	<10	5	<1	<1.0	300	<6	7	850

K Based on colony count outside the acceptable range.

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	67	77.6	1070	35	102	3820	32	326
2	410	67	74.2	910	37	91.6	3220	32	279
3	325	67	59.1	711	39	74.2	2960	32	256
4	488	67	88.5	753	39	79.4	2230	32	193
5	600	70	113	1700	41	189	2270	34	208
6	462	71	89.1	4700	42	539	2310	34	215
7	532	71	102	5200	43	605	1800	34	166
8	458	74	91.0	5780	45	701	1590	35	149
9	410	76	83.7	5780	43	668	1570	36	151
10	561	77	117	6440	42	734	1650	35	158
11	403	78	84.4	8520	44	1000	1720	37	171
12	549	73	107	8740	42	992	1270	38	130
13	1140	72	221	7940	40	866	1060	39	110
14	1130	84	258	8180	41	902	1050	39	111
15	475	84	108	7240	35	694	1390	40	151
16	320	83	71.5	6330	33	570	1140	41	126
17	407	81	89.3	4920	34	454	923	41	102
18	7530	65	1230	4620	35	438	919	41	102
19	10800	53	1530	4680	35	440	848	41	93.3
20	7980	28	613	4270	36	416	1030	41	114
21	5240	29	402	11400	30	924	1220	42	138
22	4040	32	346	13500	29	1050	1010	45	122
23	2690	30	217	11100	31	939	1450	44	173
24	2480	33	218	8390	31	711	2000	45	244
25	2350	33	211	6720	32	585	3220	47	406
26	1890	33	169	5620	33	501	3450	48	449
27	1540	32	135	4890	32	428	3730	48	483
28	1550	32	134	5470	31	463	6050	46	746
29	1220	31	103	4780	30	387	11000	41	1220
30	1060	32	92.3	4620	31	382	11000	40	1180
31	925	33	83.3	---	---	---	8730	50	1170
TOTAL	60394	---	7318.0	174974	---	16925.2	87630	---	9642.3
		JANUARY			FEBRUARY			MARCH	
1	6750	49	893	6660	31	564	1400	65	245
2	5780	46	718	5820	31	488	1200	66	214
3	4550	43	527	4940	32	430	1100	62	185
4	3720	42	418	4150	33	370	980	57	151
5	3220	43	371	3170	34	294	890	53	127
6	2720	45	330	3040	36	293	860	54	125
7	4900	44	571	2810	39	296	2770	56	420
8	26100	34	2390	1740	39	184	2820	55	417
9	30100	30	2480	1200	40	131	2780	53	395
10	22500	30	1800	1000	41	111	2120	51	295
11	16200	27	1190	950	40	104	2000	52	279
12	11900	27	870	1000	41	112	1800	53	259
13	10600	28	792	1100	43	128	1680	56	255
14	9750	28	738	1300	45	158	1800	58	280
15	8340	30	673	1480	45	179	2000	59	317
16	6680	32	574	1980	45	243	2120	60	341
17	5110	33	451	2020	47	259	2480	56	374
18	4210	34	382	2290	49	305	4790	47	601
19	3830	35	358	2000	54	291	8950	42	1010
20	4200	35	397	1800	55	266	7010	36	690
21	4190	36	411	2100	53	303	6500	35	619
22	3570	38	363	2800	61	463	6190	37	613
23	2970	40	318	3590	69	671	6000	38	609
24	2720	41	299	4410	74	880	5570	38	565
25	2520	42	283	3660	67	665	5070	39	538
26	4650	41	516	2800	59	449	3740	42	424
27	13500	38	1370	2000	61	328	4100	43	480
28	14700	33	1290	1600	60	260	5270	37	523
29	11300	34	1040	---	---	---	5060	33	448
30	9750	34	892	---	---	---	5140	35	489
31	7950	32	695	---	---	---	5230	38	532
TOTAL	268980	---	24400	73410	---	9225	109420	---	12820

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	7170	39	749	5390	34	495	17800	33	1590
2	8710	40	933	4560	35	435	19600	32	1670
3	14100	35	1280	3900	37	392	21100	26	1420
4	29700	23	1840	3200	39	333	42700	16	1790
5	37300	19	1960	3020	39	318	41200	14	1540
6	33400	19	1720	2770	40	296	35100	15	1420
7	25100	20	1370	3210	40	347	28700	15	1140
8	18400	22	1110	3080	42	347	22300	24	1430
9	14400	24	945	2570	43	302	15300	32	1320
10	11300	26	793	2600	45	314	10400	36	994
11	8770	27	640	2970	47	376	7680	37	766
12	6430	28	491	3160	45	387	5890	35	553
13	5220	30	427	3040	45	372	5060	37	507
14	4100	32	351	3590	47	453	5590	31	469
15	3660	33	328	4000	48	513	5290	29	416
16	3140	35	294	4480	49	593	4270	31	358
17	3100	35	297	5160	51	715	3430	33	307
18	3170	34	294	4190	54	611	2960	35	282
19	3370	35	315	3380	57	520	3040	36	298
20	3000	35	283	3270	61	534	4670	32	406
21	2730	36	267	4080	60	660	4100	31	344
22	2650	37	265	4420	57	675	3360	31	278
23	2400	38	244	3800	50	509	4340	30	355
24	2410	40	257	3320	42	374	5070	28	384
25	2400	41	263	3420	38	346	4480	30	364
26	2640	41	292	13000	35	1300	3290	32	287
27	3640	40	396	32700	40	3490	2700	35	255
28	6300	41	703	35000	27	2510	2250	35	214
29	6510	43	749	29600	20	1570	1680	32	143
30	6610	40	718	18200	30	1450	1650	29	128
31	---	---	---	17700	28	1320	---	---	---
TOTAL	281830	---	20574	236780	---	22857	335000	---	21428
		JULY			AUGUST			SEPTEMBER	
1	1360	28	103	2080	35	195	1230	48	157
2	1890	29	150	1760	34	164	1020	48	131
3	1760	31	148	1590	33	143	1380	47	176
4	1460	32	124	1170	34	108	1730	48	222
5	1270	31	107	999	34	92.5	1830	49	242
6	1210	30	99.5	1050	34	96.2	1630	50	218
7	1130	29	89.6	926	35	87.6	1740	49	229
8	982	29	77.0	943	36	92.5	1400	53	198
9	919	30	75.1	1160	36	113	1440	58	228
10	951	31	80.4	889	37	88.0	1650	61	270
11	631	33	56.3	678	38	68.8	3370	57	514
12	820	34	76.0	870	38	89.3	4750	46	588
13	1480	36	144	854	39	89.1	3560	39	374
14	2230	39	235	853	39	90.6	2430	36	238
15	1760	42	201	940	40	100	2460	34	225
16	1660	44	199	792	41	86.9	3790	32	330
17	1210	40	132	653	40	71.2	4970	30	404
18	1070	30	85.3	511	40	55.2	4400	32	382
19	952	28	72.8	532	41	58.4	3510	34	319
20	920	27	68.1	633	42	71.3	2750	35	257
21	1150	28	88.0	670	43	77.1	2310	36	226
22	2680	32	235	396	43	45.5	1890	38	193
23	3180	31	271	499	44	58.9	1600	39	166
24	2990	26	209	529	44	62.9	1260	38	128
25	2230	22	132	508	44	60.4	1060	37	106
26	2120	24	139	575	45	69.3	835	38	85.2
27	2200	27	160	678	46	84.8	663	37	66.5
28	3090	26	216	637	48	82.2	644	35	61.4
29	2900	19	153	973	48	126	729	34	67.3
30	2380	15	96.8	699	49	91.8	607	35	57.1
31	2260	20	116	866	49	114	---	---	---
TOTAL	52845	---	4138.9	26913	---	2833.5	62638	---	6858.5
YEAR	1770814		159040.6						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	.274	.32	1070	9.71	28	3820	9.39	97
2	410	.365	.40	910	9.93	24	3220	9.00	78
3	325	.480	.42	711	10.1	19	2960	8.73	70
4	488	.502	.66	753	9.97	20	2230	8.51	51
5	600	.625	1.0	1700	11.4	56	2270	8.69	53
6	462	.700	.87	4700	16.0	200	2310	8.44	53
7	532	.699	1.0	5200	16.1	230	1800	8.30	40
8	458	.632	.78	5780	14.5	230	1590	8.36	36
9	410	.531	.59	5780	14.0	220	1570	8.33	35
10	561	.418	.63	6440	13.9	240	1650	7.91	35
11	403	.398	.43	8520	14.0	320	1720	7.77	36
12	549	.333	.48	8740	12.4	290	1270	7.87	27
13	1140	.300	.92	7940	11.9	260	1060	8.00	23
14	1130	.300	.92	8180	12.7	280	1050	7.94	23
15	475	.305	.39	7240	12.5	240	1390	8.03	30
16	320	.340	.29	6330	12.2	210	1140	7.90	24
17	407	.418	.47	4920	12.6	170	923	7.60	19
18	7530	5.25	140	4620	12.6	160	919	7.23	18
19	10800	8.53	250	4680	11.4	140	848	6.88	16
20	7980	9.25	200	4270	10.9	130	1030	6.64	19
21	5240	9.42	130	11400	12.1	370	1220	6.70	22
22	4040	8.38	92	13500	12.1	440	1010	7.12	19
23	2690	8.02	58	11100	11.7	350	1450	7.29	29
24	2480	8.51	57	8390	11.1	250	2000	7.03	38
25	2350	8.34	53	6720	11.1	200	3220	6.58	57
26	1890	8.20	42	5620	11.1	170	3450	6.96	65
27	1540	8.39	35	4890	10.6	140	3730	6.84	69
28	1550	8.51	36	5470	10.2	150	6050	8.73	150
29	1220	8.90	29	4780	9.63	120	11000	12.2	360
30	1060	9.55	27	4620	9.47	120	11000	11.2	330
31	925	9.74	24	---	---	---	8730	11.0	260
TOTAL	60394	---	1183.57	174974	---	5777	87630	---	2182
		JANUARY			FEBRUARY			MARCH	
1	6750	11.3	210	6660	11.8	210	1400	7.01	26
2	5780	11.3	180	5820	11.5	180	1200	7.10	23
3	4550	11.2	140	4940	11.1	150	1100	7.26	22
4	3720	11.1	110	4150	10.4	120	980	7.23	19
5	3220	11.4	99	3170	10.3	88	890	7.13	17
6	2720	11.2	82	3040	10.2	84	860	7.20	17
7	4900	11.6	150	2810	10.4	79	2770	7.59	57
8	26100	11.1	790	1740	10.3	48	2820	7.70	59
9	30100	11.4	930	1200	10.3	33	2780	7.57	57
10	22500	11.8	720	1000	10.4	28	2120	7.37	42
11	16200	11.7	510	950	10.1	26	2000	7.23	39
12	11900	11.6	370	1000	9.77	26	1800	7.12	35
13	10600	11.5	330	1100	9.94	30	1680	6.43	29
14	9750	11.0	290	1300	10.0	35	1800	6.09	30
15	8340	10.7	240	1480	9.08	36	2000	5.71	31
16	6680	10.4	190	1980	8.93	48	2120	5.82	33
17	5110	10.2	140	2020	8.86	48	2480	6.11	41
18	4210	10.0	110	2290	8.28	51	4790	7.85	100
19	3830	10.0	100	2000	8.18	44	8950	9.52	230
20	4200	9.94	110	1800	7.53	37	7010	8.73	170
21	4190	10.2	120	2100	6.93	39	6500	8.98	160
22	3570	10.2	98	2800	6.90	52	6190	9.10	150
23	2970	10.4	83	3590	6.89	67	6000	9.00	150
24	2720	10.3	76	4410	6.63	79	5570	9.02	140
25	2520	10.1	68	3660	6.31	62	5070	9.52	130
26	4650	9.96	130	2800	6.52	49	3740	9.69	98
27	13500	11.2	410	2000	6.72	36	4100	9.30	100
28	14700	11.0	440	1600	7.09	31	5270	11.1	160
29	11300	11.3	340	---	---	---	5060	12.6	170
30	9750	11.8	310	---	---	---	5140	11.8	160
31	7950	12.1	260	---	---	---	5230	11.5	160
TOTAL	268980	---	8136	73410	---	1816	109420	---	2655

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	7170	11.2	220	5390	7.77	110	17800	9.25	440
2	8710	10.9	260	4560	8.98	110	19600	8.65	460
3	14100	12.3	480	3900	8.74	92	21100	6.63	380
4	29700	13.3	1100	3200	8.43	73	42700	6.83	790
5	37300	13.3	1300	3020	8.34	68	41200	6.32	700
6	33400	12.7	1200	2770	8.36	63	35100	6.19	590
7	25100	12.6	850	3210	8.20	71	28700	5.77	450
8	18400	12.8	630	3080	8.08	67	22300	5.93	360
9	14400	12.3	480	2570	8.50	59	15300	5.83	240
10	11300	12.0	360	2600	8.24	58	10400	5.80	160
11	8770	11.9	280	2970	8.26	66	7680	5.60	120
12	6430	11.8	200	3160	8.27	70	5890	5.37	85
13	5220	11.7	160	3040	8.21	67	5060	5.28	72
14	4100	11.3	130	3590	8.60	84	5590	5.52	83
15	3660	11.1	110	4000	9.19	99	5290	5.64	81
16	3140	10.7	91	4480	9.22	110	4270	5.56	64
17	3100	10.4	87	5160	8.71	120	3430	5.48	51
18	3170	10.7	92	4190	8.73	99	2960	5.40	43
19	3370	11.0	100	3380	9.08	83	3040	5.65	46
20	3000	10.8	88	3270	8.74	77	4670	7.16	91
21	2730	10.7	78	4080	8.70	96	4100	7.98	88
22	2650	9.72	70	4420	8.53	100	3360	8.48	77
23	2400	8.64	56	3800	8.12	83	4340	7.71	90
24	2410	8.55	56	3320	7.50	67	5070	6.36	87
25	2400	8.34	54	3420	7.46	69	4480	5.97	72
26	2640	8.17	58	13000	9.48	340	3290	6.27	55
27	3640	8.00	78	32700	9.28	820	2700	7.11	52
28	6300	6.48	110	35000	8.50	800	2250	6.69	41
29	6510	5.58	98	29600	7.67	610	1680	6.01	27
30	6610	6.13	110	18200	7.78	380	1650	5.86	26
31	---	---	---	17700	8.77	420	---	---	---
TOTAL	281830	---	8986	236780	---	5431	335000	---	5921
		JULY			AUGUST			SEPTEMBER	
1	1360	5.62	21	2080	4.43	25	1230	.215	.77
2	1890	4.90	25	1760	4.56	22	1020	.361	.99
3	1760	4.53	21	1590	4.19	18	1380	.333	1.2
4	1460	4.44	17	1170	3.67	12	1730	.302	1.4
5	1270	4.37	15	999	3.37	9.1	1830	.424	2.1
6	1210	4.40	14	1050	3.44	9.7	1630	.564	2.5
7	1130	4.33	13	926	3.86	9.7	1740	.591	2.8
8	982	4.30	11	943	4.06	10	1400	.306	1.2
9	919	4.50	11	1160	4.03	13	1440	.200	.78
10	951	5.10	13	889	4.00	9.6	1650	.348	1.6
11	631	5.50	9.4	678	3.80	7.0	3370	1.42	14
12	820	5.40	12	870	3.50	8.2	4750	2.16	28
13	1480	5.25	21	854	3.20	7.4	3560	2.74	26
14	2230	4.52	27	853	2.91	6.7	2430	3.06	20
15	1760	3.52	17	940	2.41	6.1	2460	2.97	20
16	1660	2.80	13	792	1.96	4.2	3790	2.84	29
17	1210	2.28	7.5	653	1.73	3.1	4970	3.19	43
18	1070	1.67	4.8	511	1.50	2.1	4400	3.95	47
19	952	1.67	4.3	532	1.33	1.9	3510	4.20	40
20	920	1.77	4.4	633	1.30	2.2	2750	4.19	31
21	1150	1.93	6.0	670	1.30	2.4	2310	3.73	23
22	2680	1.82	13	396	1.30	1.4	1890	3.37	17
23	3180	1.89	16	499	1.30	1.7	1600	3.30	14
24	2990	2.01	16	529	1.16	1.7	1260	3.31	11
25	2230	1.00	6.2	508	.965	1.3	1060	3.70	11
26	2120	.518	3.0	575	.831	1.3	835	3.80	8.6
27	2200	.403	2.4	678	.665	1.2	663	3.96	7.1
28	3090	.600	5.0	637	.598	1.0	644	3.92	6.8
29	2900	2.15	17	973	.532	1.4	729	3.98	7.8
30	2380	3.78	24	699	.426	.80	607	3.84	6.3
31	2260	4.10	25	866	.175	.42	---	---	---
TOTAL	52845	---	415.0	26913	---	201.62	62638	---	425.94
YEAR	1770814		43113.01						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	1.9	2.24	1070	1.7	4.91	3820	1.2	12.1
2	410	1.8	2.03	910	1.6	3.99	3220	1.2	10.1
3	325	1.8	1.61	711	1.6	3.01	2960	1.1	9.07
4	488	2.1	2.80	753	1.6	3.27	2230	1.0	6.24
5	600	2.2	3.55	1700	1.6	7.76	2270	1.2	7.41
6	462	2.0	2.53	4700	1.7	21.9	2310	1.2	7.49
7	532	1.8	2.58	5200	1.5	20.4	1800	1.1	5.52
8	458	1.8	2.26	5780	1.5	22.8	1590	1.0	4.45
9	410	2.0	2.17	5780	1.7	27.0	1570	1.0	4.23
10	561	1.9	2.84	6440	2.0	34.8	1650	1.0	4.47
11	403	1.7	1.90	8520	1.7	38.3	1720	1.1	4.92
12	549	1.8	2.62	8740	1.6	38.5	1270	1.0	3.41
13	1140	1.7	5.32	7940	1.8	39.0	1060	1.1	3.14
14	1130	1.6	5.00	8180	1.6	34.6	1050	1.0	2.94
15	475	1.6	2.07	7240	1.5	28.7	1390	1.0	3.76
16	320	1.7	1.49	6330	1.6	28.0	1140	1.1	3.25
17	407	1.9	2.05	4920	1.6	21.1	923	1.0	2.59
18	7530	2.0	40.5	4620	1.3	16.3	919	1.2	2.95
19	10800	1.7	51.0	4680	1.4	17.3	848	1.1	2.54
20	7980	2.7	58.8	4270	1.4	16.8	1030	.93	2.60
21	5240	2.1	30.6	11400	2.0	62.8	1220	.90	2.97
22	4040	1.9	20.2	13500	2.1	77.5	1010	1.1	2.95
23	2690	1.7	12.2	11100	1.9	55.7	1450	1.2	4.71
24	2480	1.6	10.5	8390	1.6	35.6	2000	1.2	6.47
25	2350	1.4	9.08	6720	1.5	27.2	3220	1.1	9.26
26	1890	1.4	7.15	5620	1.5	22.7	3450	1.0	9.32
27	1540	1.3	5.29	4890	1.3	17.2	3730	1.0	10.1
28	1550	1.4	5.82	5470	1.3	18.9	6050	1.1	18.7
29	1220	1.4	4.71	4780	1.2	15.1	11000	1.4	42.4
30	1060	1.5	4.19	4620	1.2	15.2	11000	1.8	54.6
31	925	1.5	3.83	---	---	---	8730	1.5	35.7
TOTAL	60394	---	308.93	174974	---	776.34	87630	---	300.36
		JANUARY			FEBRUARY			MARCH	
1	6750	1.4	26.0	6660	1.4	25.1	1400	1.2	4.40
2	5780	1.5	23.2	5820	1.2	18.9	1200	1.2	3.89
3	4550	1.3	15.8	4940	1.2	16.3	1100	1.2	3.56
4	3720	1.0	10.4	4150	1.2	13.8	980	1.1	2.99
5	3220	1.2	10.4	3170	1.1	9.73	890	.91	2.18
6	2720	1.1	8.29	3040	1.2	9.50	860	1.0	2.38
7	4900	1.1	14.7	2810	1.1	8.45	2770	1.1	8.51
8	26100	3.0	218	1740	1.0	4.71	2820	1.1	8.18
9	30100	3.8	311	1200	1.1	3.69	2780	1.0	7.49
10	22500	2.6	159	1000	1.3	3.58	2120	1.0	5.74
11	16200	2.4	104	950	1.2	3.08	2000	1.0	5.40
12	11900	2.0	63.1	1000	1.1	2.97	1800	1.0	4.86
13	10600	1.7	49.6	1100	1.1	3.38	1680	1.0	4.56
14	9750	1.6	41.3	1300	1.1	3.96	1800	1.1	5.20
15	8340	1.4	32.2	1480	1.1	4.24	2000	1.4	7.67
16	6680	1.3	23.5	1980	1.0	5.54	2120	1.6	9.17
17	5110	1.5	21.0	2020	1.0	5.46	2480	1.6	10.7
18	4210	1.4	15.9	2290	.94	5.78	4790	1.4	17.8
19	3830	1.2	12.8	2000	.96	5.20	8950	1.3	31.5
20	4200	1.1	12.9	1800	.82	3.99	7010	1.6	29.5
21	4190	1.1	12.4	2100	.72	4.09	6500	1.6	27.5
22	3570	1.1	10.6	2800	.52	3.86	6190	1.4	24.0
23	2970	.93	7.44	3590	.40	3.89	6000	1.4	22.6
24	2720	.83	6.11	4410	.46	5.46	5570	1.3	20.1
25	2520	1.0	7.12	3660	.43	4.31	5070	1.3	17.8
26	4650	1.1	14.2	2800	.33	2.52	3740	1.2	11.8
27	13500	1.4	52.6	2000	.58	3.14	4100	1.2	13.7
28	14700	2.2	87.6	1600	1.1	4.61	5270	1.6	22.5
29	11300	2.2	67.0	---	---	---	5060	1.5	21.0
30	9750	1.7	45.1	---	---	---	5140	1.3	17.6
31	7950	1.4	30.8	---	---	---	5230	1.2	17.0
TOTAL	268980	---	1514.06	73410	---	189.24	109420	---	391.28

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	7170	1.2	23.2	5390	1.5	22.6	17800	2.5	118
2	8710	1.3	29.8	4560	1.4	16.8	19600	2.2	117
3	14100	1.7	67.0	3900	1.3	14.1	21100	2.2	130
4	29700	3.2	261	3200	1.3	11.2	42700	2.7	311
5	37300	3.5	357	3020	1.2	10.1	41200	2.7	295
6	33400	3.3	295	2770	1.2	8.97	35100	2.5	235
7	25100	3.0	200	3210	1.2	10.4	28700	2.4	190
8	18400	2.2	111	3080	1.1	9.13	22300	1.9	117
9	14400	2.0	76.4	2570	.95	6.61	15300	1.8	74.3
10	11300	1.9	56.9	2600	.97	6.77	10400	1.5	43.1
11	8770	1.4	33.2	2970	1.1	8.57	7680	1.3	26.4
12	6430	1.2	21.5	3160	1.2	10.5	5890	1.2	19.1
13	5220	1.2	16.9	3040	1.2	9.54	5060	1.2	16.4
14	4100	1.2	13.3	3590	.97	9.37	5590	1.3	19.1
15	3660	1.2	11.8	4000	1.0	11.0	5290	1.3	18.2
16	3140	.86	7.29	4480	1.1	13.3	4270	1.2	14.2
17	3100	.89	7.49	5160	1.0	14.4	3430	1.2	11.0
18	3170	1.0	8.58	4190	.93	10.6	2960	1.2	9.21
19	3370	1.1	9.67	3380	.83	7.61	3040	1.1	9.17
20	3000	1.1	8.90	3270	.73	6.46	4670	1.3	16.3
21	2730	1.1	8.12	4080	.64	6.99	4100	1.2	12.9
22	2650	1.2	8.76	4420	.80	9.50	3360	1.1	10.0
23	2400	1.2	7.59	3800	.93	9.49	4340	1.2	13.7
24	2410	1.2	7.55	3320	1.1	9.53	5070	1.2	16.5
25	2400	1.3	8.42	3420	1.1	10.3	4480	1.3	15.3
26	2640	1.3	9.26	13000	2.0	79.2	3290	1.2	11.1
27	3640	1.4	14.3	32700	3.6	326	2700	1.1	7.76
28	6300	1.6	26.7	35000	4.1	385	2250	1.1	6.67
29	6510	1.6	27.5	29600	3.3	268	1680	1.1	5.03
30	6610	1.6	28.6	18200	2.5	126	1650	1.2	5.52
31	---	---	---	17700	2.3	109	---	---	---
TOTAL	281830	---	1762.73	236780	---	1557.04	335000	---	1893.96
		JULY			AUGUST			SEPTEMBER	
1	1360	1.1	4.21	2080	1.2	6.76	1230	1.3	4.26
2	1890	1.3	6.86	1760	1.3	6.01	1020	1.2	3.37
3	1760	1.5	6.98	1590	1.3	5.58	1380	1.3	4.88
4	1460	1.3	5.01	1170	1.4	4.50	1730	1.7	7.97
5	1270	1.1	3.89	999	1.5	4.04	1830	1.6	7.75
6	1210	1.1	3.62	1050	1.4	4.06	1630	1.4	6.28
7	1130	1.3	3.95	926	1.4	3.59	1740	1.3	5.97
8	982	1.5	4.06	943	1.5	3.82	1400	1.5	5.66
9	919	1.7	4.11	1160	1.5	4.69	1440	1.6	6.35
10	951	1.5	3.70	889	1.4	3.45	1650	1.5	6.81
11	631	1.3	2.27	678	1.4	2.58	3370	1.2	10.1
12	820	1.2	2.58	870	1.8	4.32	4750	.96	12.4
13	1480	1.2	4.69	854	2.1	4.82	3560	1.0	9.62
14	2230	1.1	6.83	853	1.7	3.99	2430	1.1	6.97
15	1760	1.2	5.55	940	1.8	4.62	2460	1.2	7.75
16	1660	1.4	6.22	792	2.1	4.49	3790	1.2	12.3
17	1210	1.4	4.46	653	2.0	3.48	4970	1.3	16.9
18	1070	1.1	3.17	511	2.0	2.71	4400	1.2	13.8
19	952	1.2	2.99	532	2.0	2.86	3510	1.1	10.1
20	920	1.2	2.99	633	1.7	2.94	2750	1.1	8.14
21	1150	1.3	4.13	670	1.5	2.77	2310	.97	6.05
22	2680	1.4	10.1	396	1.4	1.47	1890	.90	4.61
23	3180	1.4	12.0	499	1.5	1.98	1600	.96	4.14
24	2990	1.3	10.6	529	1.6	2.24	1260	.94	3.19
25	2230	1.2	7.37	508	1.8	2.54	1060	1.2	3.48
26	2120	1.3	7.43	575	1.8	2.78	835	1.4	3.11
27	2200	1.3	7.73	678	1.6	2.87	663	1.3	2.35
28	3090	1.3	10.9	637	1.7	2.85	644	1.1	1.98
29	2900	1.4	10.7	973	1.6	4.11	729	1.2	2.33
30	2380	1.3	8.19	699	1.4	2.72	607	1.3	2.10
31	2260	1.2	7.62	866	1.7	3.94	---	---	---
TOTAL	52845	---	184.91	26913	---	113.58	62638	---	200.72
YEAR	1770814		9193.24						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	.233	.27	1070	.180	.52	3820	.174	1.79
2	410	.223	.25	910	.173	.43	3220	.176	1.53
3	325	.209	.18	711	.170	.33	2960	.173	1.39
4	488	.227	.30	753	.178	.36	2230	.163	.98
5	600	.253	.41	1700	.217	1.07	2270	.162	.99
6	462	.216	.27	4700	.242	3.03	2310	.199	1.24
7	532	.194	.28	5200	.193	2.72	1800	.183	.89
8	458	.203	.25	5780	.180	2.82	1590	.163	.70
9	410	.204	.23	5780	.190	2.96	1570	.160	.68
10	561	.216	.33	6440	.285	4.98	1650	.153	.68
11	403	.200	.22	8520	.234	5.39	1720	.150	.70
12	549	.190	.28	8740	.264	6.22	1270	.148	.51
13	1140	.203	.63	7940	.283	6.06	1060	.130	.37
14	1130	.204	.62	8180	.253	5.59	1050	.124	.35
15	475	.207	.26	7240	.263	5.14	1390	.126	.48
16	320	.201	.17	6330	.318	5.43	1140	.130	.40
17	407	.193	.21	4920	.309	4.12	923	.130	.32
18	7530	.325	7.53	4620	.234	2.92	919	.130	.32
19	10800	.396	11.5	4680	.217	2.75	848	.130	.30
20	7980	.664	14.2	4270	.232	2.75	1030	.124	.34
21	5240	.505	7.24	11400	.399	12.5	1220	.133	.44
22	4040	.391	4.27	13500	.425	15.6	1010	.141	.38
23	2690	.346	2.52	11100	.374	11.3	1450	.177	.70
24	2480	.288	1.93	8390	.293	6.66	2000	.159	.85
25	2350	.257	1.63	6720	.257	4.66	3220	.146	1.28
26	1890	.243	1.24	5620	.244	3.70	3450	.150	1.40
27	1540	.233	.97	4890	.246	3.25	3730	.139	1.40
28	1550	.230	.96	5470	.218	3.23	6050	.165	2.77
29	1220	.217	.71	4780	.187	2.41	11000	.234	6.94
30	1060	.203	.58	4620	.180	2.24	11000	.257	7.58
31	925	.190	.47	---	---	---	8730	.235	5.54
TOTAL	60394	---	60.91	174974	---	131.14	87630	---	44.24
		JANUARY			FEBRUARY			MARCH	
1	6750	.217	3.96	6660	.263	4.73	1400	.143	.54
2	5780	.192	3.00	5820	.219	3.46	1200	.150	.49
3	4550	.181	2.23	4940	.187	2.50	1100	.143	.43
4	3720	.167	1.68	4150	.173	1.94	980	.133	.35
5	3220	.153	1.34	3170	.157	1.35	890	.131	.31
6	2720	.144	1.06	3040	.155	1.27	860	.152	.35
7	4900	.176	2.49	2810	.150	1.14	2770	.146	1.11
8	26100	.737	55.6	1740	.143	.67	2820	.137	1.05
9	30100	1.06	86.8	1200	.141	.46	2780	.137	1.02
10	22500	.703	43.0	1000	.171	.46	2120	.146	.84
11	16200	.616	27.0	950	.150	.39	2000	.143	.77
12	11900	.504	16.3	1000	.130	.35	1800	.127	.62
13	10600	.378	10.9	1100	.138	.41	1680	.112	.51
14	9750	.313	8.24	1300	.138	.49	1800	.123	.60
15	8340	.260	5.87	1480	.120	.48	2000	.143	.77
16	6680	.233	4.22	1980	.120	.64	2120	.158	.90
17	5110	.213	2.95	2020	.120	.66	2480	.180	1.21
18	4210	.197	2.24	2290	.120	.74	4790	.213	2.82
19	3830	.183	1.90	2000	.126	.68	8950	.223	5.39
20	4200	.167	1.89	1800	.248	1.21	7010	.236	4.45
21	4190	.153	1.73	2100	.373	2.12	6500	.213	3.74
22	3570	.143	1.38	2800	.197	1.47	6190	.187	3.13
23	2970	.132	1.06	3590	.197	1.98	6000	.205	3.31
24	2720	.130	.96	4410	.298	3.56	5570	.205	3.09
25	2520	.137	.93	3660	.218	2.26	5070	.214	2.92
26	4650	.184	2.41	2800	.137	1.03	3740	.217	2.19
27	13500	.272	10.1	2000	.127	.68	4100	.267	2.96
28	14700	.457	18.1	1600	.127	.55	5270	.332	4.72
29	11300	.365	11.2	---	---	---	5060	.286	3.92
30	9750	.303	8.02	---	---	---	5140	.233	3.24
31	7950	.273	5.87	---	---	---	5230	.214	3.02
TOTAL	268980	---	344.43	73410	---	37.68	109420	---	60.77

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	7170	.236	4.59	5390	.253	3.68	17800	.779	37.4
2	8710	.258	6.06	4560	.236	2.92	19600	.692	36.7
3	14100	.539	23.1	3900	.210	2.22	21100	.717	42.1
4	29700	.933	76.3	3200	.193	1.67	42700	.894	103
5	37300	1.04	105	3020	.183	1.50	41200	.764	84.9
6	33400	.947	85.6	2770	.173	1.30	35100	.619	58.8
7	25100	.880	59.6	3210	.170	1.47	28700	.536	41.7
8	18400	.599	30.2	3080	.160	1.33	22300	.455	27.6
9	14400	.419	16.4	2570	.145	1.01	15300	.340	14.2
10	11300	.351	10.7	2600	.133	.94	10400	.225	6.37
11	8770	.286	6.80	2970	.130	1.04	7680	.209	4.32
12	6430	.250	4.34	3160	.136	1.16	5890	.222	3.53
13	5220	.214	3.02	3040	.140	1.15	5060	.234	3.19
14	4100	.219	2.42	3590	.127	1.23	5590	.236	3.57
15	3660	.203	2.01	4000	.125	1.35	5290	.234	3.35
16	3140	.183	1.55	4480	.126	1.53	4270	.226	2.61
17	3100	.155	1.30	5160	.130	1.81	3430	.218	2.02
18	3170	.137	1.17	4190	.117	1.32	2960	.210	1.68
19	3370	.123	1.12	3380	.103	.95	3040	.203	1.66
20	3000	.120	.97	3270	.100	.88	4670	.213	2.70
21	2730	.120	.89	4080	.112	1.24	4100	.239	2.63
22	2650	.126	.90	4420	.117	1.40	3360	.217	1.97
23	2400	.131	.85	3800	.126	1.29	4340	.213	2.50
24	2410	.184	1.19	3320	.116	1.05	5070	.245	3.36
25	2400	.179	1.16	3420	.126	1.19	4480	.247	2.99
26	2640	.133	.94	13000	.434	18.3	3290	.252	2.23
27	3640	.123	1.22	32700	1.03	92.6	2700	.219	1.60
28	6300	.186	3.16	35000	1.19	113	2250	.197	1.19
29	6510	.167	2.94	29600	1.04	83.9	1680	.215	.98
30	6610	.199	3.53	18200	.823	40.9	1650	.261	1.17
31	---	---	---	17700	.739	35.5	---	---	---
TOTAL	281830	---	459.03	236780	---	420.83	335000	---	502.02
		JULY			AUGUST			SEPTEMBER	
1	1360	.236	.88	2080	.267	1.50	1230	.278	.93
2	1890	.292	1.51	1760	.276	1.31	1020	.249	.69
3	1760	.257	1.22	1590	.247	1.05	1380	.218	.81
4	1460	.263	1.03	1170	.242	.77	1730	.241	1.12
5	1270	.269	.92	999	.230	.62	1830	.233	1.15
6	1210	.243	.80	1050	.213	.60	1630	.240	1.05
7	1130	.217	.66	926	.220	.55	1740	.228	1.07
8	982	.204	.54	943	.253	.65	1400	.257	.97
9	919	.213	.53	1160	.267	.84	1440	.253	.98
10	951	.229	.59	889	.275	.66	1650	.234	1.04
11	631	.196	.34	678	.227	.42	3370	.243	2.22
12	820	.183	.41	870	.244	.57	4750	.259	3.33
13	1480	.197	.79	854	.249	.58	3560	.260	2.50
14	2230	.207	1.24	853	.207	.48	2430	.245	1.61
15	1760	.222	1.06	940	.206	.52	2460	.259	1.73
16	1660	.210	.95	792	.193	.42	3790	.277	2.84
17	1210	.178	.58	653	.181	.32	4970	.305	4.09
18	1070	.150	.43	511	.205	.28	4400	.313	3.72
19	952	.175	.45	532	.200	.29	3510	.324	3.07
20	920	.190	.47	633	.183	.31	2750	.332	2.46
21	1150	.177	.55	670	.167	.30	2310	.300	1.88
22	2680	.183	1.34	396	.158	.17	1890	.267	1.37
23	3180	.219	1.88	499	.170	.23	1600	.273	1.17
24	2990	.285	2.30	529	.183	.26	1260	.278	.94
25	2230	.313	1.89	508	.196	.27	1060	.495	1.40
26	2120	.266	1.52	575	.180	.28	835	.551	1.24
27	2200	.218	1.29	678	.170	.31	663	.518	.93
28	3090	.257	2.14	637	.178	.31	644	.516	.90
29	2900	.309	2.42	973	.193	.51	729	.455	.89
30	2380	.314	2.02	699	.201	.38	607	.464	.76
31	2260	.298	1.83	866	.238	.55	---	---	---
TOTAL	52845	---	34.58	26913	---	16.31	62638	---	48.86
YEAR	1770814		2160.40						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	24	28	1070	27	79	3820	75	773
2	410	23	25	910	25	62	3220	70	612
3	325	22	19	711	21	41	2960	56	449
4	488	29	40	753	26	54	2230	43	255
5	600	36	58	1700	51	258	2270	36	221
6	462	29	36	4700	125	1610	2310	37	232
7	532	24	34	5200	157	2210	1800	32	154
8	458	24	29	5780	180	2820	1590	29	124
9	410	24	27	5780	179	2800	1570	23	98
10	561	25	37	6440	177	3100	1650	28	126
11	403	21	24	8520	238	5480	1720	23	114
12	549	24	35	8740	278	6570	1270	15	51
13	1140	28	87	7940	221	4750	1060	15	43
14	1130	26	81	8180	187	4120	1050	17	47
15	475	23	29	7240	170	3320	1390	29	108
16	320	21	18	6330	175	2990	1140	18	56
17	407	23	25	4920	164	2180	923	14	34
18	7530	88	2380	4620	125	1560	919	12	30
19	10800	131	3840	4680	104	1320	848	10	24
20	7980	99	2160	4270	96	1110	1030	10	27
21	5240	74	1060	11400	131	4180	1220	13	42
22	4040	56	614	13500	320	11700	1010	14	38
23	2690	43	315	11100	287	8640	1450	14	55
24	2480	38	257	8390	188	4290	2000	23	125
25	2350	35	221	6720	147	2680	3220	25	214
26	1890	32	163	5620	126	1920	3450	27	254
27	1540	29	121	4890	112	1480	3730	26	264
28	1550	26	111	5470	95	1400	6050	26	422
29	1220	28	91	4780	72	931	11000	40	1200
30	1060	26	74	4620	78	972	11000	42	1240
31	925	25	62	---	---	---	8730	39	910
TOTAL	60394	---	12101	174974	---	84627	87630	---	8342
		JANUARY			FEBRUARY			MARCH	
1	6750	36	648	6660	88	1580	1400	25	96
2	5780	33	511	5820	74	1170	1200	24	76
3	4550	30	373	4940	64	853	1100	19	56
4	3720	28	280	4150	68	761	980	25	66
5	3220	26	225	3170	63	542	890	26	62
6	2720	28	203	3040	52	437	860	22	52
7	4900	46	704	2810	31	239	2770	62	717
8	26100	328	25800	1740	23	112	2820	45	373
9	30100	405	33100	1200	18	62	2780	26	206
10	22500	314	19200	1000	14	38	2120	15	86
11	16200	244	10700	950	13	34	2000	15	79
12	11900	189	6110	1000	14	39	1800	17	83
13	10600	146	4200	1100	16	47	1680	17	78
14	9750	113	2990	1300	17	61	1800	18	90
15	8340	88	1990	1480	19	76	2000	34	186
16	6680	68	1240	1980	24	130	2120	33	188
17	5110	53	734	2020	26	146	2480	35	234
18	4210	41	467	2290	27	167	4790	46	636
19	3830	32	331	2000	18	97	8950	124	2990
20	4200	28	322	1800	16	79	7010	108	2080
21	4190	27	301	2100	24	136	6500	110	1930
22	3570	25	239	2800	34	256	6190	80	1340
23	2970	23	186	3590	46	459	6000	86	1390
24	2720	22	160	4410	51	623	5570	100	1500
25	2520	21	141	3660	47	473	5070	81	1110
26	4650	36	535	2800	30	224	3740	73	739
27	13500	157	5890	2000	28	151	4100	72	795
28	14700	171	6780	1600	27	115	5270	83	1190
29	11300	145	4420	---	---	---	5060	103	1410
30	9750	122	3230	---	---	---	5140	95	1320
31	7950	104	2230	---	---	---	5230	81	1140
TOTAL	268980	---	134240	73410	---	9107	109420	---	22298

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	7170	78	1510	5390	123	1790	17800	487	23400
2	8710	91	2130	4560	74	931	19600	559	29700
3	14100	146	6320	3900	65	691	21100	544	31700
4	29700	789	66700	3200	56	485	42700	1080	126000
5	37300	1080	109000	3020	48	394	41200	825	91800
6	33400	831	75500	2770	42	314	35100	577	55000
7	25100	506	34600	3210	46	404	28700	436	33900
8	18400	353	17700	3080	47	387	22300	323	19600
9	14400	251	9830	2570	42	290	15300	167	7120
10	11300	193	5880	2600	40	283	10400	144	4010
11	8770	138	3290	2970	48	385	7680	137	2860
12	6430	96	1670	3160	49	413	5890	108	1720
13	5220	75	1070	3040	46	377	5060	90	1230
14	4100	62	685	3590	48	466	5590	86	1300
15	3660	59	584	4000	50	538	5290	84	1200
16	3140	46	389	4480	52	630	4270	90	1040
17	3100	43	358	5160	52	725	3430	82	759
18	3170	40	341	4190	44	496	2960	67	534
19	3370	35	316	3380	35	321	3040	61	502
20	3000	33	264	3270	32	287	4670	72	915
21	2730	34	251	4080	38	424	4100	73	811
22	2650	33	240	4420	40	477	3360	75	682
23	2400	29	190	3800	37	379	4340	88	1040
24	2410	33	215	3320	35	317	5070	112	1540
25	2400	36	233	3420	36	332	4480	99	1200
26	2640	42	297	13000	132	5950	3290	87	768
27	3640	43	424	32700	934	86000	2700	74	544
28	6300	55	945	35000	1240	117000	2250	64	392
29	6510	57	1000	29600	954	76700	1680	67	304
30	6610	90	1590	18200	650	32700	1650	70	309
31	---	---	---	17700	431	20900	---	---	---
TOTAL	281830	---	343522	236780	---	351786	335000	---	441880
		JULY			AUGUST			SEPTEMBER	
1	1360	69	255	2080	73	411	1230	53	184
2	1890	67	341	1760	67	321	1020	49	138
3	1760	72	339	1590	62	265	1380	51	191
4	1460	78	308	1170	52	164	1730	53	249
5	1270	79	270	999	46	125	1830	51	250
6	1210	74	243	1050	47	134	1630	47	208
7	1130	62	191	926	49	123	1740	51	238
8	982	65	173	943	48	123	1400	48	183
9	919	56	140	1160	50	157	1440	56	218
10	951	61	160	889	44	107	1650	63	282
11	631	60	103	678	40	73	3370	67	612
12	820	66	146	870	42	98	4750	70	893
13	1480	74	297	854	44	102	3560	60	574
14	2230	72	436	853	45	104	2430	62	408
15	1760	68	325	940	43	109	2460	70	466
16	1660	61	275	792	41	88	3790	85	875
17	1210	52	170	653	36	64	4970	124	1660
18	1070	46	134	511	32	44	4400	123	1460
19	952	47	122	532	32	46	3510	120	1140
20	920	49	122	633	39	67	2750	107	795
21	1150	53	166	670	40	72	2310	96	597
22	2680	60	440	396	41	43	1890	82	419
23	3180	68	584	499	45	61	1600	76	328
24	2990	82	659	529	42	61	1260	77	260
25	2230	78	471	508	35	48	1060	73	210
26	2120	72	413	575	40	63	835	72	163
27	2200	66	394	678	44	81	663	65	117
28	3090	73	612	637	47	80	644	55	96
29	2900	84	657	973	57	151	729	46	91
30	2380	93	595	699	55	104	607	45	74
31	2260	88	536	866	43	101	---	---	---
TOTAL	52845	---	10077	26913	---	3590	62638	---	13379
YEAR	1770814		1434801						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	530	34	48.8	838	65	147	987	39	103
2	558	35	54.5	520	64	89.9	1420	39	149
3	470	36	46.7	490	63	83.7	829	38	86.0
4	421	36	42.1	584	63	98.7	657	40	70.9
5	364	36	37.1	670	61	110	817	41	91.4
6	504	37	50.9	520	63	88.0	766	42	87.7
7	413	38	42.5	410	65	71.5	650	43	76.0
8	366	37	36.6	500	64	86.0	600	45	72.2
9	340	37	34.1	617	66	110	570	45	69.4
10	393	38	40.3	467	70	88.0	829	44	98.5
11	333	37	33.6	601	71	115	704	45	85.6
12	330	38	33.7	450	73	87.9	630	46	78.7
13	354	40	38.0	468	74	93.4	580	47	74.1
14	404	40	43.0	638	75	129	540	49	71.7
15	374	39	39.6	1040	71	198	520	52	72.6
16	348	40	37.4	2920	59	457	490	54	71.0
17	318	40	34.0	4990	58	794	470	54	68.9
18	373	40	39.8	7750	65	1370	460	53	66.3
19	543	41	60.4	6220	69	1160	440	53	63.3
20	1020	41	114	4870	57	757	430	53	62.0
21	1210	44	145	3600	51	499	420	54	60.7
22	800	45	98.5	2550	46	318	410	54	59.4
23	762	48	101	2850	44	339	400	54	58.1
24	1300	49	173	2560	44	304	390	54	56.8
25	1350	55	205	2080	43	242	380	54	55.5
26	1000	62	167	1560	42	176	370	54	54.2
27	1150	63	195	1270	41	139	360	54	52.9
28	1020	64	177	1720	39	183	350	55	51.5
29	732	65	128	1180	41	130	350	55	51.7
30	716	66	128	964	39	103	340	55	50.3
31	750	65	130	---	---	---	340	55	50.6
TOTAL	19546	---	2554.6	55897	---	8567.1	17499	---	2220.0
		JANUARY			FEBRUARY			MARCH	
1	400	60	65.0	3520	41	354	16800	20	906
2	1100	68	201	5410	38	498	13900	22	812
3	2500	76	512	20600	36	1800	11800	24	748
4	4500	75	917	26100	36	2300	9850	25	663
5	7000	61	1150	26300	33	2130	8070	26	567
6	13000	62	2180	25300	30	1910	6740	27	491
7	12000	54	1750	19200	31	1430	5770	28	435
8	9600	48	1250	14000	31	1060	4870	28	367
9	8000	44	943	10000	32	881	5580	30	449
10	7200	42	823	8700	32	754	7360	29	574
11	8200	39	867	7800	33	689	10000	27	729
12	9800	36	962	7000	36	676	12200	27	905
13	7000	36	682	6100	38	621	12800	32	1100
14	5200	37	526	5600	38	582	10900	31	920
15	4200	40	453	5200	38	534	9870	29	777
16	3600	41	403	17200	31	1420	9340	28	716
17	4100	40	441	32700	29	2460	10900	27	787
18	8000	38	814	31800	29	2510	11000	28	820
19	13000	38	1340	26600	26	1880	9370	31	792
20	16000	37	1610	19100	25	1270	7620	32	666
21	12000	39	1270	14800	25	993	6240	31	528
22	10000	38	1030	21900	21	1160	5370	30	440
23	16000	40	1740	57300	13	2010	4550	31	384
24	11000	42	1250	62500	11	1930	3930	32	339
25	8000	41	880	48100	13	1690	3450	33	304
26	6000	41	665	33000	15	1300	2820	33	255
27	5200	40	566	25200	16	1080	2430	33	217
28	4500	40	482	20800	18	1020	2350	33	209
29	4000	41	441	---	---	---	2020	33	180
30	3700	41	409	---	---	---	2520	34	229
31	3300	42	376	---	---	---	4940	34	453
TOTAL	228100	---	26998.0	601830	---	36942	235360	---	17762

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	6600	33	581	2210	36	213	3110	27	226
2	8490	30	677	2120	35	198	2420	27	176
3	9170	28	697	1520	36	149	2680	27	195
4	8170	32	695	2070	35	195	5700	26	407
5	6690	32	584	6890	33	617	7840	28	586
6	5260	31	445	12900	33	1140	7030	28	525
7	4500	31	377	12900	35	1230	5090	25	345
8	3690	30	303	9510	35	888	4970	24	322
9	2840	33	254	6310	34	579	8820	22	520
10	3390	32	289	4760	32	412	14600	21	838
11	12900	23	802	3180	31	264	15000	23	927
12	17700	21	1020	2780	30	223	12800	18	635
13	16500	25	1090	4330	28	329	9700	16	412
14	12500	25	837	10800	28	831	7740	16	326
15	9780	23	600	13500	32	1180	5490	15	228
16	8080	23	501	19900	25	1260	4520	14	177
17	7180	26	497	34700	18	1720	3720	15	150
18	5950	27	439	35700	16	1580	2590	17	122
19	4830	29	381	27200	16	1170	1850	18	92.0
20	3950	28	300	21400	16	924	1760	20	94.7
21	4150	28	318	17600	16	785	1590	21	89.9
22	5550	29	430	14200	17	637	1240	21	70.3
23	6200	29	479	10400	17	477	1860	22	113
24	6520	27	477	7300	18	347	1590	25	107
25	5400	31	454	5140	19	259	1200	27	87.8
26	4190	34	388	5340	20	292	955	30	77.1
27	3040	35	291	10500	22	638	720	31	60.3
28	3050	34	276	9800	25	672	906	31	73.9
29	2680	32	232	7930	24	510	2290	28	174
30	2550	33	228	5710	24	368	2630	28	201
31	---	---	---	4030	26	285	---	---	---
TOTAL	201500	---	14942	332630	---	20372	142411	---	8358.0
		JULY			AUGUST			SEPTEMBER	
1	3930	29	311	1780	11	54.8	2600	23	160
2	4100	31	344	1500	12	47.2	1860	24	120
3	5520	30	448	1100	12	35.7	1240	26	85.6
4	2090	32	182	1080	12	35.0	1030	26	70.7
5	1300	36	126	1310	13	46.5	894	27	64.5
6	992	38	101	1840	16	78.6	1070	27	77.4
7	1040	38	107	1890	16	80.2	995	27	73.3
8	747	39	79.3	1670	18	79.7	933	28	70.5
9	677	38	68.8	1600	21	88.8	1110	27	82.0
10	728	37	72.1	1300	21	74.2	1490	27	109
11	651	35	62.1	1070	23	66.3	3870	27	286
12	2370	34	219	925	25	61.9	4150	29	324
13	4040	33	356	1970	28	149	3130	33	280
14	6750	33	596	3690	33	331	2130	41	234
15	12400	35	1160	5190	37	514	2450	46	304
16	9070	26	636	5720	42	645	2170	40	228
17	6760	17	312	4620	36	460	3060	33	269
18	5580	18	270	3200	28	245	2010	37	200
19	4760	22	277	2460	26	173	2340	24	151
20	3750	26	258	2960	28	226	1680	24	110
21	3320	26	230	5000	32	428	1250	26	88.6
22	5700	22	322	5890	26	417	1800	28	138
23	30000	13	1060	5460	24	359	1020	29	80.0
24	38300	<10	536	5880	22	354	1400	31	119
25	31900	<10	434	4940	22	292	994	33	89.3
26	19400	<10	407	3420	27	246	1490	34	135
27	12100	11	348	2060	31	171	1210	35	113
28	8390	12	263	1770	30	142	861	35	81.4
29	6380	12	207	1900	24	122	843	35	79.6
30	4740	12	154	1640	24	107	848	34	77.1
31	2930	12	94.9	2790	22	164	---	---	---
TOTAL	240415	---	10041.2	87625	---	6293.9	51928	---	4300.0
YEAR	2214741		159359.7						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	530	3.57	5.2	838	.500	1.1	987	6.35	17
2	558	3.08	4.7	520	.456	.64	1420	6.28	24
3	470	2.91	3.8	490	.414	.55	829	6.19	14
4	421	2.82	3.3	584	.413	.65	657	6.27	11
5	364	2.68	2.7	670	.419	.76	817	6.47	14
6	504	2.92	4.1	520	.403	.57	766	6.37	13
7	413	3.00	3.3	410	.423	.47	650	6.44	11
8	366	2.90	2.9	500	.426	.58	600	6.52	11
9	340	2.68	2.5	617	.563	.94	570	6.18	9.5
10	393	2.34	2.5	467	.671	.85	829	5.72	13
11	333	2.14	1.9	601	.772	1.3	704	5.36	10
12	330	1.90	1.7	450	.979	1.2	630	5.34	9.1
13	354	1.77	1.7	468	1.07	1.3	580	5.50	8.6
14	404	1.54	1.7	638	1.01	1.7	540	5.72	8.3
15	374	1.35	1.4	1040	1.53	4.7	520	5.89	8.3
16	348	1.19	1.1	2920	4.48	37	490	5.87	7.8
17	318	.962	.83	4990	6.40	82	470	5.53	7.0
18	373	.843	.85	7750	2.94	61	460	5.12	6.4
19	543	.767	1.1	6220	3.63	60	440	4.94	5.9
20	1020	.745	2.1	4870	4.79	63	430	4.80	5.6
21	1210	.809	2.7	3600	5.74	55	420	4.67	5.3
22	800	.755	1.7	2550	6.44	44	410	4.54	5.0
23	762	.649	1.4	2850	7.07	55	400	4.41	4.8
24	1300	.561	2.0	2560	7.46	52	390	4.29	4.5
25	1350	.425	1.6	2080	7.53	42	380	4.17	4.3
26	1000	.380	1.0	1560	7.37	31	370	4.06	4.1
27	1150	.394	1.2	1270	7.12	24	360	3.94	3.8
28	1020	.439	1.2	1720	6.77	32	350	3.84	3.6
29	732	.473	.94	1180	6.64	21	350	3.73	3.5
30	716	.495	.96	964	6.42	17	340	3.63	3.3
31	750	.516	1.0	---	---	---	340	3.54	3.3
TOTAL	19546	---	65.08	55897	---	693.31	17499	---	260.0
		JANUARY			FEBRUARY			MARCH	
1	400	3.82	4.1	3520	9.48	82	16800	5.91	270
2	1100	4.26	13	5410	10.3	140	13900	5.92	220
3	2500	4.24	29	20600	12.2	620	11800	5.37	170
4	4500	4.90	59	26100	12.3	800	9850	6.10	160
5	7000	6.34	120	26300	12.4	810	8070	6.61	140
6	13000	6.38	220	25300	12.7	800	6740	6.63	120
7	12000	5.98	190	19200	12.3	570	5770	6.43	100
8	9600	6.16	160	14000	12.0	410	4870	6.33	83
9	8000	6.40	140	10000	11.5	320	5580	6.62	100
10	7200	6.69	130	8700	11.2	260	7360	6.98	140
11	8200	7.83	170	7800	10.9	230	10000	7.29	200
12	9800	8.67	230	7000	10.7	200	12200	7.54	250
13	7000	8.47	160	6100	8.84	150	12800	7.37	250
14	5200	8.04	110	5600	9.30	140	10900	7.26	210
15	4200	7.96	90	5200	9.41	130	9870	7.20	190
16	3600	7.90	77	17200	9.80	450	9340	7.35	190
17	4100	8.08	89	32700	9.22	770	10900	8.03	240
18	8000	9.68	210	31800	8.53	730	11000	7.64	230
19	13000	10.6	370	26600	8.45	610	9370	6.85	170
20	16000	9.72	420	19100	8.48	440	7620	6.70	140
21	12000	9.95	320	14800	8.78	350	6240	6.86	120
22	10000	11.8	320	21900	7.52	420	5370	6.83	99
23	16000	11.9	520	57300	5.91	910	4550	6.79	83
24	11000	11.6	340	62500	5.47	920	3930	6.47	69
25	8000	11.8	260	48100	5.89	760	3450	6.23	58
26	6000	11.8	190	33000	5.64	510	2820	5.90	45
27	5200	11.3	160	25200	5.55	380	2430	5.53	36
28	4500	10.9	130	20800	5.76	320	2350	5.43	35
29	4000	10.4	110	---	---	---	2020	5.20	28
30	3700	10.2	100	---	---	---	2520	5.28	36
31	3300	10.0	89	---	---	---	4940	5.41	72
TOTAL	228100	---	5530.1	601830	---	13232	235360	---	4254

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	6600	6.00	110	2210	4.93	29	3110	9.94	83
2	8490	7.53	170	2120	4.60	26	2420	9.73	63
3	9170	7.74	190	1520	4.50	18	2680	9.38	68
4	8170	7.50	170	2070	4.75	27	5700	9.73	150
5	6690	7.56	140	6890	7.40	140	7840	9.79	210
6	5260	7.53	110	12900	9.56	330	7030	8.76	170
7	4500	7.30	89	12900	8.72	300	5090	8.00	110
8	3690	7.15	71	9510	12.5	310	4970	8.28	110
9	2840	7.54	58	6310	20.3	340	8820	10.7	260
10	3390	7.14	66	4760	17.1	220	14600	11.6	450
11	12900	9.86	350	3180	22.6	190	15000	9.94	400
12	17700	9.44	450	2780	20.8	160	12800	8.44	290
13	16500	9.18	410	4330	24.1	290	9700	8.16	210
14	12500	9.14	310	10800	22.3	620	7740	8.05	170
15	9780	8.94	240	13500	13.5	490	5490	7.26	110
16	8080	9.36	200	19900	12.7	680	4520	6.49	79
17	7180	9.36	180	34700	12.1	1100	3720	6.40	64
18	5950	8.57	140	35700	10.7	1000	2590	6.55	46
19	4830	8.22	110	27200	9.73	720	1850	6.64	33
20	3950	7.66	82	21400	9.24	530	1760	6.92	33
21	4150	7.62	86	17600	8.66	410	1590	7.10	30
22	5550	8.22	120	14200	8.13	310	1240	7.10	24
23	6200	7.91	130	10400	7.89	220	1860	6.90	35
24	6520	7.00	120	7300	6.94	140	1590	6.66	29
25	5400	6.49	95	5140	6.86	95	1200	6.40	21
26	4190	5.93	67	5340	6.84	99	955	6.30	16
27	3040	5.44	45	10500	8.51	240	720	6.10	12
28	3050	5.29	44	9800	9.42	250	906	5.94	15
29	2680	4.84	35	7930	9.94	210	2290	6.04	37
30	2550	4.84	33	5710	10.3	160	2630	6.42	46
31	---	---	---	4030	10.2	110	---	---	---
TOTAL	201500	---	4421	332630	---	9764	142411	---	3374
		JULY			AUGUST			SEPTEMBER	
1	3930	6.68	71	1780	4.10	20	2600	2.00	14
2	4100	6.87	76	1500	4.00	16	1860	2.00	10
3	5520	5.39	80	1100	3.93	12	1240	2.08	7.0
4	2090	5.38	30	1080	3.70	11	1030	1.90	5.3
5	1300	5.89	21	1310	3.54	12	894	1.80	4.3
6	992	5.79	16	1840	3.67	18	1070	1.60	4.6
7	1040	5.29	15	1890	3.77	19	995	1.63	4.4
8	747	4.63	9.3	1670	3.69	17	933	1.76	4.4
9	677	4.09	7.5	1600	3.48	15	1110	1.59	4.7
10	728	3.97	7.8	1300	2.87	10	1490	1.29	5.2
11	651	4.01	7.0	1070	2.22	6.4	3870	1.43	15
12	2370	4.29	28	925	1.92	4.8	4150	1.62	18
13	4040	6.06	67	1970	2.00	11	3130	1.21	10
14	6750	6.85	120	3690	2.21	22	2130	1.00	5.8
15	12400	7.40	250	5190	1.61	22	2450	1.07	7.1
16	9070	7.66	190	5720	1.38	21	2170	1.30	7.7
17	6760	8.88	160	4620	2.06	25	3060	1.75	14
18	5580	10.4	160	3200	2.09	18	2010	1.64	9.0
19	4760	11.3	140	2460	1.83	12	2340	1.75	11
20	3750	11.4	120	2960	1.95	16	1680	1.90	8.6
21	3320	10.9	98	5000	2.37	32	1250	1.90	6.4
22	5700	10.1	150	5890	3.18	50	1800	1.77	8.6
23	30000	7.53	590	5460	3.40	50	1020	1.70	4.7
24	38300	5.85	600	5880	3.16	50	1400	1.77	6.7
25	31900	5.81	500	4940	2.90	39	994	1.96	5.3
26	19400	6.13	320	3420	2.92	27	1490	1.93	7.8
27	12100	6.06	200	2060	2.72	15	1210	1.90	6.2
28	8390	5.80	130	1770	2.33	11	861	1.90	4.4
29	6380	5.42	94	1900	2.20	11	843	1.96	4.5
30	4740	4.77	61	1640	2.20	9.7	848	2.00	4.6
31	2930	4.40	35	2790	2.07	16	---	---	---
TOTAL	240415	---	4353.6	87625	---	618.9	51928	---	229.3
YEAR	2214741		46900.87						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	530	1.3	1.88	838	1.3	3.03	987	1.6	4.16
2	558	1.5	2.31	520	1.6	2.20	1420	1.5	5.89
3	470	1.7	2.27	490	1.6	2.12	829	1.4	3.09
4	421	1.6	1.92	584	1.5	2.44	657	1.4	2.45
5	364	1.5	1.57	670	1.5	2.77	817	1.4	3.17
6	504	1.7	2.29	520	1.4	1.96	766	1.3	2.79
7	413	1.5	1.66	410	1.4	1.54	650	1.3	2.24
8	366	1.5	1.54	500	1.5	1.97	600	1.2	1.88
9	340	1.8	1.69	617	1.4	2.35	570	1.1	1.70
10	393	1.8	1.88	467	1.3	1.60	829	1.1	2.56
11	333	1.6	1.48	601	1.3	2.14	704	1.2	2.20
12	330	1.6	1.43	450	1.2	1.47	630	1.1	1.88
13	354	1.5	1.40	468	1.1	1.43	580	1.1	1.72
14	404	1.7	1.83	638	1.1	1.90	540	1.1	1.65
15	374	1.9	1.92	1040	1.3	3.72	520	1.1	1.57
16	348	1.9	1.76	2920	1.1	8.57	490	1.1	1.48
17	318	2.0	1.75	4990	1.1	15.6	470	1.2	1.47
18	373	2.0	1.98	7750	1.4	29.1	460	1.3	1.58
19	543	1.9	2.74	6220	1.4	24.1	440	1.3	1.49
20	1020	1.8	5.04	4870	1.4	19.0	430	1.2	1.40
21	1210	1.6	5.25	3600	1.4	14.0	420	1.2	1.32
22	800	1.6	3.56	2550	1.4	9.93	410	1.1	1.24
23	762	1.6	3.35	2850	1.4	10.4	400	1.1	1.17
24	1300	1.9	6.92	2560	1.3	8.80	390	1.0	1.10
25	1350	2.2	8.06	2080	1.3	7.07	380	1.0	1.03
26	1000	2.0	5.41	1560	1.3	5.56	370	.97	.97
27	1150	2.0	6.15	1270	1.4	4.70	360	.93	.91
28	1020	1.8	4.94	1720	1.5	7.20	350	.90	.85
29	732	1.5	3.03	1180	1.5	4.78	350	.87	.82
30	716	1.3	2.51	964	1.6	4.05	340	.84	.77
31	750	1.4	2.86	---	---	---	340	.81	.74
TOTAL	19546	---	92.38	55897	---	205.50	17499	---	57.29
		JANUARY			FEBRUARY			MARCH	
1	400	.85	.91	3520	1.2	10.1	16800	1.4	62.8
2	1100	.91	2.70	5410	1.7	24.2	13900	1.3	48.8
3	2500	1.0	6.98	20600	2.6	134	11800	1.2	38.5
4	4500	1.5	18.2	26100	3.8	243	9850	1.1	30.4
5	7000	1.6	29.9	26300	2.6	169	8070	1.1	23.2
6	13000	1.5	52.8	25300	2.2	139	6740	1.2	21.0
7	12000	1.9	61.3	19200	2.1	97.2	5770	1.1	17.3
8	9600	1.9	50.0	14000	1.8	60.4	4870	1.0	13.6
9	8000	1.7	36.0	10000	1.7	46.0	5580	1.5	22.4
10	7200	1.7	32.9	8700	1.6	37.5	7360	1.4	27.0
11	8200	1.6	36.4	7800	1.4	30.3	10000	1.6	44.4
12	9800	1.5	40.7	7000	1.1	21.5	12200	1.8	59.4
13	7000	1.4	26.3	6100	1.4	22.4	12800	2.0	67.4
14	5200	1.5	20.6	5600	1.5	22.6	10900	1.8	53.9
15	4200	1.5	16.7	5200	1.4	19.7	9870	1.8	47.8
16	3600	1.4	13.1	17200	1.9	87.3	9340	1.8	44.6
17	4100	1.6	18.1	32700	3.0	252	10900	1.7	49.9
18	8000	2.3	49.1	31800	3.3	285	11000	1.7	49.6
19	13000	3.0	105	26600	1.9	141	9370	1.3	33.7
20	16000	2.7	116	19100	1.4	74.0	7620	1.3	25.9
21	12000	1.9	61.8	14800	1.3	51.0	6240	1.5	24.4
22	10000	1.6	43.4	21900	3.1	220	5370	1.4	20.1
23	16000	1.5	66.2	57300	6.6	1030	4550	1.2	14.4
24	11000	1.5	45.4	62500	6.0	1020	3930	1.0	10.8
25	8000	1.4	30.4	48100	4.1	542	3450	.97	8.99
26	6000	1.3	21.2	33000	3.0	269	2820	1.0	7.72
27	5200	1.3	18.0	25200	2.5	172	2430	1.1	7.07
28	4500	1.3	16.0	20800	1.8	101	2350	1.2	7.59
29	4000	1.1	11.6	---	---	---	2020	1.1	6.03
30	3700	1.0	9.97	---	---	---	2520	1.1	7.27
31	3300	1.2	10.3	---	---	---	4940	1.1	14.4
TOTAL	228100	---	1067.96	601830	---	5321.2	235360	---	910.37

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	6600	1.2	20.6	2210	1.8	11.0	3110	1.2	10.1
2	8490	1.4	32.5	2120	1.6	9.18	2420	1.2	7.63
3	9170	1.2	30.6	1520	1.5	6.23	2680	1.1	8.07
4	8170	1.2	27.3	2070	1.4	7.88	5700	1.4	22.2
5	6690	1.1	20.7	6890	1.9	36.6	7840	1.5	31.3
6	5260	1.0	14.2	12900	2.2	75.2	7030	1.4	27.3
7	4500	1.0	12.6	12900	2.1	74.5	5090	1.4	19.2
8	3690	.85	8.53	9510	2.2	57.0	4970	1.3	17.6
9	2840	.79	6.00	6310	2.1	35.3	8820	1.7	41.6
10	3390	1.5	13.8	4760	1.9	24.2	14600	1.9	75.8
11	12900	2.3	79.4	3180	1.7	14.9	15000	2.2	87.7
12	17700	2.2	105	2780	1.5	11.2	12800	2.3	80.0
13	16500	2.0	90.2	4330	1.7	19.6	9700	2.2	58.2
14	12500	1.9	64.0	10800	1.6	48.5	7740	1.7	36.0
15	9780	1.8	48.3	13500	1.6	60.1	5490	1.6	23.1
16	8080	1.6	35.3	19900	2.5	141	4520	1.5	18.6
17	7180	1.4	27.3	34700	3.3	312	3720	1.5	14.9
18	5950	1.3	20.8	35700	3.9	378	2590	1.3	9.19
19	4830	1.1	14.4	27200	3.6	269	1850	1.3	6.76
20	3950	1.1	11.7	21400	3.2	183	1760	1.3	6.42
21	4150	1.2	13.2	17600	2.6	125	1590	1.3	5.66
22	5550	1.3	19.1	14200	2.2	83.6	1240	1.3	4.22
23	6200	1.4	23.1	10400	2.0	55.1	1860	1.2	6.13
24	6520	1.4	24.1	7300	1.8	35.2	1590	1.2	5.09
25	5400	1.5	21.4	5140	1.4	19.9	1200	1.2	3.88
26	4190	1.4	16.2	5340	1.2	16.7	955	1.4	3.57
27	3040	1.3	10.9	10500	1.4	39.6	720	1.7	3.21
28	3050	1.4	11.9	9800	1.4	37.9	906	1.7	4.10
29	2680	1.4	9.79	7930	1.5	31.8	2290	1.7	10.7
30	2550	1.8	12.3	5710	1.4	21.6	2630	1.5	10.8
31	---	---	---	4030	1.2	13.5	---	---	---
TOTAL	201500	---	845.22	332630	---	2254.29	142411	---	659.03
		JULY			AUGUST			SEPTEMBER	
1	3930	1.5	16.3	1780	1.3	6.15	2600	1.3	9.13
2	4100	1.5	16.4	1500	1.3	5.18	1860	1.4	6.84
3	5520	1.5	22.0	1100	1.2	3.62	1240	1.3	4.37
4	2090	1.3	7.58	1080	1.2	3.35	1030	1.4	3.85
5	1300	.93	3.28	1310	1.2	4.26	894	1.3	3.06
6	992	1.0	2.72	1840	1.2	6.05	1070	1.2	3.61
7	1040	1.5	4.24	1890	1.2	6.23	995	1.2	3.28
8	747	1.6	3.30	1670	1.1	5.14	933	1.2	2.90
9	677	1.6	2.98	1600	1.1	4.67	1110	1.1	3.33
10	728	1.7	3.34	1300	1.3	4.46	1490	1.1	4.58
11	651	1.6	2.89	1070	1.8	5.24	3870	1.3	13.6
12	2370	1.4	8.85	925	1.9	4.79	4150	1.5	17.0
13	4040	1.4	15.8	1970	1.8	9.42	3130	1.5	12.4
14	6750	1.5	27.6	3690	1.5	14.8	2130	1.4	7.98
15	12400	1.8	60.7	5190	1.4	19.5	2450	1.0	6.93
16	9070	1.9	47.9	5720	1.3	20.0	2170	1.0	6.11
17	6760	1.5	26.8	4620	1.1	13.5	3060	1.0	8.53
18	5580	1.3	19.9	3200	.97	8.37	2010	.92	5.02
19	4760	1.3	17.1	2460	.96	6.37	2340	.99	6.29
20	3750	1.3	12.8	2960	1.1	9.13	1680	1.1	4.88
21	3320	1.2	10.6	5000	1.3	17.8	1250	1.1	3.77
22	5700	1.2	19.3	5890	1.3	20.6	1800	1.1	5.38
23	30000	2.2	186	5460	1.3	18.4	1020	1.0	2.89
24	38300	3.0	315	5880	1.2	18.6	1400	.98	3.71
25	31900	2.5	213	4940	1.1	14.7	994	1.1	2.81
26	19400	2.0	108	3420	.97	9.02	1490	.98	3.94
27	12100	1.7	55.2	2060	1.1	5.90	1210	1.0	3.29
28	8390	1.6	35.5	1770	1.2	5.91	861	1.0	2.38
29	6380	1.4	24.8	1900	1.1	5.81	843	1.0	2.35
30	4740	1.3	17.0	1640	1.2	5.12	848	1.1	2.62
31	2930	1.3	10.2	2790	1.1	8.50	---	---	---
TOTAL	240415	---	1317.08	87625	---	290.59	51928	---	166.83
YEAR	2214741		13181.91						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	530	.397	.57	838	.177	.40	987	.174	.47
2	558	.265	.40	520	.174	.24	1420	.171	.66
3	470	.224	.30	490	.158	.21	829	.165	.37
4	421	.223	.26	584	.142	.22	657	.199	.35
5	364	.202	.21	670	.147	.27	817	.214	.47
6	504	.221	.30	520	.150	.21	766	.164	.34
7	413	.171	.19	410	.153	.17	650	.155	.27
8	366	.184	.18	500	.149	.20	600	.148	.24
9	340	.182	.17	617	.142	.24	570	.137	.21
10	393	.203	.22	467	.123	.16	829	.131	.30
11	333	.210	.19	601	.125	.20	704	.116	.22
12	330	.199	.18	450	.109	.13	630	.106	.18
13	354	.174	.17	468	.119	.15	580	.110	.17
14	404	.207	.23	638	.132	.23	540	.110	.16
15	374	.248	.25	1040	.189	.55	520	.113	.16
16	348	.239	.22	2920	.202	1.58	490	.116	.15
17	318	.181	.16	4990	.195	2.63	470	.114	.15
18	373	.165	.17	7750	.188	3.93	460	.112	.14
19	543	.156	.22	6220	.198	3.30	440	.111	.13
20	1020	.128	.35	4870	.232	3.05	430	.111	.13
21	1210	.123	.41	3600	.235	2.29	420	.110	.13
22	800	.135	.30	2550	.228	1.57	410	.110	.12
23	762	.140	.29	2850	.227	1.75	400	.109	.12
24	1300	.158	.56	2560	.227	1.57	390	.109	.11
25	1350	.183	.68	2080	.215	1.21	380	.108	.11
26	1000	.179	.48	1560	.191	.80	370	.108	.11
27	1150	.189	.59	1270	.173	.59	360	.107	.10
28	1020	.190	.52	1720	.190	.89	350	.107	.10
29	732	.197	.39	1180	.166	.53	350	.106	.10
30	716	.193	.37	964	.173	.45	340	.106	.097
31	750	.185	.37	---	---	---	340	.106	.097
TOTAL	19546	---	9.90	55897	---	29.72	17499	---	6.464
		JANUARY			FEBRUARY			MARCH	
1	400	.116	.13	3520	.173	1.48	16800	.383	17.4
2	1100	.132	.39	5410	.358	5.22	13900	.314	11.8
3	2500	.145	.98	20600	.668	35.2	11800	.253	8.06
4	4500	.282	3.43	26100	1.95	127	9850	.221	5.88
5	7000	.326	6.17	26300	1.08	70.3	8070	.200	4.36
6	13000	.291	10.2	25300	.655	41.2	6740	.203	3.69
7	12000	.373	12.1	19200	.509	23.7	5770	.187	2.91
8	9600	.398	10.3	14000	.432	14.7	4870	.182	2.40
9	8000	.341	7.36	10000	.333	9.38	5580	.354	5.38
10	7200	.329	6.39	8700	.290	6.81	7360	.319	6.33
11	8200	.315	6.97	7800	.266	5.60	10000	.352	9.65
12	9800	.291	7.70	7000	.231	4.37	12200	.379	12.4
13	7000	.253	4.79	6100	.240	3.95	12800	.469	16.2
14	5200	.253	3.55	5600	.239	3.62	10900	.443	13.1
15	4200	.235	2.66	5200	.276	3.88	9870	.432	11.5
16	3600	.205	1.99	17200	.425	19.7	9340	.421	10.6
17	4100	.210	2.32	32700	.681	57.2	10900	.416	12.3
18	8000	.360	7.78	31800	.730	62.8	11000	.383	11.4
19	13000	.744	26.1	26600	.541	39.2	9370	.266	6.77
20	16000	.616	26.6	19100	.367	19.1	7620	.206	4.25
21	12000	.368	11.9	14800	.302	12.1	6240	.189	3.18
22	10000	.319	8.60	21900	.880	63.5	5370	.198	2.87
23	16000	.276	11.9	57300	1.65	257	4550	.178	2.19
24	11000	.248	7.37	62500	1.68	284	3930	.149	1.58
25	8000	.216	4.66	48100	1.21	159	3450	.141	1.31
26	6000	.220	3.56	33000	.871	78.6	2820	.142	1.08
27	5200	.190	2.66	25200	.660	45.1	2430	.147	.96
28	4500	.183	2.22	20800	.489	27.7	2350	.145	.92
29	4000	.179	1.93	---	---	---	2020	.148	.81
30	3700	.155	1.55	---	---	---	2520	.151	1.03
31	3300	.151	1.35	---	---	---	4940	.154	2.05
TOTAL	228100	---	205.61	601830	---	1481.41	235360	---	194.36

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	6600	.170	3.03	2210	.248	1.48	3110	.227	1.90
2	8490	.210	4.82	2120	.203	1.16	2420	.224	1.46
3	9170	.195	4.84	1520	.158	.65	2680	.271	1.97
4	8170	.174	3.83	2070	.151	.86	5700	.387	6.17
5	6690	.180	3.25	6890	.227	4.36	7840	.376	8.00
6	5260	.174	2.47	12900	.306	10.6	7030	.359	6.79
7	4500	.159	1.93	12900	.339	11.8	5090	.345	4.75
8	3690	.151	1.51	9510	.353	9.09	4970	.380	5.17
9	2840	.161	1.23	6310	.308	5.26	8820	.473	11.3
10	3390	.228	2.25	4760	.288	3.70	14600	.522	20.6
11	12900	.462	15.9	3180	.271	2.33	15000	.617	25.0
12	17700	.471	22.6	2780	.240	1.80	12800	.739	25.5
13	16500	.420	18.8	4330	.305	3.61	9700	.645	17.0
14	12500	.387	13.1	10800	.349	10.3	7740	.495	10.4
15	9780	.341	9.03	13500	.404	14.7	5490	.453	6.73
16	8080	.313	6.81	19900	.737	41.6	4520	.449	5.47
17	7180	.299	5.83	34700	.954	89.7	3720	.407	4.08
18	5950	.226	3.64	35700	1.10	107	2590	.376	2.63
19	4830	.207	2.70	27200	.935	69.2	1850	.337	1.69
20	3950	.207	2.21	21400	.774	44.7	1760	.336	1.61
21	4150	.207	2.33	17600	.646	30.8	1590	.319	1.37
22	5550	.243	3.65	14200	.552	21.2	1240	.280	.93
23	6200	.251	4.20	10400	.458	12.9	1860	.263	1.32
24	6520	.271	4.78	7300	.512	10.0	1590	.283	1.21
25	5400	.294	4.28	5140	.380	5.35	1200	.276	.90
26	4190	.237	2.71	5340	.268	3.91	955	.287	.74
27	3040	.192	1.58	10500	.361	10.3	720	.256	.50
28	3050	.251	2.06	9800	.370	9.82	906	.262	.65
29	2680	.251	1.82	7930	.324	6.96	2290	.278	1.72
30	2550	.327	2.25	5710	.275	4.27	2630	.270	1.92
31	---	---	---	4030	.237	2.58	---	---	---
TOTAL	201500	---	159.44	332630	---	551.99	142411	---	179.48
		JULY			AUGUST			SEPTEMBER	
1	3930	.284	3.02	1780	.326	1.57	2600	.337	2.36
2	4100	.282	3.11	1500	.319	1.29	1860	.331	1.66
3	5520	.269	4.01	1100	.313	.93	1240	.316	1.06
4	2090	.254	1.43	1080	.294	.85	1030	.295	.82
5	1300	.232	.82	1310	.280	.99	894	.287	.69
6	992	.238	.64	1840	.282	1.41	1070	.261	.75
7	1040	.232	.65	1890	.275	1.41	995	.253	.68
8	747	.210	.42	1670	.264	1.20	933	.253	.64
9	677	.187	.34	1600	.232	1.00	1110	.238	.72
10	728	.164	.32	1300	.175	.62	1490	.243	.98
11	651	.175	.31	1070	.157	.45	3870	.318	3.37
12	2370	.212	1.38	925	.162	.41	4150	.330	3.70
13	4040	.247	2.70	1970	.169	.90	3130	.287	2.44
14	6750	.259	4.74	3690	.192	1.94	2130	.228	1.32
15	12400	.332	11.0	5190	.210	2.94	2450	.249	1.65
16	9070	.392	9.57	5720	.233	3.61	2170	.265	1.57
17	6760	.395	7.22	4620	.248	3.09	3060	.291	2.41
18	5580	.356	5.37	3200	.250	2.16	2010	.276	1.50
19	4760	.332	4.27	2460	.256	1.70	2340	.318	2.02
20	3750	.311	3.15	2960	.267	2.14	1680	.312	1.42
21	3320	.305	2.73	5000	.284	3.86	1250	.286	.96
22	5700	.379	6.13	5890	.347	5.54	1800	.274	1.33
23	30000	.742	62.3	5460	.309	4.55	1020	.263	.73
24	38300	.979	101	5880	.341	5.40	1400	.245	.93
25	31900	.726	63.2	4940	.330	4.42	994	.252	.68
26	19400	.517	27.5	3420	.304	2.81	1490	.262	1.05
27	12100	.407	13.4	2060	.288	1.60	1210	.259	.84
28	8390	.346	7.87	1770	.292	1.40	861	.260	.60
29	6380	.328	5.64	1900	.323	1.66	843	.266	.61
30	4740	.330	4.22	1640	.292	1.30	848	.266	.61
31	2930	.329	2.60	2790	.333	2.51	---	---	---
TOTAL	240415	---	361.06	87625	---	65.66	51928	---	40.10
YEAR	2214741		3284.734						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	530	44	64	838	34	79	987	18	49
2	558	49	77	520	17	24	1420	19	72
3	470	53	71	490	14	19	829	17	38
4	421	44	53	584	15	23	657	15	27
5	364	39	41	670	12	22	817	13	30
6	504	54	76	520	13	18	766	12	24
7	413	43	49	410	12	13	650	13	23
8	366	37	37	500	14	19	600	13	21
9	340	36	34	617	15	25	570	13	20
10	393	37	43	467	15	19	829	10	22
11	333	36	35	601	11	17	704	9	17
12	330	30	27	450	8	10	630	7	13
13	354	23	22	468	12	16	580	8	12
14	404	22	25	638	20	34	540	10	15
15	374	31	32	1040	31	90	520	11	15
16	348	32	30	2920	35	275	490	11	14
17	318	33	29	4990	42	578	470	10	13
18	373	35	36	7750	48	999	460	10	12
19	543	32	51	6220	61	1010	440	9	11
20	1020	33	93	4870	64	844	430	9	10
21	1210	24	79	3600	49	480	420	8	9.4
22	800	20	45	2550	42	291	410	8	8.8
23	762	26	56	2850	41	314	400	8	8.2
24	1300	51	184	2560	36	248	390	7	7.6
25	1350	37	137	2080	24	138	380	7	7.1
26	1000	34	91	1560	19	80	370	7	6.6
27	1150	30	96	1270	21	72	360	6	6.1
28	1020	29	81	1720	22	102	350	6	5.7
29	732	30	58	1180	21	68	350	6	5.4
30	716	32	62	964	19	51	340	5	5.0
31	750	41	85	---	---	---	340	5	4.8
TOTAL	19546	---	1899	55897	---	5978	17499	---	532.7
		JANUARY			FEBRUARY			MARCH	
1	400	5	5.8	3520	37	320	16800	155	7070
2	1100	8	24	5410	47	697	13900	111	4190
3	2500	13	87	20600	240	13300	11800	86	2750
4	4500	20	249	26100	718	46500	9850	72	1920
5	7000	33	626	26300	499	32500	8070	67	1460
6	13000	73	2580	25300	359	22600	6740	61	1110
7	12000	136	4420	19200	242	11300	5770	54	843
8	9600	198	5140	14000	193	6560	4870	46	613
9	8000	123	2650	10000	144	4000	5580	40	596
10	7200	77	1500	8700	113	2660	7360	41	814
11	8200	61	1350	7800	94	1980	10000	82	2280
12	9800	59	1570	7000	76	1430	12200	152	5040
13	7000	71	1340	6100	69	1140	12800	274	9430
14	5200	61	858	5600	63	946	10900	250	7370
15	4200	42	473	5200	59	833	9870	195	5210
16	3600	32	308	17200	95	4400	9340	163	4110
17	4100	31	338	32700	376	32000	10900	154	4560
18	8000	67	1440	31800	432	37300	11000	166	4950
19	13000	287	10100	26600	257	18600	9370	111	2830
20	16000	396	17100	19100	152	7940	7620	87	1790
21	12000	253	8190	14800	101	4070	6240	72	1210
22	10000	192	5190	21900	157	12600	5370	61	892
23	16000	140	6040	57300	1470	234000	4550	48	590
24	11000	108	3200	62500	1770	300000	3930	40	419
25	8000	97	2100	48100	910	121000	3450	33	311
26	6000	91	1470	33000	480	43700	2820	28	216
27	5200	69	974	25200	306	20900	2430	24	157
28	4500	63	771	20800	216	12200	2350	20	129
29	4000	54	589	---	---	---	2020	17	94
30	3700	42	418	---	---	---	2520	20	141
31	3300	34	303	---	---	---	4940	31	411
TOTAL	228100	---	81403.8	601830	---	995476	235360	---	73506

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	6600	46	826	2210	35	209	3110	61	513
2	8490	75	1730	2120	37	210	2420	57	370
3	9170	83	2060	1520	29	122	2680	69	499
4	8170	74	1630	2070	31	182	5700	91	1440
5	6690	65	1180	6890	64	1240	7840	93	1970
6	5260	61	862	12900	98	3440	7030	128	2390
7	4500	51	617	12900	144	5010	5090	134	1850
8	3690	42	422	9510	116	3030	4970	105	1420
9	2840	40	304	6310	78	1340	8820	330	8310
10	3390	38	362	4760	81	1040	14600	485	19100
11	12900	115	4260	3180	78	670	15000	484	19700
12	17700	293	14100	2780	63	472	12800	301	10600
13	16500	251	11300	4330	58	678	9700	208	5460
14	12500	176	5980	10800	85	2560	7740	201	4190
15	9780	136	3610	13500	144	5240	5490	222	3280
16	8080	106	2320	19900	233	13000	4520	214	2610
17	7180	92	1790	34700	599	57300	3720	189	1900
18	5950	77	1230	35700	725	70300	2590	180	1260
19	4830	65	844	27200	514	38200	1850	115	575
20	3950	59	628	21400	366	21200	1760	90	427
21	4150	54	598	17600	275	13100	1590	108	464
22	5550	51	770	14200	230	8860	1240	95	316
23	6200	55	916	10400	162	4610	1860	85	425
24	6520	60	1070	7300	112	2220	1590	94	404
25	5400	51	748	5140	87	1210	1200	86	282
26	4190	43	492	5340	82	1200	955	81	208
27	3040	40	329	10500	166	4810	720	80	156
28	3050	39	321	9800	239	6380	906	77	188
29	2680	38	276	7930	137	2990	2290	83	514
30	2550	35	243	5710	85	1330	2630	81	571
31	---	---	---	4030	67	730	---	---	---
TOTAL	201500	---	61818	332630	---	272883	142411	---	91392
		JULY			AUGUST			SEPTEMBER	
1	3930	75	790	1780	89	429	2600	64	448
2	4100	70	770	1500	85	346	1860	55	275
3	5520	65	971	1100	75	225	1240	51	170
4	2090	61	343	1080	73	211	1030	51	142
5	1300	66	233	1310	59	206	894	50	121
6	992	74	198	1840	52	256	1070	42	121
7	1040	72	201	1890	48	247	995	39	105
8	747	64	129	1670	44	198	933	43	109
9	677	64	118	1600	39	167	1110	48	144
10	728	70	137	1300	31	109	1490	52	210
11	651	75	131	1070	48	141	3870	63	663
12	2370	84	542	925	48	120	4150	54	611
13	4040	93	1010	1970	50	269	3130	53	442
14	6750	105	1930	3690	57	572	2130	55	320
15	12400	177	5780	5190	64	899	2450	49	322
16	9070	263	6530	5720	68	1050	2170	50	295
17	6760	129	2370	4620	71	884	3060	54	446
18	5580	117	1760	3200	75	650	2010	48	257
19	4760	115	1480	2460	79	523	2340	69	437
20	3750	102	1030	2960	84	670	1680	68	309
21	3320	85	765	5000	84	1120	1250	72	241
22	5700	149	3020	5890	85	1360	1800	74	358
23	30000	476	39200	5460	54	789	1020	62	171
24	38300	540	55900	5880	48	757	1400	65	248
25	31900	309	27100	4940	56	740	994	64	170
26	19400	252	13300	3420	56	520	1490	56	226
27	12100	158	5280	2060	54	299	1210	55	180
28	8390	110	2510	1770	55	261	861	52	121
29	6380	103	1770	1900	58	299	843	53	121
30	4740	105	1350	1640	61	270	848	51	117
31	2930	95	761	2790	68	511	---	---	---
TOTAL	240415	---	177409	87625	---	15098	51928	---	7900
YEAR	2214741		1785085.8						

STREAMS TRIBUTARY TO LAKE ERIE

04195500 PORTAGE RIVER AT WOODVILLE, OH

LOCATION.--Lat 41°26'58", long 83°21'41", in sec. 28, T.6 N., R.13 E., Sandusky County, Hydrologic Unit 04100010, on left bank at upstream side of bridge on U.S. Highway 20 in Woodville, 600 ft downstream from unnamed right bank tributary, and 10.3 mi upstream from Sugar Creek.

DRAINAGE AREA.--428 mi².

PERIOD OF RECORD.--July 1928 to December 1935, October 1939 to current year.

REVISED RECORDS.--WSP 894: 1929-30. WSP 1207: 1933. WSP 1387: 1931, 1933. WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 614.75 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 8, 1933, nonrecording gage, Oct. 9, 1933 to Dec. 30, 1935 water-stage recorder, Oct. 17 to Nov. 29, 1939, nonrecording gage, all at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 6-Feb. 16. Records good except for periods of estimated record, which are fair. Flow supplemented by water imported from Maumee River basin for municipal supply for city of Bowling Green 16 mi upstream. The importation of this water began Sept. 1, 1951. Sediment data collected at this site 1950 to 1956. Water-quality data collected at this site 800 ft downstream 1968 to 1980. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE (adjusted for diversion).--58 years, 324 ft³/s, 10.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s Feb. 15, 1950, gage height, 14.51 ft; minimum daily (prior to diversion) 0.4 ft³/s Aug. 26, 1931; (subsequent to diversion) 1.8 ft³/s Sept. 22, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 17 ft, from information by local residents, discharge, 17,000 ft³/s, from rating curve extended above 11,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 17	1230	4,490	9.30	July 24	1630	5,160	9.90
Feb. 24	0430	*6,120	*10.70				

Minimum daily discharge, 10 ft³/s Oct. 8, 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	41	72	680	70	706	157	119	109	141	83	33
2	14	43	68	480	480	623	268	105	97	86	60	29
3	13	43	62	310	440	607	406	93	816	60	48	25
4	12	39	59	200	350	489	360	121	2530	48	42	21
5	12	36	62	130	270	364	296	1380	1070	40	147	19
6	11	36	51	80	210	293	236	1820	450	31	279	19
7	11	36	41	52	160	229	187	867	287	27	138	26
8	10	52	36	36	110	212	158	437	297	24	80	33
9	10	110	32	29	90	293	138	285	1800	21	55	345
10	12	119	30	46	68	767	192	222	1070	19	43	1680
11	13	92	29	58	54	1100	1880	247	457	24	37	677
12	15	71	27	47	43	1130	1690	208	265	769	34	265
13	15	57	26	36	33	723	803	405	188	1400	92	148
14	20	50	25	28	27	505	520	1070	149	743	234	107
15	16	53	24	23	450	397	455	677	126	1040	164	297
16	14	475	23	19	3400	344	392	1440	105	621	90	349
17	13	1150	23	27	4370	581	318	3060	86	245	60	228
18	57	617	22	44	2510	513	252	1610	72	131	51	161
19	75	332	22	63	1110	355	194	743	62	86	52	114
20	252	215	22	49	703	274	180	432	58	65	49	118
21	334	176	21	78	487	231	452	314	56	55	156	118
22	241	140	21	120	1480	212	769	250	52	596	1050	97
23	176	111	21	170	4940	201	511	185	50	3350	660	110
24	124	80	21	80	5690	172	361	151	51	4810	496	108
25	92	87	21	54	2500	142	280	131	46	3920	283	83
26	74	77	20	37	1180	131	228	233	40	1250	154	68
27	62	71	20	30	805	124	195	811	35	516	101	57
28	54	70	20	25	736	113	176	419	40	240	74	49
29	48	78	20	21	---	105	161	261	186	148	55	42
30	44	85	60	17	---	116	140	188	263	104	46	38
31	41	---	180	15	---	142	---	137	---	99	40	---
TOTAL	1900	4642	1181	3084	32766	12194	12355	18421	10913	20709	4953	5464
MEAN	61.3	155	38.1	99.5	1170	393	412	594	364	668	160	182
MAX	334	1150	180	680	5690	1130	1880	3060	2530	4810	1050	1680
MIN	10	36	20	15	27	105	138	93	35	19	34	19
CFSM	.14	.36	.09	.23	2.73	.92	.96	1.39	.85	1.56	.37	.43
IN	.17	.40	.10	.27	2.85	1.06	1.07	1.60	.95	1.80	.43	.47
(+)	6.6	6.0	5.4	5.6	5.8	5.8	6.0	5.5	6.0	6.0	6.4	6.8
MEAN ≠	54.7	149	32.7	93.9	1164	387	406	588	358	662	154	175
CFSM ≠	.13	.35	.08	.22	2.72	.90	.95	1.37	.84	1.55	.36	.41
IN ≠	.15	.39	.09	.25	2.83	1.04	1.06	1.58	.93	1.78	.41	.46

CAL YR 1989 TOTAL 123555 MEAN 339 MAX 5350 MIN 10 CFSM .79 IN. 10.74 (+) 6.0 MEAN ≠ 333 CFSM ≠ .78 IN ≠ 10.57
WTR YR 1990 TOTAL 128582 MEAN 352 MAX 5690 MIN 10 CFSM .82 IN. 11.18 (+) 6.0 MEAN ≠ 346 CFSM ≠ .81 IN ≠ 10.97

(+) Diversion in cubic ft per second, from Maumee R basin for municipal supply; furnished by City of Bowling Green
≠ Adjusted for diversion.

STREAMS TRIBUTARY TO LAKE ERIE

04196800 TYMOCHTEE CREEK AT CRAWFORD, OH

LOCATION.--Lat 40°55'22", long 83°20'56", in SE 1/4 sec. 27, T.1 S., R.13 E., Wyandot County, Hydrologic Unit 04100011, on right bank at downstream side of bridge on State Highway 199 (formerly U.S. Highway 23), 0.4 mi northwest of Crawford, 1.5 mi downstream from Lick Run, 2.7 mi upstream from Little Tymochtee Creek, and 3 mi southeast of Carey.

DRAINAGE AREA.--229 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1961-63, and annual maximum, water years 1961-64, June 1964 to current year.

REVISED RECORDS.--WRD Ohio 1969: 1964(P), 1966(M), 1967(P).

GAGE.--Water-stage recorder. Datum of gage is 785.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 5-Feb. 12. Records good except estimated daily discharges, which are poor. Beginning Mar. 9, 1972 water is diverted at a point 29.4 mi upstream from station into Killdeer Reservoir. Storage is available for low-flow augmentation. During the year, withdrawals totaled 15.3 m gal, equivalent to a mean annual withdrawal of 0.06 ft³/s no short term releases were made this year. Water-quality data collected at this site 1968 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--26 years, 179 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,390 ft³/s Mar. 17, 1978, gage height, 9.94 ft; maximum gage height, 11.21 ft Mar. 6, 1963 (backwater from ice); no flow Aug. 10, Sept. 13-18, Oct. 23 to Nov. 4, 1964, Aug. 23-26, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1959 reached a stage of 12.9 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 2	----	unknown	ice jam	Apr. 12	1900	2,200	6.37
Feb. 17	0930	*4,470	*8.36	June 10	0330	4,330	8.26

Minimum daily discharge, 0.03 ft³/s Oct. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	4.2	17	300	55	257	88	58	94	39	48	44
2	.05	2.8	16	2500	600	233	429	50	78	31	71	22
3	.03	2.6	16	1900	1700	211	733	47	114	19	38	14
4	.06	4.0	12	1300	1300	184	459	66	224	14	23	8.3
5	.19	5.9	13	900	1000	136	261	293	190	10	105	5.3
6	.26	6.3	9.4	520	780	102	180	464	102	8.6	332	4.0
7	.22	6.9	8.5	330	560	86	127	363	69	8.3	200	3.7
8	.27	16	7.6	170	410	72	96	221	356	7.1	83	3.7
9	.10	17	6.8	125	320	73	75	150	3050	6.3	46	7.3
10	.06	13	6.5	105	270	104	144	104	3930	5.9	27	24
11	.22	11	6.2	250	200	123	1080	81	2470	7.7	18	16
12	.28	22	6.0	220	160	104	1850	81	1150	120	14	9.7
13	.92	27	5.7	170	121	100	1570	472	377	590	52	7.2
14	.37	25	5.5	125	104	94	598	1000	221	996	237	6.8
15	.08	44	5.4	98	468	81	362	1130	143	1090	322	9.2
16	.67	274	5.2	85	2220	80	273	836	104	860	125	95
17	2.0	516	5.1	69	4000	94	207	915	74	313	59	89
18	1.8	360	5.0	130	2650	132	162	1000	53	144	35	57
19	15	155	5.0	230	1230	119	130	644	42	77	26	49
20	29	86	4.9	190	573	80	107	269	35	51	20	28
21	69	57	4.8	260	367	62	385	164	33	152	17	45
22	87	45	4.8	600	303	51	896	112	27	804	108	75
23	57	38	4.7	450	395	48	652	80	23	1350	564	183
24	39	31	4.7	250	476	45	309	65	22	1390	310	150
25	25	24	4.7	170	394	41	209	55	22	780	137	67
26	18	22	4.6	140	218	34	155	472	24	232	75	36
27	12	20	4.6	120	192	24	110	741	18	124	44	22
28	9.8	19	4.6	100	217	22	86	577	18	91	26	17
29	7.5	20	4.6	81	---	19	77	268	21	68	18	16
30	6.1	18	4.6	70	---	23	68	164	19	39	13	11
31	6.1	---	34	62	---	27	---	121	---	30	17	---
TOTAL	388.20	1892.7	247.5	12020	21283	2861	11878	11063	13103	9457.9	3210	1125.2
MEAN	12.5	63.1	7.98	388	760	92.3	396	357	437	305	104	37.5
MAX	87	516	34	2500	4000	257	1850	1130	3930	1390	564	183
MIN	.03	2.6	4.6	62	55	19	68	47	18	5.9	13	3.7

CAL YR 1989 TOTAL 52153.56 MEAN 143 MAX 3330 MIN .03
WTR YR 1990 TOTAL 88529.50 MEAN 243 MAX 4000 MIN .03

04197100 HONEY CREEK AT MELMORE, OH

LOCATION.--Lat 41°01'20", long 83°06'35", Seneca County, Hydrologic Unit 04100011, at bridge on State Highways 67 and 100 at Melmore, 1.5 mi upstream from Buckeye Creek.

DRAINAGE AREA.--149 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual maximum, water years 1961-75, February 1976 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 818 ft above National Geodetic Vertical Datum of 1929 from topographic map.

REMARKS.--Estimated daily discharges: Dec. 3-Jan. 4. Records good except those for estimated daily discharges which are poor. Water-quality data collected at this site 1976 to 1977, 1988 to 1989.

AVERAGE DISCHARGE.--14 years, 130 ft³/s, 11.85 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft³/s June 13, 1981, gage height, 11.00 ft; minimum daily discharge .07 ft³/s Sept. 28, 29, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 16	2000	*2,540	*8.74	No other peaks greater than base discharge.			

Minimum daily discharge .73 ft³/s Oct. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.73	1.3	21	125	46	172	87	35	37	16	44	12
2	.87	1.2	19	375	880	161	341	30	31	12	33	11
3	.91	1.1	16	270	1290	171	337	26	30	9.1	22	9.9
4	.99	1.4	14	313	1070	138	241	40	33	7.3	19	8.8
5	1.0	1.5	15	529	832	107	178	269	33	5.6	34	7.9
6	1.0	1.6	13	338	535	92	126	299	30	5.1	332	7.3
7	1.1	2.1	11	155	356	75	96	174	26	3.9	517	8.5
8	1.3	2.8	10	103	264	64	78	107	66	3.4	524	8.3
9	1.5	14	9.6	92	201	77	64	76	415	3.1	244	70
10	2.7	26	8.6	155	211	107	213	59	566	3.5	113	82
11	3.3	23	8.0	182	197	112	1170	48	304	18	70	45
12	3.5	17	7.6	132	139	117	1150	43	132	214	49	24
13	3.0	12	7.0	76	107	117	517	234	82	708	120	64
14	2.8	8.7	6.4	65	95	93	296	426	60	1180	453	131
15	2.6	17	6.0	52	503	76	221	272	46	1340	357	147
16	3.0	337	5.6	48	2120	78	167	661	36	982	142	161
17	5.5	456	5.0	58	2030	81	128	829	28	469	79	97
18	6.4	243	4.7	222	1010	70	97	590	22	210	53	64
19	25	99	4.4	210	541	58	77	292	18	116	44	42
20	50	57	4.1	142	340	54	68	158	16	76	117	42
21	50	45	3.8	356	240	53	226	108	14	61	152	41
22	36	38	3.6	353	242	52	352	89	14	315	88	36
23	25	30	3.4	198	375	48	244	70	13	733	59	39
24	16	26	3.2	149	399	43	152	56	14	716	44	37
25	12	22	3.0	129	253	39	107	47	16	331	36	28
26	7.3	21	2.9	118	174	34	81	80	14	138	30	21
27	4.3	19	2.7	97	156	32	65	159	12	80	24	17
28	3.0	22	2.5	71	166	29	55	114	12	59	20	15
29	2.5	24	2.4	56	---	27	48	78	12	44	17	21
30	1.8	23	2.3	54	---	27	41	59	15	35	15	30
31	1.5	---	20	47	---	34	---	47	---	30	13	---
TOTAL	276.60	1592.7	245.8	5270	14772	2438	7023	5575	2147	7924.0	3864	1327.7
MEAN	8.92	53.1	7.93	170	528	78.6	234	180	71.6	256	125	44.3
MAX	50	456	21	529	2120	172	1170	829	566	1340	524	161
MIN	.73	1.1	2.3	47	46	27	41	26	12	3.1	13	7.3
CFSM	.06	.36	.05	1.14	3.54	.53	1.57	1.21	.48	1.72	.84	.30
IN.	.07	.40	.06	1.32	3.69	.61	1.75	1.39	.54	1.98	.96	.33

CAL YR 1989 TOTAL 33777.95 MEAN 92.5 MAX 1980 MIN .63 CFSM .62 IN. 8.43
WTR YR 1990 TOTAL 52455.80 MEAN 144 MAX 2120 MIN .73 CFSM .96 IN. 13.10

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years October 1987 to September 1989 (discontinued).

PERIOD OF DAILY RECORD.--
CHLORIDE: October 1987 to September 1989.
NITROGEN, NITRITE + NITRATE: October 1987 to September 1989
NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1989.
PHOSPHORUS: October 1987 to September 1989.
SUSPENDED SEDIMENT DISCHARGE: October 1987 to September 1989.

INSTRUMENTATION.--Refrigerated water-quality pumping sampler since October 1987.

REMARKS.--Water-quality samples were collected by pumping sampler three times a day. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Unpublished records of alachlor concentrations for 1989 are available in files of District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 66 mg/L Dec. 14, 1988; minimum daily mean, <10 mg/L May 27, 1989.
DISSOLVED CHLORIDE LOADS: Maximum daily, 60.3 tons May 26, 1989; minimum daily, .01 tons on many days in 1988-1989.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 18.1 mg/L Nov. 24, 1988; minimum daily mean, .414 mg/L Nov. 4, 1987.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 32.0 tons May 26, 1989; minimum daily, .00 ton on many days in 1988-1989.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.40 mg/L March 9, 10, 1988; minimum daily mean, .43 mg/L Jan. 4, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 12.4 tons June 4, 1989; minimum daily, .000 ton on many days in 1988-1989.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.67 mg/L June 4, 1988; minimum daily mean, <.010 mg/L Nov. 13, 14, 15, 1987.
TOTAL PHOSPHORUS LOADS: Maximum daily, 5.95 tons May 27, 1989; minimum daily, .000 ton on many days in 1988-1989.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1210 mg/L June 4, 1989; minimum daily mean, 2 mg/L on several days in 1988-1989.
SEDIMENT LOADS: Maximum daily, 4040 tons May 27, 1989; minimum daily, .00 ton on many days in 1988-1989.

EXTREMES FOR 1989 WATER YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 66 mg/L Dec. 14; minimum daily mean, <10 mg/L May 27.
DISSOLVED CHLORIDE LOADS: Maximum daily, 60.3 tons May 26; minimum daily, .01 ton on several days in October.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 18.1 mg/L Nov. 24; minimum daily mean, .664 mg/L Oct. 20.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 32.0 tons May 26; minimum daily, .00 ton on many days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 4.9 mg/L June 4; minimum daily mean, .51 mg/L Feb. 7.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 12.4 tons June 4; minimum daily, .000 ton on several days in October.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.67 mg/L June 4; minimum daily mean, .021 mg/L Apr. 23, May 2.
TOTAL PHOSPHORUS LOADS: Maximum daily, 5.95 tons May 27; minimum daily, .000 ton on many days during year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1210 mg/L June 4; minimum daily mean, 2 mg/L Dec. 21, 22.
SEDIMENT LOADS: Maximum daily, 4040 tons May 27; minimum daily, .00 ton on several days in October.

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.12	49	.02	1.9	29	.15	25	40	2.71
2	.12	33	.01	1.9	27	.14	22	40	2.37
3	.12	31	.01	1.9	34	.17	20	40	2.15
4	.12	37	.01	2.0	32	.18	19	40	2.05
5	.12	31	.01	4.3	38	.45	17	40	1.86
6	.12	31	.01	5.0	30	.41	15	41	1.69
7	.12	26	.01	6.7	38	.74	15	41	1.65
8	.12	24	.01	11	64	1.97	9.1	40	.99
9	.12	30	.01	8.4	54	1.23	8.0	40	.86
10	.12	43	.01	16	49	2.10	6.9	39	.73
11	.12	42	.01	73	39	7.62	6.2	42	.71
12	.13	41	.01	66	34	6.11	5.2	46	.64
13	.13	56	.02	39	35	3.77	5.6	50	.75
14	.13	47	.02	40	41	4.44	6.0	66	1.06
15	.13	30	.01	43	42	4.91	5.8	45	.70
16	.13	56	.02	30	42	3.44	5.6	44	.66
17	.18	63	.03	21	43	2.45	5.4	45	.66
18	1.2	40	.13	17	44	1.98	5.3	47	.67
19	.44	29	.03	13	45	1.62	5.2	46	.65
20	.85	31	.07	28	42	3.00	5.1	43	.59
21	.91	40	.10	156	35	14.7	5.0	37	.50
22	1.1	42	.12	186	34	16.8	6.8	37	.68
23	1.1	50	.15	96	38	9.94	9.6	42	1.09
24	1.6	38	.16	58	41	6.33	16	42	1.78
25	1.5	29	.12	42	40	4.54	26	43	3.06
26	1.5	27	.11	33	40	3.57	26	45	3.14
27	1.4	35	.13	31	41	3.44	25	42	2.85
28	2.3	35	.22	34	41	3.74	173	38	16.1
29	2.2	27	.16	30	41	3.35	392	32	33.5
30	1.9	30	.15	27	40	2.93	287	34	26.5
31	1.9	35	.18	---	---	---	145	37	14.6
TOTAL	22.05	---	2.06	1122.1	---	116.22	1323.8	---	127.95
		JANUARY			FEBRUARY			MARCH	
1	80	39	8.30	58	38	5.99	34	36	3.35
2	57	39	6.06	48	39	5.08	31	37	3.10
3	39	41	4.31	40	40	4.27	29	37	2.90
4	60	41	6.59	30	41	3.29	26	37	2.64
5	42	43	4.87	27	41	3.00	47	37	4.66
6	44	46	5.50	24	42	2.76	102	33	8.93
7	234	39	22.4	22	43	2.55	57	35	5.39
8	826	23	51.2	20	44	2.36	84	37	8.29
9	778	25	52.4	19	44	2.27	50	36	4.83
10	380	32	31.9	19	45	2.31	37	36	3.62
11	153	33	13.9	18	46	2.22	33	36	3.22
12	98	34	8.98	18	46	2.25	33	34	3.02
13	104	34	9.59	19	47	2.34	32	35	3.04
14	86	36	8.35	30	45	3.67	33	35	3.09
15	71	37	7.07	126	44	14.7	40	35	3.77
16	63	38	6.49	196	35	18.7	49	34	4.49
17	54	38	5.54	167	35	15.7	39	35	3.66
18	48	38	4.88	87	37	8.65	47	36	4.49
19	47	38	4.81	66	39	6.90	69	35	6.45
20	56	38	5.73	52	39	5.44	64	39	6.69
21	53	38	5.45	125	37	12.1	109	37	10.8
22	40	39	4.15	322	30	25.7	192	36	18.4
23	39	38	3.95	223	30	17.8	117	36	11.4
24	31	37	3.14	85	34	7.82	83	37	8.29
25	28	37	2.82	85	35	8.03	70	37	7.00
26	72	37	7.05	66	35	6.31	60	36	5.87
27	217	31	18.2	56	36	5.46	52	35	4.96
28	152	34	13.9	43	36	4.23	50	34	4.57
29	94	35	9.01	---	---	---	53	34	4.92
30	80	37	7.94	---	---	---	142	34	12.6
31	69	38	7.05	---	---	---	431	28	32.5
TOTAL	4195	---	351.53	2091	---	201.90	2295	---	210.94

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	482	28	35.9	35	31	2.88	227	19	11.6
2	341	28	25.8	29	31	2.44	221	21	12.5
3	505	25	33.2	28	32	2.40	286	22	16.1
4	1130	19	56.2	25	31	2.11	956	13	32.8
5	1190	16	52.5	24	30	1.94	892	13	30.3
6	689	18	33.1	28	31	2.33	449	17	19.8
7	420	21	23.7	48	32	4.14	210	20	11.1
8	276	25	18.4	66	30	5.32	128	21	7.27
9	209	27	15.2	61	30	4.97	91	23	5.59
10	174	29	13.4	66	31	5.51	69	24	4.46
11	127	29	10.0	77	30	6.27	54	25	3.64
12	99	31	8.25	75	30	6.09	52	25	3.51
13	89	31	7.44	108	30	8.82	162	23	9.53
14	82	32	7.10	139	30	11.4	225	21	12.6
15	78	32	6.73	110	30	9.00	226	21	13.0
16	79	31	6.71	79	32	6.77	303	21	17.0
17	68	32	5.96	61	32	5.28	322	18	15.2
18	67	31	5.68	49	32	4.24	144	21	7.98
19	66	31	5.52	41	32	3.52	81	24	5.22
20	60	31	5.00	35	32	3.00	57	25	3.85
21	54	30	4.41	36	32	3.14	45	26	3.13
22	48	31	4.00	39	32	3.40	37	27	2.69
23	44	31	3.68	183	28	12.0	34	27	2.47
24	40	32	3.43	725	20	39.4	30	28	2.29
25	41	33	3.63	737	22	43.4	23	29	1.82
26	43	32	3.73	1690	14	60.3	19	29	1.48
27	38	32	3.27	1980	<10	38.4	24	29	1.83
28	36	31	3.01	1180	11	35.6	208	21	11.2
29	39	30	3.20	672	12	22.4	250	16	10.8
30	38	30	3.10	398	15	15.4	101	21	5.61
31	---	---	---	279	17	12.7	---	---	---
TOTAL	6652	---	411.25	9103	---	384.57	5926	---	286.37
		JULY			AUGUST			SEPTEMBER	
1	58	24	3.73	35	23	2.18	2.1	36	.20
2	42	25	2.83	26	25	1.76	2.5	30	.20
3	34	26	2.41	19	27	1.39	1.3	32	.11
4	28	26	1.94	18	26	1.23	1.6	33	.15
5	25	27	1.79	48	25	3.23	1.5	47	.19
6	20	26	1.44	71	24	4.50	1.2	51	.17
7	18	27	1.31	42	22	2.46	1.0	52	.14
8	13	27	.98	25	23	1.53	.88	63	.15
9	12	27	.84	16	24	1.07	.75	49	.10
10	11	27	.82	11	23	.67	1.0	33	.09
11	9.8	27	.72	7.6	22	.46	1.1	34	.10
12	9.5	27	.69	5.5	23	.34	.80	52	.11
13	9.1	26	.64	4.0	23	.25	.68	48	.09
14	10	27	.76	3.3	24	.22	1.5	49	.18
15	8.3	29	.64	2.8	29	.22	4.1	27	.29
16	6.6	29	.51	2.7	25	.18	4.5	33	.42
17	4.8	21	.27	2.2	24	.14	6.9	42	.78
18	3.7	18	.18	1.9	25	.13	4.6	38	.47
19	3.9	18	.19	1.8	29	.14	2.9	37	.29
20	11	16	.45	2.2	25	.15	2.2	37	.22
21	39	16	1.79	2.3	27	.17	1.7	34	.16
22	58	18	2.82	2.0	41	.22	1.3	34	.12
23	29	14	1.07	2.2	26	.16	.91	34	.08
24	17	14	.66	2.3	24	.15	.79	35	.08
25	11	15	.43	1.8	27	.13	.71	39	.07
26	9.1	14	.34	2.8	29	.22	.66	40	.07
27	49	12	1.47	3.7	29	.29	.63	38	.07
28	156	13	5.39	2.6	32	.22	.63	42	.07
29	159	11	4.65	1.9	35	.18	.65	42	.07
30	71	12	2.31	1.5	45	.19	.66	39	.07
31	44	19	2.25	1.2	43	.14	---	---	---
TOTAL	979.8	---	46.32	369.3	---	24.32	51.75	---	5.31
YEAR	34130.80		2168.68						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.12	1.40	.00	1.9	1.19	.01	25	12.3	.84
2	.12	1.54	.00	1.9	1.19	.01	22	11.7	.69
3	.12	1.60	.00	1.9	1.11	.01	20	11.1	.60
4	.12	1.72	.00	2.0	1.10	.01	19	10.6	.54
5	.12	1.90	.00	4.3	2.45	.03	17	10.6	.49
6	.12	2.10	.00	5.0	1.22	.02	15	10.5	.43
7	.12	2.27	.00	6.7	.820	.02	15	10.0	.40
8	.12	2.31	.00	11	1.22	.04	9.1	9.72	.24
9	.12	2.39	.00	8.4	2.65	.06	8.0	9.57	.21
10	.12	2.59	.00	16	10.5	.49	6.9	9.36	.17
11	.12	2.60	.00	73	9.60	1.9	6.2	9.55	.16
12	.13	2.55	.00	66	11.8	2.1	5.2	10.2	.14
13	.13	2.77	.00	39	14.2	1.5	5.6	10.2	.15
14	.13	2.83	.00	40	14.5	1.6	6.0	9.46	.15
15	.13	2.51	.00	43	15.2	1.8	5.8	8.61	.13
16	.13	2.20	.00	30	15.0	1.2	5.6	8.95	.14
17	.18	1.79	.00	21	15.7	.90	5.4	9.24	.13
18	1.2	2.35	.01	17	15.8	.71	5.3	9.62	.14
19	.44	1.14	.00	13	14.8	.54	5.2	9.02	.13
20	.85	.664	.00	28	12.6	.93	5.1	7.39	.10
21	.91	.851	.00	156	14.2	6.0	5.0	6.95	.09
22	1.1	1.35	.00	186	15.8	7.9	6.8	7.11	.13
23	1.1	1.15	.00	96	17.7	4.6	9.6	7.82	.20
24	1.6	1.76	.01	58	18.1	2.8	16	7.71	.32
25	1.5	1.12	.00	42	17.4	2.0	26	8.19	.58
26	1.5	1.01	.00	33	16.6	1.5	26	8.50	.59
27	1.4	1.02	.00	31	16.0	1.3	25	6.04	.41
28	2.3	1.16	.01	34	14.5	1.3	173	6.28	3.0
29	2.2	1.10	.01	30	13.4	1.1	392	7.76	8.3
30	1.9	1.01	.01	27	13.2	.96	287	9.14	7.1
31	1.9	1.08	.01	---	---	---	145	8.81	3.5
TOTAL	22.05	---	0.06	1122.1	---	43.34	1323.8	---	30.20
		JANUARY			FEBRUARY			MARCH	
1	80	11.2	2.4	58	10.6	1.7	34	8.66	.80
2	57	13.2	2.0	48	10.1	1.3	31	8.27	.69
3	39	14.0	1.5	40	9.62	1.0	29	7.81	.61
4	60	13.8	2.2	30	9.15	.74	26	7.41	.53
5	42	12.9	1.5	27	8.72	.63	47	7.19	.92
6	44	11.3	1.3	24	8.30	.54	102	8.00	2.2
7	234	10.1	6.2	22	7.94	.47	57	8.63	1.4
8	826	10.6	24	20	7.87	.42	84	10.2	2.3
9	778	13.6	28	19	7.83	.40	50	10.3	1.4
10	380	14.5	15	19	7.80	.40	37	9.20	.92
11	153	14.1	5.9	18	7.77	.38	33	8.14	.73
12	98	13.9	3.7	18	7.73	.38	33	7.54	.66
13	104	13.4	3.8	19	7.63	.38	32	7.36	.64
14	86	13.2	3.1	30	7.12	.58	33	6.85	.60
15	71	12.8	2.4	126	8.14	2.8	40	6.79	.73
16	63	12.3	2.1	196	9.80	5.2	49	7.21	.94
17	54	11.5	1.7	167	11.3	5.1	39	7.20	.75
18	48	10.7	1.4	87	11.3	2.6	47	7.24	.92
19	47	10.5	1.3	66	11.1	2.0	69	8.17	1.5
20	56	10.5	1.6	52	10.2	1.4	64	8.53	1.5
21	53	10.8	1.5	125	9.35	3.1	109	8.92	2.7
22	40	10.7	1.2	322	10.0	8.7	192	12.0	6.2
23	39	11.0	1.1	223	12.1	7.3	117	13.2	4.2
24	31	10.8	.92	85	12.2	2.8	83	11.9	2.7
25	28	10.1	.77	85	12.2	2.8	70	10.5	2.0
26	72	9.43	1.9	66	11.3	2.0	60	9.49	1.5
27	217	11.7	6.9	56	10.2	1.6	52	8.40	1.2
28	152	12.9	5.3	43	9.39	1.1	50	7.33	.98
29	94	12.5	3.2	---	---	---	53	6.51	.94
30	80	11.7	2.5	---	---	---	142	6.24	2.5
31	69	11.1	2.1	---	---	---	431	11.8	14
TOTAL	4195	---	138.49	2091	---	57.82	2295	---	59.66

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	482	14.5	19	35	4.23	.40	227	6.71	4.1
2	341	14.5	13	29	3.91	.31	221	7.46	4.4
3	505	12.2	16	28	3.72	.28	286	8.34	6.3
4	1130	11.5	35	25	3.67	.25	956	6.10	16
5	1190	10.9	35	24	3.52	.23	892	6.28	15
6	689	11.5	21	28	3.49	.26	449	6.80	8.3
7	420	11.4	13	48	3.49	.45	210	6.76	3.8
8	276	11.7	8.7	66	3.95	.70	128	6.66	2.3
9	209	11.6	6.6	61	4.23	.70	91	6.80	1.7
10	174	11.7	5.5	66	4.76	.85	69	6.45	1.2
11	127	11.6	4.0	77	5.64	1.2	54	6.27	.92
12	99	11.5	3.1	75	5.71	1.2	52	5.87	.82
13	89	11.1	2.6	108	5.88	1.7	162	6.22	2.8
14	82	10.4	2.3	139	7.06	2.6	225	8.10	4.9
15	78	9.38	2.0	110	7.57	2.2	226	8.41	5.1
16	79	8.41	1.8	79	7.91	1.7	303	8.36	6.8
17	68	7.86	1.4	61	7.52	1.2	322	7.68	6.7
18	67	7.26	1.3	49	6.66	.88	144	7.61	3.0
19	66	7.05	1.3	41	6.10	.67	81	7.59	1.7
20	60	6.60	1.1	35	5.58	.52	57	7.49	1.1
21	54	6.17	.90	36	5.00	.49	45	7.29	.88
22	48	6.14	.80	39	4.78	.50	37	7.00	.70
23	44	5.81	.69	183	5.00	2.7	34	6.65	.61
24	40	5.69	.61	725	10.4	20	30	6.05	.49
25	41	5.44	.60	737	13.3	26	23	5.68	.36
26	43	5.35	.62	1690	7.42	32	19	5.17	.26
27	38	5.48	.56	1980	5.53	30	24	4.77	.31
28	36	5.03	.49	1180	6.30	20	208	5.41	3.1
29	39	4.71	.50	672	6.20	11	250	9.29	6.1
30	38	4.51	.47	398	6.00	6.4	101	10.2	2.8
31	---	---	---	279	6.24	4.7	---	---	---
TOTAL	6652	---	199.94	9103	---	172.09	5926	---	112.55
		JULY			AUGUST			SEPTEMBER	
1	58	9.57	1.5	35	6.92	.65	2.1	3.46	.02
2	42	8.84	1.0	26	6.91	.49	2.5	2.56	.02
3	34	8.44	.78	19	6.37	.33	1.3	2.97	.01
4	28	7.63	.57	18	5.59	.26	1.6	2.95	.01
5	25	6.88	.46	48	4.81	.61	1.5	2.65	.01
6	20	6.12	.34	71	4.60	.87	1.2	2.57	.01
7	18	5.52	.27	42	4.36	.49	1.0	2.40	.01
8	13	5.10	.19	25	4.34	.29	.88	2.22	.01
9	12	4.69	.15	16	4.12	.18	.75	2.27	.00
10	11	4.30	.13	11	4.01	.12	1.0	2.70	.01
11	9.8	3.98	.11	7.6	3.99	.08	1.1	2.48	.01
12	9.5	3.65	.09	5.5	3.91	.06	.80	2.27	.00
13	9.1	3.59	.09	4.0	3.88	.04	.68	2.57	.00
14	10	3.45	.10	3.3	3.76	.03	1.5	2.60	.01
15	8.3	3.06	.07	2.8	3.61	.03	4.1	1.85	.02
16	6.6	3.00	.05	2.7	3.49	.03	4.5	2.70	.03
17	4.8	2.38	.03	2.2	3.30	.02	6.9	2.64	.05
18	3.7	2.02	.02	1.9	3.09	.02	4.6	1.83	.02
19	3.9	2.07	.02	1.8	2.77	.01	2.9	1.84	.01
20	11	2.05	.06	2.2	2.32	.01	2.2	2.61	.02
21	39	2.25	.22	2.3	2.10	.01	1.7	2.75	.01
22	58	3.18	.47	2.0	2.07	.01	1.3	3.65	.01
23	29	6.05	.46	2.2	1.95	.01	.91	4.43	.01
24	17	6.46	.30	2.3	2.07	.01	.79	4.17	.01
25	11	6.03	.18	1.8	2.10	.01	.71	3.70	.01
26	9.1	4.63	.11	2.8	2.07	.02	.66	3.45	.01
27	49	3.58	.47	3.7	1.94	.02	.63	3.46	.01
28	156	4.51	1.9	2.6	1.90	.01	.63	3.32	.01
29	159	4.99	2.1	1.9	2.08	.01	.65	3.30	.01
30	71	4.48	.86	1.5	2.30	.01	.66	3.30	.01
31	44	6.05	.71	1.2	2.62	.01	---	---	---
TOTAL	979.8	---	13.81	369.3	---	4.75	51.75	---	0.38
YEAR	34130.80		834.61						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.12	2.5	.001	1.9	.78	.004	25	.79	.053
2	.12	1.0	.000	1.9	.65	.003	22	.70	.041
3	.12	.84	.000	1.9	.77	.004	20	.60	.032
4	.12	.98	.000	2.0	.80	.004	19	.56	.029
5	.12	.64	.000	4.3	1.4	.019	17	.68	.032
6	.12	.53	.000	5.0	.96	.013	15	.76	.031
7	.12	.66	.000	6.7	.90	.018	15	.71	.029
8	.12	.61	.000	11	1.1	.033	9.1	.70	.017
9	.12	.63	.000	8.4	1.2	.026	8.0	.69	.015
10	.12	.91	.000	16	1.4	.066	6.9	.62	.012
11	.12	.84	.000	73	1.9	.38	6.2	.69	.012
12	.13	.74	.000	66	1.9	.33	5.2	.78	.011
13	.13	.93	.000	39	1.6	.17	5.6	.87	.013
14	.13	1.3	.000	40	1.3	.15	6.0	.80	.013
15	.13	1.0	.000	43	1.4	.16	5.8	.72	.011
16	.13	1.2	.000	30	1.1	.094	5.6	.77	.012
17	.18	1.5	.001	21	1.2	.070	5.4	.71	.010
18	1.2	1.2	.004	17	.99	.045	5.3	.72	.010
19	.44	.75	.001	13	.71	.026	5.2	.74	.010
20	.85	.68	.002	28	1.2	.097	5.1	.76	.010
21	.91	1.2	.003	156	2.1	.92	5.0	.61	.008
22	1.1	1.1	.003	186	1.6	.84	6.8	.52	.010
23	1.1	1.3	.004	96	.82	.22	9.6	.60	.016
24	1.6	.97	.004	58	.92	.14	16	.72	.031
25	1.5	.54	.002	42	.75	.084	26	.99	.070
26	1.5	.52	.002	33	.79	.070	26	1.2	.086
27	1.4	.67	.003	31	.80	.067	25	.84	.057
28	2.3	.67	.004	34	.85	.078	173	1.2	.68
29	2.2	.55	.003	30	.81	.067	392	1.6	1.72
30	1.9	.77	.004	27	.80	.058	287	1.3	1.01
31	1.9	.88	.004	---	---	---	145	1.0	.40
TOTAL	22.05	---	0.045	1122.1	---	4.256	1323.8	---	4.491
		JANUARY			FEBRUARY			MARCH	
1	80	.88	.19	58	.71	.11	34	.70	.064
2	57	.80	.13	48	.67	.087	31	.61	.051
3	39	.82	.091	40	.63	.068	29	.60	.047
4	60	1.3	.21	30	.60	.048	26	.60	.043
5	42	.65	.075	27	.56	.041	47	.80	.11
6	44	.64	.079	24	.53	.035	102	1.1	.30
7	234	1.6	1.20	22	.51	.030	57	.97	.16
8	826	2.1	4.73	20	.52	.028	84	1.2	.28
9	778	1.8	3.77	19	.53	.027	50	.88	.12
10	380	1.3	1.40	19	.55	.028	37	.80	.082
11	153	1.0	.43	18	.56	.027	33	.71	.064
12	98	.92	.24	18	.58	.028	33	.57	.050
13	104	.93	.26	19	.61	.031	32	.68	.059
14	86	1.1	.26	30	.73	.061	33	.77	.068
15	71	1.0	.19	126	1.1	.38	40	.80	.086
16	63	.72	.12	196	1.4	.73	49	.79	.10
17	54	.77	.11	167	1.2	.55	39	.69	.073
18	48	.81	.10	87	1.1	.26	47	.78	.10
19	47	.86	.11	66	.64	.11	69	1.1	.20
20	56	.75	.11	52	.53	.075	64	.87	.15
21	53	.85	.12	125	1.1	.44	109	.99	.30
22	40	.74	.080	322	1.9	1.63	192	1.3	.66
23	39	.78	.082	223	1.5	.93	117	1.0	.32
24	31	.70	.059	85	1.1	.24	83	.90	.20
25	28	.61	.046	85	.97	.22	70	.73	.14
26	72	1.0	.26	66	.80	.14	60	.72	.12
27	217	1.8	1.08	56	.66	.099	52	.72	.10
28	152	1.5	.62	43	.76	.089	50	.97	.13
29	94	1.1	.28	---	---	---	53	1.0	.14
30	80	.83	.18	---	---	---	142	1.3	.57
31	69	.75	.14	---	---	---	431	1.8	2.03
TOTAL	4195	---	16.752	2091	---	6.542	2295	---	6.917

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	482	1.5	2.01	35	.83	.078	227	1.4	.85
2	341	1.1	1.06	29	.80	.063	221	1.6	.93
3	505	1.9	2.89	28	.81	.061	286	2.0	1.88
4	1130	2.7	8.11	25	.85	.058	956	4.9	12.4
5	1190	2.3	7.48	24	.91	.058	892	3.0	7.24
6	689	1.8	3.33	28	.99	.074	449	2.4	3.01
7	420	1.4	1.59	48	1.0	.13	210	2.0	1.13
8	276	1.1	.79	66	.99	.17	128	1.5	.53
9	209	1.1	.60	61	.92	.15	91	1.3	.33
10	174	1.0	.48	66	.99	.18	69	1.4	.26
11	127	.86	.29	77	.99	.21	54	1.3	.19
12	99	.93	.25	75	.94	.19	52	1.1	.16
13	89	.77	.18	108	1.1	.32	162	1.8	.84
14	82	.93	.21	139	1.1	.41	225	2.1	1.26
15	78	.81	.17	110	1.0	.30	226	2.0	1.22
16	79	.73	.16	79	.81	.17	303	2.2	1.81
17	68	.74	.14	61	.72	.12	322	2.1	1.89
18	67	.79	.14	49	.77	.10	144	1.6	.64
19	66	.80	.14	41	.71	.078	81	1.5	.33
20	60	.80	.13	35	.71	.067	57	1.4	.21
21	54	.81	.12	36	.77	.075	45	1.3	.16
22	48	.87	.11	39	.88	.093	37	1.2	.12
23	44	.81	.096	183	1.7	1.27	34	1.1	.10
24	40	.75	.081	725	3.1	6.10	30	1.2	.096
25	41	.80	.088	737	2.3	4.64	23	1.1	.068
26	43	.90	.10	1690	3.7	17.2	19	.99	.050
27	38	.96	.099	1980	3.1	16.8	24	1.4	.097
28	36	.84	.081	1180	2.4	7.61	208	3.1	2.00
29	39	.89	.094	672	2.2	4.04	250	2.7	1.93
30	38	.90	.093	398	2.0	2.12	101	1.7	.48
31	---	---	---	279	1.7	1.26	---	---	---
TOTAL	6652	---	31.112	9103	---	64.195	5926	---	42.211
		JULY			AUGUST			SEPTEMBER	
1	58	1.5	.24	35	1.3	.12	2.1	1.2	.007
2	42	1.4	.16	26	1.2	.086	2.5	.89	.006
3	34	1.3	.12	19	1.2	.063	1.3	.80	.003
4	28	1.3	.095	18	1.4	.065	1.6	.80	.004
5	25	1.2	.079	48	1.7	.24	1.5	.80	.003
6	20	1.0	.057	71	1.8	.34	1.2	.90	.003
7	18	1.1	.053	42	1.4	.15	1.0	1.7	.005
8	13	1.1	.039	25	1.4	.090	.88	1.5	.004
9	12	.99	.031	16	1.1	.049	.75	1.2	.002
10	11	1.0	.031	11	1.0	.029	1.0	.96	.003
11	9.8	1.1	.030	7.6	1.0	.021	1.1	.71	.002
12	9.5	1.2	.031	5.5	1.2	.017	.80	.41	.001
13	9.1	.97	.024	4.0	1.1	.012	.68	.22	.000
14	10	1.1	.030	3.3	.83	.007	1.5	.68	.004
15	8.3	1.0	.022	2.8	.96	.007	4.1	.86	.010
16	6.6	.93	.016	2.7	1.0	.007	4.5	1.1	.015
17	4.8	.96	.012	2.2	1.0	.006	6.9	1.0	.019
18	3.7	1.1	.011	1.9	1.0	.005	4.6	.71	.009
19	3.9	.87	.009	1.8	1.1	.005	2.9	.70	.006
20	11	1.2	.048	2.2	1.2	.007	2.2	.69	.004
21	39	1.7	.16	2.3	1.2	.008	1.7	.61	.003
22	58	1.4	.21	2.0	1.3	.007	1.3	.60	.002
23	29	1.8	.14	2.2	1.1	.007	.91	.62	.002
24	17	1.5	.071	2.3	1.2	.007	.79	.75	.002
25	11	1.2	.037	1.8	1.2	.006	.71	.92	.002
26	9.1	1.3	.032	2.8	.95	.007	.66	1.3	.002
27	49	2.2	.34	3.7	1.0	.010	.63	1.8	.003
28	156	2.5	1.06	2.6	1.1	.007	.63	1.3	.002
29	159	2.2	.95	1.9	.91	.005	.65	1.2	.002
30	71	1.8	.35	1.5	.81	.003	.66	.90	.002
31	44	1.4	.17	1.2	.80	.003	---	---	---
TOTAL	979.8	---	4.658	369.3	---	1.396	51.75	---	0.132
YEAR	34130.80		182.843						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.12	.515	.000	1.9	.105	.001	25	.061	.004
2	.12	.160	.000	1.9	.061	.000	22	.060	.004
3	.12	.134	.000	1.9	.091	.000	20	.060	.003
4	.12	.086	.000	2.0	.089	.000	19	.060	.003
5	.12	.079	.000	4.3	.210	.003	17	.067	.003
6	.12	.075	.000	5.0	.097	.001	15	.070	.003
7	.12	.095	.000	6.7	.080	.002	15	.069	.003
8	.12	.090	.000	11	.145	.004	9.1	.061	.002
9	.12	.086	.000	8.4	.243	.005	8.0	.060	.001
10	.12	.153	.000	16	.229	.010	6.9	.060	.001
11	.12	.132	.000	73	.361	.074	6.2	.060	.001
12	.13	.103	.000	66	.401	.072	5.2	.061	.001
13	.13	.174	.000	39	.299	.032	5.6	.067	.001
14	.13	.227	.000	40	.216	.024	6.0	.061	.001
15	.13	.171	.000	43	.169	.020	5.8	.059	.001
16	.13	.194	.000	30	.140	.011	5.6	.052	.001
17	.18	.249	.000	21	.120	.007	5.4	.060	.001
18	1.2	.391	.001	17	.101	.005	5.3	.069	.001
19	.44	.097	.000	13	.091	.003	5.2	.063	.001
20	.85	.052	.000	28	.184	.015	5.1	.059	.001
21	.91	.119	.000	156	.390	.17	5.0	.051	.001
22	1.1	.128	.000	186	.349	.18	6.8	.054	.001
23	1.1	.170	.001	96	.209	.056	9.6	.089	.002
24	1.6	.175	.001	58	.152	.024	16	.145	.006
25	1.5	.060	.000	42	.122	.014	26	.242	.017
26	1.5	.043	.000	33	.110	.010	26	.241	.017
27	1.4	.063	.000	31	.099	.008	25	.172	.012
28	2.3	.099	.001	34	.082	.007	173	.318	.18
29	2.2	.064	.000	30	.071	.006	392	.428	.45
30	1.9	.127	.001	27	.069	.005	287	.332	.26
31	1.9	.144	.001	---	---	---	145	.258	.10
TOTAL	22.05	---	0.006	1122.1	---	0.769	1323.8	---	1.083
		JANUARY			FEBRUARY			MARCH	
1	80	.219	.048	58	.050	.008	34	.050	.005
2	57	.179	.028	48	.046	.006	31	.049	.004
3	39	.147	.016	40	.042	.005	29	.041	.003
4	60	.137	.023	30	.039	.003	26	.040	.003
5	42	.083	.010	27	.036	.003	47	.076	.011
6	44	.082	.010	24	.033	.002	102	.117	.033
7	234	.238	.20	22	.030	.002	57	.105	.017
8	826	.436	.97	20	.030	.002	84	.101	.023
9	778	.367	.77	19	.030	.002	50	.057	.008
10	380	.305	.32	19	.030	.002	37	.049	.005
11	153	.253	.11	18	.030	.001	33	.044	.004
12	98	.210	.056	18	.030	.001	33	.038	.003
13	104	.175	.049	19	.032	.002	32	.031	.003
14	86	.145	.034	30	.057	.005	33	.040	.004
15	71	.121	.023	126	.156	.056	40	.051	.006
16	63	.100	.017	196	.173	.091	49	.051	.007
17	54	.081	.012	167	.130	.059	39	.041	.004
18	48	.071	.009	87	.092	.021	47	.068	.009
19	47	.070	.009	66	.070	.013	69	.106	.020
20	56	.070	.011	52	.071	.010	64	.071	.012
21	53	.069	.010	125	.191	.074	109	.089	.028
22	40	.061	.007	322	.304	.27	192	.127	.066
23	39	.059	.006	223	.192	.12	117	.084	.027
24	31	.050	.004	85	.189	.042	83	.053	.012
25	28	.041	.003	85	.107	.024	70	.049	.009
26	72	.165	.050	66	.073	.013	60	.041	.007
27	217	.384	.23	56	.062	.009	52	.042	.006
28	152	.229	.098	43	.051	.006	50	.057	.008
29	94	.118	.031	---	---	---	53	.060	.009
30	80	.065	.014	---	---	---	142	.138	.071
31	69	.055	.010	---	---	---	431	.317	.37
TOTAL	4195	---	3.188	2091	---	0.852	2295	---	0.797

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	482	.211	.28	35	.023	.002	227	.352	.22
2	341	.157	.15	29	.021	.002	221	.376	.22
3	505	.365	.56	28	.027	.002	286	.483	.49
4	1130	.600	1.84	25	.022	.002	956	1.67	4.23
5	1190	.535	1.73	24	.031	.002	892	.731	1.79
6	689	.335	.64	28	.050	.004	449	.454	.57
7	420	.224	.26	48	.080	.011	210	.325	.19
8	276	.161	.12	66	.077	.014	128	.262	.091
9	209	.121	.068	61	.068	.011	91	.221	.054
10	174	.099	.047	66	.086	.015	69	.190	.035
11	127	.088	.031	77	.080	.017	54	.162	.024
12	99	.071	.019	75	.060	.012	52	.163	.023
13	89	.060	.014	108	.101	.031	162	.344	.17
14	82	.051	.011	139	.102	.038	225	.419	.25
15	78	.049	.010	110	.087	.026	226	.384	.23
16	79	.041	.009	79	.070	.015	303	.409	.35
17	68	.050	.009	61	.051	.008	322	.449	.40
18	67	.042	.008	49	.041	.005	144	.300	.12
19	66	.039	.007	41	.041	.005	81	.258	.057
20	60	.032	.005	35	.049	.005	57	.197	.030
21	54	.037	.005	36	.048	.005	45	.171	.021
22	48	.030	.004	39	.026	.003	37	.161	.016
23	44	.021	.003	183	.248	.23	34	.159	.014
24	40	.027	.003	725	.502	.98	30	.151	.012
25	41	.030	.003	737	.331	.66	23	.146	.009
26	43	.030	.003	1690	1.01	4.82	19	.124	.006
27	38	.031	.003	1980	1.10	5.95	24	.174	.013
28	36	.037	.004	1180	.621	2.05	208	.471	.31
29	39	.031	.003	672	.457	.83	250	.374	.27
30	38	.030	.003	398	.417	.45	101	.223	.062
31	---	---	---	279	.387	.29	---	---	---
TOTAL	6652	---	5.852	9103	---	16.495	5926	---	10.277
		JULY			AUGUST			SEPTEMBER	
1	58	.213	.034	35	.255	.024	2.1	.252	.002
2	42	.183	.021	26	.236	.017	2.5	.125	.001
3	34	.177	.016	19	.210	.011	1.3	.098	.000
4	28	.177	.013	18	.265	.013	1.6	.096	.000
5	25	.161	.011	48	.378	.052	1.5	.092	.000
6	20	.150	.008	71	.386	.074	1.2	.111	.000
7	18	.141	.007	42	.320	.037	1.0	.210	.001
8	13	.140	.005	25	.256	.017	.88	.193	.000
9	12	.136	.004	16	.194	.009	.75	.174	.000
10	11	.120	.004	11	.161	.005	1.0	.171	.000
11	9.8	.121	.003	7.6	.140	.003	1.1	.144	.000
12	9.5	.126	.003	5.5	.120	.002	.80	.096	.000
13	9.1	.115	.003	4.0	.102	.001	.68	.080	.000
14	10	.123	.003	3.3	.109	.001	1.5	.151	.001
15	8.3	.103	.002	2.8	.108	.001	4.1	.188	.002
16	6.6	.098	.002	2.7	.134	.001	4.5	.243	.003
17	4.8	.098	.001	2.2	.096	.001	6.9	.288	.005
18	3.7	.106	.001	1.9	.091	.000	4.6	.180	.002
19	3.9	.094	.001	1.8	.097	.000	2.9	.159	.001
20	11	.171	.008	2.2	.134	.001	2.2	.140	.001
21	39	.398	.038	2.3	.125	.001	1.7	.121	.001
22	58	.300	.047	2.0	.126	.001	1.3	.112	.000
23	29	.294	.023	2.2	.114	.001	.91	.119	.000
24	17	.238	.011	2.3	.119	.001	.79	.116	.000
25	11	.230	.007	1.8	.117	.001	.71	.186	.000
26	9.1	.240	.006	2.8	.102	.001	.66	.297	.001
27	49	.396	.061	3.7	.105	.001	.63	.394	.001
28	156	.580	.24	2.6	.108	.001	.63	.285	.000
29	159	.465	.20	1.9	.090	.000	.65	.247	.000
30	71	.404	.078	1.5	.081	.000	.66	.210	.000
31	44	.302	.036	1.2	.080	.000	---	---	---
TOTAL	979.8	---	0.897	369.3	---	0.278	51.75	---	0.022
YEAR	34130.80		40.506						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.12	10	.00	1.9	11	.05	25	12	.81
2	.12	10	.00	1.9	13	.06	22	7	.39
3	.12	10	.00	1.9	12	.06	20	8	.45
4	.12	10	.00	2.0	9	.05	19	4	.23
5	.12	10	.00	4.3	8	.10	17	4	.20
6	.12	10	.00	5.0	4	.05	15	3	.14
7	.12	10	.00	6.7	5	.12	15	4	.15
8	.12	10	.00	11	7	.21	9.1	3	.08
9	.12	9	.00	8.4	5	.12	8.0	3	.06
10	.12	3	.00	16	21	1.6	6.9	9	.17
11	.12	8	.00	73	242	47	6.2	13	.22
12	.13	10	.00	66	180	33	5.2	11	.16
13	.13	12	.00	39	74	8.1	5.6	11	.16
14	.13	11	.00	40	45	4.9	6.0	10	.17
15	.13	10	.00	43	28	3.4	5.8	11	.18
16	.13	14	.00	30	26	2.1	5.6	13	.19
17	.18	9	.00	21	16	.94	5.4	15	.22
18	1.2	19	.06	17	14	.61	5.3	17	.24
19	.44	20	.02	13	11	.39	5.2	18	.25
20	.85	10	.02	28	41	4.2	5.1	4	.05
21	.91	5	.01	156	167	71	5.0	2	.03
22	1.1	5	.01	186	112	57	6.8	2	.04
23	1.1	4	.01	96	52	14	9.6	3	.08
24	1.6	4	.02	58	32	5.0	16	4	.18
25	1.5	7	.03	42	22	2.5	26	5	.35
26	1.5	8	.03	33	17	1.5	26	9	.73
27	1.4	7	.02	31	11	.94	25	13	.88
28	2.3	5	.03	34	10	.92	173	130	91
29	2.2	6	.04	30	13	1.1	392	148	153
30	1.9	10	.05	27	24	1.7	287	64	50
31	1.9	12	.06	---	---	---	145	34	14
TOTAL	22.05	---	0.41	1122.1	---	262.72	1323.8	---	314.81
		JANUARY			FEBRUARY			MARCH	
1	80	18	4.1	58	16	2.5	34	6	.62
2	57	13	2.1	48	12	1.6	31	4	.38
3	39	7	.81	40	8	.88	29	4	.30
4	60	10	1.7	30	6	.45	26	7	.53
5	42	9	1.0	27	6	.41	47	15	2.2
6	44	10	1.3	24	5	.31	102	17	4.4
7	234	83	76	22	5	.31	57	16	3.1
8	826	238	530	20	5	.26	84	22	5.2
9	778	135	288	19	5	.24	50	10	1.4
10	380	66	72	19	5	.23	37	7	.68
11	153	37	16	18	4	.21	33	8	.68
12	98	24	6.4	18	4	.21	33	6	.51
13	104	21	5.9	19	4	.20	32	6	.54
14	86	17	4.1	30	7	.64	33	9	.84
15	71	12	2.4	126	28	10	40	10	1.1
16	63	9	1.6	196	29	15	49	18	2.4
17	54	5	.74	167	20	8.9	39	15	1.6
18	48	5	.61	87	19	4.5	47	19	2.5
19	47	6	.73	66	15	2.8	69	29	5.5
20	56	6	.90	52	12	1.8	64	22	3.8
21	53	9	1.3	125	105	52	109	31	9.9
22	40	8	.96	322	133	114	192	43	23
23	39	4	.45	223	39	25	117	22	7.3
24	31	4	.33	85	16	3.8	83	13	2.9
25	28	3	.25	85	17	4.0	70	14	2.7
26	72	17	6.1	66	9	1.6	60	18	3.0
27	217	50	29	56	6	.94	52	14	2.0
28	152	36	15	43	4	.52	50	12	1.6
29	94	26	6.6	---	---	---	53	12	1.7
30	80	19	4.0	---	---	---	142	72	41
31	69	16	3.0	---	---	---	431	188	213
TOTAL	4195	---	1083.38	2091	---	253.31	2295	---	346.38

04197100 HONEY CREEK AT MELMORE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	482	86	112	35	5	.47	227	161	99
2	341	50	47	29	5	.39	221	198	118
3	505	131	209	28	4	.33	286	386	459
4	1130	265	859	25	4	.29	956	1210	3070
5	1190	287	930	24	5	.34	892	485	1190
6	689	127	249	28	11	.86	449	228	292
7	420	63	73	48	18	2.4	210	137	79
8	276	35	26	66	12	2.1	128	104	36
9	209	28	16	61	12	1.9	91	84	21
10	174	27	13	66	13	2.3	69	67	12
11	127	24	8.3	77	16	3.4	54	54	7.9
12	99	18	4.8	75	12	2.5	52	56	8.3
13	89	13	3.1	108	21	6.7	162	334	163
14	82	12	2.7	139	27	10	225	309	188
15	78	12	2.5	110	21	6.2	226	418	254
16	79	11	2.5	79	17	3.6	303	359	304
17	68	10	1.9	61	12	2.0	322	293	265
18	67	9	1.6	49	6	.79	144	151	60
19	66	8	1.4	41	4	.48	81	102	23
20	60	7	1.2	35	5	.44	57	81	12
21	54	8	1.1	36	8	.79	45	71	8.6
22	48	6	.82	39	8	.83	37	58	5.8
23	44	4	.49	183	84	95	34	53	4.9
24	40	4	.46	725	228	446	30	51	4.1
25	41	5	.57	737	132	264	23	53	3.3
26	43	7	.80	1690	724	3500	19	56	2.8
27	38	9	.95	1980	746	4040	24	119	9.9
28	36	8	.76	1180	323	1070	208	992	508
29	39	7	.69	672	219	402	250	453	322
30	38	5	.53	398	195	206	101	188	54
31	---	---	---	279	231	175	---	---	---
TOTAL	6652	---	2571.17	9103	---	10247.11	5926	---	7584.6
		JULY			AUGUST			SEPTEMBER	
1	58	109	17	35	71	6.7	2.1	34	.19
2	42	82	9.3	26	65	4.6	2.5	27	.18
3	34	56	5.2	19	59	3.1	1.3	26	.10
4	28	53	3.9	18	56	2.7	1.6	28	.12
5	25	58	3.9	48	226	35	1.5	27	.11
6	20	52	2.8	71	211	41	1.2	29	.09
7	18	56	2.7	42	107	13	1.0	30	.08
8	13	44	1.6	25	46	3.0	.88	28	.07
9	12	62	2.0	16	63	2.8	.75	32	.07
10	11	67	2.0	11	46	1.4	1.0	30	.09
11	9.8	64	1.7	7.6	35	.72	1.1	27	.08
12	9.5	58	1.5	5.5	33	.48	.80	26	.06
13	9.1	58	1.4	4.0	31	.34	.68	31	.06
14	10	43	1.2	3.3	26	.23	1.5	31	.13
15	8.3	45	1.0	2.8	28	.21	4.1	34	.38
16	6.6	50	.89	2.7	23	.16	4.5	39	.50
17	4.8	49	.64	2.2	24	.14	6.9	48	.89
18	3.7	53	.54	1.9	30	.16	4.6	28	.35
19	3.9	48	.50	1.8	29	.14	2.9	23	.18
20	11	94	4.9	2.2	26	.16	2.2	25	.15
21	39	261	30	2.3	33	.21	1.7	25	.11
22	58	234	38	2.0	36	.20	1.3	26	.09
23	29	132	10	2.2	38	.23	.91	22	.05
24	17	73	3.5	2.3	33	.20	.79	15	.03
25	11	41	1.2	1.8	32	.16	.71	15	.03
26	9.1	43	1.1	2.8	31	.23	.66	15	.03
27	49	160	29	3.7	36	.37	.63	14	.02
28	156	492	199	2.6	36	.25	.63	18	.03
29	159	288	128	1.9	34	.17	.65	31	.05
30	71	167	33	1.5	39	.16	.66	30	.05
31	44	90	11	1.2	36	.12	---	---	---
TOTAL	979.8	---	548.47	369.3	---	118.34	51.75	---	4.37
YEAR	34130.80		23341.50						

04197170 ROCK CREEK AT TIFFIN, OH

LOCATION.--Lat 41°06'49", long 83°10'06", Seneca County, Hydrologic Unit 04100011, on left bank 0.05 mi downstream from bridge on Rebecca Street, at Heidelberg College, Tiffin, Ohio.

DRAINAGE AREA.--34.6 mi².

PERIOD OF RECORD.--June 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 2-Jan. 3, Feb. 26. Records good except those for estimated record, which are poor.

AVERAGE DISCHARGE.--7 years (1984-1990), 28.7 ft³/s, 11.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,640 ft³/s Feb, 23, 1985, gage height, 7.78 ft; minimum daily discharge 0.32 ft³/s July 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 1,190 ft³/s Feb. 16, gage height 7.10 ft; minimum daily discharge, 1.1 ft³/s October 4-8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.4	4.6	140	7.0	25	30	6.7	4.7	2.9	4.2	3.5
2	1.2	2.4	4.4	37	460	24	80	6.3	5.5	2.5	3.9	3.3
3	1.2	2.3	4.1	18	279	33	42	6.0	5.9	2.2	3.9	3.1
4	1.1	2.2	3.8	135	200	19	33	14	5.7	2.2	4.8	3.7
5	1.1	2.3	3.6	171	122	14	24	130	4.9	2.0	5.6	3.2
6	1.1	2.7	3.3	36	73	12	15	71	4.7	1.9	67	3.1
7	1.1	3.0	3.2	16	56	11	12	23	4.4	1.8	109	4.0
8	1.1	2.9	3.0	13	41	10	9.9	14	39	1.7	20	3.3
9	1.2	3.0	2.8	11	26	13	9.0	10	70	2.9	8.9	113
10	1.2	3.6	2.7	54	23	18	101	8.6	20	2.1	6.2	139
11	1.2	4.3	2.5	41	18	18	500	7.7	9.8	18	5.1	21
12	1.2	4.0	2.4	19	13	21	77	7.5	6.8	59	4.5	10
13	1.3	3.6	2.3	13	12	18	31	37	5.5	121	111	7.2
14	1.2	3.6	2.2	8.8	11	14	23	39	4.6	269	78	7.1
15	1.2	10	2.1	7.4	205	12	31	17	3.9	208	19	64
16	1.8	131	2.0	7.1	966	17	21	226	3.5	41	9.6	23
17	3.4	58	1.9	8.7	329	30	16	155	3.2	14	7.0	13
18	2.9	19	1.8	61	57	17	13	38	3.0	8.6	5.9	10
19	30	11	1.7	39	32	12	11	17	2.7	6.4	6.1	7.7
20	45	7.9	1.6	21	21	11	11	12	2.6	5.5	221	6.8
21	18	6.8	1.6	92	16	10	141	9.2	2.5	5.8	84	6.4
22	13	6.0	1.5	57	64	11	55	7.9	2.5	197	30	6.3
23	7.2	5.4	1.5	22	167	10	22	6.9	2.4	450	13	7.8
24	4.8	4.8	1.4	17	97	8.9	15	6.3	2.6	78	9.1	6.9
25	3.7	4.5	1.3	14	38	8.1	12	6.5	2.5	20	7.0	5.5
26	3.1	4.6	1.3	12	25	7.6	11	12	2.4	11	6.1	4.8
27	2.5	4.4	1.3	9.5	15	7.0	9.5	10	2.2	7.8	5.4	4.2
28	2.3	4.7	1.2	8.2	30	6.6	8.5	8.0	5.0	6.6	4.8	3.9
29	2.3	7.4	1.2	7.6	---	6.8	7.9	6.8	5.2	5.7	4.3	5.4
30	2.4	5.3	2.8	7.3	---	7.1	7.4	5.7	3.3	5.1	4.1	23
31	2.8	---	50	6.7	---	8.5	---	5.2	---	4.7	3.8	---
TOTAL	162.8	333.1	121.1	1110.3	3403.0	440.6	1379.2	930.3	241.0	1564.4	872.3	523.2
MEAN	5.25	11.1	3.91	35.8	122	14.2	46.0	30.0	8.03	50.5	28.1	17.4
MAX	45	131	50	171	966	33	500	226	70	450	221	139
MIN	1.1	2.2	1.2	6.7	7.0	6.6	7.4	5.2	2.2	1.7	3.8	3.1
CFSM	.15	.32	.11	1.04	3.51	.41	1.33	.87	.23	1.46	.81	.50
IN.	.18	.36	.13	1.19	3.66	.47	1.48	1.00	.26	1.68	.94	.56

CAL YR 1989 TOTAL 8170.03 MEAN 22.4 MAX 640 MIN .93 CFSM .65 IN. 8.78
WTR YR 1990 TOTAL 11081.3 MEAN 30.4 MAX 966 MIN 1.1 CFSM .88 IN. 11.91

04198000 SANDUSKY RIVER NEAR FREMONT, OH
(National stream quality accounting network station)

LOCATION.--Lat 41°18'28", long 83°09'32", in sec. 17, T.4 N., R.15 E., Sandusky County, Hydrologic Unit 04100011, on left bank at downstream side of county road bridge, 2.3 mi upstream from Ballville diversion dam, 2.5 mi downstream from Wolf Creek, and 3.5 mi southwest of Fremont.

DRAINAGE AREA.--1,251 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1898 to March 1901 (gage height and discharge measurements only, published as "at Fremont"), October 1923 to December 1935, July 1938 to current year. Monthly discharge only for October 1923, published in WSP 1307.

REVISED RECORDS.--WSP 744: 1931-32. WSP 874: 1938. WSP 1144: 1924-30. WSP 1387: 1925, 1928-29, 1931-35. WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 626.3 ft above National Geodetic Vertical Datum of 1929. Nov. 18, 1898, to Mar. 10, 1901, nonrecording gage at site 4 mi downstream at different datum. Nov. 8, 1923, to Sept. 5, 1930, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 5 - Jan. 9, and July 24 - Aug. 9. Records good except for Jan. 10 - Feb. 8 and periods of estimated daily discharge which are poor.

AVERAGE DISCHARGE.--64 years (1923-35, 1938-90), 1,001 ft³/s, 10.87 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,500 ft³/s Mar. 16, 1978 gage height, 13.57 ft; maximum, gage height, 16.14 ft Feb. 24, 1979, (ice jam); minimum discharge, 4.4 ft³/s Feb. 29, 1964 (result of freezeup); minimum gage height, 0.77 ft July 8-19, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 1	----	12,000	Ice Jam	July 15	1200	10,200	6.02
Feb. 17	0500	*14,600	*7.50				

Minimum daily discharge, 36 ft³/s Oct. 15

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	87	215	8500	335	1430	413	483	576	236	900	170
2	41	83	203	11000	3080	1450	996	443	501	211	600	165
3	38	83	196	9000	8450	1400	2460	426	1100	191	430	176
4	38	82	195	6600	7510	1230	2300	499	826	158	330	152
5	41	80	190	4200	7230	991	1590	2790	791	155	700	134
6	42	84	160	2700	5580	798	1130	3010	679	155	1200	123
7	42	95	170	1750	3810	658	857	2080	515	155	2900	126
8	41	108	160	1100	2580	590	681	1360	648	152	3800	129
9	38	125	140	760	1860	633	573	918	4680	149	1500	2300
10	38	176	130	1020	1550	800	582	687	7140	149	824	3110
11	38	187	120	1290	1420	988	5820	551	8340	234	492	918
12	37	185	120	992	1190	1060	7300	466	6230	1470	368	466
13	37	160	120	786	922	987	5920	626	2760	4350	710	319
14	37	139	110	527	769	821	3780	3180	1160	7320	2040	289
15	36	176	110	455	1270	717	2080	3580	795	9890	2080	414
16	40	1510	110	400	11100	666	1520	3510	593	8570	1330	552
17	55	3030	110	392	13900	794	1210	5310	460	5990	711	839
18	67	2120	100	821	11500	783	955	4340	371	2280	472	612
19	105	1160	100	1270	9060	685	773	3100	296	1120	389	466
20	441	660	100	1160	4280	619	676	1800	258	733	824	404
21	559	468	98	2040	2030	537	1070	1080	232	660	958	349
22	475	374	96	3280	2130	487	3590	786	214	1370	943	353
23	395	321	94	2600	3950	454	3920	658	205	7280	874	414
24	322	290	94	1580	3450	422	2170	554	204	9000	1110	545
25	247	256	92	1100	2350	395	1290	462	271	4500	744	541
26	190	234	90	837	1650	370	940	636	312	2000	477	383
27	149	218	90	687	1250	348	758	2910	231	800	366	298
28	121	221	90	542	1320	323	646	2760	206	400	298	245
29	105	229	88	457	---	307	571	1630	261	320	249	217
30	89	228	86	395	---	318	519	982	266	290	222	271
31	84	---	400	359	---	334	---	711	---	540	193	---
TOTAL	4031	13169	4177	68600	115526	22395	57090	52328	41121	70828	29034	15480
MEAN	130	439	135	2213	4126	722	1903	1688	1371	2285	937	516
MAX	559	3030	400	11000	13900	1450	7300	5310	8340	9890	3800	3110
MIN	36	80	86	359	335	307	413	426	204	149	193	123
CFSM	.10	.35	.11	1.77	3.30	.58	1.52	1.35	1.10	1.83	.75	.41
IN.	.12	.39	.12	2.04	3.44	.67	1.70	1.56	1.22	2.11	.86	.46

CAL YR 1989 TOTAL 315149 MEAN 863 MAX 12900 MIN 36 CFSM .69 IN. 9.37
WTR YR 1990 TOTAL 493779 MEAN 1353 MAX 13900 MIN 36 CFSM 1.08 IN. 14.68

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-56, 1978 to current year.

PERIOD OF DAILY RECORD.--
CHLORIDE: February 1988 to current year.
NITROGEN, NITRITE + NITRATE: February 1988 to current year.
NITROGEN, AMMONIA + ORGANIC: February 1988 to current year.
PHOSPHORUS: February 1988 to current year.
SUSPENDED SEDIMENT DISCHARGE: Water years 1951-1956, 1978 to current year.

INSTRUMENTATION.--Refrigerated water-quality pumping sampler since February 1988.

REMARKS.--Water-quality samples were collected by pumping samples three times a day. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Alachlor concentrations for 1989-1990 will be published in the 1991 WDR.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 99 mg/L Sept. 13, 1988; minimum daily mean, 11 mg/L Sept. 10, 1990.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,280 tons Jan. 1,2, 1990; minimum daily, 1.11 tons July 9, 15-18, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 13.9 mg/L April 4, 1989; minimum daily mean, <.100 mg/L on many days during 1988, 1989 and 1990 water years.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 330 tons July 15, 1990; minimum daily, .00 ton many days during 1988 and 1989 water years.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.3 mg/L May 27, 1989, June 10, 1990; minimum daily mean, .30 mg/L Sept. 14, 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 184 tons May 27, 1989; minimum daily, .011 ton Oct. 10-11, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.73 mg/L June 10, 1990; minimum daily mean, <.010 mg/L May 17-22, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily 45.0 tons May 27, 1989; minimum daily, .001 ton Oct. 9-12, 1988.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,420 mg/L June 9, 1981; minimum daily mean, 1 mg/L on many days during 1951-56, 1980, 1981, 1988.
SEDIMENT LOADS: Maximum daily, 124,000 tons June 14, 1981; minimum daily, less than 0.05 ton on several days during 1952, 1954, 1989.

EXTREMES FOR 1989 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, .90 mg/L Oct. 21; minimum daily mean, 12 mg/L May 29.
DISSOLVED CHLORIDE LOADS: Maximum daily, 754 tons Jan. 4; minimum daily, 1.43 tons Oct.11.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 13.9 mg/L April 4; minimum daily mean, <.100 mg/L on several days in October.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 310 tons April 5; minimum daily, .00 ton on several days in October.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.3 mg/L May 27; minimum daily means, .30 mg/L Sept. 14.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 184 tons May 27; minimum daily, .011 ton Oct. 10, 11.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.29 mg/L May 27; minimum daily mean, .022 mg/L on many days during year.
TOTAL PHOSPHORUS LOADS: Maximum daily, 45.0 tons May 27; minimum daily, .001 ton Oct. 9-12.

EXTREMES FOR CURRENT YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 71 mg/L Dec. 31; minimum daily mean, 11 mg/L Sept. 10.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,280 tons Jan. 1,2; minimum daily, 5.18 tons Oct. 15.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 13.4 mg/L May 15, 19; minimum daily mean, <.100 mg/L on several days during the year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 330 tons July 15; minimum daily, .01 ton on several days in October.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.3 mg/L June 10; minimum daily mean, .40 mg/l Jan. 31.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 101 tons June 10; minimum daily, .093 ton Oct. 4.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.73 mg/L June 10; minimum daily mean, .026 mg/L Nov. 13, 14.
TOTAL PHOSPHORUS LOADS: Maximum daily, 33.2 tons June 10; minimum daily, .007 ton Dec. 28, 29.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,530 mg/L June 10; minimum daily mean, 3 mg/L Nov.4, 5.
SEDIMENT LOADS: Maximum daily, 29,100 tons June 10; minimum daily, .61 ton Oct. 15.

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
25...	0930	252	900	8.3	15.5	11.0	17	9.8	91	K170	K57
MAR											
06...	0930	801	670	8.2	1.0	0.5	18	13.3	94	K470	K160
JUN											
04...	1500	746	650	8.4	10.0	15.5	100	9.1	95	K3100	M9700
JUL											
24...	0945	5150	340	7.9	34.0	22.5	120	8.3	99	K3800	K5000

DATE	HARD-NESS TOTAL (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)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
25...	380	100	31	30	7.8	210	0	176	180	52	0.4
MAR											
06...	300	80	23	14	2.3	182	0	149	110	33	0.1
JUN											
04...	310	86	23	12	2.8	132	48	188	70	35	0.3
JUL											
24...	160	45	12	5.2	5.0	109	0	90	29	13	0.4

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
OCT											
25...	5.8	525	0.06	3.90	0.07	0.04	0.7	0.12	0.06	0.03	<10
MAR											
06...	6.5	432	0.05	6.80	0.07	0.08	1.1	0.08	0.04	0.04	20
JUN											
04...	8.0	426	0.06	14.0	0.08	0.07	1.3	0.21	0.08	0.08	30
JUL											
24...	9.8	248	0.05	7.20	0.13	0.03	2.5	0.19	0.12	0.10	60

DATE	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)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT										
25...	<1	54	<0.5	<1.0	1	<3	4	32	<1	13
MAR										
06...	<1	40	<0.5	<1.0	<5	<3	<10	18	<10	6
JUN										
04...	<1	50	<0.5	<1.0	<1	<3	5	28	<1	8
JUL										
24...	1	33	<0.5	<1.0	<1	<3	5	85	<1	6

DATE	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)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)
OCT										
25...	11	<0.1	<10	3	<1	<1.0	3600	<6	16	28
MAR										
06...	11	<0.1	<10	10	<1	<1.0	1400	<6	19	22
JUN										
04...	8	<0.1	<10	2	<1	<1.0	1700	<6	5	119
JUL										
24...	3	<0.1	<10	4	<1	<1.0	560	<6	10	248

K Results based on colony count outside the acceptable range.

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	26	59	4.23	33	65	5.78	131	49	17.1
2	25	59	3.94	42	66	7.61	119	49	15.7
3	25	63	4.23	45	68	8.32	118	50	15.8
4	27	65	4.64	47	69	8.74	101	51	13.8
5	24	64	4.15	71	76	14.8	96	51	13.2
6	22	65	3.93	116	79	24.8	90	52	12.6
7	20	73	4.00	147	75	29.9	84	51	11.7
8	15	78	3.19	165	71	31.9	80	52	11.2
9	10	81	2.22	158	68	29.0	80	51	11.1
10	7.4	78	1.56	190	68	35.0	78	54	11.3
11	6.7	80	1.43	358	59	56.8	76	58	12.0
12	9.7	79	2.08	456	55	66.7	74	60	12.0
13	14	72	2.64	387	61	63.9	72	60	11.6
14	18	69	3.30	354	58	55.3	72	59	11.4
15	18	77	3.78	317	54	46.5	70	57	10.9
16	21	77	4.38	268	52	37.9	70	60	11.4
17	20	83	4.57	212	52	29.8	70	63	11.8
18	54	86	12.5	160	53	22.8	70	63	11.9
19	58	77	12.1	135	53	19.4	68	64	11.8
20	44	87	10.3	136	57	21.2	68	65	12.0
21	36	90	8.67	624	52	85.3	68	70	12.9
22	38	87	8.95	895	44	108	68	72	13.2
23	47	86	10.8	618	43	71.3	68	69	12.7
24	46	82	10.1	491	43	56.6	68	65	11.9
25	43	79	9.24	355	45	43.0	68	58	10.6
26	43	71	8.15	264	47	33.3	74	56	11.2
27	39	61	6.49	217	48	27.8	100	69	18.5
28	40	61	6.66	188	47	24.0	472	76	94.3
29	43	59	6.80	162	48	20.8	1600	60	260
30	31	63	5.28	141	48	18.3	1100	49	145
31	38	65	6.59	---	---	---	780	50	106
TOTAL	908.8	---	180.90	7752	---	1104.55	6153	---	946.6
		JANUARY			FEBRUARY			MARCH	
1	815	53	117	561	47	71.2	380	42	43.1
2	548	59	87.2	471	47	59.8	350	44	41.6
3	3120	56	453	414	47	52.5	330	46	41.3
4	6100	46	754	358	48	46.2	321	48	41.9
5	2500	51	345	314	53	45.0	322	54	46.6
6	1400	72	272	812	57	125	467	52	64.8
7	1300	68	241	4440	55	657	904	50	121
8	5060	45	565	3520	58	545	845	50	113
9	5380	32	462	2000	61	327	618	49	81.4
10	3420	35	321	1300	60	212	506	49	66.4
11	1770	34	163	1000	61	164	425	48	55.5
12	934	37	93.5	860	62	144	375	47	47.3
13	787	42	88.3	780	63	133	377	45	45.8
14	705	43	82.0	700	64	122	410	45	49.7
15	641	45	77.8	610	62	102	424	46	52.7
16	571	46	71.4	580	61	94.9	431	47	55.0
17	494	47	62.8	540	60	87.0	424	47	53.5
18	459	49	60.6	520	59	82.8	458	50	61.8
19	444	51	60.7	500	58	77.8	517	53	73.5
20	473	52	66.0	499	57	76.8	511	54	74.7
21	474	51	64.9	525	60	85.6	590	53	83.7
22	429	50	58.0	1560	53	219	1210	49	158
23	383	53	55.2	1980	44	237	1460	47	187
24	339	54	49.5	1450	44	172	933	45	114
25	315	54	45.7	600	45	72.3	680	44	81.5
26	495	62	82.0	520	44	61.3	561	45	67.6
27	1650	44	195	450	43	51.8	493	45	60.4
28	1120	41	123	420	42	47.6	497	48	64.4
29	1030	42	116	---	---	---	487	48	63.6
30	824	46	102	---	---	---	638	49	84.8
31	674	46	84.1	---	---	---	2420	43	277
TOTAL	44654	---	5418.7	28284	---	4171.6	19364	---	2472.6

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
	APRIL			MAY			JUNE		
1	4370	36	427	393	46	49.1	1720	29	134
2	3660	31	302	387	46	48.4	1330	30	108
3	3780	33	343	362	45	44.4	1380	31	113
4	7860	29	607	340	47	43.1	5200	21	293
5	8510	22	508	344	49	45.2	5590	19	287
6	6890	22	405	385	50	51.5	4380	19	225
7	5010	24	317	509	49	66.9	2510	20	133
8	2730	28	202	810	48	105	1430	25	95.1
9	1890	32	160	850	45	103	933	29	72.7
10	1540	33	139	772	42	88.3	685	31	57.9
11	1300	35	121	860	42	97.5	540	34	48.8
12	1010	36	99.3	940	41	105	466	36	45.8
13	851	38	87.9	1040	42	118	548	39	58.1
14	738	39	77.8	1390	40	149	956	36	92.4
15	673	40	73.2	1260	39	132	1440	33	129
16	642	40	70.0	1140	40	123	1560	33	138
17	585	42	65.5	821	41	90.0	1580	31	130
18	604	44	72.2	623	41	69.0	1050	32	90.8
19	620	44	74.2	520	42	58.5	763	34	69.9
20	572	43	66.8	480	43	55.3	574	37	57.2
21	512	43	60.2	449	44	52.9	469	38	48.1
22	481	44	57.1	404	44	48.1	494	37	49.7
23	433	44	52.0	542	45	65.9	569	37	56.9
24	389	45	46.9	3760	37	367	413	39	43.4
25	376	45	46.0	4960	30	401	349	41	38.5
26	382	47	48.0	9500	23	562	302	43	34.6
27	404	46	50.6	12900	14	488	264	44	31.4
28	457	46	56.7	11300	13	382	1930	37	171
29	453	45	55.5	10700	12	348	3290	17	156
30	413	46	50.9	6420	15	253	2330	16	98.5
31	---	---	---	2680	23	165	---	---	---
TOTAL	58135	---	4741.8	77841	---	4775.1	45045	---	3106.8
	JULY			AUGUST			SEPTEMBER		
1	1590	16	69.4	857	21	48.1	63	43	7.39
2	724	17	32.8	526	29	41.1	79	44	9.46
3	459	21	25.8	368	28	28.2	73	46	9.22
4	377	25	25.3	282	29	22.3	68	56	10.3
5	335	28	25.3	256	32	22.0	67	65	11.8
6	298	31	24.6	398	33	35.8	68	64	11.8
7	255	31	21.6	404	33	35.8	63	60	10.2
8	221	34	20.2	272	36	26.7	60	58	9.38
9	206	36	20.1	196	39	20.6	57	59	8.99
10	193	34	17.6	150	40	16.2	71	59	11.4
11	163	33	14.7	125	42	14.2	75	73	14.9
12	161	34	14.7	108	42	12.1	68	82	15.1
13	468	34	43.0	96	41	10.6	59	80	12.6
14	289	35	27.5	87	44	10.2	56	72	10.9
15	196	36	19.1	75	44	8.91	100	74	20.0
16	148	37	14.6	74	44	8.83	130	66	22.7
17	121	32	10.7	72	50	9.77	294	49	38.3
18	109	23	6.85	68	58	10.6	304	40	33.0
19	103	22	6.01	65	58	10.2	235	44	27.8
20	114	20	6.27	68	54	9.89	161	47	20.6
21	256	19	12.8	85	49	11.3	118	49	15.5
22	335	18	16.3	76	44	8.91	97	50	13.1
23	302	19	15.8	76	40	8.21	87	54	12.7
24	279	26	19.4	74	39	7.82	77	53	11.1
25	245	24	15.6	71	40	7.56	69	53	9.89
26	194	23	12.1	66	39	7.06	64	54	9.30
27	236	28	18.1	73	40	7.82	57	53	8.11
28	730	27	51.2	85	41	9.50	52	54	7.59
29	1470	21	82.5	91	44	10.7	47	53	6.76
30	806	19	42.0	100	45	12.1	45	53	6.39
31	783	20	41.8	75	44	9.03	---	---	---
TOTAL	12166	---	773.73	5419	---	502.11	2864	---	416.28
YEAR	308585.8		28607.91						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	26	<.100	.00	33	.600	.05	131	9.16	3.2
2	25	<.100	.00	42	.600	.07	119	8.80	2.8
3	25	<.100	.00	45	.600	.07	118	8.27	2.6
4	27	<.100	.00	47	.600	.08	101	7.97	2.2
5	24	<.100	.00	71	.678	.13	96	7.76	2.0
6	22	<.100	.00	116	.978	.31	90	7.36	1.8
7	20	<.100	.00	147	1.42	.57	84	7.10	1.6
8	15	<.100	.00	165	2.15	.96	80	6.80	1.5
9	10	<.100	.00	158	2.36	1.0	80	6.70	1.4
10	7.4	<.100	.00	190	3.47	1.9	78	6.64	1.4
11	6.7	<.100	.00	358	6.02	5.9	76	6.73	1.4
12	9.7	<.100	.00	456	6.30	7.8	74	6.72	1.3
13	14	.129	.00	387	6.18	6.5	72	6.21	1.2
14	18	<.100	.00	354	8.23	7.9	72	5.93	1.2
15	18	<.100	.00	317	9.38	8.0	70	5.90	1.1
16	21	<.100	.00	268	9.07	6.6	70	6.03	1.1
17	20	<.100	.00	212	8.74	5.0	70	5.97	1.1
18	54	.329	.04	160	8.89	3.9	70	5.76	1.1
19	58	<.100	.01	135	8.90	3.3	68	5.30	.97
20	44	.184	.02	136	9.07	3.3	68	4.55	.83
21	36	.591	.06	624	9.36	16	68	4.36	.80
22	38	.928	.10	895	10.5	25	68	4.63	.85
23	47	1.06	.13	618	10.2	17	68	4.49	.83
24	46	1.02	.13	491	10.7	14	68	4.00	.73
25	43	.861	.10	355	11.9	11	68	3.54	.65
26	43	.592	.07	264	12.3	8.7	74	3.40	.68
27	39	.431	.05	217	11.7	6.8	100	3.50	.94
28	40	.335	.04	188	10.6	5.4	472	5.67	8.1
29	43	.423	.05	162	9.70	4.2	1600	9.34	40
30	31	.502	.04	141	9.24	3.5	1100	11.1	33
31	38	.580	.06	---	---	---	780	13.7	29
TOTAL	908.8	---	0.90	7752	---	174.94	6153	---	147.38
		JANUARY			FEBRUARY			MARCH	
1	815	13.2	29	561	11.5	17	380	9.77	10
2	548	13.1	19	471	11.3	14	350	9.50	9.0
3	3120	13.3	110	414	11.1	12	330	9.13	8.1
4	6100	12.6	210	358	10.6	10	321	8.53	7.4
5	2500	12.6	85	314	10.3	8.7	322	7.90	6.9
6	1400	12.3	46	812	10.2	23	467	7.60	9.6
7	1300	11.4	40	4440	10.2	120	904	7.22	18
8	5060	11.2	150	3520	9.84	93	845	8.05	18
9	5380	12.3	180	2000	9.63	52	618	8.47	14
10	3420	13.5	120	1300	9.27	33	506	8.59	12
11	1770	13.5	65	1000	8.79	24	425	8.57	9.8
12	934	13.3	34	860	8.35	19	375	8.75	8.9
13	787	13.2	28	780	7.93	17	377	8.59	8.7
14	705	12.6	24	700	7.53	14	410	8.39	9.3
15	641	12.3	21	610	7.13	12	424	7.80	8.9
16	571	12.0	19	580	6.55	10	431	7.23	8.4
17	494	11.6	15	540	6.76	9.9	424	6.64	7.6
18	459	11.1	14	520	7.33	10	458	6.73	8.3
19	444	11.1	13	500	7.95	11	517	7.23	10
20	473	10.8	14	499	7.92	11	511	7.60	10
21	474	10.1	13	525	7.49	11	590	7.95	13
22	429	9.68	11	1560	8.14	35	1210	7.73	25
23	383	9.78	10	1980	9.52	51	1460	8.67	34
24	339	9.76	8.9	1450	10.6	41	933	10.2	26
25	315	9.75	8.3	600	10.5	17	680	10.5	19
26	495	10.7	15	520	10.4	15	561	10.4	16
27	1650	13.0	58	450	10.5	13	493	9.71	13
28	1120	12.8	39	420	10.1	11	497	9.41	13
29	1030	12.2	34	---	---	---	487	9.15	12
30	824	12.6	28	---	---	---	638	9.65	17
31	674	11.9	22	---	---	---	2420	9.20	60
TOTAL	44654	---	1483.2	28284	---	714.6	19364	---	450.9

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4370	11.7	140	393	4.31	4.6	1720	8.66	40
2	3660	13.4	130	387	4.26	4.5	1330	8.60	31
3	3780	13.7	140	362	4.23	4.1	1380	8.08	30
4	7860	13.9	290	340	4.07	3.7	5200	8.16	120
5	8510	13.5	310	344	3.87	3.6	5590	8.55	130
6	6890	12.2	230	385	3.87	4.0	4380	8.25	98
7	5010	11.9	160	509	3.99	5.5	2510	7.53	51
8	2730	12.2	90	810	5.26	12	1430	8.26	32
9	1890	12.2	62	850	6.36	15	933	8.33	21
10	1540	11.9	49	772	6.77	14	685	7.97	15
11	1300	11.9	42	860	7.40	17	540	7.68	11
12	1010	11.5	32	940	7.17	18	466	7.39	9.3
13	851	11.2	26	1040	7.65	22	548	7.10	11
14	738	10.7	21	1390	10.5	39	956	7.23	19
15	673	10.2	19	1260	10.1	34	1440	8.15	32
16	642	9.50	16	1140	9.51	29	1560	9.75	41
17	585	8.84	14	821	8.89	20	1580	10.9	46
18	604	8.64	14	623	7.90	13	1050	10.6	30
19	620	8.98	15	520	7.60	11	763	10.3	21
20	572	8.80	14	480	7.46	9.7	574	10.1	16
21	512	8.22	11	449	7.20	8.7	469	9.33	12
22	481	7.68	10	404	7.05	7.7	494	8.46	11
23	433	7.17	8.4	542	7.65	12	569	7.87	12
24	389	6.66	7.0	3760	9.38	96	413	7.43	8.3
25	376	6.59	6.7	4960	12.4	170	349	6.77	6.4
26	382	6.56	6.8	9500	11.3	280	302	5.86	4.8
27	404	5.89	6.4	12900	8.37	290	264	4.97	3.5
28	457	5.20	6.4	11300	7.01	210	1930	4.63	24
29	453	4.93	6.0	10700	6.13	180	3290	7.00	62
30	413	4.63	5.2	6420	6.17	110	2330	7.54	48
31	---	---	---	2680	7.71	55	---	---	---
TOTAL	58135	---	1887.9	77841	---	1703.1	45045	---	996.3
		JULY			AUGUST			SEPTEMBER	
1	1590	6.45	28	857	6.10	14	63	<.100	.01
2	724	6.04	12	526	5.74	8.2	79	.100	.02
3	459	6.65	8.2	368	5.54	5.5	73	<.100	.02
4	377	6.69	6.8	282	5.56	4.2	68	<.100	.01
5	335	6.49	5.9	256	5.38	3.7	67	<.100	.01
6	298	6.20	5.0	398	4.42	4.7	68	<.100	.01
7	255	5.87	4.0	404	3.74	4.1	63	<.100	.01
8	221	5.45	3.3	272	2.83	2.1	60	<.100	.01
9	206	5.26	2.9	196	1.92	1.0	57	<.100	.01
10	193	4.80	2.5	150	1.36	.55	71	<.100	.01
11	163	4.03	1.8	125	1.14	.38	75	<.100	.01
12	161	3.60	1.6	108	1.16	.34	68	<.100	.02
13	468	3.36	4.3	96	1.20	.31	59	<.100	.01
14	289	2.89	2.3	87	1.11	.26	56	.144	.02
15	196	2.22	1.2	75	.822	.17	100	.233	.06
16	148	1.59	.64	74	.566	.11	130	.265	.10
17	121	1.15	.38	72	.558	.11	294	.491	.39
18	109	.867	.25	68	.388	.07	304	1.35	1.1
19	103	1.03	.29	65	.301	.05	235	1.80	1.1
20	114	1.30	.41	68	.364	.07	161	1.66	.73
21	256	2.08	1.5	85	.458	.11	118	1.25	.40
22	335	2.92	2.6	76	.365	.07	97	.666	.18
23	302	2.39	2.0	76	.401	.08	87	.280	.07
24	279	2.74	2.1	74	.464	.09	77	<.100	.02
25	245	3.65	2.4	71	.497	.09	69	<.100	.01
26	194	4.11	2.2	66	.362	.07	64	<.100	.01
27	236	3.65	2.3	73	.298	.06	57	<.100	.01
28	730	3.93	7.8	85	.215	.05	52	<.100	.01
29	1470	3.92	16	91	.129	.03	47	<.100	.01
30	806	3.35	7.4	100	<.100	.03	45	<.100	.01
31	783	3.94	8.9	75	<.100	.01	---	---	---
TOTAL	12166	---	146.97	5419	---	50.61	2864	---	4.39
YEAR	308585.8		7756.47						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	26	.98	.071	33	.52	.046	131	.64	.22
2	25	.77	.051	42	.54	.062	119	.72	.23
3	25	.70	.046	45	.56	.069	118	.73	.23
4	27	.63	.046	47	.58	.074	101	.70	.19
5	24	.60	.039	71	.65	.13	96	.70	.18
6	22	.60	.036	116	.85	.27	90	.76	.19
7	20	.66	.036	147	1.1	.44	84	.67	.15
8	15	.63	.026	165	1.1	.50	80	.60	.13
9	10	.60	.016	158	.90	.38	80	.67	.14
10	7.4	.55	.011	190	.98	.52	78	.76	.16
11	6.7	.60	.011	358	1.4	1.36	76	.74	.15
12	9.7	.60	.016	456	1.4	1.73	74	.75	.15
13	14	.60	.022	387	1.2	1.26	72	.70	.14
14	18	.67	.032	354	1.2	1.12	72	.70	.14
15	18	.76	.038	317	1.0	.89	70	.70	.13
16	21	.80	.046	268	1.0	.72	70	.70	.13
17	20	.81	.044	212	.94	.54	70	.70	.13
18	54	.94	.14	160	.96	.42	70	.70	.13
19	58	.83	.13	135	.90	.33	68	.59	.11
20	44	.73	.087	136	.87	.33	68	.55	.10
21	36	.70	.068	624	1.5	2.58	68	.56	.10
22	38	.70	.072	895	1.4	3.37	68	.54	.098
23	47	.63	.080	618	1.2	1.94	68	.56	.10
24	46	.57	.070	491	1.2	1.59	68	.60	.11
25	43	.50	.059	355	1.3	1.21	68	.60	.11
26	43	.50	.057	264	1.2	.84	74	.60	.12
27	39	.50	.053	217	1.4	.81	100	.65	.18
28	40	.50	.054	188	1.0	.53	472	1.1	1.54
29	43	.50	.057	162	.80	.35	1600	1.7	7.35
30	31	.50	.042	141	.73	.28	1100	1.6	4.63
31	38	.50	.051	---	---	---	780	1.6	3.44
TOTAL	908.8	---	1.607	7752	---	24.691	6153	---	20.908
		JANUARY			FEBRUARY			MARCH	
1	815	1.3	2.95	561	1.0	1.51	380	.93	.96
2	548	1.2	1.74	471	.87	1.10	350	.77	.73
3	3120	1.0	8.85	414	.80	.89	330	.70	.62
4	6100	.87	14.3	358	.73	.71	321	.63	.55
5	2500	.95	6.43	314	.64	.54	322	.53	.46
6	1400	.97	3.65	812	.68	1.51	467	.66	.85
7	1300	.95	3.42	4440	.63	7.59	904	.76	1.88
8	5060	2.3	32.8	3520	.60	5.70	845	.91	2.04
9	5380	2.4	35.6	2000	.60	3.24	618	1.0	1.67
10	3420	2.0	19.0	1300	.60	2.10	506	.93	1.28
11	1770	1.5	7.07	1000	.58	1.57	425	.90	1.03
12	934	1.3	3.21	860	.56	1.29	375	.96	.97
13	787	1.1	2.41	780	.53	1.12	377	.89	.90
14	705	1.1	2.08	700	.51	.96	410	.86	.95
15	641	.83	1.44	610	.57	.94	424	.83	.95
16	571	.81	1.25	580	.85	1.33	431	.74	.86
17	494	.83	1.11	540	.80	1.17	424	.82	.94
18	459	.73	.91	520	.70	.98	458	.77	.95
19	444	.63	.76	500	.63	.86	517	1.0	1.39
20	473	.66	.85	499	.63	.85	511	.84	1.15
21	474	.56	.72	525	.64	.90	590	.83	1.32
22	429	.50	.58	1560	.73	3.15	1210	.96	3.17
23	383	.72	.74	1980	1.4	7.26	1460	1.0	3.97
24	339	.77	.70	1450	1.5	6.01	933	1.2	3.05
25	315	.77	.65	600	1.3	2.11	680	1.3	2.31
26	495	.90	1.23	520	1.1	1.58	561	1.2	1.77
27	1650	1.9	8.33	450	.89	1.08	493	.98	1.31
28	1120	1.3	4.16	420	.96	1.09	497	.90	1.21
29	1030	.96	2.67	---	---	---	487	.90	1.18
30	824	.65	1.46	---	---	---	638	1.0	1.84
31	674	.85	1.53	---	---	---	2420	1.4	9.34
TOTAL	44654	---	172.60	28284	---	59.14	19364	---	51.60

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4370	2.1	24.7	393	1.0	1.11	1720	1.4	6.38
2	3660	2.0	19.6	387	1.0	1.04	1330	1.2	4.31
3	3780	2.5	28.2	362	1.0	.98	1380	1.5	5.69
4	7860	3.6	73.3	340	1.0	.92	5200	2.5	36.2
5	8510	3.1	71.0	344	1.1	1.05	5590	3.4	51.3
6	6890	2.7	49.6	385	1.1	1.11	4380	3.5	42.2
7	5010	2.0	27.7	509	1.1	1.47	2510	2.4	16.4
8	2730	1.6	11.8	810	.98	2.14	1430	1.8	7.02
9	1890	1.2	6.29	850	.90	2.07	933	1.5	3.86
10	1540	.97	4.05	772	1.0	2.13	685	1.3	2.41
11	1300	.94	3.29	860	.90	2.08	540	1.0	1.50
12	1010	.96	2.65	940	.80	2.03	466	.89	1.12
13	851	.83	1.91	1040	.86	2.43	548	1.1	1.71
14	738	.73	1.46	1390	.90	3.36	956	1.3	3.43
15	673	.70	1.27	1260	.81	2.74	1440	1.8	6.97
16	642	.64	1.10	1140	.98	3.00	1560	2.0	8.42
17	585	.58	.91	821	.82	1.85	1580	1.7	7.43
18	604	.46	.76	623	.64	1.07	1050	1.5	4.35
19	620	.50	.84	520	.73	1.02	763	1.3	2.63
20	572	.50	.78	480	.80	1.04	574	1.0	1.61
21	512	.52	.72	449	.80	.97	469	1.0	1.26
22	481	.55	.71	404	.72	.78	494	.87	1.15
23	433	.57	.67	542	.80	1.26	569	.86	1.32
24	389	.72	.76	3760	1.7	17.8	413	.84	.94
25	376	1.0	1.01	4960	2.5	33.1	349	.99	.93
26	382	.94	.96	9500	3.6	96.9	302	1.1	.92
27	404	.96	1.05	12900	5.3	184	264	.90	.64
28	457	1.0	1.23	11300	4.0	122	1930	1.6	10.9
29	453	1.0	1.22	10700	3.1	89.3	3290	5.0	44.6
30	413	1.0	1.12	6420	2.2	39.1	2330	3.3	20.9
31	---	---	---	2680	1.8	12.8	---	---	---
TOTAL	58135	---	340.66	77841	---	632.65	45045	---	298.50
		JULY			AUGUST			SEPTEMBER	
1	1590	2.4	10.6	857	2.0	4.64	63	.86	.15
2	724	1.8	3.63	526	1.6	2.34	79	.74	.16
3	459	2.0	2.42	368	1.7	1.67	73	.76	.15
4	377	1.6	1.67	282	1.5	1.17	68	.72	.13
5	335	1.4	1.28	256	1.5	1.06	67	.77	.14
6	298	1.3	1.03	398	2.0	2.18	68	.86	.16
7	255	1.1	.79	404	2.0	2.19	63	.90	.15
8	221	1.2	.74	272	1.9	1.35	60	.77	.12
9	206	1.0	.58	196	2.1	1.09	57	.70	.11
10	193	1.2	.64	150	2.0	.80	71	.70	.13
11	163	1.7	.73	125	1.8	.62	75	.56	.11
12	161	1.4	.62	108	2.0	.58	68	.36	.066
13	468	1.4	1.73	96	1.6	.42	59	.33	.053
14	289	1.5	1.14	87	1.3	.31	56	.30	.046
15	196	1.6	.83	75	1.2	.25	100	.42	.12
16	148	1.5	.59	74	1.2	.23	130	.45	.17
17	121	1.2	.39	72	1.0	.20	294	.74	.59
18	109	1.0	.29	68	.93	.17	304	.71	.58
19	103	.97	.27	65	.90	.16	235	.90	.57
20	114	1.1	.33	68	.90	.17	161	.90	.39
21	256	1.4	.96	85	.96	.22	118	1.0	.33
22	335	1.6	1.48	76	.89	.18	97	1.1	.29
23	302	1.8	1.49	76	.86	.18	87	1.2	.27
24	279	1.7	1.31	74	.83	.17	77	1.1	.22
25	245	1.7	1.12	71	.80	.15	69	.89	.17
26	194	1.7	.88	66	.80	.14	64	.93	.16
27	236	1.6	1.03	73	.80	.16	57	.94	.14
28	730	2.2	4.55	85	.93	.21	52	.97	.14
29	1470	2.7	11.0	91	.90	.22	47	1.1	.13
30	806	2.2	4.90	100	.90	.24	45	1.0	.12
31	783	2.0	4.34	75	.96	.19	---	---	---
TOTAL	12166	---	63.36	5419	---	23.66	2864	---	6.065
YEAR	308585.8		1695.658						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	26	.055	.004	33	.022	.002	131	.055	.019
2	25	.055	.004	42	.022	.003	119	.055	.018
3	25	.055	.004	45	.022	.003	118	.048	.015
4	27	.055	.004	47	.022	.003	101	.051	.014
5	24	.048	.003	71	.026	.005	96	.046	.012
6	22	.044	.003	116	.041	.013	90	.075	.018
7	20	.044	.002	147	.066	.026	84	.051	.012
8	15	.044	.002	165	.070	.031	80	.033	.007
9	10	.044	.001	158	.066	.028	80	.033	.007
10	7.4	.044	.001	190	.102	.056	78	.033	.007
11	6.7	.044	.001	358	.139	.13	76	.033	.007
12	9.7	.044	.001	456	.132	.16	74	.029	.006
13	14	.044	.002	387	.132	.14	72	.022	.004
14	18	.051	.002	354	.126	.12	72	.022	.004
15	18	.062	.003	317	.124	.11	70	.022	.004
16	21	.066	.004	268	.106	.077	70	.022	.004
17	20	.069	.004	212	.084	.048	70	.022	.004
18	54	.096	.014	160	.070	.030	70	.022	.004
19	58	.073	.012	135	.060	.022	68	.022	.004
20	44	.051	.006	136	.094	.038	68	.022	.004
21	36	.037	.004	624	.216	.38	68	.022	.004
22	38	.033	.003	895	.209	.51	68	.022	.004
23	47	.033	.004	618	.180	.30	68	.022	.004
24	46	.029	.004	491	.176	.23	68	.022	.004
25	43	.022	.003	355	.175	.17	68	.022	.004
26	43	.029	.003	264	.154	.11	74	.022	.004
27	39	.025	.003	217	.128	.075	100	.038	.010
28	40	.022	.002	188	.099	.050	472	.118	.19
29	43	.022	.003	162	.080	.035	1600	.303	1.31
30	31	.022	.002	141	.062	.024	1100	.221	.66
31	38	.022	.002	---	---	---	780	.244	.51
TOTAL	908.8	---	0.110	7752	---	2.929	6153	---	2.878
		JANUARY			FEBRUARY			MARCH	
1	815	.177	.39	561	.135	.21	380	.102	.10
2	548	.127	.19	471	.110	.14	350	.078	.073
3	3120	.124	1.06	414	.099	.11	330	.099	.089
4	6100	.125	2.05	358	.092	.089	321	.065	.056
5	2500	.114	.77	314	.081	.069	322	.044	.038
6	1400	.125	.47	812	.077	.17	467	.057	.073
7	1300	.182	.65	4440	.070	.83	904	.073	.18
8	5060	.605	8.67	3520	.059	.56	845	.091	.20
9	5380	.663	9.76	2000	.055	.30	618	.092	.15
10	3420	.483	4.55	1300	.055	.19	506	.088	.12
11	1770	.368	1.78	1000	.053	.14	425	.081	.093
12	934	.268	.69	860	.050	.12	375	.077	.078
13	787	.194	.41	780	.047	.10	377	.077	.078
14	705	.161	.31	700	.045	.085	410	.077	.085
15	641	.140	.24	610	.044	.073	424	.070	.080
16	571	.146	.22	580	.051	.080	431	.066	.077
17	494	.121	.16	540	.069	.10	424	.073	.083
18	459	.103	.13	520	.091	.13	458	.070	.086
19	444	.099	.12	500	.092	.12	517	.073	.10
20	473	.092	.12	499	.079	.11	511	.068	.094
21	474	.081	.10	525	.078	.11	590	.067	.11
22	429	.084	.098	1560	.136	.60	1210	.099	.34
23	383	.091	.094	1980	.254	1.36	1460	.114	.45
24	339	.084	.077	1450	.240	.96	933	.115	.29
25	315	.077	.066	600	.180	.29	680	.110	.20
26	495	.158	.25	520	.157	.22	561	.110	.17
27	1650	.830	3.77	450	.136	.16	493	.113	.15
28	1120	.364	1.16	420	.117	.13	497	.114	.15
29	1030	.243	.68	---	---	---	487	.102	.13
30	824	.174	.39	---	---	---	638	.123	.22
31	674	.150	.27	---	---	---	2420	.231	1.59
TOTAL	44654	---	39.695	28284	---	7.556	19364	---	5.733

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4370	.456	5.40	393	.078	.083	1720	.360	1.69
2	3660	.410	4.09	387	.066	.069	1330	.282	1.02
3	3780	.318	3.33	362	.059	.058	1380	.399	1.64
4	7860	.642	13.9	340	.062	.057	5200	1.08	15.6
5	8510	.753	17.4	344	.066	.061	5590	.859	13.2
6	6890	.631	11.8	385	.066	.069	4380	.559	6.64
7	5010	.467	6.42	509	.080	.11	2510	.562	3.81
8	2730	.300	2.25	810	.088	.19	1430	.389	1.54
9	1890	.200	1.03	850	.081	.18	933	.274	.69
10	1540	.154	.64	772	.070	.15	685	.216	.40
11	1300	.128	.45	860	.066	.15	540	.184	.27
12	1010	.114	.31	940	.066	.17	466	.171	.21
13	751	.103	.24	1040	.074	.21	548	.201	.31
14	738	.099	.20	1390	.099	.37	956	.276	.71
15	673	.092	.17	1260	.093	.31	1440	.421	1.64
16	642	.081	.14	1140	.113	.35	1560	.522	2.27
17	585	.077	.12	821	.087	.20	1580	.442	1.93
18	604	.077	.13	623	.070	.12	1050	.332	.94
19	620	.069	.12	520	.059	.082	763	.268	.56
20	572	.057	.089	480	.055	.071	574	.227	.35
21	512	.058	.080	449	.055	.067	469	.190	.24
22	481	.060	.078	404	.055	.060	494	.176	.24
23	433	.063	.074	542	.088	.16	569	.194	.30
24	389	.062	.065	3760	.388	4.03	413	.172	.19
25	376	.062	.063	4960	.519	6.97	349	.156	.15
26	382	.066	.068	9500	.853	23.5	302	.143	.12
27	404	.073	.080	12900	1.29	45.0	264	.121	.086
28	457	.095	.12	11300	1.14	34.8	1930	.275	2.04
29	453	.706	.85	10700	.872	25.3	3290	1.49	13.6
30	413	.299	.34	6420	.625	11.2	2330	.702	4.59
31	---	---	---	2680	.475	3.46	---	---	---
TOTAL	58135	---	70.047	77841	---	157.607	45045	---	76.976
		JULY			AUGUST			SEPTEMBER	
1	1590	.433	1.88	857	.515	1.20	63	.066	.011
2	724	.420	.82	526	.406	.58	79	.066	.014
3	459	.430	.53	368	.359	.36	73	.066	.013
4	377	.363	.37	282	.330	.25	68	.062	.011
5	335	.299	.27	256	.311	.21	67	.062	.011
6	298	.254	.20	398	.359	.40	68	.080	.015
7	255	.229	.16	404	.336	.37	63	.081	.014
8	221	.247	.15	272	.232	.17	60	.070	.011
9	206	.196	.11	196	.205	.11	57	.066	.010
10	193	.175	.092	150	.183	.074	71	.066	.013
11	163	.139	.061	125	.148	.050	75	.084	.017
12	161	.129	.056	108	.208	.060	68	.088	.016
13	468	.242	.31	96	.162	.042	59	.088	.014
14	289	.168	.13	87	.117	.027	56	.096	.015
15	196	.147	.078	75	.117	.024	100	.143	.039
16	148	.135	.054	74	.114	.023	130	.141	.055
17	121	.110	.036	72	.110	.021	294	.253	.20
18	109	.084	.025	68	.103	.019	304	.198	.16
19	103	.077	.021	65	.106	.018	235	.168	.11
20	114	.085	.027	68	.110	.020	161	.139	.061
21	256	.189	.14	85	.117	.027	118	.125	.040
22	335	.291	.26	76	.108	.022	97	.128	.033
23	302	.272	.22	76	.106	.022	87	.132	.031
24	279	.269	.20	74	.103	.021	77	.125	.026
25	245	.255	.17	71	.099	.019	69	.178	.033
26	194	.197	.10	66	.092	.016	64	.271	.047
27	236	.214	.14	73	.088	.017	57	.231	.035
28	730	.384	.81	85	.086	.020	52	.228	.032
29	1470	.597	2.38	91	.073	.018	47	.259	.033
30	806	.493	1.08	100	.077	.021	45	.260	.031
31	783	.526	1.13	75	.070	.014	---	---	---
TOTAL	12166	---	12.010	5419	---	4.245	2864	---	1.151
YEAR	308585.8		380.811						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	26	2	.14	33	9	.80	131	6	2.1
2	25	2	.13	42	5	.57	119	7	2.2
3	25	2	.13	45	7	.85	118	7	2.2
4	27	2	.15	47	11	1.4	101	6	1.6
5	24	2	.13	71	6	1.2	96	6	1.6
6	22	2	.12	116	2	.63	90	4	.97
7	20	2	.11	147	4	1.6	84	4	.91
8	15	2	.08	165	2	.89	80	4	.86
9	10	2	.05	158	2	.85	80	4	.86
10	7.4	2	.04	190	72	37	78	4	.84
11	6.7	2	.04	358	66	64	76	4	.82
12	9.7	2	.05	456	57	70	74	4	.80
13	14	1	.04	387	21	22	72	4	.78
14	18	2	.10	354	22	21	72	4	.78
15	18	3	.15	317	21	18	70	4	.76
16	21	4	.23	268	22	16	70	4	.76
17	20	4	.22	212	17	9.7	70	4	.76
18	54	8	1.2	160	10	4.3	70	4	.76
19	58	4	.63	135	7	2.6	68	4	.73
20	44	7	.83	136	40	15	68	4	.73
21	36	1	.10	624	55	93	68	4	.73
22	38	1	.10	895	87	210	68	4	.73
23	47	2	.25	618	60	100	68	4	.73
24	46	2	.25	491	42	56	68	11	2.0
25	43	1	.12	355	36	35	68	2	.37
26	43	4	.46	264	30	21	74	3	.60
27	39	2	.21	217	24	14	100	2	.54
28	40	4	.43	188	18	9.1	472	56	121
29	43	4	.46	162	11	4.8	1600	200	864
30	31	4	.33	141	6	2.3	1100	154	457
31	38	4	.41	---	---	---	780	99	208
TOTAL	908.8	---	7.69	7752	---	833.59	6153	---	1677.52
		JANUARY			FEBRUARY			MARCH	
1	815	56	123	561	86	130	380	68	70
2	548	42	62	471	75	95	350	14	13
3	3120	276	2910	414	70	78	330	20	18
4	6100	436	7180	358	66	64	321	18	16
5	2500	252	1700	314	58	49	322	16	14
6	1400	153	578	812	110	241	467	16	20
7	1300	148	519	4440	400	4800	904	16	39
8	5060	312	4870	3520	326	3100	845	16	37
9	5380	372	5400	2000	207	1120	618	14	23
10	3420	223	2060	1300	148	519	506	15	20
11	1770	148	707	1000	122	329	425	24	28
12	934	100	252	860	112	260	375	20	20
13	787	52	110	780	104	219	377	20	20
14	705	42	80	700	95	180	410	20	22
15	641	32	55	610	91	150	424	16	18
16	571	23	35	580	89	139	431	18	21
17	494	18	24	540	82	120	424	18	21
18	459	11	14	520	78	110	458	22	27
19	444	9	11	500	81	109	517	18	25
20	473	10	13	499	82	110	511	18	25
21	474	8	10	525	85	120	590	14	22
22	429	7	8.1	1560	166	699	1210	51	167
23	383	8	8.3	1980	206	1100	1460	53	209
24	339	6	5.5	1450	158	619	933	39	98
25	315	8	6.8	600	86	139	680	33	61
26	495	67	132	520	78	110	561	30	45
27	1650	255	1140	450	74	90	493	22	29
28	1120	113	342	420	71	81	497	23	31
29	1030	56	156	---	---	---	487	15	20
30	824	108	240	---	---	---	638	35	60
31	674	93	169	---	---	---	2420	96	715
TOTAL	44654	---	28920.7	28284	---	14880	19364	---	1954

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	4370	278	3280	393	21	22	1720	146	678
2	3660	220	2170	387	22	23	1330	102	366
3	3780	177	1810	362	14	14	1380	90	335
4	7860	395	8380	340	63	58	5200	496	7590
5	8510	470	10800	344	64	59	5590	840	12700
6	6890	380	7070	385	67	70	4380	665	7860
7	5010	245	3310	509	80	110	2510	440	2980
8	2730	117	862	810	107	234	1430	196	757
9	1890	80	408	850	111	255	933	106	267
10	1540	47	195	772	103	215	685	80	148
11	1300	36	126	860	112	260	540	70	102
12	1010	30	82	940	54	137	466	76	96
13	851	29	67	1040	76	213	548	87	129
14	738	28	56	1390	64	240	956	105	271
15	673	24	44	1260	64	218	1440	170	661
16	642	22	38	1140	44	135	1560	255	1070
17	585	22	35	821	38	84	1580	190	811
18	604	15	24	623	33	56	1050	149	422
19	620	16	27	520	24	34	763	95	196
20	572	13	20	480	32	41	574	80	124
21	512	11	15	449	17	21	469	64	81
22	481	10	13	404	30	33	494	72	96
23	433	7	8.2	542	45	66	569	70	108
24	389	9	9.5	3760	228	2420	413	65	72
25	376	10	10	4960	300	4020	349	60	57
26	382	15	15	9500	535	15400	302	40	33
27	404	20	22	12900	990	34500	264	28	20
28	457	30	37	11300	700	21400	1930	473	3970
29	453	25	31	10700	530	15300	3290	1750	15500
30	413	22	25	6420	280	4850	2330	1230	7740
31	---	---	---	2680	190	1370	---	---	---
TOTAL	58135	---	38989.7	77841	---	101858	45045	---	65240
		JULY			AUGUST			SEPTEMBER	
1	1590	590	2530	857	135	312	63	12	2.0
2	724	320	626	526	114	162	79	12	2.6
3	459	182	226	368	108	107	73	11	2.2
4	377	142	145	282	58	44	68	11	2.0
5	335	106	96	256	58	40	67	13	2.4
6	298	96	77	398	70	75	68	9	1.7
7	255	68	47	404	71	77	63	10	1.7
8	221	59	35	272	60	44	60	8	1.3
9	206	59	33	196	51	27	57	8	1.2
10	193	59	31	150	44	18	71	20	3.8
11	163	58	26	125	44	15	75	9	1.8
12	161	45	20	108	43	13	68	10	1.8
13	468	103	130	96	42	11	59	11	1.8
14	289	96	75	87	42	9.9	56	10	1.5
15	196	75	40	75	34	6.9	100	50	13
16	148	63	25	74	34	6.8	130	87	37
17	121	46	15	72	25	4.9	294	143	114
18	109	41	12	68	24	4.4	304	58	48
19	103	38	11	65	25	4.4	235	50	32
20	114	22	6.8	68	24	4.4	161	40	17
21	256	130	90	85	22	5.0	118	22	7.0
22	335	110	99	76	20	4.1	97	16	4.2
23	302	97	79	76	21	4.3	87	15	3.5
24	279	92	69	74	18	3.6	77	13	2.7
25	245	94	62	71	17	3.3	69	14	2.6
26	194	70	37	66	16	2.9	64	16	2.8
27	236	124	79	73	16	3.2	57	12	1.8
28	730	165	325	85	12	2.8	52	10	1.4
29	1470	238	945	91	15	3.7	47	10	1.3
30	806	220	479	100	14	3.8	45	10	1.2
31	783	215	455	75	13	2.6	---	---	---
TOTAL	12166	---	6925.8	5419	---	1026.0	2864	---	317.3
YEAR	308585.8		262630.30						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	43	53	6.20	87	57	13.5	215	46	26.8
2	41	53	5.88	83	60	13.4	203	47	25.7
3	38	52	5.39	83	56	12.6	196	48	25.4
4	38	52	5.42	82	53	11.7	195	49	25.9
5	41	53	5.92	80	54	11.8	190	50	25.9
6	42	53	6.07	84	53	12.0	160	52	22.4
7	42	54	6.14	95	54	13.9	170	53	24.2
8	41	54	5.94	108	57	16.7	160	52	22.6
9	38	54	5.52	125	62	21.0	140	53	20.0
10	38	55	5.59	176	67	31.9	130	55	19.2
11	38	57	5.82	187	63	31.9	120	56	18.0
12	37	56	5.62	185	58	28.9	120	59	19.3
13	37	54	5.32	160	56	24.3	120	60	19.4
14	37	53	5.21	139	58	21.7	110	60	17.8
15	36	53	5.18	176	64	30.4	110	60	17.9
16	40	52	5.61	1510	48	181	110	61	18.0
17	55	51	7.56	3030	38	312	110	61	18.1
18	67	57	10.2	2120	35	202	100	61	16.5
19	105	68	19.4	1160	37	116	100	62	16.6
20	441	56	64.6	660	39	68.5	100	62	16.7
21	559	42	64.0	468	41	51.2	98	62	16.4
22	475	46	58.5	374	42	42.1	96	62	16.2
23	395	50	53.5	321	42	36.1	94	63	15.9
24	322	57	49.4	290	40	31.6	94	63	16.0
25	247	58	38.4	256	42	28.9	92	63	15.7
26	190	55	28.0	234	43	27.0	90	64	15.5
27	149	54	21.8	218	44	25.6	90	64	15.6
28	121	55	18.0	221	45	26.9	90	64	15.6
29	105	55	15.6	229	46	28.2	88	65	15.4
30	89	57	13.6	228	46	28.4	86	66	15.4
31	84	57	13.0	---	---	---	400	71	76.7
TOTAL	4031	---	566.39	13169	---	1501.2	4177	---	650.8
		JANUARY			FEBRUARY			MARCH	
1	8500	56	1280	335	51	46.3	1430	37	145
2	11000	43	1280	3080	49	342	1450	37	145
3	9000	45	1100	8450	29	668	1400	35	133
4	6600	41	739	7510	31	628	1230	35	114
5	4200	33	375	7230	28	544	991	33	87.4
6	2700	32	235	5580	28	426	798	34	73.3
7	1750	35	164	3810	28	290	658	36	63.1
8	1100	38	112	2580	31	217	590	36	57.6
9	760	40	81.2	1860	34	170	633	42	72.3
10	1020	43	118	1550	36	152	800	43	92.8
11	1290	42	147	1420	36	139	988	39	105
12	992	41	111	1190	36	117	1060	38	109
13	786	42	89.0	922	37	92.3	987	38	101
14	527	44	62.6	769	39	80.5	821	37	82.3
15	455	46	56.2	1270	48	161	717	38	73.2
16	400	47	51.1	11100	26	714	666	40	72.1
17	392	55	57.9	13900	17	634	794	41	86.9
18	821	50	111	11500	16	484	783	40	85.5
19	1270	46	159	9060	16	387	685	40	74.3
20	1160	46	143	4280	20	224	619	40	66.1
21	2040	46	253	2030	24	131	537	40	58.0
22	3280	44	389	2130	29	164	487	40	52.6
23	2600	42	295	3950	23	246	454	40	49.0
24	1580	41	177	3450	24	223	422	40	45.5
25	1100	43	127	2350	28	175	395	40	42.6
26	837	42	95.4	1650	32	141	370	40	40.0
27	687	43	79.4	1250	35	119	348	39	36.3
28	542	43	62.9	1320	36	129	323	40	34.8
29	457	43	53.5	---	---	---	307	42	34.5
30	395	46	48.6	---	---	---	318	42	36.1
31	359	48	46.3	---	---	---	334	44	39.8
TOTAL	68600	---	8099.1	115526	---	7844.1	22395	---	2308.1

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	413	43	47.8	483	34	44.8	576	30	47.1
2	996	40	105	443	34	40.7	501	32	43.5
3	2460	33	219	426	36	41.3	1100	25	72.5
4	2300	30	184	499	41	55.4	826	34	76.4
5	1590	28	119	2790	33	237	791	38	81.2
6	1130	28	86.0	3010	28	229	679	38	69.7
7	857	29	67.2	2080	32	177	515	39	53.7
8	681	31	56.8	1360	33	122	648	38	65.3
9	573	32	49.5	918	35	87.2	4680	27	312
10	582	38	61.0	687	37	68.6	7140	13	257
11	5820	25	340	551	37	55.0	8340	10	226
12	7300	15	302	466	36	45.7	6230	10	173
13	5920	15	240	626	38	62.8	2760	14	98.8
14	3780	17	171	3180	30	258	1160	18	54.3
15	2080	21	115	3580	27	258	795	21	44.8
16	1520	25	103	3510	26	240	593	24	38.2
17	1210	28	92.3	5310	22	319	460	26	31.8
18	955	30	76.5	4340	24	279	371	26	25.9
19	773	31	65.3	3100	25	209	296	28	22.6
20	676	33	60.8	1800	26	126	258	30	21.1
21	1070	40	112	1080	28	81.4	232	31	19.4
22	3590	27	258	786	30	62.9	214	30	17.5
23	3920	19	208	658	31	54.4	205	31	17.0
24	2170	20	116	554	29	43.5	204	32	17.4
25	1290	23	79.5	462	31	38.9	271	32	23.8
26	940	26	65.7	636	34	58.8	312	31	26.2
27	758	29	59.2	2910	29	226	231	34	21.2
28	646	31	54.6	2760	23	172	206	38	20.9
29	571	33	50.3	1630	23	101	261	40	28.4
30	519	34	47.8	982	24	64.4	266	41	29.5
31	---	---	---	711	28	52.8	---	---	---
TOTAL	57090	---	3612.3	52328	---	3911.6	41121	---	2036.2
		JULY			AUGUST			SEPTEMBER	
1	236	42	26.5	900	28	68.7	170	29	13.1
2	211	42	24.1	600	28	45.9	165	31	13.9
3	191	42	21.4	430	28	32.6	176	33	15.8
4	158	38	16.3	330	30	26.7	152	35	14.2
5	155	37	15.4	700	31	58.6	134	34	12.3
6	155	36	15.2	1200	29	94.6	123	33	11.1
7	155	39	16.4	2900	18	139	126	35	11.9
8	152	42	17.1	3800	12	123	129	37	13.0
9	149	41	16.7	1500	13	52.6	2300	26	90.4
10	149	43	17.3	824	16	28.3	3110	11	90.4
11	234	43	26.6	492	18	21.2	918	13	31.0
12	1470	31	119	368	19	18.0	466	15	18.7
13	4350	21	238	710	22	42.3	319	18	15.2
14	7320	14	279	2040	22	124	289	21	16.4
15	9890	14	365	2080	18	101	414	24	26.7
16	8570	13	294	1330	18	64.5	552	21	30.7
17	5990	13	213	711	19	35.8	839	18	40.0
18	2280	15	93.1	472	21	26.6	612	19	31.6
19	1120	18	53.9	389	22	23.1	466	22	27.0
20	733	20	40.1	824	23	52.1	404	24	26.3
21	660	22	38.7	958	21	54.0	349	27	25.5
22	1370	23	84.0	943	22	56.4	353	30	29.0
23	7280	13	243	874	26	61.7	414	34	37.7
24	9000	12	292	1110	28	85.1	545	31	46.0
25	4500	14	170	744	22	45.2	541	29	42.5
26	2000	15	82.8	477	18	23.4	383	32	33.0
27	800	17	37.5	366	19	18.7	298	34	27.6
28	400	21	22.3	298	17	14.0	245	36	23.6
29	320	23	20.1	249	19	12.7	217	37	21.5
30	290	24	19.1	222	23	13.5	271	36	26.0
31	540	26	38.4	193	25	13.2	---	---	---
TOTAL	70828	---	2956.0	29034	---	1576.5	15480	---	862.1
YEAR	493779		35917.49						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	43	<.100	.01	87	2.44	.57	215	5.31	3.1
2	41	<.100	.01	83	2.25	.50	203	5.17	2.8
3	38	<.100	.01	83	2.01	.45	196	5.04	2.7
4	38	<.100	.01	82	1.79	.40	195	4.92	2.6
5	41	<.100	.01	80	1.64	.36	190	4.80	2.5
6	42	<.100	.01	84	1.47	.33	160	4.69	2.0
7	42	<.100	.01	95	1.59	.41	170	4.48	2.1
8	41	<.100	.01	108	1.57	.46	160	4.32	1.9
9	38	<.100	.01	125	1.63	.55	140	4.15	1.6
10	38	.210	.02	176	1.86	.89	130	3.98	1.4
11	38	.210	.02	187	1.91	.97	120	3.89	1.3
12	37	.216	.02	185	1.62	.81	120	4.05	1.3
13	37	.207	.02	160	1.27	.55	120	4.02	1.3
14	37	.213	.02	139	1.05	.39	110	3.95	1.2
15	36	.226	.02	176	1.16	.60	110	3.89	1.2
16	40	<.100	.02	1510	6.30	28	110	3.82	1.1
17	55	<.100	.01	3030	6.94	56	110	3.75	1.1
18	67	<.100	.01	2120	7.76	44	100	3.69	1.0
19	105	.306	.11	1160	7.89	25	100	3.63	.98
20	441	2.81	3.7	660	7.51	13	100	3.57	.96
21	559	3.81	5.7	468	7.64	9.7	98	3.50	.93
22	475	3.53	4.5	374	7.50	7.6	96	3.44	.89
23	395	3.13	3.3	321	7.10	6.2	94	3.39	.86
24	322	3.61	3.1	290	7.56	5.9	94	3.33	.84
25	247	3.96	2.7	256	7.24	5.0	92	3.27	.81
26	190	3.49	1.8	234	6.63	4.2	90	3.21	.78
27	149	2.98	1.2	218	6.42	3.8	90	3.16	.77
28	121	2.69	.88	221	6.14	3.7	90	3.11	.75
29	105	2.69	.76	229	5.90	3.6	88	3.05	.73
30	89	2.66	.64	228	5.56	3.4	86	3.13	.73
31	84	2.62	.59	---	---	---	400	4.11	4.4
TOTAL	4031	---	29.23	13169	---	227.34	4177	---	46.63
		JANUARY			FEBRUARY			MARCH	
1	8500	5.26	120	335	7.60	6.9	1430	7.39	29
2	11000	5.14	150	3080	8.84	74	1450	7.16	28
3	9000	5.28	130	8450	9.92	230	1400	6.82	26
4	6600	5.96	110	7510	10.6	210	1230	6.49	22
5	4200	7.36	83	7230	10.3	200	991	6.31	17
6	2700	8.25	60	5580	10.1	150	798	6.85	15
7	1750	8.28	39	3810	9.66	99	658	6.93	12
8	1100	8.24	24	2580	9.79	68	590	6.88	11
9	760	8.22	17	1860	9.76	49	633	6.76	12
10	1020	9.07	25	1550	9.64	40	800	6.82	15
11	1290	10.6	37	1420	9.09	35	988	7.12	19
12	992	10.3	28	1190	9.11	29	1060	7.40	21
13	786	9.88	21	922	9.06	23	987	6.98	19
14	527	9.87	14	769	8.64	18	821	6.57	15
15	455	9.17	11	1270	8.11	27	717	6.70	13
16	400	8.37	9.0	11100	5.92	170	666	6.25	11
17	392	7.89	8.4	13900	5.61	210	794	6.10	13
18	821	9.97	23	11500	5.44	170	783	5.98	13
19	1270	10.3	35	9060	6.26	150	685	5.70	11
20	1160	9.79	31	4280	7.22	83	619	5.16	8.6
21	2040	10.4	57	2030	7.64	42	537	4.91	7.1
22	3280	10.9	96	2130	7.61	44	487	4.63	6.1
23	2600	11.9	84	3950	7.33	78	454	4.37	5.4
24	1580	12.1	52	3450	7.69	72	422	4.12	4.7
25	1100	12.0	36	2350	7.56	48	395	3.89	4.1
26	837	11.2	25	1650	7.66	34	370	3.67	3.7
27	687	10.4	19	1250	7.67	26	348	3.54	3.3
28	542	9.49	14	1320	7.57	27	323	3.56	3.1
29	457	9.00	11	---	---	---	307	3.40	2.8
30	395	8.52	9.1	---	---	---	318	3.37	2.9
31	359	8.07	7.8	---	---	---	334	3.47	3.1
TOTAL	68600	---	1386.3	115526	---	2412.9	22395	---	376.9

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	413	3.35	3.7	483	4.20	5.5	576	11.8	18
2	996	2.92	7.8	443	3.83	4.6	501	10.5	14
3	2460	4.46	30	426	3.57	4.1	1100	11.9	35
4	2300	6.66	41	499	4.34	6.1	826	13.1	29
5	1590	7.57	32	2790	9.32	76	791	11.4	24
6	1130	7.91	24	3010	11.3	91	679	9.46	17
7	857	7.44	17	2080	11.3	64	515	8.66	12
8	681	7.09	13	1360	10.6	39	648	8.27	15
9	573	6.70	10	918	10.5	26	4680	11.0	140
10	582	6.55	10	687	10.4	19	7140	9.98	190
11	5820	7.19	110	551	9.53	14	8340	8.15	180
12	7300	7.79	150	466	8.57	11	6230	7.81	130
13	5920	7.94	130	626	8.25	14	2760	7.80	58
14	3780	8.22	84	3180	8.20	72	1160	7.76	24
15	2080	8.26	46	3580	13.4	130	795	7.66	16
16	1520	8.00	33	3510	13.3	120	593	7.40	12
17	1210	7.70	25	5310	12.6	180	460	7.02	8.7
18	955	7.26	19	4340	10.5	120	371	6.42	6.4
19	773	6.77	14	3100	13.4	110	296	6.23	5.0
20	676	6.33	12	1800	12.1	59	258	5.90	4.1
21	1070	6.18	18	1080	11.1	33	232	5.47	3.4
22	3590	5.55	54	786	9.90	21	214	5.16	3.0
23	3920	6.70	71	658	9.48	17	205	4.83	2.7
24	2170	7.29	43	554	8.20	12	204	4.44	2.4
25	1290	7.33	26	462	7.92	9.9	271	4.36	3.2
26	940	6.93	18	636	7.84	13	312	4.03	3.4
27	758	6.40	13	2910	8.88	71	231	3.46	2.2
28	646	5.79	10	2760	12.3	91	206	2.81	1.6
29	571	5.20	8.0	1630	12.9	56	261	1.92	1.3
30	519	4.70	6.6	982	13.1	35	266	1.98	1.4
31	---	---	---	711	12.8	25	---	---	---
TOTAL	57090	---	1079.1	52328	---	1549.2	41121	---	962.8
		JULY			AUGUST			SEPTEMBER	
1	236	2.20	1.4	900	3.96	9.6	170	1.70	.78
2	211	2.13	1.2	600	3.13	5.1	165	1.50	.66
3	191	1.73	.89	430	2.46	2.9	176	1.26	.60
4	158	1.47	.62	330	1.97	1.8	152	.945	.39
5	155	1.33	.56	700	1.61	3.0	134	.432	.16
6	155	1.16	.49	1200	1.94	6.3	123	.153	.05
7	155	.965	.40	2900	2.49	20	126	<.100	.03
8	152	.834	.34	3800	2.64	27	129	<.100	.02
9	149	.865	.35	1500	2.81	11	2300	1.61	18
10	149	1.00	.40	824	2.63	4.9	3110	3.34	28
11	234	1.04	.70	492	2.59	3.1	918	2.72	6.8
12	1470	5.83	27	368	2.49	2.4	466	2.24	2.8
13	4350	12.1	140	710	2.45	4.8	319	1.84	1.6
14	7320	11.9	240	2040	2.38	13	289	1.57	1.2
15	9890	12.2	330	2080	2.44	14	414	1.80	2.0
16	8570	11.7	270	1330	2.43	8.7	552	2.17	3.3
17	5990	10.9	180	711	2.33	4.5	839	2.46	5.6
18	2280	10.7	66	472	2.30	2.9	612	2.37	3.9
19	1120	9.86	30	389	2.36	2.5	466	2.28	2.9
20	733	8.76	17	824	2.22	4.9	404	2.18	2.4
21	660	7.72	14	958	2.24	5.8	349	2.09	2.0
22	1370	6.52	24	943	2.81	7.1	353	2.03	1.9
23	7280	6.20	120	874	2.67	6.3	414	2.12	2.4
24	9000	7.28	180	1110	2.82	8.5	545	2.25	3.3
25	4500	6.47	79	744	2.18	4.4	541	2.30	3.4
26	2000	6.20	33	477	2.05	2.6	383	2.17	2.2
27	800	5.96	13	366	2.15	2.1	298	2.09	1.7
28	400	5.70	6.2	298	2.10	1.7	245	1.84	1.2
29	320	5.33	4.6	249	2.03	1.4	217	1.83	1.1
30	290	4.93	3.9	222	1.93	1.2	271	1.90	1.4
31	540	4.43	6.5	193	1.77	.92	---	---	---
TOTAL	70828	---	1791.55	29034	---	194.42	15480	---	101.79
YEAR	493779		10176.35						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	43	1.2	.13	87	.80	.19	215	.68	.39
2	41	1.1	.12	83	.83	.19	203	.67	.37
3	38	.96	.099	83	.93	.21	196	.65	.34
4	38	.90	.093	82	.77	.17	195	.62	.33
5	41	.91	.10	80	.68	.15	190	.60	.31
6	42	.93	.11	84	.70	.16	160	.58	.25
7	42	.93	.11	95	.62	.16	170	.54	.25
8	41	.98	.11	108	.59	.17	160	.51	.22
9	38	1.0	.11	125	.63	.21	140	.50	.19
10	38	1.0	.11	176	.72	.34	130	.60	.21
11	38	1.1	.11	187	.71	.36	120	.56	.18
12	37	1.1	.11	185	.69	.34	120	.49	.16
13	37	1.2	.12	160	.67	.29	120	.50	.16
14	37	1.2	.12	139	.53	.20	110	.51	.15
15	36	1.1	.11	176	.71	.36	110	.51	.15
16	40	1.0	.11	1510	1.8	8.03	110	.50	.15
17	55	1.0	.15	3030	2.0	16.6	110	.50	.15
18	67	.97	.18	2120	2.2	12.5	100	.50	.13
19	105	1.0	.29	1160	1.7	5.52	100	.50	.13
20	441	1.1	1.34	660	1.5	2.66	100	.49	.13
21	559	1.1	1.66	468	1.4	1.76	98	.49	.13
22	475	1.0	1.28	374	1.3	1.30	96	.49	.13
23	395	.91	.97	321	1.2	1.04	94	.49	.12
24	322	.89	.78	290	1.1	.89	94	.48	.12
25	247	.94	.63	256	1.1	.73	92	.48	.12
26	190	.85	.44	234	.92	.58	90	.48	.12
27	149	.78	.31	218	.81	.47	90	.48	.12
28	121	.76	.25	221	.86	.51	90	.47	.12
29	105	.83	.23	229	.78	.48	88	.47	.11
30	89	.85	.20	228	.68	.42	86	.51	.12
31	84	.86	.20	---	---	---	400	.84	.91
TOTAL	4031	---	10.682	13169	---	56.99	4177	---	6.47
		JANUARY			FEBRUARY			MARCH	
1	8500	1.3	30.6	335	.56	.51	1430	.72	2.77
2	11000	1.5	45.3	3080	1.4	16.2	1450	.76	2.97
3	9000	1.7	40.2	8450	2.8	63.1	1400	.69	2.59
4	6600	1.7	29.8	7510	2.0	41.3	1230	.60	1.99
5	4200	2.1	23.9	7230	2.0	38.6	991	.60	1.60
6	2700	1.9	13.9	5580	1.7	26.4	798	.59	1.26
7	1750	1.5	6.96	3810	1.4	14.8	658	.55	.97
8	1100	1.3	3.77	2580	1.2	8.59	590	.50	.80
9	760	1.0	2.13	1860	.82	4.17	633	.54	.93
10	1020	.97	2.68	1550	.78	3.27	800	.60	1.30
11	1290	.97	3.39	1420	.77	2.97	988	.69	1.85
12	992	.87	2.34	1190	.90	2.87	1060	.71	2.04
13	786	.99	2.10	922	.81	2.03	987	.65	1.72
14	527	.80	1.14	769	.77	1.59	821	.81	1.80
15	455	.74	.91	1270	.71	2.80	717	.85	1.64
16	400	.68	.73	11100	1.9	60.1	666	.78	1.41
17	392	.61	.64	13900	1.9	70.9	794	.70	1.51
18	821	.60	1.35	11500	1.8	55.2	783	.74	1.55
19	1270	.74	2.53	9060	1.4	34.0	685	1.0	1.93
20	1160	.86	2.69	4280	1.2	14.1	619	.78	1.30
21	2040	.98	5.36	2030	.87	4.82	537	.74	1.07
22	3280	.99	8.80	2130	1.2	7.60	487	.75	.98
23	2600	1.3	8.73	3950	2.0	21.4	454	.76	.93
24	1580	1.2	5.34	3450	1.6	14.8	422	.77	.87
25	1100	.77	2.32	2350	1.1	7.15	395	.78	.83
26	837	.73	1.65	1650	1.0	4.45	370	.78	.78
27	687	.79	1.47	1250	.90	3.04	348	.71	.67
28	542	.68	.99	1320	.78	2.77	323	.74	.65
29	457	.70	.87	---	---	---	307	.77	.64
30	395	.48	.51	---	---	---	318	.76	.65
31	359	.40	.39	---	---	---	334	.74	.67
TOTAL	68600	---	253.49	115526	---	529.53	22395	---	42.67

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	413	.71	.79	483	.99	1.29	576	1.1	1.63
2	996	.79	2.20	443	1.1	1.32	501	1.1	1.43
3	2460	1.4	9.30	426	1.1	1.24	1100	3.5	10.8
4	2300	1.8	11.2	499	1.3	1.75	826	1.3	3.02
5	1590	1.6	6.71	2790	3.1	26.6	791	.92	1.97
6	1130	1.2	3.72	3010	3.1	26.0	679	.86	1.57
7	857	1.0	2.35	2080	2.5	14.4	515	.78	1.09
8	681	.90	1.66	1360	1.8	6.86	648	1.8	3.26
9	573	.69	1.06	918	1.5	3.70	4680	3.1	45.1
10	582	.86	1.41	687	1.2	2.16	7140	5.3	101
11	5820	2.5	42.8	551	.90	1.35	8340	3.7	84.5
12	7300	2.7	53.6	466	.93	1.17	6230	3.1	53.1
13	5920	2.3	36.9	626	1.0	1.77	2760	2.4	18.7
14	3780	1.9	19.9	3180	1.8	16.0	1160	1.6	5.18
15	2080	1.6	8.91	3580	2.5	24.5	795	1.2	2.54
16	1520	1.1	4.66	3510	2.3	22.4	593	1.1	1.71
17	1210	.88	2.89	5310	3.0	43.0	460	.86	1.08
18	955	.83	2.15	4340	2.2	26.4	371	.82	.83
19	773	.68	1.42	3100	1.9	16.4	296	.80	.64
20	676	.64	1.17	1800	1.6	7.98	258	.88	.61
21	1070	.76	2.30	1080	1.4	4.05	232	.89	.56
22	3590	1.4	14.3	786	1.2	2.62	214	.94	.54
23	3920	2.2	23.2	658	1.1	1.97	205	.98	.54
24	2170	1.7	10.2	554	.88	1.33	204	.95	.52
25	1290	1.5	5.16	462	.69	.87	271	1.0	.75
26	940	1.2	3.18	636	.71	1.28	312	1.3	1.08
27	758	1.0	2.07	2910	1.7	13.5	231	1.5	.93
28	646	.91	1.58	2760	2.1	15.9	206	1.4	.79
29	571	.98	1.50	1630	1.3	5.93	261	1.3	.90
30	519	.91	1.28	982	1.0	2.73	266	1.2	.86
31	---	---	---	711	.97	1.86	---	---	---
TOTAL	57090	---	279.57	52328	---	298.33	41121	---	347.23
		JULY			AUGUST			SEPTEMBER	
1	236	1.2	.74	900	1.3	3.27	170	.82	.38
2	211	1.2	.66	600	1.7	2.73	165	.90	.40
3	191	1.3	.68	430	1.8	2.03	176	1.0	.48
4	158	1.4	.59	330	1.7	1.55	152	1.1	.46
5	155	1.1	.45	700	1.8	3.33	134	1.2	.44
6	155	.88	.37	1200	1.9	6.25	123	1.3	.42
7	155	1.4	.58	2900	2.0	15.6	126	1.1	.38
8	152	1.8	.73	3800	1.9	19.8	129	1.0	.36
9	149	1.4	.57	1500	1.7	6.77	2300	1.6	12.4
10	149	.98	.40	824	1.3	2.35	3110	1.8	15.1
11	234	1.2	.87	492	1.4	1.68	918	1.4	3.44
12	1470	1.9	7.56	368	1.4	1.34	466	1.1	1.36
13	4350	2.7	32.0	710	1.5	3.05	319	.84	.73
14	7320	2.6	50.5	2040	2.4	13.4	289	.68	.53
15	9890	2.0	53.2	2080	2.0	11.4	414	.74	.83
16	8570	1.4	33.7	1330	1.8	6.56	552	.86	1.28
17	5990	1.2	18.7	711	1.7	3.24	839	.92	2.09
18	2280	1.1	7.03	472	1.8	2.31	612	.85	1.41
19	1120	1.1	3.33	389	2.3	2.39	466	.78	.99
20	733	1.1	2.10	824	2.4	5.31	404	.72	.78
21	660	1.0	1.85	958	1.7	4.48	349	.66	.62
22	1370	1.1	4.13	943	2.3	5.84	353	.61	.59
23	7280	2.1	42.6	874	1.6	4.00	414	.66	.74
24	9000	1.9	46.5	1110	1.8	5.50	545	.74	1.10
25	4500	1.7	20.9	744	1.3	2.57	541	.81	1.19
26	2000	1.4	7.83	477	1.6	2.09	383	.79	.82
27	800	1.3	2.84	366	1.4	1.36	298	.79	.64
28	400	1.1	1.24	298	1.2	.98	245	.85	.56
29	320	1.1	.95	249	1.3	.86	217	.79	.46
30	290	1.1	.82	222	1.0	.61	271	.81	.59
31	540	1.2	1.69	193	.82	.43	---	---	---
TOTAL	70828	---	346.11	29034	---	143.08	15480	---	51.57
YEAR	493779		2366.018						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	43	.143	.017	87	.053	.013	215	.085	.049
2	41	.129	.014	83	.057	.013	203	.081	.045
3	38	.116	.012	83	.060	.013	196	.077	.041
4	38	.113	.012	82	.044	.010	195	.072	.038
5	41	.112	.013	80	.038	.008	190	.068	.035
6	42	.112	.013	84	.038	.009	160	.064	.028
7	42	.110	.013	95	.030	.008	170	.063	.029
8	41	.105	.011	108	.028	.008	160	.057	.024
9	38	.125	.013	125	.030	.010	140	.051	.019
10	38	.155	.016	176	.031	.015	130	.053	.019
11	38	.157	.016	187	.031	.016	120	.056	.018
12	37	.163	.016	185	.029	.014	120	.058	.019
13	37	.160	.016	160	.026	.011	120	.058	.019
14	37	.160	.016	139	.026	.010	110	.056	.017
15	36	.160	.016	176	.062	.034	110	.053	.016
16	40	.151	.016	1510	.338	1.51	110	.051	.015
17	55	.125	.019	3030	.480	3.87	110	.049	.014
18	67	.116	.021	2120	.493	2.82	100	.047	.013
19	105	.164	.050	1160	.387	1.25	100	.045	.012
20	441	.224	.27	660	.296	.53	100	.043	.012
21	559	.221	.33	468	.254	.32	98	.041	.011
22	475	.199	.26	374	.216	.22	96	.039	.010
23	395	.162	.17	321	.191	.17	94	.037	.009
24	322	.146	.13	290	.175	.14	94	.036	.009
25	247	.139	.093	256	.153	.11	92	.034	.009
26	190	.114	.058	234	.136	.086	90	.033	.008
27	149	.092	.037	218	.125	.073	90	.031	.008
28	121	.078	.026	221	.114	.068	90	.030	.007
29	105	.070	.020	229	.100	.062	88	.029	.007
30	89	.066	.016	228	.089	.055	86	.034	.008
31	84	.058	.013	---	---	---	400	.114	.12
TOTAL	4031	---	1.743	13169	---	11.476	4177	---	0.688
		JANUARY			FEBRUARY			MARCH	
1	8500	.293	6.73	335	.069	.063	1430	.126	.49
2	11000	.342	10.2	3080	.360	4.68	1450	.099	.39
3	9000	.340	8.27	8450	.722	16.6	1400	.093	.35
4	6600	.351	6.25	7510	.543	11.0	1230	.088	.29
5	4200	.515	5.84	7230	.507	9.91	991	.092	.24
6	2700	.409	2.98	5580	.421	6.38	798	.092	.20
7	1750	.315	1.49	3810	.348	3.60	658	.086	.15
8	1100	.243	.72	2580	.251	1.77	590	.076	.12
9	760	.181	.37	1860	.192	.97	633	.091	.16
10	1020	.153	.43	1550	.158	.66	800	.097	.21
11	1290	.157	.55	1420	.140	.54	988	.118	.32
12	992	.131	.35	1190	.124	.40	1060	.123	.35
13	786	.125	.27	922	.118	.29	987	.114	.30
14	527	.108	.15	769	.139	.29	821	.127	.28
15	455	.093	.11	1270	.157	.63	717	.135	.26
16	400	.085	.092	11100	.525	16.7	666	.126	.23
17	392	.084	.089	13900	.507	19.0	794	.119	.26
18	821	.124	.29	11500	.477	14.9	783	.107	.23
19	1270	.142	.49	9060	.357	8.88	685	.086	.16
20	1160	.125	.39	4280	.257	3.04	619	.078	.13
21	2040	.146	.82	2030	.194	1.08	537	.075	.11
22	3280	.237	2.10	2130	.312	2.01	487	.070	.093
23	2600	.265	1.87	3950	.567	6.06	454	.066	.081
24	1580	.207	.89	3450	.370	3.48	422	.062	.071
25	1100	.160	.48	2350	.257	1.64	395	.059	.062
26	837	.129	.29	1650	.189	.85	370	.055	.055
27	687	.110	.20	1250	.141	.48	348	.047	.044
28	542	.099	.15	1320	.160	.57	323	.044	.039
29	457	.087	.11	---	---	---	307	.046	.038
30	395	.079	.085	---	---	---	318	.043	.037
31	359	.076	.074	---	---	---	334	.049	.045
TOTAL	68600	---	53.130	115526	---	136.473	22395	---	5.795

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	413	.058	.064	483	.088	.12	576	.208	.32
2	996	.082	.24	443	.084	.10	501	.200	.27
3	2460	.217	1.47	426	.085	.097	1100	.996	3.09
4	2300	.318	1.99	499	.139	.20	826	.343	.78
5	1590	.244	1.06	2790	.535	4.51	791	.215	.46
6	1130	.173	.53	3010	.416	3.45	679	.184	.34
7	857	.122	.28	2080	.347	1.97	515	.171	.24
8	681	.091	.17	1360	.240	.89	648	.616	1.07
9	573	.066	.10	918	.186	.46	4680	1.12	16.4
10	582	.093	.16	687	.185	.34	7140	1.73	33.2
11	5820	.606	11.0	551	.153	.23	8340	1.26	28.3
12	7300	.713	14.1	466	.129	.16	6230	.930	15.9
13	5920	.552	8.90	626	.136	.24	2760	.405	3.43
14	3780	.404	4.19	3180	.438	4.03	1160	.221	.70
15	2080	.272	1.55	3580	.678	6.61	795	.251	.54
16	1520	.184	.76	3510	.640	6.35	593	.252	.40
17	1210	.139	.46	5310	.816	11.8	460	.221	.28
18	955	.102	.27	4340	.598	7.04	371	.202	.20
19	773	.072	.15	3100	.438	3.74	296	.184	.15
20	676	.056	.10	1800	.200	1.00	258	.179	.12
21	1070	.074	.23	1080	.208	.59	232	.160	.10
22	3590	.287	2.97	786	.241	.51	214	.151	.087
23	3920	.546	5.79	658	.208	.37	205	.157	.087
24	2170	.400	2.41	554	.179	.27	204	.154	.085
25	1290	.256	.90	462	.163	.20	271	.178	.14
26	940	.176	.45	636	.171	.30	312	.226	.19
27	758	.131	.27	2910	.448	3.69	231	.149	.094
28	646	.113	.20	2760	.612	4.62	206	.125	.070
29	571	.100	.15	1630	.437	1.95	261	.172	.12
30	519	.086	.12	982	.319	.85	266	.174	.13
31	---	---	---	711	.246	.47	---	---	---
TOTAL	57090	---	61.034	52328	---	67.157	41121	---	107.293
		JULY			AUGUST			SEPTEMBER	
1	236	.148	.095	900	.143	.35	170	.197	.090
2	211	.146	.083	600	.164	.27	165	.176	.078
3	191	.173	.089	430	.166	.19	176	.153	.072
4	158	.205	.087	330	.318	.28	152	.133	.055
5	155	.208	.087	700	.283	.53	134	.112	.040
6	155	.246	.10	1200	.410	1.33	123	.113	.037
7	155	.374	.16	2900	.593	4.64	126	.107	.037
8	152	.437	.18	3800	.575	5.90	129	.098	.034
9	149	.300	.12	1500	.447	1.81	2300	.546	5.34
10	149	.090	.036	824	.389	.71	3110	.686	5.99
11	234	.154	.15	492	.388	.47	918	.441	1.13
12	1470	.366	1.45	368	.360	.34	466	.305	.39
13	4350	.625	7.64	710	.480	1.05	319	.211	.18
14	7320	.615	12.0	2040	.876	4.86	289	.156	.12
15	9890	.427	11.4	2080	.843	4.73	414	.193	.22
16	8570	.354	8.20	1330	.725	2.63	552	.263	.40
17	5990	.336	5.45	711	.603	1.16	839	.287	.65
18	2280	.296	1.84	472	.564	.72	612	.181	.30
19	1120	.247	.75	389	.592	.62	466	.130	.16
20	733	.215	.43	824	.696	1.58	404	.123	.13
21	660	.202	.36	958	.571	1.49	349	.116	.11
22	1370	.278	1.08	943	.758	1.94	353	.112	.11
23	7280	.717	14.3	874	.558	1.34	414	.121	.14
24	9000	.493	12.0	1110	.596	1.79	545	.150	.22
25	4500	.393	4.78	744	.472	.95	541	.170	.25
26	2000	.301	1.62	477	.616	.79	383	.153	.16
27	800	.236	.51	366	.514	.51	298	.135	.11
28	400	.199	.22	298	.403	.32	245	.123	.082
29	320	.172	.15	249	.429	.29	217	.122	.072
30	290	.182	.14	222	.306	.18	271	.143	.11
31	540	.178	.26	193	.219	.11	---	---	---
TOTAL	70828	---	85.767	29034	---	43.88	15480	---	16.817
YEAR	493779		591.171						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	43	11	1.3	87	6	1.5	215	11	6.3
2	41	12	1.3	83	6	1.3	203	14	7.6
3	38	12	1.2	83	4	.99	196	13	6.7
4	38	12	1.2	82	3	.71	195	10	5.5
5	41	11	1.3	80	3	.71	190	9	4.2
6	42	11	1.3	84	4	.81	160	13	5.7
7	42	12	1.4	95	4	1.0	170	12	4.8
8	41	8	.86	108	4	1.3	160	8	3.5
9	38	7	.68	125	5	1.7	140	7	5.1
10	38	8	.79	176	5	2.6	130	8	3.0
11	38	8	.81	187	6	2.9	120	7	2.4
12	37	8	.77	185	4	1.8	120	7	2.4
13	37	7	.71	160	4	1.7	120	7	6.5
14	37	7	.69	139	7	2.6	110	7	7.0
15	36	6	.61	176	15	7.9	110	8	7.0
16	40	7	.73	1510	170	923	110	8	9.8
17	55	9	1.4	3030	368	3060	110	8	7.1
18	67	9	1.7	2120	234	1360	100	8	5.5
19	105	14	4.5	1160	137	445	100	8	2.2
20	441	65	79	660	98	176	100	8	2.2
21	559	41	62	468	69	89	98	8	2.2
22	475	28	37	374	49	50	96	9	2.2
23	395	25	26	321	39	34	94	9	2.2
24	322	27	24	290	34	26	94	9	2.3
25	247	25	17	256	29	20	92	9	2.3
26	190	17	8.7	234	25	16	90	9	2.3
27	149	12	4.9	218	22	13	90	9	2.3
28	121	9	3.1	221	20	12	90	10	2.3
29	105	9	2.5	229	17	11	88	10	2.3
30	89	8	2.0	228	14	8.4	86	13	3.0
31	84	7	1.6	---	---	---	400	64	69
TOTAL	4031	---	291.05	13169	---	6272.92	4177	---	196.9
		JANUARY			FEBRUARY			MARCH	
1	8500	258	5920	335	9	8.4	1430	28	107
2	11000	128	3810	3080	306	2540	1450	26	101
3	9000	84	2050	8450	712	16200	1400	25	95
4	6600	83	1480	7510	334	6780	1230	23	78
5	4200	182	2060	7230	256	4990	991	22	59
6	2700	170	1240	5580	168	2530	798	21	46
7	1750	124	587	3810	108	1110	658	21	37
8	1100	72	214	2580	96	668	590	20	32
9	760	46	95	1860	78	393	633	23	40
10	1020	42	116	1550	56	236	800	42	93
11	1290	41	144	1420	47	180	988	47	125
12	992	32	86	1190	41	132	1060	50	143
13	786	22	47	922	34	84	987	44	118
14	527	15	21	769	31	65	821	46	102
15	455	14	17	1270	42	190	717	55	107
16	400	11	12	11100	317	10100	666	51	92
17	392	11	12	13900	308	11500	794	47	100
18	821	39	85	11500	277	8650	783	38	81
19	1270	41	140	9060	198	4920	685	31	58
20	1160	44	139	4280	139	1650	619	26	44
21	2040	55	304	2030	82	461	537	22	32
22	3280	99	876	2130	139	955	487	23	30
23	2600	117	823	3950	276	2930	454	25	31
24	1580	88	374	3450	168	1580	422	26	29
25	1100	59	174	2350	98	636	395	25	26
26	837	36	80	1650	51	232	370	23	23
27	687	26	48	1250	42	144	348	21	19
28	542	21	31	1320	35	123	323	21	18
29	457	15	19	---	---	---	307	22	18
30	395	12	13	---	---	---	318	23	19
31	359	10	10	---	---	---	334	24	22
TOTAL	68600	---	21027	115526	---	79987.4	22395	---	1925

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	413	35	40	483	26	34	576	72	112
2	996	91	295	443	26	31	501	57	77
3	2460	284	1910	426	26	29	1100	444	1380
4	2300	208	1310	499	39	60	826	179	408
5	1590	126	551	2790	279	2260	791	129	275
6	1130	67	206	3010	177	1490	679	124	227
7	857	39	90	2080	111	628	515	135	188
8	681	25	46	1360	81	300	648	181	356
9	573	21	33	918	65	163	4680	1120	16600
10	582	26	44	687	59	109	7140	1530	29100
11	5820	474	9110	551	54	80	8340	856	19300
12	7300	494	9800	466	50	63	6230	508	8740
13	5920	287	4650	626	55	107	2760	315	2450
14	3780	180	1880	3180	504	4520	1160	208	658
15	2080	109	621	3580	382	3740	795	142	307
16	1520	71	296	3510	323	3390	593	98	159
17	1210	47	154	5310	613	8910	460	74	93
18	955	29	76	4340	386	4550	371	70	70
19	773	23	47	3100	266	2260	296	87	69
20	676	34	62	1800	184	910	258	98	68
21	1070	131	502	1080	129	379	232	101	63
22	3590	425	4030	786	96	204	214	103	60
23	3920	278	2970	658	77	137	205	105	58
24	2170	185	1110	554	78	117	204	103	57
25	1290	112	397	462	77	97	271	122	92
26	940	64	164	636	97	197	312	112	96
27	758	49	100	2910	498	3960	231	70	44
28	646	39	69	2760	343	2600	206	58	32
29	571	32	49	1630	215	963	261	54	38
30	519	28	39	982	133	358	266	52	37
31	---	---	---	711	93	180	---	---	---
TOTAL	57090	---	40651	52328	---	42826	41121	---	81214
	JULY			AUGUST			SEPTEMBER		
1	236	50	32	900	47	114	170	42	19
2	211	47	27	600	43	70	165	37	17
3	191	44	22	430	40	46	176	40	19
4	158	35	15	330	38	34	152	38	16
5	155	27	11	700	64	120	134	34	12
6	155	21	8.7	1200	126	407	123	31	10
7	155	17	6.9	2900	215	1680	126	29	9.7
8	152	15	6.0	3800	200	2050	129	26	9.2
9	149	18	7.3	1500	133	540	2300	369	3690
10	149	24	9.6	824	86	162	3110	252	2270
11	234	29	23	492	73	87	918	114	296
12	1470	219	952	368	62	59	466	80	102
13	4350	762	9250	710	95	248	319	60	52
14	7320	488	9360	2040	221	1210	289	53	42
15	9890	265	7070	2080	160	901	414	63	71
16	8570	192	4470	1330	114	418	552	70	105
17	5990	165	2690	711	88	170	839	66	149
18	2280	136	856	472	75	96	612	60	99
19	1120	89	276	389	70	74	466	54	68
20	733	67	134	824	143	332	404	48	52
21	660	80	155	958	173	448	349	47	44
22	1370	141	553	943	139	355	353	48	46
23	7280	486	9800	874	115	269	414	48	54
24	9000	288	7010	1110	101	303	545	55	81
25	4500	195	2370	744	92	186	541	52	77
26	2000	126	682	477	88	113	383	39	41
27	800	81	174	366	80	79	298	31	25
28	400	65	70	298	72	58	245	27	18
29	320	60	51	249	66	45	217	24	14
30	290	55	43	222	56	34	271	34	25
31	540	51	74	193	49	26	---	---	---
TOTAL	70828	---	56208.5	29034	---	10734	15480	---	7532.9
YEAR	493779		348957.69						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH

LOCATION.--Lat 41°18'04", long 82°36'36, in SW 1/4 sec. 4, T.5 N., R.22 W., Erie County, Hydrologic Unit 04100012, on right bank on upstream side of bridge on U.S. Highway 250, 0.2 mi northwest of Milan and 2.0 mi downstream from confluence of East and West Branches.

DRAINAGE AREA.--371 mi².

PERIOD OF RECORD.--March 1950 to September 1980, October 1987 to current year.

REVISED RECORDS.--WSP 1912: Drainage area. WRD OH-89-2: 1988.

GAGE.--Water-stage recorder. Datum of gage is 573.26 ft above National Geodetic Vertical Datum of 1929. July 29, 1953 to Oct. 5, 1979, water-stage recorder at site of former highway bridge 500 ft downstream at same datum. July 29, 1953, nonrecording gage at site of former highway 450 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 5-Jan. 15. Records fair except for Apr. 17-May 7 and July 5-Sept. 18, and estimated daily discharges which are poor. Water-quality data collected at this site 1969 to 1974, 1978 to 1980, 1988 to current year. Sediment data collected 1970 to 1974, 1988 to current year.

AVERAGE DISCHARGE.--34 years, (1951-81, 1988-90) 298 ft³/s, 10.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,900 ft³/s July 5, 1969, gage height, 31.1 ft (from floodmark), from rating curve extended above 11,000 ft³/s on basis of contracted-opening measurement of peak flow; minimum 2.2 ft³/S Sept. 10, 15, 19, 20, 21, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 2	1900	5,350	14.88	Apr. 11	0630	6,300	15.82
Feb. 16	1700	*7,990	*17.33	Sept. 9	1400	6,600	16.10

Minimum daily discharge, 12 ft³/s Oct. 2, 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	21	71	1200	108	466	216	93	93	38	166	69
2	12	20	66	1850	3170	417	685	87	85	35	82	68
3	13	18	57	1450	2590	449	605	74	96	35	63	65
4	14	17	56	1400	1760	316	652	134	92	31	75	65
5	14	21	62	1550	1360	249	530	1740	79	30	453	59
6	15	20	56	470	939	204	360	884	69	27	800	63
7	14	20	52	260	683	184	290	442	68	25	995	86
8	12	24	48	180	501	166	240	281	185	25	362	82
9	14	41	45	140	394	241	207	210	814	23	176	3870
10	18	38	42	250	452	362	745	187	395	25	109	1380
11	20	36	40	320	378	402	5060	143	207	68	87	401
12	16	25	39	200	267	380	1570	120	125	533	76	208
13	14	22	38	130	224	312	770	607	95	794	400	131
14	13	20	37	106	206	247	553	821	79	1940	1060	237
15	13	70	36	101	1750	212	511	406	66	2170	349	822
16	15	1270	36	95	7570	200	399	2390	57	546	170	368
17	25	704	35	156	3420	231	292	2060	47	236	104	276
18	23	287	34	512	1050	201	233	809	40	127	92	200
19	106	153	34	396	689	163	197	441	42	83	112	147
20	211	110	33	272	460	160	200	327	41	62	1750	134
21	116	91	32	864	331	229	959	395	40	56	495	112
22	62	80	32	599	563	222	958	235	47	322	277	114
23	44	72	31	328	1240	174	499	162	47	1720	177	126
24	35	67	31	266	1060	132	355	131	57	546	138	103
25	26	67	30	239	471	106	249	108	55	235	120	82
26	22	66	30	219	709	101	183	193	47	133	102	76
27	19	63	29	171	376	90	141	269	39	87	94	67
28	32	75	29	152	442	90	128	177	47	72	86	63
29	34	83	28	140	---	104	112	145	50	59	79	65
30	31	74	28	130	---	106	103	128	39	62	76	110
31	21	---	150	106	---	116	---	106	---	205	74	---
TOTAL	1037	3675	1367	14252	33163	7032	18002	14305	3243	10350	9199	9649
MEAN	33.5	122	44.1	460	1184	227	600	461	108	334	297	322
MAX	211	1270	150	1850	7570	466	5060	2390	814	2170	1750	3870
MIN	12	17	28	95	108	90	103	74	39	23	63	59
CFSM	.09	.33	.12	1.24	3.19	.61	1.62	1.24	.29	.90	.80	.87
IN.	.10	.37	.14	1.43	3.33	.71	1.81	1.43	.33	1.04	.92	.97

CAL YR 1989 TOTAL 100338 MEAN 275 MAX 6850 MIN 12 CFSM .74 IN. 10.06
WTR YR 1990 TOTAL 125274 MEAN 343 MAX 7570 MIN 12 CFSM .93 IN. 12.56

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1978 to September 1980, February 1988 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to September 1980.
pH: October 1978 to September 1980.
WATER TEMPERATURES: October 1978 to September 1980.
DISSOLVED OXYGEN: October 1978 to September 1980.
CHLORIDE: February 1988 to current year.
NITROGEN, NITRITE + NITRATE: February 1988 to current year.
NITROGEN, AMMONIA + ORGANIC: February 1988 to current year.
PHOSPHORUS: February 1988 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1987 to current year.

INSTRUMENTATION.--Water-quality monitor from October 1978 to September 1980. Refrigerated water-quality pumping sampler controlled by data logger since February 1988.

REMARKS.--Water-quality samples were collected by pumping sampler once-daily and more often during storm events. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Alachlor concentrations for 1989-1990 will be published in the 1991 WDR.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,410 microsiemens, Jan. 14, 1979; minimum, 186 microsiemens, Mar. 3, 1979.
pH: Maximum, 9.1 units June 21, 1980; minimum, 6.9 units Apr. 14, 1979.
WATER TEMPERATURES: Maximum, 31.5°C July 16, 31, 1979, July 20, 1980; minimum, 0.0°C on many days during winter periods.
DISSOLVED OXYGEN: Maximum, 15.3 mg/L Oct. 18, 1979; minimum, 3.5 mg/L Sept. 23, 1980.
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 79.0 mg/L Dec. 12, 1989; minimum daily mean, <10 mg/L June 4, July 28, 1989 and Aug. 20, 1990.
DISSOLVED CHLORIDE LOADS: Maximum daily, 531 tons Feb. 16, 1990; minimum daily, .65 ton July 10, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 21.1 mg/L July 14, 1990; minimum daily mean, .40 mg/L July 24, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 160 tons Feb. 16, 1990; minimum daily, .03 ton Oct. 14, 15, 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 10 mg/L Aug. 5, 1990; minimum daily mean, <.20 mg/L on several days during 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 97 tons Feb. 16, 1990; minimum daily, .009 ton Sept. 9, 1989.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean 2.33 mg/L July 23, 1988; minimum daily mean .011 mg/L April 21, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily 27.4 tons May 26, 1989; minimum daily, .001 ton Nov. 14, 1989.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,280 mg/L June 4, 1989; minimum daily mean, 1 mg/L on several days during 1988 AND 1989.
SEDIMENT LOADS: Maximum daily, 26,800 tons May 26, 1989; minimum daily, .06 ton Dec. 13, 14 1989.

EXTREMES FOR 1989 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 74 mg/L Dec. 15; minimum daily mean, <10 mg/L June 4, July 28.
DISSOLVED CHLORIDE LOADS: Maximum daily, 272 tons Jan. 8; minimum daily, 1.16 tons Oct. 3.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 11.8 mg/L Dec. 30; minimum daily mean, .600 mg/L July 19.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 93 tons April 4; minimum daily, .04 ton on several days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.1 mg/L May 26; minimum daily mean, <.20 mg/L on several days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 96.9 tons May 26; minimum daily, .009 ton Sept. 9.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.42 mg/L May 26; minimum daily mean, .023 mg/L Dec. 5.
TOTAL PHOSPHORUS LOADS: Maximum daily, 27.4 tons May 26; minimum daily, .002 ton Dec. 8.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,280 mg/L June 4; minimum daily mean, 1 mg/L Nov. 18, 19, Dec. 13-15.
SEDIMENT LOADS: Maximum daily, 26,800 tons May 26; minimum daily, .06 ton Dec. 13, 14.

EXTREMES FOR CURRENT YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 79 mg/L Dec. 12; minimum daily mean, <10 Aug. 20.
DISSOLVED CHLORIDE LOADS: Maximum daily, 531 tons Feb. 16; minimum daily, 1.49 tons Oct. 14.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 21.1 mg/L July 14; minimum daily mean, .572 mg/L Sept. 3.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 160 tons Feb. 16; minimum daily, .03 ton Oct. 14, 15.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 10 mg/L Aug. 5; minimum daily mean, .40 mg/L Nov. 5.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 97 tons Feb. 16; minimum daily, .021 ton Oct. 2, 14.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 2.07 mg/L Aug. 7; minimum daily mean, .015 mg/L March 28.
TOTAL PHOSPHORUS LOADS: Maximum daily, 25.9 tons Feb. 16; minimum daily, .001 ton Nov. 14.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 739 mg/L July 14; minimum daily mean, 2 mg/L on several days in October.
SEDIMENT LOADS: Maximum daily, 12,800 tons Feb. 16; minimum daily, .07 ton Oct. 1-5.

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	9.3	51	1.27	18	40	1.90	60	42	6.86
2	9.6	54	1.40	19	43	2.22	52	42	6.02
3	8.8	48	1.16	18	60	2.96	48	43	5.62
4	15	45	1.69	20	48	2.64	45	43	5.22
5	19	40	2.03	38	41	4.11	44	43	5.09
6	19	40	2.01	85	41	9.39	39	43	4.55
7	17	48	2.20	94	44	11.0	36	42	4.11
8	11	63	1.89	79	46	9.75	35	44	4.14
9	9.3	62	1.55	79	46	9.81	31	47	3.91
10	9.0	60	1.45	316	41	30.8	28	47	3.53
11	8.5	67	1.54	628	34	57.7	26	49	3.45
12	8.0	71	1.53	243	40	25.8	25	51	3.44
13	8.8	71	1.67	207	42	23.2	24	53	3.40
14	11	69	2.01	276	43	31.7	23	60	3.75
15	10	65	1.77	154	44	18.3	26	74	5.18
16	11	56	1.65	90	47	11.4	38	65	6.62
17	11	63	1.85	63	47	8.00	35	57	5.43
18	32	52	4.43	50	51	6.78	32	55	4.76
19	22	39	2.31	40	51	5.59	28	54	4.05
20	22	42	2.54	239	43	25.3	39	53	5.61
21	21	48	2.68	1330	32	114	44	52	6.17
22	20	46	2.50	480	38	48.5	41	56	6.24
23	20	38	2.08	244	42	27.7	76	52	10.6
24	21	36	2.02	177	44	20.8	144	48	18.5
25	20	42	2.24	133	45	16.2	131	46	16.4
26	19	45	2.29	107	44	12.8	100	48	12.9
27	20	47	2.51	96	44	11.5	97	49	12.8
28	23	46	2.80	85	46	10.5	1050	45	113
29	22	44	2.66	75	44	8.91	450	39	47.5
30	23	43	2.66	65	42	7.40	320	46	40.2
31	17	40	1.78	---	---	---	250	48	32.5
TOTAL	497.3	---	64.17	5548	---	576.66	3417	---	411.55
		JANUARY			FEBRUARY			MARCH	
1	210	49	27.8	215	45	25.8	100	49	13.2
2	190	49	25.3	173	46	21.4	94	49	12.5
3	180	50	24.5	150	47	19.2	88	47	11.2
4	170	49	22.6	123	68	22.7	84	46	10.4
5	350	50	47.1	110	72	21.3	100	46	12.4
6	700	71	135	98	68	17.9	150	44	17.8
7	1200	52	170	88	68	16.0	300	44	35.8
8	3070	33	272	80	62	13.4	568	45	68.6
9	866	42	103	74	59	11.8	339	42	38.8
10	300	37	29.7	68	61	11.1	129	41	14.3
11	238	39	24.8	64	64	11.0	122	41	13.5
12	194	41	21.6	60	63	10.2	116	42	13.0
13	207	42	23.6	58	61	9.51	115	40	12.5
14	184	43	21.4	66	68	12.1	110	41	12.3
15	188	44	22.4	90	49	11.9	139	42	15.8
16	165	44	19.5	450	45	54.4	146	42	16.6
17	145	45	17.4	620	43	72.6	124	43	14.2
18	143	46	17.8	1000	44	120	217	45	26.8
19	141	46	17.5	500	45	60.7	276	45	33.5
20	163	46	20.2	350	47	44.3	211	43	24.6
21	135	48	17.3	320	55	47.9	251	51	34.4
22	134	47	17.1	800	42	91.6	319	46	39.8
23	128	46	15.9	350	40	37.4	237	44	28.4
24	105	45	12.6	260	45	31.4	194	45	23.5
25	84	46	10.4	210	46	26.1	169	45	20.7
26	482	48	57.5	180	46	22.4	146	46	18.1
27	845	35	79.6	150	47	19.0	133	46	16.7
28	407	40	43.9	120	47	15.3	143	46	17.7
29	301	43	34.7	---	---	---	255	43	29.1
30	288	44	34.2	---	---	---	778	39	75.9
31	255	43	29.9	---	---	---	1370	31	115
TOTAL	12168	---	1416.3	6827	---	878.41	7523	---	837.1

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	1100	31	91.3	137	42	15.4	397	32	33.8
2	627	33	56.2	134	42	15.3	462	29	35.6
3	1640	31	125	133	40	14.6	713	26	44.1
4	3830	21	210	134	40	14.4	5560	<10	132
5	2360	21	130	152	42	17.3	1260	18	57.7
6	907	28	68.1	215	41	24.0	601	22	35.8
7	610	32	52.2	297	41	33.0	380	26	26.6
8	478	33	42.8	301	40	32.2	237	30	19.2
9	452	35	42.2	247	40	26.7	210	31	17.7
10	411	35	38.3	276	40	29.7	222	32	18.9
11	350	37	34.7	437	38	44.3	158	31	13.3
12	314	40	33.6	474	36	46.7	143	34	13.1
13	320	41	35.4	692	34	63.8	418	28	28.7
14	318	39	33.8	761	32	66.1	689	22	41.0
15	306	40	33.3	473	35	44.0	1420	19	72.6
16	310	40	33.6	336	37	33.7	1760	15	71.4
17	283	39	30.1	268	39	28.5	659	20	34.5
18	430	41	48.0	225	41	25.0	372	23	22.8
19	398	40	43.0	196	41	22.0	254	28	18.9
20	334	39	35.4	200	41	22.1	171	30	13.7
21	281	40	30.3	228	40	24.3	138	31	11.6
22	244	40	26.6	232	38	23.6	116	33	10.3
23	216	41	24.2	639	34	50.6	105	33	9.36
24	193	40	21.1	2900	21	167	92	34	8.53
25	204	40	22.3	1090	24	70.5	79	34	7.19
26	230	41	25.5	6850	15	226	71	36	6.86
27	220	40	23.6	4880	14	166	256	33	18.3
28	179	42	20.2	970	21	55.3	1080	17	49.8
29	160	44	18.8	555	26	38.1	397	21	22.4
30	148	43	17.4	364	29	28.3	171	26	11.8
31	---	---	---	519	31	42.8	---	---	---
TOTAL	17853	---	1447.0	25315	---	1511.3	18591	---	907.54
		JULY			AUGUST			SEPTEMBER	
1	113	28	8.60	72	29	5.69	45	41	4.89
2	88	31	7.22	57	32	4.98	40	34	3.59
3	73	33	6.58	47	35	4.43	37	39	3.91
4	65	33	5.84	52	36	5.09	35	39	3.71
5	59	34	5.49	63	32	5.43	34	40	3.64
6	53	36	5.16	83	29	6.49	33	42	3.70
7	46	37	4.60	61	33	5.52	40	44	4.75
8	44	39	4.55	52	39	5.40	48	23	2.98
9	44	37	4.38	45	39	4.77	33	34	3.04
10	41	37	4.20	43	38	4.39	36	41	3.97
11	40	38	4.02	42	40	4.47	34	47	4.35
12	37	39	3.95	41	43	4.75	37	43	4.28
13	34	39	3.61	39	43	4.52	35	41	3.95
14	34	38	3.47	39	42	4.40	67	39	6.87
15	32	39	3.34	40	42	4.45	83	32	7.02
16	30	40	3.29	38	43	4.38	60	36	5.87
17	29	42	3.25	36	44	4.19	45	36	4.32
18	29	40	3.14	33	43	3.90	38	37	3.73
19	32	28	2.44	32	41	3.49	35	40	3.79
20	76	21	3.99	36	40	3.87	32	44	3.75
21	196	18	9.52	39	36	3.85	31	45	3.80
22	106	19	5.31	38	39	4.07	28	44	3.36
23	55	20	2.99	39	44	4.61	27	48	3.47
24	40	24	2.53	41	45	4.98	26	43	3.00
25	34	23	2.08	36	43	4.15	21	47	2.67
26	34	24	2.22	33	43	3.83	20	47	2.54
27	592	16	12.2	32	45	3.79	19	49	2.50
28	1020	<10	22.1	31	46	3.84	17	53	2.49
29	293	15	12.0	31	45	3.73	16	52	2.24
30	126	16	5.46	31	41	3.41	15	49	1.95
31	87	19	4.36	31	41	3.50	---	---	---
TOTAL	3582	---	171.89	1333	---	138.37	1067	---	114.13
YEAR	103721.3		8473.11						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	9.3	1.98	.05	18	2.59	.12	60	5.02	.81
2	9.6	2.44	.06	19	1.61	.08	52	4.64	.66
3	8.8	3.03	.07	18	1.99	.10	48	4.37	.57
4	15	1.62	.05	20	1.11	.06	45	4.03	.49
5	19	.859	.04	38	1.13	.13	44	3.87	.46
6	19	.801	.04	85	1.11	.31	39	3.46	.37
7	17	.937	.04	94	2.36	.58	36	3.07	.30
8	11	1.75	.05	79	4.22	.90	35	3.11	.30
9	9.3	1.87	.05	79	6.22	1.3	31	3.17	.26
10	9.0	1.92	.05	316	7.39	6.1	28	3.09	.23
11	8.5	3.04	.07	628	7.64	13	26	3.05	.21
12	8.0	3.22	.07	243	9.16	6.0	25	3.02	.20
13	8.8	2.79	.07	207	9.78	5.5	24	2.95	.19
14	11	1.80	.05	276	10.2	7.6	23	2.41	.15
15	10	1.28	.04	154	9.27	3.8	26	1.97	.14
16	11	1.53	.05	90	9.46	2.3	38	2.13	.22
17	11	2.41	.07	63	9.06	1.5	35	2.35	.22
18	32	2.15	.19	50	8.83	1.2	32	2.37	.21
19	22	.664	.04	40	8.26	.90	28	2.67	.20
20	22	.740	.04	239	6.88	4.6	39	2.31	.24
21	21	.657	.04	1330	8.29	30	44	1.89	.22
22	20	.700	.04	480	9.99	13	41	1.80	.20
23	20	.708	.04	244	10.7	7.0	76	1.66	.34
24	21	.862	.05	177	9.87	4.7	144	2.57	1.1
25	20	.972	.05	133	9.25	3.3	131	3.30	1.2
26	19	.911	.05	107	8.61	2.5	100	4.08	1.1
27	20	.977	.05	96	7.94	2.1	97	4.16	1.1
28	23	1.09	.07	85	7.18	1.7	1050	6.32	22
29	22	.841	.05	75	6.33	1.3	450	9.46	11
30	23	.724	.05	65	5.47	.96	320	11.8	10
31	17	1.26	.06	---	---	---	250	11.6	7.9
TOTAL	497.3	---	1.74	5548	---	122.64	3417	---	62.59
		JANUARY			FEBRUARY			MARCH	
1	210	10.8	6.1	215	7.50	4.3	100	5.51	1.5
2	190	9.93	5.1	173	7.66	3.6	94	5.01	1.3
3	180	8.78	4.3	150	6.64	2.7	88	4.71	1.1
4	170	7.83	3.6	123	6.17	2.1	84	4.49	1.0
5	350	7.09	6.7	110	5.99	1.8	100	4.10	1.1
6	700	5.77	11	98	5.90	1.6	150	5.05	2.0
7	1200	6.47	21	88	5.97	1.4	300	6.40	5.2
8	3070	8.55	70	80	5.96	1.3	568	7.14	11
9	866	10.4	23	74	5.30	1.1	339	6.47	6.1
10	300	11.1	9.0	68	4.87	.89	129	5.39	1.9
11	238	10.2	6.5	64	4.63	.80	122	4.80	1.6
12	194	9.32	4.9	60	4.45	.72	116	4.21	1.3
13	207	8.14	4.6	58	4.30	.67	115	3.49	1.1
14	184	7.54	3.8	66	4.11	.73	110	3.08	.92
15	188	6.91	3.5	90	5.26	1.3	139	3.23	1.2
16	165	6.51	2.9	450	6.09	7.4	146	3.30	1.3
17	145	6.41	2.5	620	7.22	12	124	3.57	1.2
18	143	6.32	2.4	1000	7.46	20	217	5.41	3.3
19	141	5.95	2.3	500	6.92	9.3	276	6.68	5.0
20	163	5.68	2.5	350	6.14	5.8	211	5.59	3.2
21	135	5.64	2.1	320	5.37	4.6	251	5.47	3.7
22	134	5.79	2.1	800	6.37	14	319	6.40	5.5
23	128	5.74	2.0	350	7.76	7.3	237	6.61	4.2
24	105	5.41	1.5	260	8.05	5.7	194	6.38	3.3
25	84	5.15	1.2	210	7.55	4.3	169	6.05	2.8
26	482	7.50	12	180	6.95	3.4	146	5.40	2.1
27	845	9.22	21	150	6.27	2.5	133	4.72	1.7
28	407	9.35	10	120	5.89	1.9	143	4.11	1.6
29	301	9.49	7.7	---	---	---	255	3.68	2.5
30	288	9.31	7.2	---	---	---	778	4.76	12
31	255	8.16	5.6	---	---	---	1370	7.86	29
TOTAL	12168	---	268.1	6827	---	123.21	7523	---	120.72

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	1100	9.28	27	137	3.25	1.2	397	8.44	9.1
2	627	9.45	16	134	3.01	1.1	462	7.03	8.8
3	1640	9.08	40	133	2.82	1.0	713	6.54	12
4	3830	9.03	93	134	2.63	.95	5560	4.28	63
5	2360	8.70	55	152	2.80	1.1	1260	5.91	20
6	907	9.22	23	215	2.78	1.6	601	6.07	9.9
7	610	8.87	15	297	4.02	3.3	380	5.74	5.9
8	478	8.23	11	301	4.72	3.9	237	5.46	3.5
9	452	7.85	9.6	247	4.34	2.9	210	5.32	3.0
10	411	7.27	8.1	276	3.94	2.9	222	6.09	3.6
11	350	7.14	6.8	437	5.10	6.1	158	5.60	2.4
12	314	6.80	5.8	474	5.32	6.8	143	5.48	2.1
13	320	6.66	5.8	692	6.21	12	418	5.03	5.3
14	318	6.32	5.4	761	6.64	14	689	6.25	12
15	306	5.54	4.6	473	6.86	8.7	1420	5.89	22
16	310	5.01	4.2	336	6.80	6.2	1760	4.79	23
17	283	4.79	3.7	268	6.19	4.5	659	5.03	8.9
18	430	6.64	7.7	225	5.45	3.3	372	5.04	5.0
19	398	7.21	7.7	196	4.82	2.6	254	5.07	3.5
20	334	6.42	5.8	200	4.34	2.3	171	4.91	2.3
21	281	5.84	4.4	228	3.61	2.2	138	4.70	1.8
22	244	5.50	3.6	232	2.89	1.8	116	4.25	1.3
23	216	4.90	2.9	639	3.12	6.7	105	3.60	1.0
24	193	4.71	2.5	2900	7.52	58	92	3.06	.76
25	204	4.48	2.5	1090	9.15	27	79	2.90	.62
26	230	4.06	2.5	6850	5.38	86	71	2.76	.53
27	220	3.55	2.1	4880	5.63	67	256	2.49	1.7
28	179	3.73	1.8	970	7.14	19	1080	3.89	11
29	160	3.85	1.7	555	7.23	11	397	6.21	6.7
30	148	3.67	1.5	364	6.87	6.8	171	5.76	2.7
31	---	---	---	519	7.04	9.8	---	---	---
TOTAL	17853	---	380.7	25315	---	381.75	18591	---	253.41
		JULY			AUGUST			SEPTEMBER	
1	113	5.13	1.6	72	3.98	.77	45	1.97	.25
2	88	4.76	1.1	57	3.57	.55	40	.876	.09
3	73	4.33	.86	47	3.42	.43	37	.862	.09
4	65	3.76	.66	52	3.47	.47	35	.884	.08
5	59	3.34	.53	63	1.75	.30	34	1.11	.10
6	53	2.75	.40	83	1.30	.29	33	1.17	.10
7	46	2.30	.29	61	1.37	.23	40	1.34	.15
8	44	1.79	.21	52	1.46	.20	48	1.52	.20
9	44	1.32	.16	45	1.37	.17	33	1.16	.10
10	41	1.52	.17	43	1.61	.18	36	.978	.10
11	40	1.40	.15	42	1.50	.17	34	1.37	.13
12	37	1.23	.12	41	1.28	.14	37	.973	.10
13	34	1.29	.12	39	.917	.10	35	.773	.07
14	34	1.10	.10	39	1.06	.11	67	.785	.16
15	32	.795	.07	40	1.24	.13	83	.953	.22
16	30	1.06	.09	38	1.19	.12	60	1.13	.18
17	29	1.27	.10	36	1.38	.13	45	1.44	.17
18	29	1.28	.10	33	1.45	.13	38	1.45	.15
19	32	.600	.05	32	1.01	.09	35	1.30	.12
20	76	.987	.34	36	1.02	.10	32	1.15	.10
21	196	2.65	1.4	39	.940	.10	31	1.29	.11
22	106	2.48	.72	38	.947	.10	28	1.05	.08
23	55	2.34	.35	39	1.22	.13	27	1.26	.09
24	40	2.40	.26	41	1.27	.14	26	.685	.05
25	34	1.86	.17	36	1.08	.10	21	1.77	.10
26	34	1.80	.17	33	1.32	.12	20	1.57	.08
27	592	1.79	3.3	32	1.70	.14	19	1.28	.07
28	1020	3.02	7.9	31	2.29	.19	17	1.65	.08
29	293	3.75	2.9	31	1.96	.16	16	1.56	.07
30	126	3.33	1.1	31	1.47	.12	15	1.70	.07
31	87	3.14	.73	31	1.40	.12	---	---	---
TOTAL	3582	---	26.22	1333	---	6.23	1067	---	3.46
YEAR	103721.3		1747.68						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	9.3	.79	.020	18	.39	.019	60	.86	.14
2	9.6	.89	.023	19	.43	.022	52	.60	.085
3	8.8	.90	.022	18	.29	.014	48	.66	.085
4	15	.85	.033	20	.51	.028	45	.56	.069
5	19	.67	.034	38	.93	.11	44	.57	.068
6	19	.64	.032	85	1.2	.30	39	.53	.057
7	17	.88	.040	94	1.0	.26	36	.64	.062
8	11	1.2	.037	79	.93	.20	35	.52	.049
9	9.3	1.2	.031	79	1.1	.24	31	.50	.042
10	9.0	1.2	.030	316	2.2	2.67	28	.51	.038
11	8.5	1.5	.034	628	3.0	5.32	26	.54	.038
12	8.0	1.3	.028	243	2.0	1.32	25	.58	.039
13	8.8	1.2	.029	207	1.7	.98	24	.76	.049
14	11	1.1	.033	276	1.5	1.11	23	.72	.044
15	10	1.1	.031	154	1.3	.55	26	.53	.038
16	11	1.2	.035	90	1.1	.27	38	.58	.060
17	11	1.1	.032	63	1.0	.17	35	.76	.072
18	32	2.1	.19	50	.79	.11	32	.82	.071
19	22	.77	.046	40	.77	.083	28	.94	.071
20	22	.65	.039	239	1.2	1.17	39	.74	.078
21	21	.96	.054	1330	3.5	13.0	44	.51	.061
22	20	.88	.048	480	2.3	3.05	41	.50	.055
23	20	.83	.046	244	1.3	.87	76	.45	.092
24	21	.73	.042	177	1.0	.48	144	.60	.25
25	20	.60	.032	133	.98	.35	131	.56	.20
26	19	.53	.027	107	1.0	.30	100	.60	.16
27	20	.59	.032	96	1.2	.31	97	.68	.18
28	23	.60	.037	85	.74	.17	1050	1.5	5.15
29	22	.60	.036	75	.70	.14	450	1.7	2.09
30	23	1.1	.067	65	.83	.15	320	1.5	1.28
31	17	1.4	.060	---	---	---	250	1.3	.87
TOTAL	497.3	---	1.280	5548	---	33.766	3417	---	11.643
		JANUARY			FEBRUARY			MARCH	
1	210	1.2	.66	215	.87	.50	100	.81	.22
2	190	1.0	.52	173	.81	.38	94	.87	.22
3	180	1.0	.48	150	.74	.30	88	.73	.17
4	170	.99	.45	123	.88	.29	84	.60	.14
5	350	.77	.73	110	.90	.27	100	.70	.19
6	700	.72	1.36	98	.78	.21	150	1.2	.49
7	1200	1.3	4.34	88	.76	.18	300	1.4	1.16
8	3070	2.7	23.6	80	.74	.16	568	1.4	2.21
9	866	1.4	3.06	74	.85	.17	339	1.1	1.05
10	300	1.5	1.19	68	1.2	.23	129	.97	.34
11	238	1.2	.78	64	1.2	.21	122	.75	.25
12	194	1.0	.53	60	.88	.14	116	.75	.24
13	207	.87	.49	58	.80	.13	115	.75	.23
14	184	.90	.45	66	.81	.15	110	1.2	.35
15	188	.79	.40	90	1.0	.25	139	.88	.33
16	165	.78	.35	450	1.3	1.61	146	.75	.29
17	145	.80	.31	620	1.2	2.02	124	.74	.25
18	143	.70	.27	1000	1.1	2.88	217	1.0	.64
19	141	.70	.27	500	.80	1.09	276	1.4	1.07
20	163	.70	.31	350	.77	.73	211	1.0	.58
21	135	.74	.27	320	.61	.53	251	.79	.53
22	134	.80	.29	800	1.3	2.91	319	1.0	.90
23	128	.75	.26	350	1.2	1.11	237	.95	.61
24	105	.76	.22	260	.50	.35	194	.90	.47
25	84	1.2	.27	210	.23	.13	169	.87	.40
26	482	1.8	2.92	180	<.20	.062	146	.80	.32
27	845	2.0	4.74	150	.30	.12	133	.84	.30
28	407	1.4	1.50	120	.66	.21	143	.91	.35
29	301	1.2	.96	---	---	---	255	1.9	1.35
30	288	.94	.73	---	---	---	778	2.8	7.48
31	255	.83	.57	---	---	---	1370	3.1	11.7
TOTAL	12168	---	53.28	6827	---	17.322	7523	---	34.83

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	1100	2.2	6.64	137	1.1	.41	397	1.5	1.59
2	627	1.6	2.72	134	.70	.25	462	1.5	1.83
3	1640	1.8	8.07	133	.44	.16	713	2.7	8.12
4	3830	4.3	48.6	134	.47	.17	5560	5.0	78.3
5	2360	3.6	24.7	152	.71	.31	1260	2.0	7.19
6	907	2.2	5.45	215	.73	.42	601	1.5	2.50
7	610	1.5	2.47	297	.88	.72	380	1.3	1.35
8	478	1.2	1.60	301	.91	.75	237	1.1	.72
9	452	.92	1.13	247	.77	.51	210	1.0	.61
10	411	.90	.998	276	.90	.68	222	1.3	.77
11	350	.78	.74	437	1.2	1.44	158	.85	.37
12	314	.68	.58	474	1.0	1.36	143	.61	.24
13	320	.80	.69	692	1.3	2.52	418	1.1	1.45
14	318	.74	.63	761	1.7	3.61	689	2.1	3.93
15	306	.70	.58	473	1.2	1.58	1420	2.6	10.7
16	310	.70	.58	336	1.1	.96	1760	3.7	18.3
17	283	.75	.58	268	.97	.70	659	2.1	3.97
18	430	1.1	1.33	225	1.0	.61	372	1.4	1.45
19	398	.91	.98	196	1.0	.53	254	1.1	.77
20	334	.81	.73	200	1.0	.54	171	.92	.43
21	281	.77	.58	228	1.0	.62	138	.94	.35
22	244	.70	.46	232	1.1	.67	116	1.1	.34
23	216	.70	.41	639	1.9	4.93	105	1.5	.41
24	193	.64	.33	2900	4.6	37.2	92	1.4	.35
25	204	.42	.23	1090	2.2	6.71	79	1.3	.29
26	230	.56	.35	6850	5.1	96.9	71	1.1	.21
27	220	1.1	.66	4880	2.9	39.2	256	1.7	2.49
28	179	1.2	.58	970	2.0	5.39	1080	6.1	18.1
29	160	1.2	.52	555	1.6	2.45	397	3.4	3.86
30	148	1.2	.48	364	1.4	1.34	171	1.7	.77
31	---	---	---	519	1.6	2.24	---	---	---
TOTAL	17853	---	114.398	25315	---	215.88	18591	---	171.76
		JULY			AUGUST			SEPTEMBER	
1	113	1.3	.39	72	1.2	.23	45	1.5	.19
2	88	.90	.21	57	.98	.15	40	.94	.10
3	73	.88	.17	47	.85	.11	37	.73	.073
4	65	.91	.16	52	.86	.13	35	.77	.073
5	59	.90	.14	63	1.3	.23	34	.51	.047
6	53	.87	.13	83	1.2	.27	33	<.20	.016
7	46	.83	.10	61	.86	.14	40	<.20	.011
8	44	.90	.11	52	.81	.11	48	<.20	.013
9	44	.98	.12	45	.88	.11	33	<.20	.009
10	41	1.1	.12	43	.90	.10	36	<.20	.010
11	40	.98	.10	42	.90	.10	34	<.20	.011
12	37	.83	.084	41	.90	.099	37	.54	.055
13	34	.80	.074	39	.90	.095	35	.63	.060
14	34	.81	.074	39	.90	.094	67	.66	.12
15	32	.94	.081	40	.72	.077	83	.95	.21
16	30	.84	.069	38	1.2	.12	60	.94	.15
17	29	.89	.070	36	1.0	.098	45	1.0	.12
18	29	.84	.067	33	.66	.059	38	.75	.076
19	32	.82	.074	32	.55	.047	35	.70	.066
20	76	1.5	.44	36	.57	.056	32	.70	.060
21	196	2.4	1.27	39	.51	.055	31	.62	.053
22	106	1.7	.50	38	.52	.053	28	.61	.046
23	55	1.3	.20	39	.59	.062	27	.68	.048
24	40	1.3	.14	41	.57	.064	26	.60	.042
25	34	1.4	.13	36	.50	.048	21	.53	.030
26	34	1.4	.13	33	.54	.048	20	.59	.032
27	592	3.7	12.3	32	.65	.055	19	.70	.036
28	1020	4.4	13.7	31	.64	.054	17	.83	.039
29	293	2.3	1.92	31	.73	.062	16	.60	.026
30	126	1.6	.56	31	.87	.072	15	.60	.024
31	87	1.3	.31	31	.89	.075	---	---	---
TOTAL	3582	---	33.943	1333	---	3.073	1067	---	1.846
YEAR	103721.3		692.772						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	9.3	.176	.004	18	.064	.003	60	.030	.005
2	9.6	.329	.009	19	.058	.003	52	.035	.005
3	8.8	.254	.006	18	.089	.004	48	.034	.004
4	15	.179	.007	20	.125	.007	45	.030	.004
5	19	.151	.008	38	.150	.016	44	.023	.003
6	19	.144	.007	85	.201	.050	39	.028	.003
7	17	.141	.006	94	.171	.044	36	.029	.003
8	11	.180	.005	79	.096	.020	35	.024	.002
9	9.3	.147	.004	79	.101	.021	31	.038	.003
10	9.0	.139	.003	316	.784	1.14	28	.040	.003
11	8.5	.180	.004	628	.763	1.42	26	.040	.003
12	8.0	.201	.004	243	.293	.20	25	.040	.003
13	8.8	.151	.004	207	.227	.13	24	.138	.009
14	11	.162	.005	276	.160	.12	23	.124	.008
15	10	.208	.006	154	.115	.048	26	.053	.004
16	11	.238	.007	90	.092	.023	38	.035	.004
17	11	.247	.007	63	.070	.012	35	.045	.004
18	32	.617	.055	50	.060	.008	32	.127	.011
19	22	.120	.007	40	.060	.007	28	.039	.003
20	22	.084	.005	239	.190	.23	39	.030	.003
21	21	.130	.007	1330	.613	2.28	44	.030	.004
22	20	.148	.008	480	.293	.41	41	.037	.004
23	20	.102	.006	244	.131	.087	76	.040	.008
24	21	.114	.006	177	.096	.046	144	.048	.020
25	20	.069	.004	133	.073	.026	131	.044	.015
26	19	.060	.003	107	.060	.017	100	.033	.009
27	20	.072	.004	96	.049	.013	97	.030	.008
28	23	.110	.007	85	.041	.009	1050	.471	2.05
29	22	.106	.006	75	.040	.008	450	.421	.51
30	23	.155	.010	65	.036	.006	320	.190	.16
31	17	.115	.005	---	---	---	250	.142	.096
TOTAL	497.3	---	0.229	5548	---	6.408	3417	---	2.971
		JANUARY			FEBRUARY			MARCH	
1	210	.085	.048	215	.053	.031	100	.042	.011
2	190	.062	.032	173	.066	.031	94	.047	.012
3	180	.084	.041	150	.067	.027	88	.040	.010
4	170	.080	.037	123	.062	.021	84	.040	.009
5	350	.044	.042	110	.101	.030	100	.055	.015
6	700	.066	.12	98	.081	.022	150	.099	.040
7	1200	.256	.83	88	.188	.045	300	.101	.082
8	3070	.545	4.81	80	.208	.045	568	.080	.12
9	866	.195	.43	74	.145	.029	339	.066	.061
10	300	.185	.15	68	.156	.029	129	.059	.021
11	238	.128	.082	64	.164	.028	122	.051	.017
12	194	.090	.047	60	.110	.018	116	.048	.015
13	207	.072	.040	58	.089	.014	115	.047	.014
14	184	.070	.035	66	.086	.015	110	.062	.018
15	188	.066	.034	90	.112	.027	139	.050	.019
16	165	.050	.022	450	.112	.14	146	.054	.021
17	145	.050	.020	620	.079	.13	124	.054	.018
18	143	.048	.019	1000	.070	.19	217	.113	.076
19	141	.041	.016	500	.062	.084	276	.164	.12
20	163	.040	.018	350	.046	.043	211	.114	.065
21	135	.040	.015	320	.107	.092	251	.063	.042
22	134	.044	.016	800	.258	.56	319	.078	.067
23	128	.045	.015	350	.189	.18	237	.053	.035
24	105	.040	.011	260	.108	.076	194	.051	.027
25	84	.034	.008	210	.075	.042	169	.056	.026
26	482	.229	.44	180	.053	.026	146	.054	.021
27	845	.310	.70	150	.042	.017	133	.073	.026
28	407	.192	.22	120	.040	.013	143	.091	.035
29	301	.117	.096	---	---	---	255	.279	.20
30	288	.087	.068	---	---	---	778	.545	1.40
31	255	.065	.045	---	---	---	1370	.615	2.30
TOTAL	12168	---	8.507	6827	---	2.005	7523	---	4.943

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	1100	.384	1.18	137	.056	.021	397	.189	.20
2	627	.218	.38	134	.042	.015	462	.218	.27
3	1640	.425	2.21	133	.039	.014	713	.636	2.19
4	3830	.909	10.1	134	.035	.013	5560	1.37	21.8
5	2360	.747	5.29	152	.082	.037	1260	.500	1.76
6	907	.374	.93	215	.153	.088	601	.380	.62
7	610	.222	.37	297	.119	.095	380	.274	.28
8	478	.132	.17	301	.091	.074	237	.199	.13
9	452	.106	.13	247	.075	.050	210	.284	.16
10	411	.088	.098	276	.066	.049	222	.217	.13
11	350	.073	.069	437	.141	.17	158	.139	.060
12	314	.060	.051	474	.123	.16	143	.121	.047
13	320	.065	.056	692	.157	.29	418	.229	.31
14	318	.058	.050	761	.173	.36	689	.397	.74
15	306	.064	.053	473	.111	.14	1420	.648	2.77
16	310	.090	.075	336	.077	.070	1760	.958	4.74
17	283	.055	.042	268	.068	.049	659	.435	.83
18	430	.092	.11	225	.109	.065	372	.206	.21
19	398	.069	.074	196	.141	.075	254	.183	.13
20	334	.049	.044	200	.084	.045	171	.156	.072
21	281	.040	.031	228	.087	.054	138	.209	.078
22	244	.036	.024	232	.090	.056	116	.143	.045
23	216	.030	.018	639	.178	.48	105	.131	.037
24	193	.024	.012	2900	.537	4.24	92	.145	.036
25	204	.061	.035	1090	.292	.91	79	.138	.029
26	230	.068	.042	6850	1.42	27.4	71	.124	.024
27	220	.056	.034	4880	.762	11.7	256	.263	.42
28	179	.058	.028	970	.359	.96	1080	1.14	3.43
29	160	.065	.028	555	.275	.42	397	.600	.66
30	148	.066	.026	364	.221	.22	171	.313	.15
31	---	---	---	519	.260	.37	---	---	---
TOTAL	17853	---	21.760	25315	---	48.690	18591	---	42.358
		JULY			AUGUST			SEPTEMBER	
1	113	.235	.072	72	.161	.031	45	.340	.045
2	88	.173	.041	57	.141	.022	40	.219	.024
3	73	.128	.025	47	.121	.015	37	.139	.014
4	65	.118	.021	52	.144	.021	35	.118	.011
5	59	.089	.014	63	.210	.036	34	.118	.011
6	53	.079	.011	83	.206	.047	33	.144	.013
7	46	.085	.011	61	.121	.020	40	.200	.022
8	44	.099	.012	52	.087	.012	48	.798	.091
9	44	.100	.012	45	.073	.009	33	.607	.054
10	41	.119	.013	43	.078	.009	36	.221	.021
11	40	.122	.013	42	.083	.009	34	.210	.020
12	37	.103	.010	41	.099	.011	37	.149	.015
13	34	.093	.009	39	.100	.011	35	.118	.011
14	34	.098	.009	39	.104	.011	67	.124	.026
15	32	.099	.008	40	.082	.009	83	.386	.092
16	30	.128	.010	38	.090	.009	60	.164	.026
17	29	.334	.026	36	.081	.008	45	.137	.017
18	29	.114	.009	33	.076	.007	38	.099	.010
19	32	.135	.012	32	.072	.006	35	.093	.009
20	76	.325	.099	36	.092	.009	32	.098	.008
21	196	.393	.21	39	.093	.010	31	.099	.008
22	106	.253	.072	38	.086	.009	28	.092	.007
23	55	.247	.037	39	.108	.011	27	.153	.011
24	40	.164	.018	41	.113	.013	26	.079	.006
25	34	.150	.014	36	.116	.011	21	.073	.004
26	34	.180	.017	33	.119	.011	20	.095	.005
27	592	.522	1.76	32	.140	.012	19	.116	.006
28	1020	.745	2.30	31	.132	.011	17	.110	.005
29	293	.346	.29	31	.163	.014	16	.119	.005
30	126	.270	.092	31	.136	.011	15	.130	.005
31	87	.207	.049	31	.120	.010	---	---	---
TOTAL	3582	---	5.296	1333	---	0.435	1067	---	0.602
YEAR	103721.3		144.202						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	9.3	5	.13	18	40	1.9	60	9	1.5
2	9.6	5	.13	19	26	1.3	52	10	1.4
3	8.8	5	.12	18	13	.63	48	8	1.1
4	15	19	.90	20	9	.50	45	7	.81
5	19	26	1.3	38	22	2.8	44	12	1.5
6	19	23	1.2	85	24	6.6	39	31	3.3
7	17	20	.93	94	15	4.1	36	28	2.7
8	11	18	.54	79	6	1.2	35	20	2.0
9	9.3	15	.39	79	3	.71	31	24	2.2
10	9.0	14	.33	316	76	154	28	21	1.6
11	8.5	12	.27	628	157	285	26	15	1.0
12	8.0	11	.23	243	59	41	25	2	.14
13	8.8	16	.37	207	36	23	24	1	.06
14	11	23	.66	276	48	37	23	1	.06
15	10	21	.58	154	21	9.4	26	1	.10
16	11	16	.49	90	6	1.5	38	26	2.7
17	11	16	.49	63	2	.41	35	16	1.5
18	32	61	5.4	50	1	.16	32	6	.52
19	22	34	2.0	40	1	.11	28	2	.18
20	22	24	1.4	239	39	64	39	2	.21
21	21	40	2.2	1330	190	728	44	2	.24
22	20	42	2.3	480	56	78	41	2	.26
23	20	55	3.1	244	23	15	76	5	1.1
24	21	43	2.4	177	8	3.6	144	22	9.2
25	20	39	2.1	133	4	1.5	131	23	8.1
26	19	42	2.1	107	2	.71	100	17	4.6
27	20	37	2.0	96	4	.97	97	14	3.8
28	23	29	1.8	85	8	1.8	1050	333	1540
29	22	12	.73	75	11	2.1	450	218	264
30	23	30	1.8	65	10	1.8	320	62	54
31	17	26	1.3	---	---	---	250	33	22
TOTAL	497.3	---	39.69	5548	---	1468.80	3417	---	1931.88
		JANUARY			FEBRUARY			MARCH	
1	210	18	10	215	16	9.3	100	6	1.6
2	190	9	4.7	173	47	22	94	4	1.1
3	180	6	2.8	150	18	7.3	88	7	1.6
4	170	5	2.2	123	10	3.3	84	9	2.1
5	350	11	9.9	110	10	2.9	100	8	2.1
6	700	27	51	98	9	2.5	150	15	6.1
7	1200	229	743	88	9	2.3	300	33	27
8	3070	585	5220	80	11	2.4	568	46	73
9	866	119	329	74	8	1.7	339	27	27
10	300	51	41	68	13	2.4	129	9	3.3
11	238	31	20	64	27	4.7	122	6	1.9
12	194	18	9.6	60	44	7.1	116	4	1.3
13	207	13	7.2	58	13	2.1	115	4	1.2
14	184	13	6.6	66	14	2.4	110	3	.92
15	188	12	6.4	90	33	7.9	139	3	1.1
16	165	8	3.8	450	61	74	146	3	1.2
17	145	8	3.1	620	45	75	124	3	1.0
18	143	6	2.4	1000	26	71	217	13	9.2
19	141	4	1.6	500	16	21	276	19	14
20	163	3	1.4	350	10	9.2	211	8	4.9
21	135	7	2.6	320	26	23	251	11	7.6
22	134	11	4.2	800	88	189	319	21	19
23	128	12	4.2	350	64	60	237	13	8.6
24	105	10	2.8	260	35	25	194	7	3.4
25	84	8	1.8	210	20	11	169	6	2.7
26	482	100	285	180	11	5.3	146	6	2.4
27	845	186	458	150	6	2.5	133	7	2.5
28	407	60	70	120	7	2.3	143	9	3.5
29	301	23	18	---	---	---	255	19	13
30	288	37	29	---	---	---	778	102	355
31	255	21	15	---	---	---	1370	177	665
TOTAL	12168	---	7366.3	6827	---	648.6	7523	---	1264.32

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1100	127	393	137	6	2.3	397	48	53
2	627	65	112	134	14	5.1	462	138	173
3	1640	433	2710	133	19	6.9	713	531	2560
4	3830	751	8140	134	16	5.7	5560	1280	20300
5	2360	397	2800	152	14	6.3	1260	324	1250
6	907	140	358	215	19	11	601	115	192
7	610	55	93	297	37	30	380	69	72
8	478	35	46	301	37	30	237	46	30
9	452	25	31	247	20	13	210	40	24
10	411	22	24	276	11	8.2	222	65	39
11	350	19	18	437	37	46	158	45	19
12	314	15	13	474	49	64	143	38	15
13	320	18	16	692	61	114	418	176	296
14	318	17	14	761	53	111	689	257	483
15	306	15	12	473	23	31	1420	764	3520
16	310	14	12	336	14	13	1760	569	2930
17	283	19	15	268	11	8.0	659	149	282
18	430	63	74	225	9	5.2	372	71	72
19	398	38	41	196	7	3.5	254	49	34
20	334	20	18	200	6	3.4	171	45	21
21	281	14	10	228	7	4.0	138	56	21
22	244	10	6.8	232	7	4.6	116	61	19
23	216	8	4.5	639	209	805	105	60	17
24	193	7	3.6	2900	380	3070	92	60	15
25	204	10	5.7	1090	103	333	79	16	3.5
26	230	9	5.7	6850	1240	26800	71	18	3.3
27	220	8	4.7	4880	517	8000	256	349	887
28	179	7	3.4	970	217	589	1080	1140	3410
29	160	7	3.0	555	121	186	397	402	491
30	148	8	3.0	364	51	51	171	150	70
31	---	---	---	519	112	166	---	---	---
TOTAL	17853	---	14990.4	25315	---	40526.2	18591	---	37301.8
		JULY			AUGUST			SEPTEMBER	
1	113	85	26	72	47	9.1	45	41	5.6
2	88	44	11	57	28	4.4	40	20	2.1
3	73	47	9.3	47	14	1.8	37	10	.98
4	65	42	7.3	52	36	6.2	35	8	.81
5	59	33	5.2	63	37	6.6	34	8	.77
6	53	23	3.4	83	39	9.5	33	7	.58
7	46	9	1.1	61	16	2.6	40	26	5.3
8	44	8	.94	52	17	2.4	48	105	15
9	44	8	.95	45	13	1.5	33	27	2.4
10	41	8	.90	43	9	1.0	36	15	1.4
11	40	8	.84	42	9	1.0	34	11	1.0
12	37	8	.76	41	8	.85	37	15	1.5
13	34	7	.66	39	7	.78	35	8	.76
14	34	12	1.1	39	8	.81	67	84	25
15	32	22	1.9	40	6	.69	83	74	19
16	30	15	1.3	38	9	.95	60	15	2.4
17	29	13	1.0	36	7	.67	45	9	1.1
18	29	15	1.2	33	7	.66	38	8	.77
19	32	12	1.0	32	5	.44	35	7	.70
20	76	50	19	36	14	1.4	32	6	.48
21	196	117	62	39	15	1.7	31	5	.39
22	106	49	15	38	9	.97	28	4	.31
23	55	23	3.4	39	13	1.3	27	4	.26
24	40	15	1.7	41	13	1.4	26	3	.23
25	34	12	1.1	36	10	.94	21	3	.16
26	34	14	1.3	33	9	.77	20	3	.14
27	592	770	2110	32	8	.69	19	2	.12
28	1020	658	2100	31	7	.57	17	2	.10
29	293	224	192	31	10	.84	16	2	.09
30	126	104	36	31	9	.71	15	2	.08
31	87	57	14	31	7	.62	---	---	---
TOTAL	3582	---	4631.35	1333	---	63.86	1067	---	89.53
YEAR	103721.3		110307.82						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	49	1.73	21	46	2.58	71	43	8.27
2	12	48	1.58	20	50	2.64	66	42	7.47
3	13	47	1.65	18	50	2.43	57	44	6.83
4	14	47	1.74	17	51	2.38	56	54	8.12
5	14	50	1.83	21	48	2.73	62	50	8.33
6	15	54	2.15	20	46	2.54	56	52	7.92
7	14	54	2.00	20	49	2.65	52	59	8.23
8	12	53	1.78	24	45	2.99	48	62	7.97
9	14	53	1.96	41	42	4.63	45	53	6.40
10	18	46	2.20	38	43	4.36	42	52	5.85
11	20	44	2.32	36	44	4.24	40	51	5.49
12	16	43	1.81	25	46	3.07	39	79	8.27
13	14	45	1.71	22	48	2.83	38	69	7.08
14	13	44	1.49	20	50	2.69	37	60	6.04
15	13	44	1.52	70	46	7.82	36	66	6.37
16	15	44	1.78	1270	31	103	36	67	6.53
17	25	40	2.65	704	37	68.6	35	64	6.06
18	23	41	2.50	287	40	31.2	34	67	6.17
19	106	39	10.8	153	41	16.9	34	68	6.20
20	211	37	20.9	110	42	12.5	33	68	6.04
21	116	38	11.9	91	43	10.6	32	68	5.87
22	62	39	6.56	80	43	9.21	32	68	5.89
23	44	41	4.89	72	44	8.56	31	68	5.73
24	35	43	4.02	67	49	8.80	31	69	5.74
25	26	45	3.18	67	45	8.15	30	69	5.58
26	22	47	2.72	66	50	8.85	30	69	5.59
27	19	48	2.44	63	54	9.17	29	69	5.42
28	32	43	3.67	75	50	10.1	29	69	5.44
29	34	38	3.53	83	48	10.6	28	70	5.27
30	31	39	3.34	74	45	9.00	28	70	5.28
31	21	45	2.55	---	---	---	150	58	23.7
TOTAL	1037	---	114.90	3675	---	375.82	1367	---	219.15
		JANUARY			FEBRUARY			MARCH	
1	1200	42	136	108	58	16.8	466	34	43.3
2	1850	31	157	3170	38	256	417	37	41.1
3	1450	32	127	2590	28	189	449	30	36.5
4	1400	33	126	1760	34	159	316	31	26.9
5	1550	32	132	1360	35	126	249	33	22.1
6	470	40	51.3	939	34	86.3	204	35	19.1
7	260	45	31.7	683	36	66.6	184	38	19.0
8	180	50	24.1	501	37	49.6	166	41	18.5
9	140	53	20.1	394	39	41.4	241	39	25.2
10	250	45	30.5	452	38	45.9	362	36	35.6
11	320	44	37.8	378	40	41.1	402	34	36.3
12	200	45	24.3	267	45	32.4	380	35	35.8
13	130	48	16.8	224	48	29.1	312	37	31.2
14	106	48	13.9	206	49	27.5	247	38	25.4
15	101	50	13.5	1750	42	172	212	39	22.2
16	95	54	13.8	7570	26	531	200	41	22.4
17	156	50	21.0	3420	31	271	231	41	25.8
18	512	47	65.0	1050	37	103	201	40	21.7
19	396	43	46.4	689	40	73.7	163	40	17.6
20	272	43	31.8	460	43	53.3	160	42	18.1
21	864	43	99.1	331	47	41.7	229	45	27.6
22	599	40	65.2	563	43	60.1	222	41	24.8
23	328	42	37.5	1240	32	108	174	43	20.2
24	266	44	31.5	1060	31	87.3	132	43	15.5
25	239	44	28.6	471	35	44.4	106	42	12.1
26	219	44	25.8	709	36	66.4	101	42	11.4
27	171	43	20.0	376	37	37.8	90	40	9.82
28	152	44	18.1	442	37	43.5	90	40	9.61
29	140	44	16.7	---	---	---	104	39	10.9
30	130	46	16.1	---	---	---	106	40	11.4
31	106	67	19.0	---	---	---	116	40	12.6
TOTAL	14252	---	1497.6	33163	---	2859.9	7032	---	709.73

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	216	39	22.8	93	38	9.47	93	35	8.82
2	685	34	61.6	87	39	9.15	85	36	8.21
3	605	31	51.1	74	40	7.90	96	35	9.11
4	652	31	55.1	134	39	13.6	92	35	8.73
5	530	33	47.1	1740	27	123	79	36	7.65
6	360	34	33.1	884	29	68.3	69	37	6.83
7	290	35	27.6	442	30	35.8	68	37	6.85
8	240	35	22.9	281	33	24.8	185	36	16.7
9	207	36	20.3	210	33	18.9	814	24	52.8
10	745	36	57.5	187	34	17.0	395	25	26.6
11	5060	14	191	143	36	13.9	207	30	16.6
12	1570	20	82.0	120	38	12.5	125	34	11.5
13	770	25	52.2	607	34	51.8	95	39	9.94
14	553	30	45.4	821	28	61.5	79	38	8.06
15	511	30	41.0	406	30	33.2	66	36	6.46
16	399	30	32.2	2390	24	129	57	35	5.44
17	292	32	25.5	2060	19	99.6	47	35	4.46
18	233	33	20.8	809	24	52.7	40	38	4.06
19	197	33	17.6	441	27	32.1	42	40	4.54
20	200	33	18.1	327	28	25.0	41	43	4.76
21	959	28	64.2	395	26	27.8	40	35	3.79
22	958	20	50.8	235	29	18.3	47	39	5.00
23	499	25	33.3	162	32	13.9	47	40	5.10
24	355	28	26.7	131	32	11.4	57	41	6.39
25	249	30	19.9	108	34	9.77	55	39	5.77
26	183	30	14.6	193	37	18.8	47	38	4.81
27	141	33	12.7	269	29	21.1	39	37	3.91
28	128	34	11.8	177	31	14.9	47	38	4.85
29	112	35	10.5	145	34	13.5	50	40	5.41
30	103	36	9.91	128	35	12.0	39	38	4.01
31	---	---	---	106	35	10.1	---	---	---
TOTAL	18002	---	1179.31	14305	---	1010.79	3243	---	277.16
		JULY			AUGUST			SEPTEMBER	
1	38	39	3.99	166	23	10.3	69	34	6.38
2	35	41	3.85	82	22	4.97	68	34	6.16
3	35	40	3.82	63	26	4.42	65	33	5.81
4	31	42	3.43	75	26	5.01	65	34	5.96
5	30	42	3.42	453	17	20.0	59	38	6.09
6	27	47	3.38	800	14	29.0	63	43	7.23
7	25	50	3.39	995	14	35.2	86	38	8.90
8	25	46	3.12	362	19	18.6	82	37	8.11
9	23	48	2.97	176	23	10.9	3870	14	83.4
10	25	47	3.11	109	25	7.50	1380	15	50.8
11	68	38	6.22	87	27	6.39	401	24	25.3
12	533	28	40.0	76	28	5.80	208	29	16.0
13	794	28	60.7	400	25	24.2	131	31	11.1
14	1940	25	117	1060	14	40.2	237	30	16.1
15	2170	18	103	349	18	16.9	822	19	39.5
16	546	22	31.5	170	22	9.92	368	26	25.7
17	236	26	16.2	104	24	6.76	276	28	21.1
18	127	29	9.96	92	26	6.53	200	28	14.9
19	83	30	6.77	112	26	7.73	147	30	11.8
20	62	32	5.40	1750	<10	30.9	134	31	11.4
21	56	32	4.86	495	14	18.7	112	31	9.49
22	322	28	21.0	277	19	14.0	114	32	9.72
23	1720	17	77.5	177	24	11.2	126	32	10.9
24	546	21	30.9	138	26	9.66	103	32	8.93
25	235	26	16.5	120	27	8.72	82	35	7.64
26	133	27	9.82	102	29	7.99	76	36	7.43
27	87	30	7.09	94	30	7.71	67	37	6.64
28	72	33	6.50	86	33	7.58	63	38	6.35
29	59	35	5.61	79	35	7.40	65	37	6.44
30	62	34	5.72	76	35	7.10	110	35	10.4
31	205	28	14.7	74	33	6.55	---	---	---
TOTAL	10350	---	631.43	9199	---	407.84	9649	---	465.68
YEAR	125274		9747.43						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	1.91	.07	21	1.00	.06	71	3.07	.59
2	12	1.92	.06	20	1.22	.06	66	2.70	.49
3	13	1.93	.07	18	1.20	.06	57	2.87	.44
4	14	1.85	.07	17	1.21	.06	56	3.29	.49
5	14	1.66	.06	21	1.02	.06	62	2.94	.49
6	15	2.10	.08	20	.960	.05	56	3.12	.47
7	14	1.89	.07	20	1.73	.10	52	3.36	.47
8	12	2.23	.07	24	1.20	.08	48	3.19	.41
9	14	2.73	.10	41	.816	.09	45	2.87	.35
10	18	2.56	.12	38	.831	.08	42	2.66	.30
11	20	1.27	.07	36	.820	.08	40	2.63	.28
12	16	1.34	.06	25	1.04	.07	39	2.41	.25
13	14	1.17	.04	22	1.15	.07	38	2.22	.23
14	13	1.00	.03	20	1.36	.07	37	2.21	.22
15	13	.908	.03	70	1.39	.28	36	2.42	.24
16	15	.929	.04	1270	3.91	14	36	2.64	.26
17	25	1.34	.09	704	7.16	13	35	2.63	.25
18	23	.913	.06	287	7.73	6.0	34	2.64	.24
19	106	1.35	.39	153	7.56	3.1	34	2.58	.24
20	211	3.67	2.1	110	7.03	2.1	33	2.53	.23
21	116	4.38	1.4	91	6.15	1.5	32	2.47	.21
22	62	4.68	.78	80	5.50	1.2	32	2.42	.21
23	44	5.02	.60	72	5.11	.99	31	2.36	.20
24	35	4.93	.47	67	4.85	.88	31	2.31	.19
25	26	4.07	.29	67	4.48	.81	30	2.26	.18
26	22	3.82	.22	66	4.24	.75	30	2.21	.18
27	19	3.39	.17	63	3.90	.66	29	2.16	.17
28	32	2.35	.20	75	3.54	.72	29	2.11	.17
29	34	.968	.09	83	3.18	.71	28	2.06	.16
30	31	.603	.05	74	3.45	.69	28	2.03	.15
31	21	1.05	.06	---	---	---	150	3.66	1.5
TOTAL	1037	---	8.01	3675	---	48.38	1367	---	10.26
		JANUARY			FEBRUARY			MARCH	
1	1200	7.16	23	108	4.97	1.4	466	5.22	6.6
2	1850	7.37	37	3170	6.73	60	417	5.15	5.8
3	1450	8.68	34	2590	8.44	58	449	4.64	5.6
4	1400	8.53	32	1760	8.87	42	316	4.60	3.9
5	1550	8.24	34	1360	8.76	32	249	4.60	3.1
6	470	7.86	10	939	8.67	22	204	4.76	2.6
7	260	6.87	4.8	683	8.79	16	184	4.22	2.1
8	180	5.91	2.9	501	8.57	12	166	4.09	1.8
9	140	5.31	2.0	394	8.05	8.6	241	4.35	2.8
10	250	6.92	4.7	452	7.54	9.2	362	4.39	4.3
11	320	8.50	7.3	378	7.06	7.2	402	4.62	5.0
12	200	8.59	4.6	267	6.61	4.8	380	4.78	4.9
13	130	8.23	2.9	224	6.19	3.8	312	4.53	3.8
14	106	7.76	2.2	206	5.79	3.2	247	4.21	2.8
15	101	7.35	2.0	1750	6.46	35	212	3.91	2.2
16	95	6.67	1.7	7570	7.63	160	200	3.71	2.0
17	156	7.21	3.1	3420	9.73	87	231	3.43	2.1
18	512	8.46	12	1050	10.6	30	201	3.11	1.7
19	396	7.99	8.6	689	9.19	17	163	3.09	1.4
20	272	8.36	6.1	460	7.67	9.6	160	2.97	1.3
21	864	8.91	21	331	6.40	5.7	229	3.05	1.9
22	599	9.43	15	563	6.13	9.7	222	3.48	2.1
23	328	10.1	9.0	1240	6.71	22	174	3.42	1.6
24	266	9.42	6.8	1060	6.80	20	132	3.14	1.1
25	239	8.42	5.4	471	6.68	8.5	106	3.03	.87
26	219	7.73	4.6	709	7.06	14	101	3.03	.83
27	171	7.49	3.5	376	6.05	6.1	90	2.58	.63
28	152	7.28	3.0	442	5.61	6.6	90	2.46	.60
29	140	6.76	2.6	---	---	---	104	2.34	.66
30	130	6.06	2.1	---	---	---	106	2.40	.69
31	106	5.21	1.5	---	---	---	116	2.40	.75
TOTAL	14252	---	309.4	33163	---	711.4	7032	---	77.53

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	216	1.85	1.1	93	2.59	.65	93	3.49	.88
2	685	2.69	5.1	87	2.34	.55	85	3.05	.70
3	605	4.61	7.5	74	2.14	.43	96	2.69	.69
4	652	5.85	10	134	2.40	1.0	92	2.53	.63
5	530	6.00	8.6	1740	7.74	37	79	2.59	.55
6	360	5.43	5.3	884	9.14	22	69	2.56	.47
7	290	5.13	4.0	442	8.24	9.9	68	2.34	.43
8	240	4.28	2.8	281	7.38	5.6	185	2.31	1.3
9	207	3.50	2.0	210	6.48	3.7	814	9.37	20
10	745	3.62	8.9	187	5.91	3.0	395	11.8	13
11	5060	5.50	73	143	4.96	1.9	207	11.3	6.4
12	1570	7.38	31	120	4.33	1.4	125	9.72	3.3
13	770	7.26	15	607	6.02	11	95	7.81	2.0
14	553	6.79	10	821	10.1	22	79	6.90	1.5
15	511	5.99	8.3	406	10.4	11	66	5.88	1.1
16	399	5.85	6.3	2390	9.45	64	57	4.94	.77
17	292	5.46	4.3	2060	10.1	55	47	4.08	.52
18	233	4.93	3.1	809	9.53	21	40	3.51	.38
19	197	4.48	2.4	441	7.76	9.2	42	3.34	.38
20	200	4.03	2.2	327	7.00	6.2	41	2.53	.28
21	959	3.90	11	395	7.36	7.9	40	4.11	.45
22	958	5.10	13	235	6.58	4.2	47	2.06	.26
23	499	5.26	7.1	162	5.88	2.6	47	2.33	.30
24	355	4.72	4.5	131	5.44	1.9	57	2.77	.43
25	249	3.94	2.7	108	5.11	1.5	55	2.15	.32
26	183	3.32	1.6	193	4.57	2.4	47	1.64	.21
27	141	3.26	1.2	269	3.92	2.8	39	1.33	.14
28	128	3.09	1.1	177	4.54	2.2	47	1.19	.15
29	112	2.89	.87	145	4.64	1.8	50	1.59	.21
30	103	2.77	.77	128	4.35	1.5	39	1.71	.18
31	---	---	---	106	4.03	1.2	---	---	---
TOTAL	18002	---	254.74	14305	---	316.53	3243	---	57.93
		JULY			AUGUST			SEPTEMBER	
1	38	1.51	.15	166	3.48	1.5	69	1.03	.19
2	35	1.38	.13	82	3.44	.77	68	.814	.15
3	35	1.15	.11	63	3.41	.58	65	.572	.10
4	31	.924	.08	75	2.93	.57	65	.705	.12
5	30	.852	.07	453	3.04	3.9	59	1.15	.18
6	27	1.10	.08	800	3.63	7.8	63	1.38	.23
7	25	1.07	.07	995	4.21	11	86	1.26	.29
8	25	1.44	.10	362	4.91	4.8	82	.806	.18
9	23	1.24	.08	176	4.69	2.2	3870	1.59	20
10	25	1.20	.08	109	4.38	1.3	1380	4.25	14
11	68	.879	.14	87	3.74	.88	401	4.61	5.0
12	533	5.97	12	76	2.89	.59	208	3.99	2.3
13	794	20.0	42	400	2.46	3.0	131	3.37	1.2
14	1940	21.1	98	1060	3.32	9.3	237	2.92	1.9
15	2170	16.3	97	349	3.50	3.3	822	4.34	9.4
16	546	14.8	22	170	3.32	1.5	368	4.31	4.3
17	236	11.0	7.2	104	3.09	.87	276	4.00	3.0
18	127	11.0	3.7	92	2.91	.72	200	3.41	1.9
19	83	10.2	2.3	112	2.86	.82	147	3.33	1.3
20	62	8.01	1.3	1750	1.27	5.6	134	3.35	1.2
21	56	6.46	.97	495	2.06	2.7	112	2.96	.90
22	322	5.20	4.9	277	2.29	1.7	114	2.59	.79
23	1720	9.37	43	177	2.37	1.1	126	2.20	.75
24	546	11.0	16	138	2.30	.86	103	2.10	.58
25	235	10.0	6.4	120	2.20	.71	82	2.09	.46
26	133	8.47	3.1	102	2.20	.61	76	2.00	.41
27	87	7.35	1.7	94	2.12	.54	67	1.75	.32
28	72	6.51	1.3	86	1.70	.40	63	1.34	.23
29	59	5.22	.84	79	1.27	.27	65	1.38	.24
30	62	3.75	.62	76	1.15	.24	110	1.82	.55
31	205	3.31	1.7	74	1.21	.24	---	---	---
TOTAL	10350	---	367.12	9199	---	70.37	9649	---	72.17
YEAR	125274		2300.98						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	.61	.022	21	1.3	.073	71	.78	.15
2	12	.64	.021	20	.54	.029	66	.66	.12
3	13	.68	.024	18	.48	.023	57	.62	.096
4	14	.74	.027	17	.55	.025	56	.65	.097
5	14	.72	.026	21	.40	.023	62	.77	.13
6	15	.74	.029	20	.48	.026	56	.77	.12
7	14	.78	.029	20	.82	.045	52	.76	.11
8	12	.70	.023	24	.72	.047	48	.74	.096
9	14	.73	.027	41	.69	.076	45	.73	.088
10	18	.95	.049	38	.56	.058	42	.71	.081
11	20	.74	.040	36	.67	.065	40	.70	.075
12	16	.52	.022	25	.62	.042	39	.68	.072
13	14	.57	.022	22	.58	.034	38	.67	.069
14	13	.62	.021	20	.64	.035	37	.79	.079
15	13	.66	.023	70	.92	.27	36	.93	.091
16	15	.73	.030	1270	4.3	15.5	36	.89	.086
17	25	1.1	.073	704	2.7	5.48	35	.76	.072
18	23	.75	.047	287	1.7	1.37	34	.74	.068
19	106	1.3	.41	153	1.5	.61	34	.74	.068
20	211	2.0	1.19	110	1.2	.37	33	.73	.065
21	116	1.3	.39	91	1.2	.29	32	.73	.063
22	62	1.2	.21	80	1.1	.23	32	.73	.063
23	44	1.1	.13	72	.91	.18	31	.72	.061
24	35	.95	.090	67	.91	.17	31	.72	.060
25	26	1.0	.071	67	.90	.16	30	.72	.058
26	22	1.1	.063	66	.80	.14	30	.71	.058
27	19	1.5	.076	63	.80	.14	29	.71	.056
28	32	1.2	.098	75	.82	.17	29	.71	.055
29	34	.76	.071	83	.74	.16	28	.70	.053
30	31	.71	.060	74	.72	.14	28	.70	.053
31	21	.69	.039	---	---	---	150	1.1	.44
TOTAL	1037	---	3.453	3675	---	25.981	1367	---	2.853
		JANUARY			FEBRUARY			MARCH	
1	1200	1.9	6.18	108	.63	.19	466	1.1	1.37
2	1850	2.3	11.7	3170	3.6	34.8	417	.94	1.06
3	1450	2.3	8.99	2590	2.5	18.6	449	.95	1.16
4	1400	2.3	8.58	1760	2.4	11.6	316	.71	.61
5	1550	2.1	9.00	1360	2.0	7.54	249	.74	.50
6	470	1.4	1.84	939	1.5	3.79	204	.65	.36
7	260	1.2	.87	683	1.2	2.20	184	.63	.31
8	180	1.1	.54	501	1.2	1.66	166	.55	.25
9	140	1.0	.38	394	1.2	1.31	241	.70	.47
10	250	1.6	1.05	452	1.4	1.70	362	.91	.88
11	320	1.3	1.15	378	1.3	1.31	402	.95	1.03
12	200	1.1	.60	267	1.1	.78	380	.89	.91
13	130	.97	.34	224	.97	.59	312	.77	.65
14	106	.98	.28	206	.92	.51	247	.75	.50
15	101	.92	.25	1750	2.5	20.4	212	.84	.48
16	95	.89	.23	7570	4.8	97.0	200	.82	.45
17	156	1.1	.46	3420	2.2	22.0	231	.74	.46
18	512	1.4	1.93	1050	1.5	4.34	201	.74	.40
19	396	1.5	1.59	689	1.2	2.32	163	.70	.31
20	272	1.4	1.05	460	1.0	1.26	160	.60	.26
21	864	1.6	3.76	331	.83	.75	229	.48	.29
22	599	1.3	2.22	563	1.2	2.21	222	.54	.32
23	328	1.1	.93	1240	2.1	7.17	174	.52	.24
24	266	1.1	.81	1060	1.8	5.26	132	.51	.18
25	239	.92	.60	471	1.2	1.56	106	.51	.15
26	219	.87	.51	709	.98	1.86	101	.49	.13
27	171	.81	.37	376	.83	.84	90	.55	.13
28	152	.75	.31	442	.89	1.08	90	.47	.12
29	140	.74	.28	---	---	---	104	.49	.14
30	130	.70	.25	---	---	---	106	.52	.15
31	106	.59	.17	---	---	---	116	.53	.17
TOTAL	14252	---	67.22	33163	---	254.63	7032	---	14.44

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	216	.63	.38	93	.73	.18	93	.96	.24
2	685	2.0	3.95	87	.78	.18	85	1.0	.23
3	605	1.4	2.40	74	.81	.16	96	1.2	.30
4	652	1.2	2.03	134	1.2	.70	92	1.1	.28
5	530	1.0	1.46	1740	5.5	27.3	79	.87	.19
6	360	1.0	.96	884	3.0	7.55	69	.82	.15
7	290	.81	.64	442	1.7	2.10	68	1.0	.19
8	240	.62	.40	281	1.2	.94	185	1.6	1.06
9	207	.58	.32	210	.93	.53	814	5.4	12.0
10	745	1.4	5.90	187	.85	.43	395	3.6	3.98
11	5060	5.0	71.4	143	.80	.31	207	2.4	1.38
12	1570	2.1	8.80	120	.83	.27	125	1.8	.60
13	770	1.8	3.86	607	1.8	3.66	95	1.6	.40
14	553	1.5	2.23	821	2.8	6.31	79	1.4	.31
15	511	1.3	1.77	406	1.8	2.02	66	1.4	.24
16	399	1.0	1.09	2390	4.5	39.5	57	1.4	.22
17	292	.79	.63	2060	4.1	27.1	47	1.3	.16
18	233	.77	.49	809	1.3	2.81	40	1.3	.14
19	197	.73	.39	441	1.6	1.93	42	1.3	.15
20	200	.77	.42	327	1.3	1.18	41	.96	.11
21	959	1.8	5.53	395	1.4	1.54	40	1.5	.16
22	958	2.2	6.01	235	1.1	.71	47	1.1	.14
23	499	1.2	1.59	162	1.1	.49	47	1.0	.13
24	355	.89	.85	131	1.0	.36	57	.82	.13
25	249	.82	.55	108	.90	.26	55	.96	.14
26	183	.77	.38	193	.62	.33	47	.86	.11
27	141	.73	.28	269	1.0	.75	39	.82	.086
28	128	.74	.26	177	.97	.47	47	.76	.096
29	112	.66	.20	145	.90	.35	50	.86	.12
30	103	.75	.21	128	.92	.32	39	.97	.10
31	---	---	---	106	.95	.27	---	---	---
TOTAL	18002	---	125.38	14305	---	131.01	3243	---	23.542
		JULY			AUGUST			SEPTEMBER	
1	38	.99	.10	166	5.5	2.51	69	.78	.15
2	35	.92	.087	82	4.1	.93	68	.74	.14
3	35	.94	.089	63	3.4	.58	65	.97	.17
4	31	1.0	.085	75	3.6	.84	65	.86	.15
5	30	.84	.068	453	10	11.6	59	.85	.13
6	27	.77	.056	800	6.7	14.4	63	.87	.15
7	25	.79	.053	995	8.3	23.0	86	1.3	.31
8	25	.83	.056	362	4.7	4.64	82	1.1	.24
9	23	.92	.057	176	2.0	1.03	3870	4.9	68.1
10	25	1.0	.069	109	.95	.28	1380	3.3	13.1
11	68	1.6	.36	87	1.1	.26	401	1.7	1.93
12	533	3.1	4.97	76	1.3	.27	208	1.1	.64
13	794	3.5	7.54	400	1.7	2.24	131	.94	.33
14	1940	4.2	23.9	1060	2.6	7.88	237	1.6	1.63
15	2170	3.3	20.8	349	1.6	1.55	822	2.3	5.24
16	546	2.2	3.28	170	1.3	.62	368	1.3	1.31
17	236	1.8	1.16	104	1.3	.37	276	1.0	.78
18	127	1.5	.52	92	1.2	.30	200	1.1	.59
19	83	1.3	.28	112	1.1	.36	147	.94	.37
20	62	1.3	.21	1750	3.3	17.1	134	.89	.32
21	56	1.3	.20	495	1.9	2.61	112	.83	.25
22	322	2.3	2.79	277	1.6	1.18	114	.74	.23
23	1720	4.8	22.4	177	1.4	.64	126	.71	.24
24	546	4.0	6.02	138	1.2	.46	103	.78	.22
25	235	2.8	1.85	120	.81	.26	82	.64	.14
26	133	2.9	1.03	102	.85	.23	76	.62	.13
27	87	2.4	.57	94	.83	.21	67	.62	.11
28	72	2.1	.41	86	.77	.18	63	.62	.11
29	59	2.0	.32	79	.81	.17	65	.72	.13
30	62	2.1	.35	76	.85	.17	110	.85	.26
31	205	4.9	3.14	74	.90	.18	---	---	---
TOTAL	10350	---	102.820	9199	---	97.05	9649	---	97.60
YEAR	125274		946.221						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	.120	.004	21	.084	.005	71	.062	.012
2	12	.098	.003	20	.057	.003	66	.041	.007
3	13	.081	.003	18	.063	.003	57	.067	.010
4	14	.088	.003	17	.060	.003	56	.045	.007
5	14	.106	.004	21	.061	.003	62	.052	.009
6	15	.127	.005	20	.065	.003	56	.058	.009
7	14	.131	.005	20	.128	.007	52	.070	.010
8	12	.146	.005	24	.103	.007	48	.036	.005
9	14	.141	.005	41	.081	.009	45	.031	.004
10	18	.185	.010	38	.027	.003	42	.030	.003
11	20	.132	.007	36	.024	.002	40	.033	.004
12	16	.084	.004	25	.034	.002	39	.051	.005
13	14	.076	.003	22	.026	.002	38	.053	.005
14	13	.069	.002	20	.023	.001	37	.051	.005
15	13	.095	.003	70	.180	.082	36	.050	.005
16	15	.120	.005	1270	1.16	4.13	36	.056	.005
17	25	.321	.022	704	.519	1.12	35	.061	.006
18	23	.107	.007	287	.232	.19	34	.065	.006
19	106	.331	.12	153	.172	.072	34	.063	.006
20	211	.437	.25	110	.129	.039	33	.060	.005
21	116	.192	.062	91	.104	.026	32	.058	.005
22	62	.128	.022	80	.075	.016	32	.056	.005
23	44	.098	.012	72	.071	.014	31	.054	.004
24	35	.088	.008	67	.068	.012	31	.052	.004
25	26	.094	.007	67	.049	.009	30	.050	.004
26	22	.105	.006	66	.041	.007	30	.048	.004
27	19	.108	.005	63	.047	.008	29	.046	.004
28	32	.075	.006	75	.068	.014	29	.044	.003
29	34	.062	.006	83	.067	.015	28	.042	.003
30	31	.062	.005	74	.064	.013	28	.041	.003
31	21	.073	.004	---	---	---	150	.102	.041
TOTAL	1037	---	0.613	3675	---	5.820	1367	---	0.208
		JANUARY			FEBRUARY			MARCH	
1	1200	.277	.90	108	.048	.015	466	.090	.11
2	1850	.384	1.92	3170	.865	8.11	417	.086	.097
3	1450	.374	1.46	2590	.558	4.18	449	.086	.11
4	1400	.382	1.44	1760	.503	2.44	316	.074	.064
5	1550	.378	1.58	1360	.407	1.52	249	.069	.047
6	470	.161	.20	939	.264	.70	204	.073	.040
7	260	.107	.075	683	.172	.32	184	.084	.041
8	180	.077	.037	501	.161	.22	166	.075	.034
9	140	.058	.022	394	.154	.16	241	.095	.064
10	250	.098	.066	452	.180	.22	362	.135	.13
11	320	.102	.088	378	.174	.18	402	.155	.17
12	200	.074	.040	267	.149	.11	380	.095	.098
13	130	.067	.024	224	.133	.081	312	.088	.074
14	106	.060	.017	206	.124	.069	247	.078	.052
15	101	.050	.014	1750	.505	4.67	212	.070	.040
16	95	.042	.011	7570	1.28	25.9	200	.073	.040
17	156	.058	.026	3420	.616	6.25	231	.055	.034
18	512	.172	.25	1050	.314	.91	201	.043	.024
19	396	.191	.21	689	.242	.45	163	.036	.016
20	272	.134	.10	460	.202	.25	160	.030	.013
21	864	.279	.66	331	.171	.15	229	.027	.017
22	599	.195	.33	563	.250	.46	222	.032	.019
23	328	.118	.11	1240	.366	1.23	174	.030	.014
24	266	.091	.066	1060	.334	.97	132	.028	.010
25	239	.087	.056	471	.178	.23	106	.027	.008
26	219	.086	.051	709	.126	.24	101	.032	.009
27	171	.079	.036	376	.104	.11	90	.024	.006
28	152	.068	.028	442	.086	.10	90	.015	.004
29	140	.061	.023	---	---	---	104	.018	.005
30	130	.053	.019	---	---	---	106	.024	.007
31	106	.046	.013	---	---	---	116	.029	.009
TOTAL	14252	---	9.872	33163	---	60.245	7032	---	1.406

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	216	.042	.025	93	.055	.014	93	.110	.028
2	685	.298	.61	87	.049	.012	85	.106	.024
3	605	.182	.31	74	.041	.008	96	.131	.034
4	652	.091	.16	134	.314	.24	92	.120	.030
5	530	.083	.12	1740	1.05	5.07	79	.093	.020
6	360	.125	.12	884	.355	.93	69	.109	.020
7	290	.141	.11	442	.156	.19	68	.140	.026
8	240	.124	.081	281	.091	.070	185	.362	.28
9	207	.110	.062	210	.067	.039	814	1.16	2.55
10	745	.364	1.65	187	.055	.028	395	.878	.98
11	5060	1.21	17.5	143	.048	.019	207	.593	.33
12	1570	.402	1.78	120	.052	.017	125	.438	.15
13	770	.248	.53	607	.324	.71	95	.311	.080
14	553	.179	.27	821	.450	1.06	79	.259	.055
15	511	.141	.20	406	.168	.19	66	.235	.042
16	399	.107	.12	2390	.995	9.40	57	.226	.035
17	292	.078	.062	2060	.924	6.23	47	.225	.028
18	233	.050	.032	809	.393	.88	40	.239	.026
19	197	.039	.021	441	.247	.30	42	.199	.022
20	200	.053	.029	327	.206	.18	41	.091	.010
21	959	.327	1.04	395	.328	.36	40	.248	.027
22	958	.409	1.13	235	.203	.13	47	.121	.015
23	499	.151	.21	162	.144	.063	47	.113	.014
24	355	.067	.066	131	.125	.044	57	.117	.018
25	249	.048	.032	108	.126	.037	55	.110	.016
26	183	.030	.015	193	.196	.10	47	.111	.014
27	141	.032	.012	269	.178	.13	39	.137	.014
28	128	.027	.010	177	.109	.053	47	.114	.014
29	112	.027	.008	145	.085	.033	50	.138	.018
30	103	.037	.010	128	.080	.028	39	.178	.019
31	---	---	---	106	.095	.027	---	---	---
TOTAL	18002	---	26.325	14305	---	26.592	3243	---	4.939
		JULY			AUGUST			SEPTEMBER	
1	38	.151	.015	166	1.11	.50	69	.094	.018
2	35	.145	.014	82	.897	.20	68	.082	.015
3	35	.145	.014	63	.792	.14	65	.088	.015
4	31	.159	.013	75	.841	.19	65	.085	.015
5	30	.081	.007	453	1.92	2.31	59	.090	.014
6	27	.091	.007	800	1.66	3.69	63	.139	.025
7	25	.108	.007	995	2.07	5.80	86	.428	.10
8	25	.092	.006	362	1.11	1.09	82	.286	.062
9	23	.115	.007	176	.438	.23	3870	1.46	19.1
10	25	.149	.010	109	.192	.057	1380	.580	2.81
11	68	.315	.080	87	.171	.040	401	.274	.31
12	533	.609	.94	76	.141	.029	208	.190	.11
13	794	.608	1.31	400	.343	.50	131	.124	.044
14	1940	.678	3.78	1060	.728	2.24	237	.348	.44
15	2170	.544	3.43	349	.305	.29	822	.618	1.42
16	546	.363	.54	170	.225	.11	368	.261	.26
17	236	.286	.19	104	.187	.053	276	.192	.14
18	127	.234	.081	92	.155	.039	200	.282	.14
19	83	.204	.046	112	.153	.055	147	.657	.26
20	62	.181	.030	1750	.987	5.40	134	.558	.20
21	56	.187	.028	495	.479	.65	112	.423	.13
22	322	.497	.75	277	.393	.30	114	.233	.071
23	1720	1.11	5.29	177	.222	.11	126	.217	.074
24	546	.806	1.20	138	.159	.060	103	.241	.068
25	235	.632	.41	120	.144	.047	82	.068	.015
26	133	.623	.22	102	.133	.037	76	.046	.010
27	87	.522	.12	94	.176	.044	67	.044	.008
28	72	.418	.082	86	.214	.050	63	.061	.010
29	59	.389	.063	79	.135	.029	65	.075	.013
30	62	.434	.076	76	.108	.022	110	.103	.032
31	205	1.27	.76	74	.094	.019	---	---	---
TOTAL	10350	---	19.526	9199	---	24.331	9649	---	25.929
YEAR	125274		205.769						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	13	2	.07	21	3	.19	71	13	2.5
2	12	2	.07	20	3	.18	66	9	1.7
3	13	2	.07	18	3	.16	57	8	1.2
4	14	2	.07	17	3	.15	56	10	1.5
5	14	2	.07	21	3	.18	62	13	2.2
6	15	2	.08	20	3	.17	56	11	1.7
7	14	2	.08	20	4	.21	52	11	1.5
8	12	2	.08	24	7	.49	48	12	1.5
9	14	3	.09	41	12	1.3	45	12	1.4
10	18	3	.13	38	12	1.2	42	11	1.3
11	20	3	.15	36	12	1.2	40	11	1.2
12	16	4	.15	25	12	.83	39	11	1.1
13	14	4	.15	22	13	.76	38	10	1.1
14	13	4	.14	20	12	.67	37	10	1.0
15	13	4	.14	70	32	10	36	10	.95
16	15	4	.16	1270	423	1640	36	9	.92
17	25	4	.27	704	178	379	35	9	.86
18	23	5	.36	287	65	53	34	9	.81
19	106	46	18	153	34	14	34	9	.79
20	211	105	62	110	19	5.8	33	8	.74
21	116	52	17	91	12	3.0	32	8	.70
22	62	23	3.9	80	9	1.9	32	8	.68
23	44	12	1.5	72	7	1.3	31	8	.63
24	35	7	.65	67	5	.92	31	7	.61
25	26	4	.30	67	5	.90	30	7	.58
26	22	4	.23	66	4	.80	30	7	.56
27	19	4	.19	63	4	.69	29	7	.52
28	32	4	.32	75	9	1.8	29	6	.51
29	34	4	.34	83	16	3.6	28	6	.47
30	31	4	.30	74	14	2.8	28	6	.46
31	21	3	.20	---	---	---	150	22	8.8
TOTAL	1037	---	107.26	3675	---	2127.20	1367	---	40.49
		JANUARY			FEBRUARY			MARCH	
1	1200	123	399	108	7	2.2	466	26	32
2	1850	376	1880	3170	597	6780	417	17	20
3	1450	200	782	2590	346	2820	449	20	24
4	1400	166	627	1760	290	1460	316	16	13
5	1550	210	877	1360	163	638	249	13	8.9
6	470	72	91	939	82	218	204	11	6.3
7	260	38	26	683	39	73	184	10	5.0
8	180	18	8.7	501	30	41	166	11	5.2
9	140	16	6.1	394	23	24	241	22	16
10	250	39	26	452	25	30	362	40	40
11	320	25	21	378	23	24	402	44	48
12	200	14	7.5	267	18	13	380	28	29
13	130	11	3.8	224	15	9.1	312	19	16
14	106	8	2.2	206	14	7.7	247	13	8.5
15	101	5	1.4	1750	164	1910	212	10	5.9
16	95	4	.91	7570	635	12800	200	10	5.2
17	156	11	5.7	3420	230	2430	231	7	4.6
18	512	103	153	1050	81	241	201	7	3.5
19	396	64	72	689	37	69	163	6	2.7
20	272	36	28	460	27	34	160	6	2.6
21	864	136	326	331	21	19	229	6	3.8
22	599	63	109	563	58	127	222	6	3.9
23	328	21	19	1240	181	613	174	5	2.2
24	266	14	10	1060	128	386	132	8	2.7
25	239	13	8.2	471	67	87	106	12	3.4
26	219	16	9.2	709	89	206	101	12	3.2
27	171	18	8.1	376	30	31	90	13	3.3
28	152	12	5.1	442	25	31	90	15	3.6
29	140	8	2.8	---	---	---	104	10	2.8
30	130	6	2.1	---	---	---	106	3	.79
31	106	5	1.4	---	---	---	116	3	.96
TOTAL	14252	---	5519.21	33163	---	31124.0	7032	---	327.05

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	216	13	9.4	93	3	.75	93	25	6.3
2	685	96	191	87	3	.68	85	26	6.0
3	605	41	69	74	2	.43	96	24	6.2
4	652	33	59	134	19	15	92	21	5.3
5	530	24	35	1740	653	3450	79	18	3.9
6	360	13	13	884	169	460	69	16	3.0
7	290	7	5.1	442	35	43	68	14	2.6
8	240	5	3.2	281	18	14	185	69	66
9	207	4	2.2	210	9	5.1	814	642	1460
10	745	23	138	187	5	2.5	395	295	335
11	5060	584	8350	143	2	.91	207	111	65
12	1570	221	1020	120	2	.65	125	57	20
13	770	78	168	607	105	300	95	36	9.2
14	553	41	62	821	153	377	79	40	8.5
15	511	30	42	406	44	50	66	51	9.1
16	399	22	24	2390	664	6400	57	46	7.1
17	292	16	13	2060	382	2520	47	44	5.5
18	233	11	7.0	809	109	254	40	43	4.6
19	197	7	3.9	441	48	58	42	38	4.4
20	200	7	3.7	327	43	38	41	36	4.0
21	959	204	703	395	286	316	40	44	4.8
22	958	209	593	235	102	68	47	40	5.1
23	499	42	59	162	32	14	47	46	5.9
24	355	13	12	131	26	9.4	57	56	8.7
25	249	8	5.6	108	18	5.3	55	66	9.7
26	183	6	3.1	193	51	27	47	58	7.4
27	141	7	2.5	269	61	45	39	48	5.0
28	128	5	1.8	177	24	12	47	39	4.9
29	112	5	1.4	145	10	3.7	50	41	5.5
30	103	3	.90	128	10	3.4	39	47	5.0
31	---	---	---	106	29	8.4	---	---	---
TOTAL	18002	---	11600.80	14305	---	14502.22	3243	---	2093.7
	JULY			AUGUST			SEPTEMBER		
1	38	23	2.3	166	104	49	69	6	1.1
2	35	9	.90	82	51	12	68	7	1.3
3	35	8	.77	63	24	4.1	65	8	1.4
4	31	10	.80	75	25	7.2	65	7	1.2
5	30	11	.93	453	190	288	59	6	.99
6	27	9	.68	800	437	1070	63	10	1.8
7	25	7	.49	995	519	1530	86	25	6.0
8	25	7	.45	362	102	109	82	11	2.3
9	23	6	.40	176	50	24	3870	361	5610
10	25	6	.41	109	30	9.1	1380	161	764
11	68	35	10	87	18	4.2	401	47	54
12	533	337	623	76	16	3.3	208	25	14
13	794	483	1050	400	125	220	131	13	4.9
14	1940	739	5480	1060	248	790	237	67	122
15	2170	630	4470	349	77	78	822	288	737
16	546	108	181	170	38	18	368	62	62
17	236	49	32	104	23	6.5	276	29	22
18	127	33	12	92	18	4.6	200	18	9.9
19	83	23	5.2	112	19	6.4	147	12	4.9
20	62	15	2.5	1750	411	2450	134	9	3.3
21	56	10	1.5	495	131	186	112	7	2.2
22	322	165	448	277	57	44	114	9	2.7
23	1720	430	2160	177	31	15	126	20	6.8
24	546	72	117	138	21	7.9	103	16	4.4
25	235	38	25	120	12	3.9	82	11	2.4
26	133	24	8.8	102	9	2.4	76	7	1.4
27	87	13	3.1	94	7	1.8	67	4	.77
28	72	9	1.8	86	6	1.5	63	3	.53
29	59	7	1.2	79	6	1.3	65	3	.56
30	62	11	2.3	76	6	1.2	110	12	4.1
31	205	135	94	74	5	1.0	---	---	---
TOTAL	10350	---	14736.53	9199	---	6949.4	9649	---	7449.95
YEAR	125274		96621.19						

STREAMS TRIBUTARY TO LAKE ERIE

04199155 OLD WOMAN'S CREEK AT BERLIN ROAD NR HURON, OH

LOCATION.--Lat 41°20'54", long 82°22'50", Erie County, Hydrologic Unit 04100012, on left downstream side of Berlin Road Bridge, 3.8 mi southeast of Huron.

DRAINAGE AREA.--22.1 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 570 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 5 to Jan. 1. Records good except for periods of estimated record and those greater than 25 ft³/s which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 881 ft³/s May 26, 1989, gage height 11.16 ft; minimum daily discharge, no flow many days.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 16	0415	384	7.72	Feb. 22	1900	219	6.89
Dec. 31	2000	235	7.07	Apr. 10	2330	564	9.77
Jan. 4	1945	233	7.05	May 5	0645	251	7.24
Jan. 21	0315	118	5.69	May 16	1430	186	6.51
Feb. 2	1515	461	9.05	Sept. 9	1230	*705	*10.64
Feb. 16	0230	567	9.79				

Minimum daily discharge, no flow Oct. 5-9, July 5-10, Sept. 1-6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	1.4	4.6	100	32	26	7.8	4.1	2.5	.29	.36	.00
2	.05	1.3	4.3	33	373	26	11	3.6	2.3	.18	.24	.00
3	.02	1.2	3.9	28	109	25	12	3.3	2.6	.10	.14	.00
4	.01	1.1	3.6	132	114	16	23	11	2.4	.05	.84	.00
5	.00	1.2	3.4	98	69	13	20	117	2.1	.00	10	.00
6	.00	2.1	3.3	39	61	11	11	34	1.9	.00	3.0	.00
7	.00	2.7	3.1	28	46	11	9.0	18	1.7	.00	2.2	1.0
8	.00	3.8	2.9	27	31	9.7	7.6	10	4.2	.00	1.5	.52
9	.00	5.5	2.7	27	29	19	6.7	7.3	7.5	.00	.86	318
10	.55	5.2	2.5	49	28	25	149	6.4	2.9	.00	.56	34
11	.86	3.7	2.3	42	25	26	228	5.0	1.8	.02	.41	12
12	.44	2.9	2.2	29	19	22	50	4.3	1.4	.52	.29	5.2
13	.30	2.3	2.1	18	15	16	30	28	1.2	.58	13	3.3
14	.24	2.3	2.0	15	15	14	29	21	1.2	37	11	11
15	.16	32	1.9	13	234	11	28	11	.98	23	2.6	35
16	.86	211	1.9	18	470	11	24	101	.70	6.3	1.3	27
17	7.1	52	2.1	27	83	11	19	33	.57	2.7	.91	25
18	2.6	22	2.7	56	31	8.7	13	19	.46	1.6	.69	8.8
19	46	11	3.5	32	28	8.1	11	9.7	.34	1.1	1.4	6.9
20	27	11	2.8	39	23	8.6	12	14	.38	.94	1.3	5.9
21	8.8	8.9	2.2	92	18	8.3	70	34	.51	1.0	.98	3.6
22	6.6	6.7	2.0	46	88	7.9	28	13	.50	12	.89	3.5
23	4.5	5.7	1.8	31	98	7.0	22	7.9	.49	23	.76	2.8
24	3.0	4.9	1.7	30	49	6.1	15	5.7	.57	6.9	.64	2.2
25	2.2	4.7	1.6	28	29	5.7	11	4.8	.54	2.9	.55	1.6
26	1.7	4.8	1.4	29	27	5.3	9.0	10	.36	1.7	.47	1.3
27	1.4	4.6	1.3	25	26	4.8	7.6	7.4	.25	1.2	.40	1.1
28	1.3	8.7	1.2	18	32	4.6	6.6	5.1	.31	.91	.29	.96
29	1.2	7.2	1.1	19	---	4.6	5.5	5.3	.52	.68	.16	1.4
30	1.1	5.5	3.0	17	---	5.2	4.8	4.5	.37	.50	.08	2.5
31	1.3	---	80	15	---	5.6	---	3.2	---	.46	.03	---
TOTAL	119.33	437.4	155.1	1200	2202	383.2	880.6	561.6	43.55	125.63	57.85	514.58
MEAN	3.85	14.6	5.00	38.7	78.6	12.4	29.4	18.1	1.45	4.05	1.87	17.2
MAX	46	211	80	132	470	26	228	117	7.5	37	13	318
MIN	.00	1.1	1.1	13	15	4.6	4.8	3.2	.25	.00	.03	.00
CFSM	.17	.66	.23	1.75	3.56	.56	1.33	.82	.07	.18	.08	.78
IN.	.20	.74	.26	2.02	3.71	.65	1.48	.95	.07	.21	.10	.87

CAL YR 1989 TOTAL 5484.92 MEAN 15.0 MAX 454 MIN .00 CFSM .68 IN. 9.23
WTR YR 1990 TOTAL 6680.84 MEAN 18.3 MAX 470 MIN .00 CFSM .83 IN. 11.25

STREAMS TRIBUTARY TO LAKE ERIE

04199165 OLD WOMAN'S CREEK AT U.S. 6 AT HURON, OH

LOCATION.--Lat 41°22'51", long 82°30'53", Erie County, Hydrologic Unit 04100012, on left bank at U.S. Highway 6 and State Highway 2 bridge, 0.75 mi east of Huron.

DRAINAGE AREA.--26.5 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 560.00 ft above National Geodetic Vertical Datum of 1929. Oct. 1982 to Sept. 1985 at same site at datum 0.10 ft lower.

REMARKS.--Interruptions in record are due to malfunctions of the instruments.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded gage height, 22.20 ft Feb. 5, 1988 due to ice jam; minimum recorded gage height, 9.95 ft Dec. 16, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 16.11 ft Oct. 25-28; minimum recorded gage height, 10.60 ft Nov. 19.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.92	11.76	11.93	12.57	11.79	---	12.89	12.96	14.13	14.52	13.27	13.47
2	14.91	12.06	11.46	11.70	12.83	---	12.86	13.02	14.18	14.51	13.10	13.45
3	14.88	12.25	12.07	11.49	12.47	---	13.05	13.11	14.24	14.49	13.06	13.45
4	14.86	11.94	11.84	11.80	12.47	---	13.06	13.45	14.25	14.47	13.00	13.45
5	14.85	11.74	11.74	11.75	11.81	---	12.94	13.40	14.28	14.43	13.09	13.44
6	14.84	11.89	11.86	11.49	11.87	---	13.03	13.07	14.32	14.40	13.35	13.44
7	14.81	12.43	11.90	11.36	12.09	---	13.17	12.83	14.33	14.39	13.30	13.51
8	14.80	12.45	11.94	11.52	12.02	---	13.34	12.87	14.38	14.36	13.00	13.56
9	14.78	11.38	11.91	11.45	11.96	---	13.50	12.94	14.49	14.35	13.07	14.18
10	14.80	11.71	11.53	11.31	12.00	12.79	13.68	12.37	14.54	14.34	13.04	13.03
11	14.82	11.21	11.98	11.08	12.19	12.88	13.46	12.50	14.56	14.32	12.97	13.22
12	14.82	11.98	11.79	11.20	12.10	12.77	13.00	13.02	14.58	14.40	13.01	13.16
13	14.81	11.84	11.88	11.43	11.95	12.74	12.91	13.34	14.59	14.55	13.30	13.13
14	14.80	11.83	11.46	11.57	12.92	12.81	12.88	13.23	14.60	14.77	13.34	12.87
15	14.79	12.00	11.76	11.48	13.51	12.79	12.85	13.08	14.61	15.39	13.02	13.04
16	14.79	11.58	11.33	11.59	12.70	12.79	13.00	13.22	14.60	15.53	13.00	13.56
17	14.93	11.08	11.38	11.54	12.25	12.63	13.00	13.00	14.61	15.57	13.04	13.38
18	14.97	11.36	11.33	11.62	---	12.56	12.92	13.02	14.60	15.56	13.00	13.09
19	15.34	11.49	11.69	11.77	---	13.15	12.96	13.32	14.56	15.54	13.58	12.99
20	15.82	11.31	11.22	12.13	---	12.93	12.92	13.58	14.56	15.52	13.67	13.11
21	15.95	12.22	11.25	11.76	---	12.73	13.10	13.78	14.56	15.51	13.51	12.97
22	16.02	12.16	11.23	11.48	---	12.66	13.03	13.95	14.56	15.56	13.55	12.70
23	16.07	12.05	11.45	11.82	---	12.80	13.06	13.33	14.55	15.88	13.54	12.83
24	16.10	11.46	11.22	11.49	---	12.91	13.05	13.29	14.54	16.02	13.54	12.51
25	16.11	11.33	10.99	11.64	---	12.58	12.97	13.35	14.54	16.04	13.54	12.23
26	16.11	11.78	11.38	11.30	---	12.77	13.00	13.49	14.54	16.04	13.54	12.73
27	16.11	11.88	11.39	11.65	---	12.80	13.05	13.40	14.52	14.94	13.54	12.88
28	14.77	11.69	11.38	11.69	---	12.74	13.03	13.45	14.52	13.18	13.53	12.81
29	12.24	11.69	11.68	12.20	---	13.16	13.01	13.82	14.52	13.13	13.51	12.93
30	12.21	11.35	11.87	11.82	---	13.12	13.03	14.02	14.52	13.18	13.48	12.97
31	11.90	---	12.06	11.86	---	12.96	---	14.08	---	13.39	13.47	---
MEAN	14.90	11.76	11.61	11.63	---	---	13.06	13.27	14.48	14.78	13.29	13.14
MAX	16.11	12.45	12.07	12.57	---	---	13.68	14.08	14.61	16.04	13.67	14.18
MIN	11.90	11.08	10.99	11.08	---	---	12.85	12.37	14.13	13.13	12.97	12.23

CAL YR 1989 MEAN 13.14 MAX 16.11 MIN 10.81

STREAMS TRIBUTARY TO LAKE ERIE

04199175 LAKE ERIE AT RUGGLES BEACH, OH

LOCATION.--Lat 41°22'59", long 82°28'22", Erie County, Hydrologic Unit 04100012, on left bank, at mouth of Cranberry Creek, at Ruggles Beach, 4.5 mi east of Huron.

PERIOD OF RECORD.--Oct. 29, 1986 to current year.

GAGE.--Water-stage recorder. Datum of gage is 560.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Interruptions in record are due to malfunctions of the instruments.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded gage height, 17.98 ft Jan. 19, 1987; minimum recorded gage height, 11.01 ft Nov. 11, 16-18, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 14.79 ft Oct. 19, minimum recorded gage height, 11.01 ft Nov. 11, 16-18.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.79	11.98	12.28	11.58	12.14	12.75	13.14	13.20	13.59	13.53	13.45	13.30
2	12.72	12.28	11.63	11.40	12.67	12.67	13.03	13.30	13.46	13.50	13.42	13.35
3	12.77	12.48	12.35	11.72	12.61	13.14	13.25	13.35	13.11	13.42	13.37	13.53
4	12.52	12.25	12.08	11.72	12.61	13.05	13.09	13.58	13.42	13.19	13.33	13.31
5	12.50	12.01	12.10	11.88	12.13	13.48	13.05	13.34	13.51	13.47	13.35	13.20
6	12.28	12.03	12.14	11.82	12.23	13.73	13.21	13.34	13.44	13.59	13.45	13.31
7	12.52	12.61	12.18	11.66	12.43	13.47	12.98	13.15	13.54	13.51	13.39	13.29
8	12.62	12.50	12.27	11.87	12.37	13.21	13.09	13.18	13.55	13.35	13.33	13.70
9	12.56	11.63	12.22	11.85	12.34	13.02	13.05	13.28	13.50	13.38	13.37	13.53
10	12.10	12.04	11.88	11.68	12.36	13.04	13.28	12.42	13.58	13.47	13.31	13.34
11	12.41	11.52	12.22	11.38	12.53	13.14	13.24	12.80	13.59	13.55	13.29	13.51
12	12.34	12.28	12.15	11.65	12.45	12.98	13.19	13.35	13.57	13.95	13.32	13.48
13	12.52	12.17	12.22	11.79	12.27	13.02	13.24	13.43	13.52	13.99	13.52	13.47
14	12.61	12.12	11.79	11.96	12.97	13.11	13.18	13.48	13.53	13.79	13.44	13.14
15	12.50	12.28	12.16	11.87	13.29	13.11	13.16	13.39	13.57	13.46	13.30	13.31
16	12.53	11.61	---	11.97	12.43	13.09	13.32	13.44	13.61	13.37	13.31	13.74
17	13.04	11.38	11.73	11.91	12.51	12.89	13.17	13.16	13.57	13.37	13.39	13.55
18	13.06	11.56	11.68	11.94	12.62	12.84	13.17	13.25	13.43	13.42	13.32	13.39
19	13.51	11.77	12.12	12.12	12.47	13.21	13.27	13.62	13.52	13.44	13.83	13.30
20	11.88	11.63	11.56	12.32	12.69	13.12	13.24	13.71	13.52	13.40	13.63	13.38
21	11.89	12.47	11.62	11.91	12.65	13.04	13.36	13.74	13.41	13.53	13.64	13.31
22	12.36	12.43	11.61	11.75	12.84	12.94	13.34	13.70	13.39	13.96	13.59	12.98
23	12.55	12.29	11.88	12.16	13.07	13.05	13.37	13.56	12.82	13.60	13.56	13.09
24	12.52	11.81	11.59	11.84	13.22	13.16	13.37	13.60	13.39	13.49	13.44	12.66
25	12.55	11.66	11.22	11.92	13.07	12.88	13.30	13.64	13.50	13.50	13.39	12.55
26	12.57	12.11	11.68	11.66	12.93	12.98	13.32	13.66	13.46	13.50	13.33	13.08
27	12.56	12.24	11.76	11.94	12.87	13.11	13.37	13.59	13.49	13.55	13.28	13.19
28	12.55	11.97	11.76	12.04	13.04	13.04	13.33	13.69	13.61	13.51	13.12	13.13
29	12.55	11.92	12.08	12.47	---	13.34	13.32	13.79	13.42	13.45	13.42	13.24
30	12.52	11.58	12.24	12.12	---	13.20	13.34	13.61	13.49	13.48	13.46	13.15
31	12.24	---	11.80	12.20	---	13.18	---	13.58	---	13.50	13.46	---
MEAN	12.54	12.02	---	11.87	12.64	13.10	13.23	13.42	13.47	13.52	13.41	13.28
MAX	13.51	12.61	---	12.47	13.29	13.73	13.37	13.79	13.61	13.99	13.83	13.74
MIN	11.88	11.38	---	11.38	12.13	12.67	12.98	12.42	12.82	13.19	13.12	12.55

04200500 BLACK RIVER AT ELYRIA, OH

LOCATION.--Lat 41°22'49", long 82°06'17", in T.6 N., R.17 W., Lorain County, Hydrologic Unit 04110001, on left bank in Cascade Park at Elyria, 0.8 mi downstream from confluence of East and West Branches.

DRAINAGE AREA.--396 mi².

PERIOD OF RECORD.--October 1944 to current year. Records for May 1903 to July 1906 (published as "near Elyria") published in WSP 97, 129, and 205, are unreliable and should not be used.

REVISED RECORDS.--WSP 1912: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 620.83 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct 1-3, Dec. 5-13, Dec. 18 to Jan. 1. Records good except for discharges greater than 1,000 ft³/s and for periods of estimated record, which are fair. Some regulation at low flow for industrial use. Water-quality data collected at this site 1969 to 1974. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--46 years, 331 ft³/s, 11.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,700 ft³/s July 6, 1969, gage height, 26.4 ft, (from flood mark), from rating curve extended above 13,000 ft³/s on basis of slope-area measurement of peak flow; no flow for part of Oct. 10, 1956 (result of temporary storage at dam upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 3	0200	5,090	10.46	Apr. 22	0530	3,410	8.49
Feb. 16	2130	*7,590	*12.84	May 16	2200	3,790	8.96
Apr. 11	0730	5,380	10.77				

Minimum daily discharge, 6.8 ft³/s Oct. 7, 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	20	104	1000	191	672	76	71	186	34	19	12
2	24	19	91	1290	3320	564	302	59	112	59	41	11
3	18	20	72	601	4650	549	681	50	82	30	27	9.5
4	11	18	54	860	2560	411	625	115	63	21	42	9.2
5	8.2	24	45	1600	2270	270	626	705	54	16	78	9.3
6	6.9	27	43	1020	1130	211	422	735	47	13	1250	9.1
7	6.8	32	40	489	771	165	284	373	42	10	859	234
8	8.5	50	38	315	637	145	261	211	58	8.6	835	144
9	6.8	64	35	271	483	190	213	140	216	8.6	266	760
10	23	60	33	451	580	315	970	103	430	8.0	128	553
11	15	48	32	657	589	355	5100	75	196	13	75	245
12	13	44	31	468	384	329	2930	67	102	63	52	110
13	11	37	29	274	274	285	1110	257	69	1120	106	64
14	6.9	39	39	175	230	243	665	794	52	1030	332	83
15	8.8	197	52	184	1590	191	467	533	42	1350	221	197
16	29	2180	49	208	6720	158	369	2130	34	632	108	522
17	105	2240	43	281	5120	142	287	3470	30	240	62	609
18	57	742	42	551	1060	139	240	2560	26	120	42	280
19	261	344	40	692	580	131	203	870	22	72	143	157
20	222	210	38	462	421	110	184	375	20	54	84	122
21	195	155	37	1270	305	106	1370	281	20	71	58	109
22	135	127	36	1200	415	101	3020	301	19	144	59	96
23	86	105	35	621	852	95	959	195	26	954	76	95
24	63	82	34	419	1030	84	445	135	164	554	71	218
25	47	71	33	343	594	73	292	106	114	219	50	113
26	39	96	32	344	335	67	209	120	66	108	39	65
27	32	115	31	329	359	64	156	197	49	65	30	44
28	25	211	31	220	595	56	126	203	40	44	24	34
29	22	171	30	176	---	53	103	153	31	33	20	31
30	20	120	50	156	---	50	86	369	24	26	17	34
31	24	---	150	139	---	57	---	382	---	20	14	---
TOTAL	1552.9	7668	1449	17066	38045	6381	22781	16135	2436	7140.2	5228	4979.1
MEAN	50.1	256	46.7	551	1359	206	759	520	81.2	230	169	166
MAX	261	2240	150	1600	6720	672	5100	3470	430	1350	1250	760
MIN	6.8	18	29	139	191	50	76	50	19	8.0	14	9.1
CFSM	.13	.65	.12	1.39	3.43	.52	1.92	1.31	.21	.58	.43	.42
IN.	.15	.72	.14	1.60	3.57	.60	2.14	1.52	.23	.67	.49	.47

CAL YR 1989 TOTAL 130407.1 MEAN 357 MAX 8130 MIN 6.8 CFSM .90 IN. 12.25
WTR YR 1990 TOTAL 130861.2 MEAN 359 MAX 6720 MIN 6.8 CFSM .91 IN. 12.29

04201500 ROCKY RIVER NEAR BEREA, OH

LOCATION.--Lat 41°24'24", long 81°53'14", in T.6 N., R.15 W., Cuyahoga County, Hydrologic Unit 04110001, on right bank at downstream side of Cedar Point Road Bridge in Rocky River Reservation, just downstream from confluence of East and West Branches, and 3.0 mi northwest of Berea.

DRAINAGE AREA.--267 mi².

PERIOD OF RECORD.--October 1923 to September 1935, September 1943 to current year. Monthly discharge only for October 1923, published in WSP 1307.

REVISED RECORDS.--WSP 1437: 1924, 1925(M), 1926, 1927(M), 1928-29, 1930-35(M), 1945. WSP 1912: Drainage area. WRD-OH-2-1983: 1978-1982(M).

GAGE.--Water-stage recorder. Datum of gage is 649.90 ft above National Geodetic Vertical Datum of 1929 (Cuyahoga County bench mark). Prior to Sept. 30, 1935, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 6-10 and Dec. 18 to Feb. 12. Records good except those for periods of estimated record which are fair. Some regulation at low flow by small reservoirs on East Branch. Some interbasin transfer of water from Lake Erie for municipal water supply by Cleveland Metro Water District. Water-quality data collected at this site 1964 to 1977.

AVERAGE DISCHARGE.--59 years, 274 ft³/s, 13.94 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s Jan. 22, 1959, gage height, 14.10 ft, from rating curve extended above 11,000 ft³/s on basis of contracted-opening measurement of peak flow; maximum gage height, 18.6 ft June 29, 1924 (backwater caused by tornado); minimum daily discharge, 0.2 ft³/s Sept. 2, 1932, Aug. 22, 27, 30, 1933.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 20.9 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 16	0430	6,230	5.62	Apr. 21	1300	4,120	4.66
Feb. 16	0700	*8.270	*6.46	May 16	1900	4,320	4.76
Apr. 11	0130	8,180	6.42	Sept. 7	1400	4,300	4.75

Minimum daily discharge, 29 ft³/s July 9, 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	104	134	1500	800	438	181	94	153	56	58	40
2	116	101	118	800	4300	421	677	82	115	66	49	38
3	93	86	108	540	2500	526	478	80	96	50	41	37
4	61	78	135	1000	1300	308	714	213	97	41	56	36
5	47	74	105	1600	1000	229	628	894	79	36	490	36
6	41	97	96	800	860	205	332	386	75	33	301	42
7	38	128	90	450	660	176	249	211	66	32	1030	2980
8	35	234	84	320	500	156	251	136	146	30	344	806
9	34	213	80	260	450	257	206	113	540	29	137	1220
10	92	158	78	230	560	416	1730	114	346	29	89	726
11	97	120	78	470	320	314	5260	102	148	48	69	238
12	76	99	77	350	260	262	1020	89	99	671	59	141
13	54	83	79	260	222	223	679	596	76	640	345	109
14	42	90	89	190	210	194	436	556	66	382	328	150
15	37	551	118	170	2860	171	401	279	61	497	125	432
16	44	4770	178	200	6130	161	304	2490	56	175	79	575
17	638	1090	152	250	1270	179	291	2760	51	106	62	960
18	367	436	130	580	522	160	282	1120	46	77	56	269
19	633	252	110	470	397	144	206	410	43	84	972	182
20	1010	196	94	390	290	155	189	253	45	111	482	245
21	483	183	90	1000	219	140	2720	223	58	272	182	182
22	318	145	85	560	400	129	1050	182	59	725	156	157
23	213	130	82	400	803	122	430	140	205	873	113	248
24	145	121	80	300	671	113	283	112	218	264	90	499
25	113	127	78	340	370	101	215	97	161	127	78	222
26	94	283	76	250	308	97	201	214	104	83	69	127
27	83	322	74	200	312	98	161	215	69	64	62	96
28	73	374	72	170	533	98	134	127	61	56	56	81
29	69	255	72	150	---	88	113	431	67	52	53	83
30	66	169	100	140	---	94	107	790	62	45	47	118
31	78	---	250	300	---	104	---	265	---	50	43	---
TOTAL	5334	11069	3192	14640	29027	6279	19928	13774	3468	5804	6121	11075
MEAN	172	369	103	472	1037	203	664	444	116	187	197	369
MAX	1010	4770	250	1600	6130	526	5260	2760	540	873	1030	2980
MIN	34	74	72	140	210	88	107	80	43	29	41	36
CFSM	.64	1.38	.39	1.77	3.88	.76	2.49	1.66	.43	.70	.74	1.38
IN.	.74	1.54	.44	2.04	4.04	.87	2.78	1.92	.48	.81	.85	1.54

CAL YR 1989 TOTAL 126382 MEAN 346 MAX 8030 MIN 26 CFSM 1.30 IN. 17.61
WTR YR 1990 TOTAL 129711 MEAN 355 MAX 6130 MIN 29 CFSM 1.33 IN. 18.07

04202000 CUYAHOGA RIVER AT HIRAM RAPIDS, OH

LOCATION.--Lat 41°20'26", long 81°10'01", in T.5 N., R.7 W., Portage County, Hydrologic Unit 04110002, on left bank at downstream side of bridge on Winchell Road at Hiram Rapids, 0.6 mi downstream from Black Brook.

DRAINAGE AREA.--151 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to December 1935 (published as "near Hiram"), October 1944 to current year.

REVISED RECORDS.--WSP 1054: 1945. WSP 1437: 1931. WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,087.46 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1927, nonrecording gage and Aug. 26, 1927, to Dec. 31, 1935, water-stage recorder, at site 2.8 mi downstream at different datum. Oct. 20, 1944, to Oct. 22, 1946, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Oct. 1, 2, Dec. 13-30. Records good except for estimated daily discharges which are fair. Flow regulated by East Branch Reservoir, usable capacity, 4,140 acre-ft, 14.6 mi upstream since 1939 and by LaDue Reservoir, usable capacity, 18,110 acre-ft, 9.8 mi upstream since 1961. Water-quality data collected at this site 1965 to 1977.

AVERAGE DISCHARGE.--54 years, 210 ft³/s, 18.89 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,670 ft³/s Jan. 23, 1959, gage height, 8.11 ft, from rating curve extended above 2,600 ft³/s; minimum daily, 6.6 ft³/s Sept. 10, 1933.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,390 ft³/s Feb. 17, gage height, 4.55 ft; minimum daily, 29 ft³/s July 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	61	207	315	303	388	86	67	248	65	191	98
2	110	63	178	404	555	368	191	60	209	54	188	94
3	127	66	148	487	888	375	262	54	177	47	167	88
4	117	68	121	560	1110	374	295	56	158	47	148	85
5	93	68	120	697	972	358	274	115	112	48	170	82
6	76	68	116	795	761	327	276	154	86	36	181	81
7	67	70	119	800	587	329	264	180	78	31	187	155
8	63	96	120	671	456	299	214	177	72	29	201	200
9	60	116	129	539	415	318	174	144	98	32	206	286
10	59	113	99	468	475	362	175	102	98	31	186	373
11	65	107	91	429	502	406	432	90	86	31	159	456
12	77	109	89	412	511	429	796	84	74	66	139	467
13	92	112	84	370	477	418	922	114	67	109	132	416
14	113	106	78	352	436	365	748	169	61	120	157	344
15	122	101	72	319	494	275	554	205	50	123	168	283
16	123	160	66	317	883	208	431	303	43	123	157	227
17	144	225	60	355	1280	183	334	452	39	113	139	224
18	169	322	56	436	1280	169	241	775	45	117	125	253
19	194	388	50	522	1040	160	188	985	41	107	119	288
20	222	373	48	554	798	151	152	888	34	95	117	279
21	241	334	44	547	600	135	181	705	35	122	118	236
22	254	326	42	524	501	95	243	534	37	120	121	206
23	242	341	40	505	496	78	325	412	79	170	111	182
24	208	322	38	473	541	71	310	287	122	190	78	183
25	163	268	36	429	536	67	227	194	134	195	72	187
26	121	222	34	393	516	64	172	160	128	197	67	189
27	94	194	32	353	458	60	127	148	104	174	62	179
28	78	198	32	324	423	58	97	134	79	155	68	154
29	70	214	31	299	---	57	84	158	80	142	105	110
30	65	220	30	275	---	61	73	208	78	137	107	92
31	62	---	166	275	---	68	---	246	---	164	103	---
TOTAL	3775	5431	2576	14199	18294	7076	8848	8360	2752	3190	4249	6497
MEAN	122	181	83.1	458	653	228	295	270	91.7	103	137	217
MAX	254	388	207	800	1280	429	922	985	248	197	206	467
MIN	59	61	30	275	303	57	73	54	34	29	62	81
CFSM	.81	1.20	.55	3.03	4.33	1.51	1.95	1.79	.61	.68	.91	1.43
IN.	.93	1.34	.63	3.50	4.51	1.74	2.18	2.06	.68	.79	1.05	1.60

CAL YR 1989 TOTAL 84909 MEAN 233 MAX 2140 MIN 30 CFSM 1.54 IN. 20.92
WTR YR 1990 TOTAL 85247 MEAN 234 MAX 1280 MIN 29 CFSM 1.55 IN. 21.00

STREAMS TRIBUTARY TO LAKE ERIE

04206000 CUYAHOGA RIVER AT OLD PORTAGE, OH

LOCATION.--Lat 41°08'08", long 81°32'50", Summit County, Hydrologic Unit 04110002, on right bank 230 ft upstream from North Portage Path bridge at Old Portage, 1.2 mi downstream from Little Cuyahoga River, and 4 mi northwest of Akron City Hall.

DRAINAGE AREA.--404 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1921 to December 1935, March 1939 to current year.

REVISED RECORDS.--WSP 1307: 1924(M). WSP 1912: Drainage area. WRD OH-79-2: 1974 (M), 1976 (M).

GAGE.--Water-stage recorder. Datum of gage is 740.11 ft above National Geodetic Vertical Datum of 1929, unadjusted. Prior to Dec. 21, 1923, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 14-30. Records good except those for periods of estimated record which are poor. Natural flow of stream affected by diversions, storage reservoirs and power plants. At Lake Rockwell, 17.7 mi upstream from gage, an average of 69 ft³/s was diverted for municipal supply of city of Akron. Sewage from city enters river 2.9 mi downstream from station. Some diversion from the Tuscarawas River basin drainage into this basin at Portage Lakes (see REMARKS for station 03116000 in volume 1 of this report). Sediment data collected at this site 1972-1981.

AVERAGE DISCHARGE.--65 years, 431 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 ft³/s Jan. 21, 1959, gage height, 11.54 ft, from rating curve extended above 3,900 ft³/s on basis of contracted-opening estimate at gage height 11.54 ft, at site with drainage area of 488 mi² adjusted to gaging station by drainage-area relation; maximum gage height, 13.29 ft Sept. 14, 1979; minimum daily, 26 ft³/s Sept. 2, 1945, July 5, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,640 ft³/s Sept. 7, gage height, 11.07 ft; minimum daily, 98 ft³/s July 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	195	323	727	596	740	259	322	551	153	361	150
2	551	180	380	647	1620	698	293	312	505	145	353	146
3	473	195	335	684	2200	668	253	305	427	135	358	149
4	448	187	202	775	2430	632	399	446	389	126	509	169
5	413	186	173	1110	2300	605	469	394	362	123	1480	311
6	371	201	198	1210	1930	577	476	312	351	119	796	433
7	343	243	255	1220	1560	538	426	274	378	113	639	2800
8	305	239	236	1140	1250	519	421	310	554	104	674	1820
9	263	226	228	1040	1020	562	373	315	689	98	702	1710
10	318	225	222	946	1010	567	647	324	560	100	623	1650
11	187	223	220	809	946	557	1070	303	471	252	509	1340
12	152	213	199	726	846	574	970	235	403	860	409	1160
13	131	203	194	645	797	577	1010	407	252	396	596	1110
14	126	201	190	629	807	564	1110	335	202	324	439	1020
15	122	234	180	591	1700	543	956	368	195	335	411	897
16	134	494	170	599	2260	508	761	565	170	304	356	741
17	342	327	160	619	2060	468	642	721	154	314	322	661
18	193	373	150	755	1940	384	538	899	141	267	303	616
19	276	471	150	834	1890	337	436	1110	127	428	486	623
20	286	507	140	939	1510	331	419	1210	136	377	333	555
21	258	425	130	1110	1270	320	945	1190	137	520	374	498
22	246	571	130	1150	1130	316	760	939	161	829	413	649
23	250	476	120	1040	1020	304	649	727	473	1140	231	551
24	349	421	120	940	991	209	599	587	203	877	215	478
25	317	403	120	915	880	193	543	499	177	744	250	340
26	277	414	110	840	790	192	418	545	171	666	240	415
27	234	363	110	821	791	191	374	432	162	615	244	448
28	198	380	110	707	788	186	352	392	175	501	244	423
29	188	369	100	665	---	187	333	727	173	363	213	397
30	187	369	100	602	---	192	333	705	160	441	157	424
31	193	---	588	549	---	172	---	619	---	527	150	---
TOTAL	8325	9514	6043	25984	38332	13411	17234	16829	9009	12296	13390	22684
MEAN	269	317	195	838	1369	433	574	543	300	397	432	756
MAX	551	571	588	1220	2430	740	1110	1210	689	1140	1480	2800
MIN	122	180	100	549	596	172	253	235	127	98	150	146

CAL YR 1989 TOTAL 181349 MEAN 497 MAX 2750 MIN 100
WTR YR 1990 TOTAL 193051 MEAN 529 MAX 2800 MIN 98

04207200 TINKERS CREEK AT BEDFORD, OH

LOCATION.--Lat 41°23'04", long 81°31'39", in T.6 N., R.11 W., Cuyahoga County, Hydrologic Unit 04110002, on left bank at downstream side of bridge on State Highway 14 in Bedford, 5.5 mi upstream from mouth.

DRAINAGE AREA.--83.9 mi².

PERIOD OF RECORD.--November 1962 to current year.

REVISED RECORDS.--WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 876.18 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 10-30. Records fair except for estimated daily discharges, which are poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected at this site 1974 to 1979.

AVERAGE DISCHARGE.--27 years (1963-89), 131 ft³/s, 21.21 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,220 ft³/s July 20, 1969, gage height, 10.10 ft, from rating curve extended above 3,400 ft³/s on the basis of contracted-opening measurement of peak flow; minimum, 5.2 ft³/s Aug. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*).

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 2	1330	1,770	6.31	May 17	0930	1,560	6.11
Feb. 15	2030	2,170	6.66	July 19	1830	2,410	6.85
Apr. 10	2030	2,170	6.66	Sept. 7	0430	*4,210	*8.18
May 16	1300	2,230	6.71	Sept. 9	0930	1,970	6.49

Minimum daily discharge, 11 ft³/s July 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	49	75	502	224	137	130	34	75	18	32	14
2	180	41	67	448	1380	153	277	32	51	17	24	12
3	88	81	59	194	912	158	270	31	63	17	20	12
4	43	52	58	443	843	119	379	125	75	16	52	14
5	32	42	53	440	583	103	240	191	62	15	160	24
6	27	55	62	255	314	96	137	112	53	14	314	279
7	24	109	86	134	213	85	114	69	49	13	442	2290
8	21	118	67	118	165	79	97	49	101	11	120	1320
9	23	97	72	110	203	121	82	39	186	13	66	1190
10	77	79	64	267	290	138	739	39	216	16	52	529
11	63	65	58	189	191	122	924	35	90	43	38	221
12	43	60	54	141	128	111	571	34	54	202	44	122
13	32	53	50	116	113	99	224	221	38	130	305	102
14	26	54	48	103	113	87	150	143	31	112	97	209
15	22	272	45	118	1160	75	134	100	27	86	47	273
16	33	637	43	169	1300	78	116	853	22	49	31	410
17	285	376	42	200	849	77	121	1040	18	114	27	246
18	176	173	41	280	285	68	104	736	19	29	25	125
19	251	121	40	184	172	66	84	269	20	448	70	120
20	217	116	39	199	137	61	98	156	21	95	45	111
21	146	99	37	332	114	55	477	146	27	347	38	92
22	120	84	36	249	248	50	293	112	25	409	35	112
23	89	73	35	173	297	53	132	71	149	206	30	185
24	67	68	33	155	219	46	101	50	153	99	26	200
25	55	69	32	138	143	40	82	41	88	52	22	106
26	48	143	30	128	141	40	71	117	49	36	19	75
27	44	116	29	108	142	39	60	70	31	28	20	57
28	37	219	28	94	153	38	48	43	26	23	21	52
29	34	111	27	95	---	38	39	360	24	21	20	60
30	34	89	26	111	---	43	37	285	22	65	18	105
31	55	---	751	107	---	41	---	122	---	53	17	---
TOTAL	2414	3721	2187	6300	11032	2516	6331	5725	1865	2797	2277	8667
MEAN	77.9	124	70.5	203	394	81.2	211	185	62.2	90.2	73.5	289
MAX	285	637	751	502	1380	158	924	1040	216	448	442	2290
MIN	21	41	26	94	113	38	37	31	18	11	17	12
CFSM	.01	.01	.01	.02	.05	.01	.03	.02	.01	.01	.01	.03
IN.	.01	.02	.01	.03	.05	.01	.03	.03	.01	.01	.01	.04

CAL YR 1989 TOTAL 50008.0 MEAN 137 MAX 2580 MIN 11 CFSM .02 IN. .22
WTR YR 1990 TOTAL 55832 MEAN 153 MAX 2290 MIN 11 CFSM .02 IN. .25

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH
(National stream quality accounting network station)

LOCATION.--Lat 41°23'43", long 81°37'48, in T.6 N., R.12 W., Cuyahoga County, Hydrologic Unit 04110002, on left bank 240 ft downstream from bridge on Old Rockside Road, 0.8 mi northeast of Independence, and 3.0 mi downstream from Tinkers Creek.

DRAINAGE AREA.--707 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1903 to December 1905 (fragmentary), January to July 1906 (gage heights and discharge measurements only), September 1921 to May 1923, September 1927 to December 1935, March 1940 to current year.

REVISED RECORDS.--WSP 1307: 1922-23(M), 1928-30(M), 1933(M), 1940(M), 1947(M), 1950(M). WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 583.57 ft above National Geodetic Vertical Datum of 1929. Sept. 21, 1903 to July 21, 1906, nonrecording gage at bridge 240 ft upstream at present datum. Sept. 28, 1921 to May 30, 1923, nonrecording gage at bridge 240 ft upstream at datum 2.42 ft higher. Sept., to Oct. 8, 1927, nonrecording gage, and Oct. 9, 1927, to Dec. 31, 1935, Mar. 5, 1940, to June 19, 1969, water-stage recorder, at site 100 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 14-30. Records fair except for periods of estimated daily discharge, which are poor. Natural flow of stream affected by diversion, storage reservoirs and power plants. Some diversion from the Tuscarawas River basin drainage into this basin at Portage Lakes (see REMARKS for station 03117000). Water diverted into Ohio Canal at Brecksville, 6 mi upstream from station, bypasses station. These records do not include flow in canal except above about 15,000 ft³/s , when channels merge.

AVERAGE DISCHARGE.--59 years (1921-22, 1927-35, 1940-90), 839 ft³/s, not including flow in Ohio Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft³/s Jan. 22, 1959, gage height, 22.41 ft, from rating curve extended above 17,000 ft³/s on basis of contracted-opening measurement of peak flow; minimum daily, 21 ft³/s Aug. 28, 1933; minimum combined daily discharge of river and canal, 55 ft³/s Aug. 28, 1933.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,200 ft³/s Sept. 7, gage height, 20.16 ft; minimum daily, 125 ft³/s July 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275	483	634	2700	989	1360	614	535	904	348	614	197
2	1070	377	626	1710	6100	1340	1380	507	781	259	532	190
3	762	448	638	1230	4470	1390	1060	480	738	193	508	185
4	696	405	468	2010	5100	1130	1420	680	659	175	511	194
5	632	373	401	2330	3980	1040	1230	1580	601	162	2350	285
6	580	414	394	1770	3140	994	991	834	572	161	2080	725
7	522	530	509	1460	2530	914	838	624	594	147	2820	10200
8	488	769	509	1390	2040	869	779	544	914	134	1190	5280
9	425	590	472	1250	1770	1070	716	529	1690	125	1010	4750
10	527	526	432	1650	2300	1180	2570	545	1270	136	899	3050
11	588	492	419	1390	1690	1070	5100	510	847	210	762	2100
12	360	463	402	1160	1490	1030	2500	433	706	1440	616	1630
13	287	427	370	971	1280	976	1790	1380	560	1140	1500	1510
14	246	427	350	853	1290	942	1710	971	412	834	981	1450
15	229	946	320	937	4420	930	1610	701	371	769	664	1980
16	223	3320	300	1170	7740	860	1300	4040	322	586	584	1730
17	1580	1480	290	1190	4110	852	1200	4250	282	645	496	1360
18	810	978	280	1610	2880	760	1000	2620	252	489	470	1040
19	1190	894	260	1350	2670	666	845	1830	233	1670	911	1020
20	1360	907	250	1340	2180	635	745	1670	225	1130	727	1000
21	906	777	240	2240	1850	602	3290	1750	311	1550	598	795
22	807	809	230	1790	2070	586	1950	1450	225	1780	670	1020
23	647	789	230	1580	2230	579	1330	1110	1050	2570	491	1030
24	644	714	220	1410	1870	485	1080	898	768	1470	386	1180
25	674	679	210	1290	1560	390	963	764	548	1130	377	684
26	592	879	210	1250	1350	374	812	1060	440	950	377	603
27	523	802	200	1070	1350	366	696	790	391	874	364	677
28	438	1030	200	988	1530	357	635	648	376	766	374	587
29	415	1020	190	929	---	354	579	1960	437	609	325	581
30	414	868	190	983	---	373	552	1830	358	546	245	753
31	410	---	2990	867	---	368	---	1140	---	948	208	---
TOTAL	19320	23616	13434	43868	75979	24842	41285	38663	17837	23946	24640	47786
MEAN	623	787	433	1415	2714	801	1376	1247	595	772	795	1593
MAX	1580	3320	2990	2700	7740	1390	5100	4250	1690	2570	2820	10200
MIN	223	373	190	853	989	354	552	433	225	125	208	185

CAL YR 1989 TOTAL 352570 MEAN 966 MAX 10000 MIN 143
WTR YR 1990 TOTAL 395216 MEAN 1083 MAX 10200 MIN 125

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1948 to September 1949, October 1950 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1965 to current year.
pH: February 1973 to current year.
WATER TEMPERATURES: October 1948 to September 1949, October 1952 to current year.
DISSOLVED OXYGEN: July 1965 to current year.
CHLORIDE: October 1987 to current year.
NITROGEN, NITRITE + NITRATE: October 1987 to current year.
NITROGEN, AMMONIA + ORGANIC: October 1987 to current year.
PHOSPHORUS: October 1987 to current year.
SUSPENDED SEDIMENT DISCHARGE: Water years 1950-74, December 1976 to September 1984, October 1987 to current year.

INSTRUMENTATION.--Alcohol-actuated thermograph October 1956 to June 1965, water-quality monitor since July 1965 and and a refrigerated water-quality pumping sampler since October 1987. Digital recorder set for one-hour-interval punches since August 1967.

REMARKS.--Interruptions in the water-quality record were due to malfunction of the instrument. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Alachlor concentrations for 1989-1990 will be published in the 1991 WDR.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 3,000 microsiemens Feb. 12, 1977; minimum, 149 microsiemens Nov. 23, 1974.
pH: Maximum, 9.1 units July 8, 9, 10, 1988; minimum, 5.9 units Jan. 26, 1976.
WATER TEMPERATURES: Maximum, 31.0°C Aug. 18, 1949, July 21, 1980; minimum, 0.0°C on many days during winter.
DISSOLVED OXYGEN: Maximum, 17.4 mg/L Feb. 24, 1987; minimum, 0.0 mg/L Oct. 23, 1965, Feb. 10-12, June 23, July 26, 1966.
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 310 mg/L Jan. 7, 1989, Jan. 31, 1990; minimum daily mean, 21 mg/L Aug. 25, 1989.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,870 tons Feb. 15, 1990; minimum daily, 10.2 tons Aug. 27, 1989.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 9.8 mg/L July 11, 1988; minimum daily mean, .311 mg/L Jan. 21, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 28.0 tons Sept. 7, 1990; minimum daily, .21 ton Aug. 27, 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 4.7 mg/L Sept. 7, 1990; minimum daily mean, <.20 mg/L Feb. 23, 24, 1989, May 2, 3, 1990.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 130.0 tons Sept. 7, 1990; minimum daily, .12 ton Aug. 27, 1989.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean 2.27 mg/L July 11, 1988; minimum daily mean .026 mg/L Aug. 27, 1989.
TOTAL PHOSPHORUS LOADS: Maximum daily 54.4 tons Sept. 7, 1990; minimum daily, .012 ton Aug. 27, 1989.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,630 mg/L Sept. 7, 1990; minimum daily mean, 1 mg/L Feb. 12, 13, 1989.
SEDIMENT LOADS: Maximum daily, 45,800 tons May 26, 1989; minimum daily, 1.2 tons Feb. 13, 1989.

EXTREMES FOR 1989 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 310 mg/L Jan. 7; minimum daily mean 21 mg/L Aug. 25.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,320 tons Jan. 8; minimum daily, 10.2 tons Aug. 27.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 4.46 mg/L Oct. 3; minimum daily mean, .427 mg/L Aug. 25.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 24 ton May 26; minimum daily, .21 ton Aug. 27.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 3.1 mg/L March 29; minimum daily mean <.20 mg/L Feb. 23, 24.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 75.7 tons May 26; minimum daily, .12 ton Aug. 27.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, .864 mg/L May 26; minimum daily mean, .026 mg/L Aug. 27.
TOTAL PHOSPHORUS LOADS: Maximum daily, 26.3 tons May 26; minimum daily, .012 ton Aug. 27.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,430 mg/L May 26; minimum daily mean, 1 mg/L Feb. 12, 13.
SEDIMENT LOADS: Maximum daily, 45,800 tons May 26; minimum daily, 1.2 tons Feb. 13.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 2,880 microsiemens Dec. 31; minimum, 261 microsiemens Sept. 7.
pH: Maximum, 8.8 units July 26; minimum, 7.2 units May 26.
WATER TEMPERATURES: Maximum, 27.0°C July 4; minimum, 0.0°C on several days during winter periods.
DISSOLVED OXYGEN: Maximum, 17.5 mg/L March 27; minimum, 4.9 mg/L April 1.
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 310 mg/L Jan. 31; minimum daily mean, 41 mg/L April 22, Sept. 7.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,870 tons Feb. 15; minimum daily, 35.8 tons July 9.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 4.3 mg/L Oct. 1; minimum daily mean, .759 mg/L May 17.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 28 tons Sept. 7; minimum daily, 1.3 tons July 9.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 4.7 mg/L Sept. 7; minimum daily mean, <.20 mg/L May 2, 3.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 130 tons Sept. 7; minimum daily, .18 ton July 9.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 1.94 mg/L Sept. 7; minimum daily mean, .031 mg/L March 29-31.
TOTAL PHOSPHORUS LOADS: Maximum daily, 54.4 tons Sept. 7; minimum daily, .030 ton March 29, 31.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,630 mg/L Sept. 7; minimum daily mean, 4 mg/L Dec. 26..
SEDIMENT LOADS: Maximum daily, 44,400 tons Sept. 7; minimum daily, 2.4 tons Dec. 26.

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
24...	1600	627	860	8.2	23.0	15.0	6.0	9.9	100	530	840
APR											
04...	1040	1020	910	8.1	5.5	5.5	15	10.9	91	K3500	K920
JUN											
05...	1330	588	650	8.2	26.0	19.0	5.8	9.3	104	M2500	65
JUL											
25...	1415	1080	550	8.0	28.5	23.0	20	9.4	112	K590	K190

DATE	HARD-NESS TOTAL (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)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
24...	240	70	16	72	5.5	178	0	145	92	110	0.4
APR											
04...	220	63	14	98	4.0	156	0	127	76	160	0.2
JUN											
05...	200	59	13	53	3.6	161	0	133	62	86	0.3
JUL											
25...	160	47	10	45	4.4	122	0	100	50	76	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
OCT											
24...	8.9	466	0.05	2.70	0.09	0.08	1.3	0.13	0.08	0.06	20
APR											
04...	5.1	552	0.07	1.30	0.14	0.14	0.90	0.06	0.02	<0.01	30
JUN											
05...	6.1	397	0.04	2.10	0.05	0.05	1.1	0.10	0.06	0.03	60
JUL											
25...	8.5	327	0.02	1.70	0.05	0.03	1.0	0.09	0.04	0.04	20

DATE	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)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT										
24...	<1	41	<0.5	<1.0	<1	<3	17	21	<1	11
APR										
04...	1	35	<0.5	<1.0	<5	<3	<10	52	<10	10
JUN										
05...	1	40	<0.5	<1.0	<1	<3	4	120	<1	10
JUL										
25...	1	33	<0.5	<1.0	<1	<3	9	110	1	11

DATE	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)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)
OCT										
24...	47	<0.1	<10	4	<1	<1.0	210	<6	22	26
APR										
04...	73	0.2	<10	<10	<1	2.0	190	<6	26	44
JUN										
05...	39	<0.1	<10	1	<1	<1.0	160	<6	7	23
JUL										
25...	16	0.1	<10	4	<1	<1.0	150	<6	7	108

K Results based on colony count outside the acceptable range.
M Presence of material verified but not quantified.

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	888	831	878	855	810	831	756	696	719	---	---	---
2	861	492	678	822	777	800	759	693	715	---	---	---
3	744	561	672	825	810	816	729	687	713	888	840	875
4	705	681	696	834	783	810	939	729	799	1040	792	893
5	681	657	675	822	783	798	1060	963	1030	795	720	755
6	681	648	665	840	804	823	1150	1020	1070	738	663	708
7	696	663	682	837	711	801	1330	1150	1250	681	642	667
8	714	675	696	768	717	736	1180	1100	1180	663	633	652
9	750	690	711	786	726	756	1090	1060	1080	663	627	649
10	759	714	741	783	765	773	1070	1050	1050	933	645	815
11	756	690	724	795	780	787	1050	1000	1020	954	876	917
12	807	714	745	813	786	796	1130	1020	1050	921	876	893
13	867	813	848	816	789	803	1340	1150	1240	1130	918	1020
14	867	849	856	813	795	807	1150	1050	1100	1210	1080	1130
15	879	864	874	807	786	796	1050	999	1020	1130	996	1040
16	897	873	891	---	---	---	1160	1030	1110	1240	1050	1180
17	882	549	647	---	---	---	1120	1090	1100	1050	999	1040
18	726	570	646	---	---	---	1110	1090	1100	1140	963	1020
19	747	642	700	---	---	---	1100	1060	1070	960	804	911
20	702	663	677	---	---	---	1120	1050	1080	990	795	831
21	762	678	715	732	723	728	1170	1120	1150	1010	801	883
22	792	765	783	744	678	719	1190	1160	1180	807	732	766
23	843	789	811	711	681	698	1190	1160	1180	762	708	735
24	861	816	842	843	708	759	1160	1120	1140	753	717	738
25	819	783	804	855	801	834	1140	1110	1120	720	699	708
26	816	768	795	1020	795	878	1130	1090	1100	744	672	718
27	771	744	757	816	738	781	1110	1070	1080	696	654	684
28	795	756	776	765	702	734	1180	1100	1140	693	657	679
29	813	783	796	738	687	705	1370	1180	1250	897	657	713
30	828	798	812	729	702	717	2250	1380	1770	1590	933	1270
31	840	810	825	---	---	---	2880	2580	2090	1580	1280	1480
MONTH	897	492	755	1020	678	779	2880	687	1120	1590	627	875
		FEBRUARY			MARCH			APRIL			MAY	
1	1250	1150	1190	807	723	758	987	870	910	753	723	743
2	1170	549	710	747	702	718	894	723	772	750	732	744
3	588	531	567	738	642	687	849	726	782	753	735	748
4	642	525	551	651	621	642	1290	843	969	771	735	750
5	699	540	596	699	621	662	861	822	834	660	528	602
6	543	504	522	750	702	727	831	747	813	696	618	664
7	564	528	552	708	687	700	831	744	777	747	690	717
8	564	543	556	702	684	693	849	753	799	771	738	754
9	675	558	580	843	681	763	753	741	748	765	741	754
10	669	594	628	828	732	786	831	456	690	777	753	764
11	624	588	606	744	690	729	543	444	491	774	762	767
12	603	582	594	702	660	690	576	546	560	786	747	764
13	627	576	602	675	651	667	588	567	579	789	633	709
14	768	597	641	669	627	654	600	555	567	684	630	658
15	1430	492	910	654	630	645	588	555	572	858	687	750
16	483	465	468	687	630	660	579	567	574	801	384	555
17	507	453	466	702	678	695	636	579	609	483	387	426
18	510	489	496	705	684	700	630	609	618	531	459	502
19	492	450	469	753	693	728	654	615	641	537	516	528
20	480	462	465	756	735	747	696	642	674	528	504	519
21	498	477	483	768	735	753	678	450	530	534	498	510
22	672	498	572	756	741	751	570	516	544	504	489	495
23	591	552	574	777	738	758	597	573	586	549	507	527
24	732	585	637	804	759	780	618	594	608	579	546	560
25	870	726	805	831	801	814	618	597	609	609	564	589
26	813	747	775	834	810	823	759	606	685	702	555	624
27	906	741	785	825	801	815	690	672	683	600	564	576
28	951	810	901	831	810	820	717	678	700	639	597	623
29	---	---	---	840	831	836	720	699	713	666	480	585
30	---	---	---	861	843	851	741	708	725	525	489	504
31	---	---	---	870	852	863	---	---	---	567	531	555
MONTH	1430	450	632	870	621	739	1290	444	679	858	384	631

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	588	567	581	867	840	853	660	552	611	879	864	871
2	600	582	592	861	813	834	696	657	676	885	864	876
3	633	585	612	861	825	844	717	681	698	894	879	886
4	645	633	642	879	864	871	714	672	699	900	882	890
5	---	---	---	900	873	886	702	366	502	909	879	897
6	---	---	---	894	873	885	516	447	492	924	489	819
7	717	690	696	903	888	896	501	399	442	384	261	294
8	705	615	672	---	---	---	558	504	535	399	339	369
9	621	453	543	---	---	---	564	525	550	408	366	386
10	549	450	515	---	---	---	546	528	540	396	381	390
11	594	555	579	---	---	---	597	540	577	402	396	401
12	624	591	612	---	---	---	651	588	620	---	---	---
13	675	618	645	---	---	---	675	462	572	---	---	---
14	747	678	709	---	---	---	615	459	555	---	---	---
15	783	738	756	---	---	---	684	621	659	---	---	---
16	807	780	793	723	699	706	699	639	670	---	---	---
17	825	804	814	738	630	706	726	675	696	---	---	---
18	849	825	835	759	684	722	735	705	720	---	---	---
19	864	843	852	765	318	635	741	507	685	---	---	---
20	885	864	872	627	501	591	687	498	600	---	---	---
21	918	879	894	618	465	548	741	690	713	---	---	---
22	909	825	859	594	450	528	807	672	715	---	---	---
23	852	453	676	534	456	500	744	675	704	---	---	---
24	702	618	674	555	528	540	792	753	778	621	591	602
25	759	696	734	594	537	560	798	780	792	699	612	651
26	792	729	752	639	534	604	795	756	774	708	684	699
27	819	786	803	558	534	547	807	789	797	690	669	681
28	849	822	831	585	534	569	816	804	811	729	663	688
29	849	771	812	654	573	613	837	822	827	705	669	681
30	846	795	813	723	639	668	852	831	842	714	678	699
31	---	---	---	720	477	593	864	843	852	---	---	---
MONTH	918	450	720	903	318	683	864	366	668	924	261	654
YEAR	2880	261	750									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.3	8.2	8.2	8.4	8.2	8.2	8.1	8.0	8.1	---	---	---
2	8.2	7.7	7.9	8.4	8.2	8.3	8.2	8.0	8.1	---	---	---
3	8.1	7.9	8.1	8.4	8.2	8.3	8.2	8.1	8.2	8.0	7.9	8.0
4	8.2	8.1	8.1	8.4	8.2	8.3	8.2	8.1	8.1	8.0	8.0	8.0
5	8.2	8.1	8.2	8.5	8.2	8.3	8.1	8.1	8.1	8.0	7.9	7.9
6	8.2	8.1	8.2	8.3	8.2	8.3	8.1	8.1	8.1	7.9	7.9	7.9
7	8.3	8.1	8.2	8.2	8.1	8.2	8.2	8.1	8.2	8.0	7.9	7.9
8	8.3	8.2	8.2	8.1	8.0	8.0	8.2	8.1	8.2	8.0	8.0	8.0
9	8.3	8.1	8.2	8.4	8.1	8.2	8.2	8.1	8.2	8.0	7.9	7.9
10	8.2	8.1	8.1	8.3	8.2	8.2	8.2	8.1	8.2	7.9	7.9	7.9
11	8.1	8.0	8.0	8.3	8.2	8.2	8.2	8.1	8.1	7.9	7.9	7.9
12	8.3	8.0	8.1	8.5	8.2	8.3	8.3	8.1	8.2	8.0	7.9	7.9
13	8.3	8.1	8.2	8.5	8.3	8.4	8.2	8.1	8.2	8.0	7.9	7.9
14	8.3	8.1	8.2	8.4	8.3	8.4	8.3	8.2	8.2	8.0	7.9	7.9
15	8.4	8.1	8.2	8.3	9.1	8.2	8.3	8.2	8.2	7.9	7.9	7.9
16	8.4	8.1	8.3	---	---	---	8.2	8.1	8.2	7.9	7.9	7.9
17	8.3	7.8	7.9	---	---	---	8.2	8.1	8.2	7.9	7.9	7.9
18	8.1	7.9	8.0	---	---	---	8.2	8.1	8.2	7.9	7.8	7.9
19	8.1	8.0	8.1	---	---	---	8.2	8.0	8.1	8.0	7.9	7.9
20	8.0	7.9	8.0	---	---	---	8.2	8.0	8.1	7.9	7.9	7.9
21	8.1	8.0	8.1	8.2	8.1	8.1	8.1	7.9	8.1	7.9	7.8	7.9
22	8.1	8.0	8.1	8.2	8.1	8.2	8.2	8.0	8.1	7.9	7.8	7.9
23	8.1	8.0	8.1	8.2	8.1	8.2	8.1	8.0	8.1	7.8	7.8	7.8
24	8.1	8.1	8.1	8.2	8.1	8.2	8.1	8.0	8.1	7.8	7.8	7.8
25	8.2	8.1	8.1	8.2	8.1	8.2	8.1	8.0	8.0	7.8	7.8	7.8
26	8.2	8.1	8.2	8.2	8.1	8.1	8.1	8.0	8.0	7.9	7.8	7.9
27	8.3	8.1	8.2	8.2	8.1	8.1	8.2	8.0	8.1	7.9	7.9	7.9
28	8.3	8.1	8.2	8.1	8.0	8.1	8.1	7.9	8.0	7.9	7.8	7.9
29	8.4	8.1	8.2	8.2	8.0	8.1	8.1	7.9	8.0	7.9	7.9	7.9
30	8.4	8.2	8.3	8.2	8.1	8.2	8.0	7.8	7.9	7.9	7.9	7.9
31	8.4	8.2	8.3	---	---	---	7.9	7.7	7.8	7.9	7.9	7.9
MONTH	8.4	7.7	8.1	8.5	8.0	8.2	8.3	7.7	8.1	8.0	7.8	7.9

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.1	7.9	7.9	7.9	7.8	7.9	8.1	7.9	8.0	8.3	7.9	8.1
2	8.0	7.8	7.8	7.9	7.8	7.9	8.0	7.7	7.8	8.3	7.9	8.1
3	7.8	7.8	7.8	7.9	7.9	7.9	8.1	7.8	8.0	8.2	7.9	8.1
4	8.0	7.8	7.8	7.9	7.9	7.9	8.0	7.9	8.0	8.1	7.8	7.9
5	7.8	7.7	7.8	7.9	7.9	7.9	8.1	7.9	8.0	7.8	7.6	7.7
6	7.8	7.7	7.8	7.9	7.9	7.9	8.2	8.1	8.1	8.1	7.8	7.9
7	7.7	7.7	7.7	7.9	7.9	7.9	8.3	7.9	8.1	8.3	7.8	8.0
8	7.7	7.7	7.7	8.0	7.9	7.9	8.4	7.9	8.2	8.4	7.8	8.1
9	7.8	7.7	7.7	7.9	7.9	7.9	8.5	7.9	8.2	8.3	7.8	8.1
10	7.8	7.7	7.8	7.9	7.8	7.9	8.3	7.7	7.9	8.2	7.8	8.0
11	7.8	7.8	7.8	8.0	7.8	7.9	7.7	7.7	7.7	8.4	7.8	8.1
12	7.8	7.8	7.8	8.2	7.8	8.0	7.8	7.7	7.8	8.2	7.9	8.1
13	7.8	7.8	7.8	8.2	7.8	8.0	7.8	7.8	7.8	7.9	7.5	7.7
14	7.9	7.7	7.8	8.3	7.8	8.0	7.8	7.8	7.8	7.9	7.5	7.7
15	8.0	7.8	7.9	8.3	7.8	8.1	7.9	7.7	7.8	8.1	7.6	7.8
16	7.8	7.8	7.8	8.1	7.8	7.9	8.0	7.8	7.9	7.7	7.2	7.5
17	7.8	7.7	7.8	8.3	7.8	8.1	8.0	7.8	7.9	7.8	7.5	7.6
18	7.8	7.7	7.8	8.4	7.9	8.1	8.0	7.8	7.9	7.7	7.6	7.7
19	7.8	7.7	7.7	8.3	7.9	8.1	8.1	7.8	8.0	7.8	7.7	7.7
20	7.8	7.7	7.8	8.4	7.9	8.1	8.0	7.8	7.9	7.8	7.7	7.7
21	7.8	7.7	7.7	8.4	8.0	8.2	7.8	7.6	7.7	7.8	7.7	7.8
22	7.8	7.7	7.8	8.4	7.9	8.2	7.8	7.7	7.7	7.8	7.7	7.8
23	7.8	7.7	7.8	8.3	7.9	8.1	8.0	7.7	7.8	7.9	7.5	7.7
24	7.9	7.8	7.8	8.4	8.0	8.2	8.0	7.7	7.9	7.9	7.7	7.8
25	7.9	7.8	7.9	8.4	8.1	8.2	8.1	7.7	7.9	8.0	7.6	7.7
26	7.9	7.8	7.9	8.4	8.1	8.2	8.1	7.7	7.9	7.8	7.2	7.6
27	7.9	7.8	7.8	8.4	8.1	8.3	8.2	7.7	7.9	8.1	7.8	7.9
28	7.9	7.8	7.8	8.4	8.1	8.2	8.0	7.7	7.9	8.1	7.9	8.0
29	---	---	---	8.3	8.1	8.2	8.2	7.8	8.0	8.0	7.8	7.9
30	---	---	---	8.2	7.9	8.1	8.3	7.8	8.0	7.9	7.8	7.9
31	---	---	---	8.1	8.0	8.0	---	---	---	8.0	7.9	8.0
MONTH	8.1	7.7	7.8	8.4	7.8	8.0	8.5	7.6	7.9	8.4	7.2	7.9
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.9	8.0	8.3	7.9	8.1	8.1	7.8	7.9	8.6	8.1	8.4
2	8.0	7.9	8.0	8.5	8.1	8.2	8.2	7.9	8.0	8.6	8.1	8.4
3	8.1	7.9	8.0	8.6	8.0	8.3	8.4	7.9	8.1	8.5	8.0	8.3
4	8.0	7.9	7.9	8.7	8.0	8.3	8.2	8.0	8.1	8.5	8.1	8.3
5	---	---	---	8.7	8.1	8.4	8.3	7.5	7.7	8.4	8.1	8.2
6	---	---	---	8.8	8.1	8.4	7.9	7.7	7.8	8.2	7.8	8.0
7	8.0	7.7	7.8	8.6	8.1	8.4	7.8	7.7	7.8	7.9	7.5	7.7
8	7.9	7.7	7.8	---	---	---	7.9	7.8	7.9	7.6	7.5	7.6
9	7.7	7.6	7.7	---	---	---	7.9	7.9	7.9	7.7	7.6	7.6
10	7.9	7.6	7.8	---	---	---	8.0	7.8	7.9	7.7	7.6	7.6
11	8.0	7.9	7.9	---	---	---	8.0	7.8	7.9	7.6	7.6	7.6
12	7.9	7.9	7.9	---	---	---	8.2	7.9	8.0	---	---	---
13	7.9	7.9	7.9	---	---	---	8.0	7.8	7.9	---	---	---
14	7.9	7.8	7.9	---	---	---	8.0	7.6	7.8	---	---	---
15	8.0	7.8	7.9	---	---	---	8.1	7.9	8.0	---	---	---
16	8.0	7.9	8.0	7.9	7.8	7.8	8.2	7.9	8.0	---	---	---
17	8.1	7.9	8.0	8.1	7.8	7.9	8.3	7.9	8.1	---	---	---
18	8.1	7.9	8.0	8.1	7.8	8.0	8.2	7.9	8.1	---	---	---
19	8.1	8.0	8.1	8.1	7.6	7.9	8.1	7.7	7.9	---	---	---
20	8.1	8.0	8.0	7.8	7.6	7.7	8.0	7.7	7.8	---	---	---
21	8.1	8.0	8.0	7.8	7.6	7.7	8.0	7.9	8.0	---	---	---
22	8.2	7.9	8.0	7.8	7.6	7.7	8.0	7.8	7.9	---	---	---
23	8.1	7.6	7.8	7.7	7.6	7.6	8.1	7.9	8.0	---	---	---
24	8.0	7.8	7.9	7.8	7.7	7.8	8.1	8.0	8.0	8.0	7.9	7.9
25	8.0	7.9	7.9	7.8	7.8	7.8	8.2	8.0	8.1	8.0	7.9	7.9
26	8.0	7.8	8.0	7.9	7.8	7.8	8.3	8.0	8.1	8.0	7.9	7.9
27	8.1	7.9	8.0	7.9	7.8	7.9	8.3	8.0	8.2	8.0	7.9	7.9
28	8.1	8.0	8.0	8.0	7.8	7.9	8.4	8.1	8.3	8.0	7.9	7.9
29	8.1	7.9	8.0	8.1	7.8	8.0	8.5	8.1	8.3	7.9	7.9	7.9
30	8.2	8.0	8.1	8.2	7.9	8.0	8.5	8.2	8.3	8.0	7.9	7.9
31	---	---	---	8.1	7.5	7.8	8.5	8.1	8.4	---	---	---
MONTH	8.2	7.6	7.9	8.8	7.5	8.0	8.5	7.5	8.0	8.6	7.5	7.9
YEAR	8.8	7.2	8.0									

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.5	15.5	16.5	12.5	11.5	12.0	4.7	4.3	4.6	---	---	---
2	18.0	16.0	17.0	11.5	10.5	11.0	4.7	4.1	4.5	---	---	---
3	17.5	16.0	17.0	10.5	9.0	10.0	4.1	2.2	3.1	3.0	2.5	2.5
4	16.0	14.5	15.0	9.0	8.0	8.5	2.2	1.8	2.1	4.0	3.0	3.0
5	15.0	13.5	14.5	10.0	8.0	9.0	3.0	1.7	2.3	3.5	2.5	3.0
6	15.5	15.0	15.5	11.0	10.0	11.0	4.0	2.8	3.4	2.5	2.0	2.5
7	15.5	14.0	14.5	11.0	10.0	10.5	3.9	2.8	3.4	2.5	1.5	2.0
8	14.0	13.0	13.5	10.5	10.0	10.0	3.4	2.2	2.6	3.0	2.0	2.5
9	13.5	12.0	12.5	11.0	10.0	10.5	2.5	1.5	2.1	4.0	2.5	3.0
10	12.5	11.5	12.0	10.0	9.0	9.5	2.9	2.0	2.4	3.5	3.0	3.5
11	13.5	11.5	12.5	9.0	8.0	8.5	3.4	2.9	3.1	4.0	3.0	3.5
12	15.0	13.0	14.0	9.0	8.0	8.5	3.3	2.7	3.0	3.5	2.0	2.5
13	15.5	13.5	14.5	9.5	7.5	8.5	2.6	1.7	2.4	2.0	1.5	1.5
14	16.5	14.0	15.5	11.5	9.5	10.0	2.2	1.5	1.8	2.5	1.0	1.5
15	17.5	15.5	16.5	13.5	11	12.5	1.4	.2	.7	3.5	2.0	3.0
16	18.5	16.5	17.5	---	---	---	.3	.2	.2	5.0	3.0	4.0
17	18.0	14.5	16.0	---	---	---	.2	.2	.2	7.0	5.0	5.5
18	14.5	12.0	13.5	---	---	---	.3	.2	.2	7.0	5.0	6.5
19	12.0	9.0	10.5	---	---	---	.3	.1	.2	5.0	3.5	4.0
20	10.0	9.0	9.5	---	---	---	.3	.2	.2	3.5	3.5	3.5
21	9.0	8.5	9.0	5.0	4.5	5.0	.4	.2	.3	4.0	3.0	3.5
22	11.0	9.0	10.0	4.5	4.0	4.5	.4	.3	.4	3.5	3.0	3.5
23	11.5	9.5	10.5	4.0	3.5	4.0	.5	.4	.4	3.5	3.0	3.5
24	13.0	10.5	11.5	4.0	3.0	3.5	.5	.3	.4	5.5	3.5	4.5
25	13.0	11.5	12.5	5.0	3.5	4.0	.5	.4	.5	5.5	4.5	5.0
26	13.5	12.0	13.0	6.0	5.0	5.5	.5	.4	.5	4.5	3.5	4.5
27	13.5	12.0	13.0	6.5	5.0	5.5	.4	.4	.4	4.5	2.5	3.5
28	13.5	12.0	13.0	8.0	7.0	7.5	.5	.4	.5	4.5	4.0	4.5
29	13.5	12.0	13.0	6.5	4.0	5.0	.6	.5	.6	3.5	2.5	3.0
30	13.0	12.0	12.5	4.5	3.5	4.0	2.5	.5	.8	4.0	2.5	3.5
31	13.0	12.5	13.0	---	---	---	3.0	3.0	3.0	4.0	3.0	3.5
MONTH	18.5	8.5	13.5	13.5	3.0	8.0	4.7	.1	1.6	7.0	1.0	3.4
		FEBRUARY			MARCH			APRIL			MAY	
1	4.5	3.5	4.0	4.0	2.5	3.5	11.0	9.5	10.0	19.0	17.5	18.5
2	4.0	3.5	3.5	5.5	3.0	4.0	10.5	9.0	10.0	17.0	15.5	16.5
3	3.5	3.5	3.5	4.5	3.5	4.0	9.0	6.5	8.0	16.0	15.0	15.5
4	3.5	2.5	3.0	3.5	3.0	3.5	9.5	6.0	7.5	15.0	14.0	14.5
5	2.5	2.0	2.5	3.5	3.0	3.5	9.0	8.0	9.0	14.5	13.0	14.0
6	3.5	2.0	3.0	5.0	3.5	4.0	9.0	8.0	8.5	15.5	12.5	13.5
7	4.5	3.5	4.0	4.5	3.0	4.0	8.5	7.0	8.0	17.0	13.0	15.0
8	5.5	4.0	4.5	5.0	3.5	4.5	9.5	6.5	8.5	19.0	15.5	17.0
9	6.5	5.0	5.5	6.5	5.0	6.0	11.0	8.5	10.0	19.5	17.5	18.5
10	6.5	5.0	5.5	8.0	6.5	7.0	10.5	9.5	10.5	19.0	16.5	18.0
11	5.0	4.5	5.0	9.0	7.5	8.5	9.5	8.0	9.0	16.5	14.5	15.5
12	5.0	4.0	4.5	11.5	9.0	10.0	9.0	8.0	8.5	15.5	13.5	14.5
13	6.5	5.0	5.5	12.0	11.0	11.5	9.0	7.0	8.0	13.5	13.0	13.5
14	6.5	4.5	5.5	13.5	11.5	12.5	9.0	8.0	8.5	16.0	12.5	14.0
15	4.5	3.0	4.0	14.5	12.5	13.5	10.5	8.0	9.5	17.5	15.5	16.5
16	4.0	3.5	4.0	14.0	13.0	13.5	12.0	9.0	10.5	17.0	16.0	16.5
17	5.0	4.0	4.5	13.5	12.0	13.0	11.5	9.5	10.5	17.0	16.5	16.5
18	4.0	3.0	3.5	12.0	9.5	10.5	11.5	8.5	10.0	17.0	15.0	16.0
19	4.5	3.5	4.0	9.5	7.0	8.5	12.0	9.5	11.0	16.5	15.0	16.0
20	4.5	3.0	3.5	7.0	6.0	6.5	12.5	12.0	12.0	18.5	16.0	17.0
21	4.5	2.5	3.5	8.0	5.5	7.0	14.0	11.5	12.5	18.0	15.5	16.5
22	6.0	4.0	4.5	10.5	8.0	9.0	15.0	12.0	13.5	17.5	15.0	16.0
23	6.0	4.5	5.5	10.5	7.5	9.5	16.0	13.0	14.5	18.0	15.5	16.5
24	4.5	2.0	4.0	7.5	6.5	7.0	18.0	15.0	16.5	17.5	15.5	17.0
25	2.0	1.0	1.5	8.5	5.5	7.0	19.5	16.5	18.0	18.0	16.5	17.5
26	1.5	.0	1.0	7.5	6.5	7.0	21.0	18.5	19.5	19.0	16.5	17.5
27	3.5	2.0	2.5	8.0	5.5	6.5	22.0	18.5	20.5	21.0	17.0	19.0
28	4.0	2.5	3.5	8.5	6.0	7.0	21.5	19.5	20.5	19.5	18.0	19.0
29	---	---	---	8.5	7.5	8.0	20.5	18.5	19.5	18.0	15.0	16.0
30	---	---	---	9.5	8.5	9.0	20.0	17.0	18.5	17.0	14.5	15.5
31	---	---	---	10.5	10.0	10.0	---	---	---	18.0	15.0	16.5
MONTH	6.5	.0	4.0	14.5	2.5	7.5	22.0	6.0	12.0	21.0	12.5	16.5

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	19.5	16.5	18.0	24.0	22.5	23.5	23.0	20.5	22.0	24.0	21.5	23.0
2	20.0	18.5	19.5	24.0	21.0	22.5	23.5	21.0	22.0	25.0	22.5	24.0
3	22.0	19.5	20.5	25.0	21.5	23.5	24.5	21.5	23.0	24.5	22.5	23.5
4	21.0	18.0	19.0	27.0	22.5	25.0	23.5	22.5	23.0	23.5	21.0	22.5
5	---	---	---	26.5	25.5	26.0	22.0	21.5	22.0	22.5	21.5	22.0
6	---	---	---	25.0	23.0	24.0	21.5	20.0	21.0	23.5	21.5	22.5
7	21.5	18.5	19.5	23.5	21.0	22.5	20.5	19.0	20.0	22.0	20.5	21.0
8	20.5	19.5	20.0	---	---	---	21.5	19.0	20.5	21.5	20.5	21.0
9	22.0	19.5	20.5	---	---	---	22.0	20.0	21.0	21.0	20.0	20.5
10	21.0	19.5	20.0	---	---	---	23.0	21.0	22.0	21.0	19.5	20.5
11	21.0	18.5	19.5	---	---	---	22.5	21.0	22.0	20.5	20.0	20.0
12	20.5	19.0	19.5	---	---	---	23.0	21.5	22.5	---	---	---
13	22.0	18.0	20.0	---	---	---	23.0	20.5	21.5	---	---	---
14	22.5	21.0	22.0	---	---	---	23.0	20.5	21.5	---	---	---
15	24.0	21.5	22.5	---	---	---	23.5	21.0	22.0	---	---	---
16	24.5	21.5	23.0	22.5	21.0	21.5	23.5	22.0	23.0	---	---	---
17	25.5	23.0	24.5	23.5	21.0	22.0	24.5	22.5	23.5	---	---	---
18	26.5	24.5	25.5	25.5	22.5	24.0	24.0	23.0	23.5	---	---	---
19	25.5	22.0	23.5	24.5	22.0	23.5	23.5	22.5	23.0	---	---	---
20	21.5	19.5	20.0	23.0	22.5	22.5	22.5	21.5	22.0	---	---	---
21	23.0	19.0	21.0	23.5	22.0	22.5	22.0	21.0	21.5	---	---	---
22	23.0	22.0	22.5	22.5	20.0	21.0	21.0	20.5	21.0	---	---	---
23	21.5	19.0	19.5	22.0	20.0	21.0	21.5	20.5	21.0	---	---	---
24	18.5	17.5	18.0	22.5	20.5	21.0	21.5	20.5	21.0	15.0	14.0	14.5
25	21.0	17.0	18.5	23.0	20.5	22.0	23.0	20.5	21.5	16.0	14.0	15.0
26	22.5	19.0	20.5	23.0	21.0	22.0	24.0	22.0	23.0	18.0	15.5	16.5
27	23.5	21.5	22.5	23.5	21.5	22.5	24.5	23.0	24.0	18.0	16.5	17.0
28	22.5	22.0	22.5	25.0	22.0	23.5	25.5	23.0	24.5	18.0	16.5	17.5
29	23.0	21.5	22.5	25.5	23.0	24.5	26.0	24.5	25.0	18.0	18.0	18.0
30	24.5	22.5	23.5	25.0	23.5	24.0	24.0	22.5	23.5	18.0	17.0	17.5
31	---	---	---	23.5	22.5	23.0	24.0	21.5	23.0	---	---	---
MONTH	26.5	16.5	21.0	27.0	20.0	23.0	26.0	19.0	22.5	25.0	14.0	20.0
YEAR	27.0	.0	12.3									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.3	8.3	8.8	9.1	8.0	8.5	13.8	13.1	13.4	---	---	---
2	8.7	7.2	7.9	---	---	---	13.5	12.9	13.2	---	---	---
3	8.7	7.8	8.3	---	---	---	13.3	12.7	13.0	12.8	11.7	12.4
4	9.3	8.4	8.8	---	---	---	13.2	12.6	12.9	11.8	11.6	11.6
5	9.5	8.8	9.1	---	---	---	13.0	12.3	12.7	11.9	11.6	11.8
6	9.1	8.5	8.7	10.5	9.6	10.1	12.3	11.5	12.0	12.3	11.9	12.1
7	9.6	8.5	9.0	9.9	9.4	9.6	11.8	8.7	10.8	12.6	12.3	12.4
8	9.8	8.9	9.3	9.7	9.1	9.4	11.9	8.3	10.1	12.7	12.4	12.5
9	10.3	9.1	9.6	10.5	9.3	9.8	10.5	8.7	9.8	13.4	12.3	12.8
10	9.5	9.2	9.3	10.3	9.4	9.8	---	---	---	13.6	12.7	13.0
11	9.3	8.8	9.1	10.2	9.3	9.8	---	---	---	14.0	12.9	13.4
12	9.9	8.7	9.2	10.1	8.7	9.4	---	---	---	13.9	13.3	13.4
13	9.9	8.5	9.1	9.3	8.1	8.6	---	---	---	14.3	13.6	14.0
14	10.0	8.4	9.1	---	---	---	---	---	---	14.3	14.0	14.2
15	10.0	7.9	8.9	---	---	---	---	---	---	14.1	13.9	14.0
16	10.1	7.7	8.8	---	---	---	---	---	---	14.0	13.5	13.8
17	8.5	7.5	7.8	---	---	---	---	---	---	13.4	12.9	13.3
18	9.1	8.1	8.7	---	---	---	---	---	---	13.5	12.8	13.0
19	10.0	9.1	9.6	---	---	---	---	---	---	14.4	13.6	14.1
20	9.8	9.4	9.6	---	---	---	---	---	---	14.3	14.0	14.2
21	10.0	9.7	9.9	12.1	---	---	---	---	---	14.0	12.3	12.8
22	10.0	9.7	9.9	---	11.9	11.9	---	---	---	12.7	11.9	12.4
23	10.1	9.6	9.8	12.5	11.8	12.2	---	---	---	12.2	11.8	12.0
24	10.7	9.4	9.9	12.7	11.9	12.4	---	---	---	12.0	11.7	11.8
25	10.2	9.6	9.9	12.6	12.0	12.3	---	---	---	11.8	11.6	11.7
26	10.4	9.6	9.9	12.1	11.7	12.0	---	---	---	12.4	11.6	11.9
27	10.7	9.6	10.0	12.8	11.9	12.3	---	---	---	12.7	12.2	12.5
28	10.3	9.5	9.8	12.1	11.5	11.8	---	---	---	12.7	12.0	12.4
29	10.5	9.4	10.0	13.5	12.0	12.9	---	---	---	12.7	12.4	12.5
30	10.6	9.3	9.9	13.8	13.1	13.4	---	---	---	12.9	12.5	12.7
31	9.6	8.2	8.9	---	---	---	---	---	---	13.1	12.5	12.8
MONTH	10.7	7.2	9.2	13.8	8.0	10.9	13.8	8.3	12.0	14.4	11.6	12.8

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.8	12.4	12.6	13.2	12.3	12.8	5.9	4.9	5.5	10.6	7.8	9.0
2	12.8	12.3	12.6	12.5	12.0	12.3	5.4	5.0	5.2	10.9	8.2	9.3
3	12.8	12.4	12.6	12.3	11.9	12.1	5.8	5.3	5.5	10.5	8.5	9.4
4	12.7	12.3	12.5	12.5	12.2	12.3	6.6	5.5	6.0	9.5	8.3	8.8
5	13.2	12.8	13.0	12.5	12.2	12.4	7.2	6.0	6.4	9.3	7.8	8.6
6	13.2	13.0	13.1	12.5	12.1	12.3	8.3	7.4	7.8	10.3	9.3	9.7
7	13.0	12.6	12.9	12.8	12.1	12.4	8.7	7.0	7.7	11.1	8.9	9.8
8	12.8	12.2	12.6	12.6	12.0	12.2	9.9	7.2	8.3	11.4	8.3	9.5
9	12.1	10.9	11.4	11.9	11.3	11.6	10.1	6.8	8.1	11.9	7.4	9.5
10	11.3	10.8	11.1	11.5	11.1	11.3	9.3	6.4	7.1	10.6	7.7	9.1
11	11.5	11.3	11.4	11.8	10.9	11.2	11.9	9.8	10.6	12.5	8.3	10.2
12	11.9	11.4	11.7	12.0	10.5	11.1	11.0	10.4	10.7	10.5	8.5	9.3
13	11.7	11.3	11.6	11.9	9.9	10.7	11.5	10.7	11.1	8.8	8.2	8.5
14	12.0	11.4	11.6	12.2	9.5	10.6	11.0	10.6	10.8	9.9	8.4	9.0
15	12.6	11.7	12.1	12.6	9.3	10.8	11.2	10.5	10.8	9.9	7.8	8.6
16	12.1	11.9	11.9	10.8	9.4	10.0	11.3	10.3	10.8	7.7	6.6	7.4
17	12.5	12.1	12.3	12.0	9.3	10.4	11.0	9.8	10.4	8.2	7.4	7.9
18	12.9	12.5	12.7	12.4	9.5	10.8	11.7	10.3	10.9	8.6	8.1	8.5
19	12.7	12.5	12.6	12.0	10.0	10.9	12.2	10.1	10.9	9.3	8.4	8.9
20	12.9	12.6	12.8	13.1	10.6	11.7	10.5	9.5	10.0	9.1	8.6	8.9
21	13.0	12.6	12.9	13.2	10.7	11.7	9.8	9.3	9.5	9.2	8.6	8.9
22	12.6	11.9	12.4	12.9	9.8	11.0	10.1	9.4	9.7	9.6	9.0	9.3
23	12.2	11.8	12.0	11.0	8.8	9.7	10.5	9.4	9.8	9.8	8.6	9.4
24	12.8	12.2	12.4	10.1	8.4	9.2	10.7	8.9	9.7	9.8	8.1	9.0
25	13.5	12.9	13.3	10.5	6.8	8.0	10.9	8.7	9.6	8.8	7.7	8.4
26	14.0	13.5	13.8	---	---	---	10.6	8.2	9.2	7.8	6.3	7.0
27	13.6	13.1	13.4	17.5	12.3	14.1	11.1	7.9	9.2	6.9	6.3	6.6
28	13.4	13.0	13.2	16.6	11.2	13.3	9.7	7.5	8.5	6.9	6.3	6.6
29	---	---	---	12.4	9.2	11.0	10.0	7.5	8.6	8.1	6.2	6.9
30	---	---	---	8.8	7.3	8.3	11.0	8.0	9.3	8.7	8.2	8.5
31	---	---	---	7.1	5.8	6.6	---	---	---	9.0	8.3	8.7
MONTH	14.0	10.8	12.4	17.5	5.8	11.1	12.2	4.9	8.9	12.5	6.2	8.7
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.9	8.1	8.5	9.7	6.2	7.9	8.8	7.3	8.0	12.4	7.2	9.8
2	8.9	7.9	8.3	12.5	7.7	9.7	9.2	7.7	8.3	12.2	7.1	9.5
3	9.0	7.9	8.4	13.0	7.4	9.9	10.2	7.6	8.6	11.6	6.9	9.2
4	8.2	7.7	8.0	13.8	7.3	10.1	9.3	7.4	8.3	11.4	7.2	9.2
5	---	---	---	13.7	6.9	10.0	7.7	5.9	7.1	8.9	7.2	8.1
6	---	---	---	14.2	7.3	10.5	8.2	7.5	7.8	9.7	6.8	7.8
7	10.7	9.2	9.8	12.8	7.8	10.6	8.4	7.9	8.2	7.6	6.6	7.0
8	9.7	8.4	9.3	---	---	---	8.4	8.0	8.2	7.6	6.6	7.3
9	9.0	8.3	8.6	---	---	---	8.6	8.0	8.2	8.0	7.5	7.7
10	9.8	8.5	9.4	---	---	---	8.6	7.8	8.1	7.9	7.6	7.8
11	10.2	9.3	9.8	---	---	---	8.8	7.7	8.2	7.9	7.8	7.9
12	10.0	9.3	9.7	---	---	---	9.2	7.7	8.3	---	---	---
13	10.1	9.0	9.8	---	---	---	7.9	7.5	7.8	---	---	---
14	9.6	8.7	9.1	---	---	---	8.3	6.6	7.6	---	---	---
15	10.0	8.6	9.2	---	---	---	8.9	7.6	8.1	---	---	---
16	10.3	8.6	9.4	10.1	8.8	9.1	9.2	7.4	8.2	---	---	---
17	10.3	8.5	9.3	9.5	8.1	9.0	9.8	7.3	8.3	---	---	---
18	10.5	8.1	9.2	8.5	7.5	8.1	9.4	7.0	8.0	---	---	---
19	10.5	8.2	9.2	8.2	6.7	7.3	7.8	6.5	7.3	---	---	---
20	9.7	8.2	8.9	7.3	6.7	7.0	8.0	6.8	7.5	---	---	---
21	9.7	7.8	8.6	7.3	6.4	7.0	8.2	7.6	7.8	---	---	---
22	9.4	7.1	8.1	7.7	6.4	7.1	8.2	6.9	7.6	---	---	---
23	8.1	6.3	7.4	7.3	6.8	7.0	8.7	7.7	8.1	---	---	---
24	8.8	8.0	8.5	7.6	7.2	7.4	8.7	7.7	8.1	9.4	8.1	8.9
25	9.2	8.3	8.8	7.8	7.1	7.5	9.3	7.8	8.5	8.2	7.6	8.0
26	8.8	8.0	8.4	7.8	7.4	7.6	10.0	7.5	8.5	7.8	7.3	7.5
27	8.9	7.7	8.2	8.0	7.4	7.6	10.4	7.3	8.6	7.8	7.1	7.4
28	8.7	7.7	8.1	7.9	7.3	7.6	11.5	7.2	8.9	8.1	6.9	7.5
29	8.3	7.7	8.0	8.2	7.1	7.6	11.7	6.8	8.8	7.7	7.0	7.3
30	9.2	7.5	8.2	8.1	6.9	7.4	11.9	7.1	9.3	8.8	7.1	7.7
31	---	---	---	7.5	5.5	6.9	12.7	7.2	9.7	---	---	---
MONTH	10.7	6.3	8.8	14.2	5.5	8.3	12.7	5.9	8.2	12.4	6.6	8.1
YEAR	17.5	4.9	9.9									

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	129	110	39.4	201	100	55.3	418	100	116
2	123	110	36.3	222	100	62.0	405	110	120
3	155	130	53.9	307	100	84.3	342	130	118
4	164	140	60.1	606	89	146	331	160	139
5	163	130	59.1	1610	83	310	365	130	124
6	157	130	55.7	1560	74	304	371	120	121
7	153	120	50.7	1060	92	264	359	120	116
8	143	120	46.7	953	100	258	333	120	107
9	137	130	46.7	806	96	209	315	120	99.9
10	140	130	49.8	1500	84	331	295	120	93.3
11	192	120	63.0	1330	79	285	297	120	96.2
12	248	100	67.8	1020	76	209	281	130	98.2
13	152	120	49.2	1260	79	269	274	170	122
14	135	130	45.5	1260	80	271	343	130	119
15	133	130	45.6	1030	78	215	637	100	180
16	137	130	47.8	891	79	189	480	120	150
17	143	140	53.1	854	84	193	442	120	145
18	840	87	186	727	84	165	425	120	141
19	429	85	97.1	639	87	151	434	120	145
20	280	100	77.2	1150	82	247	763	110	223
21	248	110	73.0	1720	73	335	1050	220	602
22	638	88	146	1150	81	252	715	170	336
23	766	79	163	933	84	213	1060	100	290
24	507	88	119	805	84	184	965	110	285
25	384	91	94.4	714	87	167	874	100	248
26	315	93	78.6	677	91	165	804	100	228
27	267	94	67.6	631	110	188	893	100	253
28	262	95	67.5	627	110	181	3350	92	805
29	235	97	61.6	594	95	153	2370	120	750
30	213	99	56.6	478	95	122	1550	130	531
31	197	100	53.3	---	---	---	1120	120	364
TOTAL	8185	---	2211.3	27315	---	6177.6	22661	---	7265.6
		JANUARY			FEBRUARY			MARCH	
1	1050	110	326	996	100	271	598	160	263
2	969	110	293	823	100	227	543	160	229
3	803	120	263	767	110	217	537	140	204
4	686	150	270	666	150	260	573	140	218
5	596	180	294	574	200	314	787	150	321
6	840	170	367	532	220	320	877	150	351
7	1630	310	1260	489	220	290	724	150	284
8	3710	130	1320	465	200	251	643	160	271
9	1990	120	648	457	190	236	609	160	271
10	1320	110	390	446	180	216	605	140	232
11	1130	100	308	443	180	217	594	130	210
12	1200	100	324	438	190	223	585	120	195
13	1170	110	332	432	190	226	556	120	183
14	919	100	249	963	140	349	556	120	180
15	1130	110	325	1220	240	763	695	120	234
16	940	120	304	1270	200	677	667	140	244
17	860	110	262	810	180	388	624	130	220
18	780	110	234	672	150	271	818	130	291
19	680	110	200	650	140	242	787	140	291
20	600	110	177	650	140	239	705	150	277
21	700	120	225	1120	160	487	843	170	390
22	620	140	237	1640	140	644	682	180	326
23	540	150	215	1240	130	450	668	160	288
24	520	150	209	814	120	274	619	150	249
25	517	150	208	807	110	246	538	140	206
26	1720	120	526	821	120	258	491	140	186
27	1710	110	524	742	210	420	454	140	168
28	1130	130	390	629	200	345	588	150	243
29	1080	180	519	---	---	---	905	130	324
30	1220	130	443	---	---	---	2590	120	773
31	1160	100	321	---	---	---	3160	120	1040
TOTAL	33920	---	11963	21576	---	9321	24621	---	9162

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	2990	140	1150	495	120	159	1940	50	260
2	2750	120	866	605	120	194	1750	50	236
3	5350	88	1220	818	110	252	2200	45	260
4	5990	75	1210	614	110	188	5270	39	544
5	3940	72	769	555	110	171	2640	44	310
6	2890	71	553	753	110	221	2500	47	317
7	2530	67	460	780	110	224	2200	50	297
8	2200	67	401	800	110	232	1800	54	265
9	1840	77	380	810	110	239	1500	68	274
10	1450	88	344	910	110	258	1200	72	234
11	1240	96	321	1100	90	266	1000	77	207
12	948	97	247	1200	91	295	900	76	184
13	896	110	262	1300	89	314	2000	61	331
14	1050	110	304	1400	88	334	5270	40	563
15	897	100	245	1500	78	316	5530	37	543
16	750	100	205	1870	75	376	5790	36	566
17	708	100	195	1810	72	354	2930	42	328
18	704	110	204	1420	76	288	2110	47	266
19	749	110	216	1120	78	235	1610	51	223
20	861	100	242	988	85	227	3000	51	391
21	661	100	184	1110	80	239	3640	43	419
22	628	110	188	701	82	155	3630	42	405
23	590	110	182	2760	68	433	2600	42	296
24	560	120	176	3120	60	493	1970	43	230
25	510	120	162	1800	66	320	1660	47	209
26	557	120	183	10000	50	1270	1480	50	200
27	506	120	170	3970	50	535	1400	52	195
28	452	120	152	2870	57	439	1850	47	233
29	456	120	145	2620	63	446	1170	52	164
30	523	120	167	2350	70	441	958	62	159
31	---	---	---	2570	56	375	---	---	---
TOTAL	46176	---	11503	54719	---	10289	73498	---	9109
		JULY			AUGUST			SEPTEMBER	
1	909	62	152	497	94	126	541	91	121
2	862	61	141	419	94	107	318	110	94.2
3	786	62	131	366	98	96.5	200	120	63.8
4	795	68	146	394	97	103	157	120	52.8
5	625	70	118	784	76	159	143	130	48.3
6	552	69	103	446	95	113	146	130	51.6
7	502	73	98.4	363	100	99.0	270	130	80.5
8	455	77	94.3	388	99	104	1150	68	202
9	436	80	94.7	315	100	88.6	418	86	96.5
10	457	77	94.6	288	110	84.8	356	91	87.8
11	426	75	85.8	284	110	83.0	375	93	94.5
12	407	74	80.9	272	110	80.5	261	95	67.1
13	408	74	81.2	301	110	87.3	215	97	56.5
14	389	75	79.1	423	97	108	270	96	67.8
15	373	77	77.6	272	98	71.7	851	76	172
16	358	78	75.3	277	100	76.9	512	85	117
17	342	79	72.7	243	110	69.8	491	91	120
18	341	80	73.4	222	110	68.5	386	100	107
19	353	81	77.1	211	120	66.3	322	110	91.5
20	558	72	108	283	110	83.3	271	110	78.1
21	401	76	81.8	395	95	101	234	110	70.5
22	348	69	65.0	254	100	71.6	1790	93	224
23	380	88	89.7	218	110	62.7	2880	57	386
24	325	110	97.6	201	110	57.6	663	94	166
25	281	110	84.9	186	21	11.1	429	110	126
26	390	110	113	180	50	23.1	355	110	101
27	1050	74	207	167	22	10.2	315	110	95.3
28	1420	69	266	162	87	37.5	335	110	102
29	677	77	138	318	130	111	326	110	101
30	547	94	139	323	110	94.8	293	120	92.9
31	578	95	148	234	100	64.7	---	---	---
TOTAL	16731	---	3414.1	9686	---	2521.5	15273	---	3334.7
YEAR	354361		86268.8						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	129	4.30	1.5	201	3.78	2.1	418	1.76	2.0
2	123	4.21	1.4	222	3.84	2.3	405	1.53	1.7
3	155	4.46	1.9	307	3.54	2.9	342	1.56	1.4
4	164	4.41	2.0	606	2.04	3.3	331	2.21	2.0
5	163	4.33	1.9	1610	1.85	6.9	365	3.15	3.1
6	157	4.01	1.7	1560	1.45	6.1	371	3.29	3.3
7	153	4.18	1.7	1060	1.92	5.5	359	3.50	3.4
8	143	3.89	1.5	953	2.20	5.7	333	3.60	3.2
9	137	3.96	1.5	806	2.13	4.6	315	3.60	3.1
10	140	3.95	1.5	1500	1.79	7.0	295	3.60	2.9
11	192	4.09	2.1	1330	1.47	5.3	297	3.60	2.9
12	248	3.27	2.1	1020	1.52	4.2	281	3.54	2.7
13	152	4.01	1.6	1260	1.58	5.3	274	3.67	2.7
14	135	4.33	1.6	1260	1.50	5.1	343	3.06	2.8
15	133	4.33	1.6	1030	1.66	4.6	637	2.12	3.6
16	137	4.28	1.6	891	1.64	4.0	480	2.32	3.0
17	143	3.89	1.5	854	1.82	4.2	442	2.45	2.9
18	840	2.27	4.8	727	1.75	3.4	425	2.51	2.9
19	429	2.14	2.5	639	1.89	3.3	434	2.55	3.0
20	280	2.55	1.9	1150	1.66	4.9	763	2.01	4.0
21	248	3.00	2.0	1720	1.37	6.3	1050	1.67	4.7
22	638	2.28	3.8	1150	1.67	5.2	715	1.86	3.6
23	766	1.94	4.0	933	1.79	4.5	1060	1.70	4.8
24	507	2.23	3.0	805	1.80	3.9	965	1.69	4.4
25	384	2.56	2.6	714	1.85	3.6	874	1.93	4.5
26	315	2.93	2.5	677	2.21	4.0	804	1.97	4.3
27	267	3.36	2.4	631	2.21	3.8	893	1.93	4.6
28	262	3.54	2.5	627	2.25	3.8	3350	1.49	13
29	235	3.60	2.3	594	2.22	3.6	2370	1.55	9.8
30	213	3.66	2.1	478	2.22	2.9	1550	1.69	7.0
31	197	3.72	2.0	---	---	---	1120	1.71	5.2
TOTAL	8185	---	67.1	27315	---	132.3	22661	---	122.5
		JANUARY			FEBRUARY			MARCH	
1	1050	1.82	5.2	996	1.54	4.1	598	2.36	3.8
2	969	2.05	5.4	823	1.56	3.5	543	2.33	3.4
3	803	2.03	4.4	767	1.60	3.3	537	2.17	3.2
4	686	2.15	4.0	666	1.67	3.0	573	2.23	3.4
5	596	2.20	3.5	574	2.01	3.1	787	1.80	3.8
6	840	1.72	3.8	532	2.16	3.1	877	1.60	3.8
7	1630	1.65	7.2	489	2.36	3.1	724	1.80	3.5
8	3710	1.44	14	465	2.50	3.1	643	1.97	3.4
9	1990	1.51	8.1	457	2.50	3.1	609	2.00	3.3
10	1320	1.66	5.9	446	2.57	3.1	605	1.96	3.2
11	1130	1.62	5.0	443	2.66	3.2	594	1.70	2.7
12	1200	1.70	5.5	438	2.63	3.1	585	1.65	2.6
13	1170	1.82	5.7	432	2.50	2.9	556	1.99	3.0
14	919	1.97	4.9	963	2.00	4.9	556	2.03	3.1
15	1130	1.57	4.8	1220	1.82	5.9	695	1.87	3.5
16	940	1.86	4.7	1270	1.49	5.1	667	1.73	3.1
17	860	2.07	4.8	810	1.66	3.6	624	1.70	2.9
18	780	2.10	4.4	672	2.03	3.7	818	1.70	3.8
19	680	2.10	3.9	650	2.10	3.7	787	1.70	3.6
20	600	2.29	3.7	650	2.16	3.8	705	1.62	3.1
21	700	2.37	4.5	1120	1.98	5.5	843	1.60	3.6
22	620	2.31	3.9	1640	1.34	6.0	682	1.66	3.1
23	540	2.34	3.4	1240	1.56	5.2	668	1.57	2.8
24	520	2.27	3.2	814	1.83	4.0	619	1.56	2.6
25	517	2.18	3.0	807	1.96	4.3	538	1.67	2.4
26	1720	1.50	6.2	821	1.90	4.2	491	1.86	2.5
27	1710	1.29	5.9	742	2.02	4.0	454	1.90	2.3
28	1130	1.62	4.9	629	2.27	3.8	588	1.68	2.7
29	1080	1.86	5.4	---	---	---	905	1.21	2.9
30	1220	1.70	5.6	---	---	---	2590	1.09	7.4
31	1160	1.60	5.0	---	---	---	3160	1.05	8.9
TOTAL	33920	---	159.9	21576	---	109.4	24621	---	107.4

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	2990	1.02	8.2	495	2.25	3.0	1940	1.03	5.4
2	2750	1.04	7.7	605	2.59	4.2	1750	.939	4.5
3	5350	1.04	15	818	1.91	4.2	2200	1.11	6.4
4	5990	1.00	16	614	1.76	2.9	5270	.875	12
5	3940	1.07	11	555	2.03	3.0	2640	.967	6.9
6	2890	1.17	9.1	753	1.94	3.8	2500	1.13	7.6
7	2530	1.26	8.6	780	1.48	3.1	2200	1.27	7.5
8	2200	1.30	7.7	800	1.52	3.3	1800	1.37	6.6
9	1840	1.31	6.5	810	1.67	3.7	1500	1.53	6.2
10	1450	1.37	5.4	910	1.62	4.0	1200	1.67	5.4
11	1240	1.32	4.4	1100	1.22	3.6	1000	1.95	5.3
12	948	1.41	3.6	1200	1.27	4.1	900	1.97	4.8
13	896	1.55	3.7	1300	1.22	4.3	2000	1.56	8.4
14	1050	1.42	4.0	1400	1.23	4.7	5270	1.14	16
15	897	1.41	3.4	1500	.977	4.0	5530	1.03	15
16	750	1.49	3.0	1870	.934	4.7	5790	.896	14
17	708	1.56	3.0	1810	.900	4.4	2930	1.02	8.0
18	704	1.40	2.7	1420	.901	3.4	2110	1.38	7.8
19	749	1.37	2.8	1120	.966	2.9	1610	1.65	7.2
20	861	1.46	3.4	988	1.07	2.8	3000	1.36	9.7
21	661	1.40	2.5	1110	1.20	3.6	3640	1.02	9.8
22	628	1.63	2.8	701	1.49	2.8	3630	.913	9.0
23	590	1.83	2.9	2760	1.50	10	2600	.945	6.6
24	560	1.97	3.0	3120	.908	8.0	1970	.900	4.8
25	510	2.12	2.9	1800	.927	4.5	1660	.901	4.0
26	557	1.80	2.7	10000	.883	24	1480	.969	3.9
27	506	1.68	2.3	3970	1.01	11	1400	1.20	4.5
28	452	2.23	2.7	2870	1.14	8.8	1850	1.14	5.7
29	456	2.65	3.3	2620	1.26	8.9	1170	1.26	4.0
30	523	2.62	3.7	2350	1.40	8.9	958	1.42	3.7
31	---	---	---	2570	1.16	7.8	---	---	---
TOTAL	46176	---	158.0	54719	---	172.4	73498	---	220.7
		JULY			AUGUST			SEPTEMBER	
1	909	1.30	3.2	497	2.69	3.6	541	2.41	3.3
2	862	1.39	3.2	419	2.74	3.1	318	2.98	2.5
3	786	1.69	3.6	366	2.76	2.7	200	3.00	1.6
4	795	1.80	3.9	394	2.55	2.7	157	3.33	1.4
5	625	1.79	3.0	784	1.63	3.4	143	3.85	1.5
6	552	1.53	2.3	446	1.77	2.1	146	4.16	1.6
7	502	1.25	1.7	363	2.00	2.0	270	4.01	2.5
8	455	1.36	1.7	388	2.42	2.5	1150	1.71	5.1
9	436	1.53	1.8	315	2.61	2.2	418	2.62	2.9
10	457	1.60	2.0	288	3.17	2.5	356	3.23	3.1
11	426	1.60	1.8	284	3.50	2.7	375	3.29	3.3
12	407	1.73	1.9	272	3.37	2.5	261	3.36	2.4
13	408	1.67	1.8	301	3.16	2.6	215	3.42	2.0
14	389	1.73	1.8	423	2.81	3.2	270	3.29	2.3
15	373	1.88	1.9	272	2.97	2.2	851	1.78	4.0
16	358	1.84	1.8	277	3.23	2.4	512	2.23	3.0
17	342	1.87	1.7	243	3.27	2.1	491	2.18	2.9
18	341	1.96	1.8	222	3.40	2.0	386	2.49	2.6
19	353	1.92	1.8	211	3.44	2.0	322	2.74	2.4
20	558	1.46	2.2	283	3.39	2.5	271	3.12	2.3
21	401	1.71	1.8	395	2.28	2.4	234	3.38	2.1
22	348	1.65	1.5	254	2.68	1.8	1790	3.16	7.3
23	380	1.89	1.9	218	3.22	1.9	2880	1.43	11
24	325	2.64	2.3	201	3.32	1.8	663	2.05	3.6
25	281	2.98	2.3	186	.427	.23	429	2.34	2.7
26	390	3.20	3.4	180	1.36	.62	355	2.97	2.8
27	1050	2.17	6.0	167	.444	.21	315	3.53	3.0
28	1420	1.83	7.1	162	2.62	1.1	335	3.53	3.2
29	677	1.58	2.9	318	4.11	3.5	326	3.51	3.1
30	547	2.23	3.3	323	3.14	2.8	293	3.96	3.1
31	578	2.57	4.0	234	2.51	1.6	---	---	---
TOTAL	16731	---	81.4	9686	---	68.96	15273	---	94.6
YEAR	354361		1494.82						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	129	.50	.17	201	.72	.39	418	1.6	1.80
2	123	.58	.19	222	.71	.43	405	2.3	2.48
3	155	.60	.25	307	.76	.63	342	2.3	2.09
4	164	.53	.23	606	1.1	1.79	331	1.7	1.52
5	163	.59	.26	1610	1.8	10.7	365	.82	.81
6	157	.67	.29	1560	1.5	7.08	371	.72	.72
7	153	.61	.25	1060	.86	2.48	359	.63	.61
8	143	.59	.23	953	.87	2.23	333	.60	.54
9	137	.51	.19	806	.90	1.96	315	.60	.51
10	140	.52	.19	1500	1.1	4.75	295	.60	.48
11	192	.58	.30	1330	.97	3.53	297	.67	.54
12	248	.59	.41	1020	.80	2.19	281	.76	.58
13	152	.50	.21	1260	.87	3.02	274	.72	.53
14	135	.57	.21	1260	.92	3.13	343	.78	.75
15	133	.60	.22	1030	.91	2.52	637	1.2	2.08
16	137	.66	.25	891	.98	2.37	480	1.1	1.36
17	143	.59	.23	854	.99	2.28	442	.97	1.16
18	840	1.1	2.78	727	.89	1.75	425	.94	1.08
19	429	1.0	1.19	639	.83	1.44	434	.92	1.08
20	280	.68	.52	1150	.96	3.12	763	1.2	2.43
21	248	.61	.41	1720	1.1	5.05	1050	1.2	3.36
22	638	1.0	1.89	1150	.82	2.56	715	.96	1.87
23	766	1.2	2.50	933	.80	2.02	1060	1.2	3.42
24	507	.88	1.22	805	.80	1.74	965	1.1	2.76
25	384	.79	.82	714	.80	1.54	874	.77	1.83
26	315	.78	.66	677	.79	1.44	804	.73	1.59
27	267	.77	.55	631	.73	1.24	893	.77	1.86
28	262	.76	.54	627	.79	1.34	3350	1.5	15.6
29	235	.75	.48	594	.80	1.28	2370	1.1	7.41
30	213	.74	.42	478	.87	1.12	1550	.99	4.13
31	197	.73	.39	---	---	---	1120	.91	2.77
TOTAL	8185	---	18.45	27315	---	77.12	22661	---	69.75
		JANUARY			FEBRUARY			MARCH	
1	1050	.90	2.56	996	.70	1.88	598	.73	1.19
2	969	.90	2.36	823	.63	1.41	543	.70	1.03
3	803	.91	1.96	767	.67	1.38	537	.82	1.19
4	686	.95	1.76	666	.76	1.37	573	.84	1.30
5	596	1.0	1.65	574	.74	1.14	787	.96	2.04
6	840	1.5	3.79	532	.78	1.12	877	.91	2.16
7	1630	1.3	5.66	489	.80	1.06	724	.89	1.73
8	3710	1.3	13.4	465	.80	1.00	643	.81	1.41
9	1990	.97	5.22	457	.80	.99	609	.80	1.32
10	1320	.99	3.51	446	.99	1.18	605	.81	1.33
11	1130	.99	3.01	443	.97	1.16	594	.89	1.42
12	1200	.90	2.91	438	.89	1.05	585	.90	1.42
13	1170	.81	2.57	432	.76	.89	556	.90	1.35
14	919	.84	2.08	963	1.2	3.32	556	.84	1.27
15	1130	1.3	3.88	1220	1.3	4.17	695	1.3	2.47
16	940	1.0	2.54	1270	.87	3.01	667	1.3	2.28
17	860	.90	2.09	810	.77	1.68	624	1.2	2.02
18	780	.96	2.03	672	.74	1.33	818	1.3	2.94
19	680	1.0	1.83	650	.59	1.03	787	1.2	2.49
20	600	.93	1.51	650	.23	.41	705	1.0	2.00
21	700	.89	1.67	1120	.37	1.52	843	.87	1.99
22	620	.93	1.56	1640	.27	1.29	682	.93	1.70
23	540	.87	1.27	1240	<.20	.34	668	1.0	1.80
24	520	.84	1.18	814	<.20	.22	619	1.0	1.67
25	517	.83	1.16	807	.21	.47	538	1.0	1.48
26	1720	1.4	7.42	821	.59	1.31	491	.96	1.28
27	1710	1.4	6.54	742	1.0	2.08	454	.94	1.15
28	1130	.99	3.04	629	.83	1.41	588	1.2	2.00
29	1080	.76	2.22	---	---	---	905	3.1	7.14
30	1220	.82	2.72	---	---	---	2590	2.6	19.6
31	1160	.77	2.40	---	---	---	3160	1.9	16.7
TOTAL	33920	---	97.50	21576	---	39.22	24621	---	90.87

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	2990	1.2	9.96	495	.82	1.10	1940	1.2	6.19
2	2750	1.0	7.57	605	.87	1.41	1750	.84	3.97
3	5350	1.5	23.7	818	.96	2.12	2200	1.9	17.3
4	5990	1.6	26.1	614	.73	1.22	5270	2.5	38.7
5	3940	1.2	12.9	555	.71	1.07	2640	1.1	7.66
6	2890	1.0	8.06	753	.97	2.15	2500	1.0	6.76
7	2530	.93	6.38	780	1.0	2.21	2200	1.1	6.36
8	2200	.90	5.36	800	.88	1.90	1800	1.4	6.87
9	1840	.98	4.87	810	1.2	2.54	1500	1.3	5.12
10	1450	1.0	3.97	910	.99	2.44	1200	.97	3.14
11	1240	1.1	3.63	1100	1.2	3.49	1000	.90	2.43
12	948	1.1	2.87	1200	.84	2.74	900	.98	2.39
13	896	1.2	2.98	1300	.82	2.89	2000	1.7	9.22
14	1050	1.0	2.90	1400	.93	3.53	5270	2.0	28.8
15	897	.92	2.24	1500	.77	3.11	5530	1.4	20.6
16	750	1.0	2.06	1870	.86	4.36	5790	1.4	21.8
17	708	1.2	2.22	1810	.90	4.40	2930	1.1	9.12
18	704	1.1	2.16	1420	.90	3.44	2110	.75	4.31
19	749	1.1	2.22	1120	.90	2.73	1610	.70	3.05
20	861	1.0	2.40	988	.94	2.52	3000	1.4	14.2
21	661	1.1	1.89	1110	.83	2.47	3640	1.9	19.5
22	628	.93	1.57	701	.70	1.32	3630	1.4	14.1
23	590	.80	1.27	2760	1.3	13.0	2600	1.3	9.44
24	560	.80	1.21	3120	1.4	11.9	1970	1.2	6.55
25	510	.93	1.28	1800	.90	4.38	1660	1.1	4.78
26	557	1.2	1.78	10000	2.5	75.7	1480	1.0	3.99
27	506	1.2	1.59	3970	1.1	11.9	1400	1.0	3.82
28	452	1.0	1.26	2870	.98	7.60	1850	1.3	6.75
29	456	1.1	1.32	2620	.86	6.12	1170	1.0	3.20
30	523	.99	1.39	2350	.76	4.86	958	1.0	2.65
31	---	---	---	2570	1.4	10.4	---	---	---
TOTAL	46176	---	149.11	54719	---	201.02	73498	---	292.77
		JULY			AUGUST			SEPTEMBER	
1	909	.96	2.37	497	.94	1.26	541	1.4	2.72
2	862	.84	1.95	419	.96	1.09	318	.90	.80
3	786	.86	1.83	366	.93	.92	200	.68	.37
4	795	.90	1.93	394	1.2	1.38	157	.62	.26
5	625	.90	1.52	784	2.5	6.09	143	.68	.26
6	552	.91	1.36	446	1.0	1.25	146	.65	.26
7	502	1.4	1.87	363	.87	.85	270	.75	.73
8	455	1.1	1.39	388	.81	.84	1150	1.9	6.61
9	436	.80	.94	315	1.1	.93	418	.76	.90
10	457	.76	.94	288	1.0	.80	356	.49	.47
11	426	.73	.85	284	.90	.69	375	.46	.47
12	407	.70	.77	272	.90	.66	261	.44	.31
13	408	.70	.77	301	.98	.86	215	.42	.25
14	389	.70	.74	423	1.1	1.42	270	.48	.39
15	373	.78	.78	272	.43	.32	851	1.2	2.95
16	358	.87	.84	277	.46	.35	512	.73	1.00
17	342	.96	.89	243	.43	.28	491	.65	.87
18	341	.94	.86	222	.40	.24	386	.61	.64
19	353	.97	.92	211	.40	.23	322	.66	.58
20	558	1.1	1.70	283	.52	.42	271	.70	.51
21	401	.97	1.05	395	.82	.92	234	.76	.48
22	348	.96	.90	254	.55	.38	1790	1.9	24.6
23	380	.89	.91	218	.66	.39	2880	2.2	22.6
24	325	.86	.75	201	.72	.39	663	.87	1.59
25	281	.84	.63	186	.24	.13	429	.80	.93
26	390	.86	.92	180	.47	.22	355	.77	.74
27	1050	1.9	5.50	167	.26	.12	315	.70	.60
28	1420	1.8	7.05	162	.60	.26	335	.83	.75
29	677	1.1	2.03	318	.66	.58	326	1.0	.90
30	547	.90	1.33	323	.63	.55	293	.96	.77
31	578	.96	1.50	234	.60	.38	---	---	---
TOTAL	16731	---	47.79	9686	---	25.20	15273	---	75.31
YEAR	354361		1184.34						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	129	.120	.042	201	.147	.080	418	.133	.15
2	123	.117	.039	222	.144	.086	405	.273	.30
3	155	.102	.043	307	.156	.13	342	.205	.19
4	164	.116	.051	606	.253	.42	331	.121	.11
5	163	.119	.052	1610	.514	3.38	365	.108	.11
6	157	.111	.047	1560	.415	1.98	371	.102	.10
7	153	.110	.046	1060	.236	.68	359	.107	.10
8	143	.109	.042	953	.176	.45	333	.103	.093
9	137	.101	.037	806	.124	.27	315	.100	.085
10	140	.094	.036	1500	.199	.86	295	.100	.080
11	192	.078	.041	1330	.208	.75	297	.100	.081
12	248	.117	.086	1020	.165	.45	281	.113	.086
13	152	.077	.031	1260	.226	.81	274	.120	.089
14	135	.087	.032	1260	.257	.88	343	.135	.13
15	133	.090	.032	1030	.161	.45	637	.218	.38
16	137	.090	.033	891	.139	.34	480	.158	.21
17	143	.090	.035	854	.121	.28	442	.137	.16
18	840	.284	.70	727	.112	.22	425	.134	.15
19	429	.237	.28	639	.116	.20	434	.135	.16
20	280	.141	.11	1150	.225	.80	763	.277	.61
21	248	.123	.083	1720	.311	1.51	1050	.155	.45
22	638	.247	.46	1150	.163	.51	715	.175	.33
23	766	.300	.63	933	.124	.31	1060	.359	1.09
24	507	.202	.28	805	.109	.24	965	.365	.95
25	384	.177	.18	714	.096	.18	874	.256	.61
26	315	.172	.15	677	.115	.21	804	.239	.52
27	267	.168	.12	631	.120	.20	893	.251	.61
28	262	.163	.12	627	.114	.19	3350	.675	7.26
29	235	.159	.10	594	.110	.18	2370	.284	1.91
30	213	.155	.089	478	.111	.14	1550	.220	.92
31	197	.151	.081	---	---	---	1120	.152	.46
TOTAL	8185	---	4.108	27315	---	17.186	22661	---	18.484
		JANUARY			FEBRUARY			MARCH	
1	1050	.154	.44	996	.100	.27	598	.071	.11
2	969	.186	.49	823	.093	.21	543	.116	.17
3	803	.154	.34	767	.090	.19	537	.101	.15
4	686	.140	.26	666	.083	.15	573	.084	.13
5	596	.137	.22	574	.080	.12	787	.116	.25
6	840	.253	.63	532	.078	.11	877	.121	.29
7	1630	.379	1.78	489	.074	.097	724	.085	.17
8	3710	.470	4.87	465	.078	.098	643	.079	.14
9	1990	.190	1.04	457	.072	.089	609	.070	.11
10	1320	.136	.49	446	.063	.076	605	.062	.10
11	1130	.139	.42	443	.067	.080	594	.069	.11
12	1200	.137	.44	438	.106	.12	585	.065	.10
13	1170	.120	.38	432	.087	.10	556	.053	.080
14	919	.114	.28	963	.141	.41	556	.057	.086
15	1130	.209	.64	1220	.175	.58	695	.087	.17
16	940	.136	.35	1270	.138	.48	667	.083	.15
17	860	.103	.24	810	.095	.21	624	.074	.13
18	780	.100	.21	672	.070	.13	818	.116	.26
19	680	.100	.18	650	.067	.12	787	.100	.22
20	600	.093	.15	650	.060	.11	705	.063	.12
21	700	.090	.17	1120	.122	.52	843	.060	.14
22	620	.080	.13	1640	.256	1.15	682	.060	.11
23	540	.077	.11	1240	.137	.48	668	.060	.11
24	520	.074	.10	814	.100	.22	619	.060	.10
25	517	.076	.11	807	.100	.22	538	.067	.096
26	1720	.311	1.80	821	.087	.19	491	.080	.11
27	1710	.307	1.47	742	.090	.18	454	.080	.099
28	1130	.158	.49	629	.077	.13	588	.124	.20
29	1080	.095	.27	---	---	---	905	.689	1.57
30	1220	.110	.36	---	---	---	2590	.617	4.83
31	1160	.110	.34	---	---	---	3160	.384	3.33
TOTAL	33920	---	19.20	21576	---	6.840	24621	---	13.741

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	2990	.243	1.98	495	.072	.097	1940	.226	1.19
2	2750	.187	1.39	605	.079	.13	1750	.193	.92
3	5350	.429	6.88	818	.127	.29	2200	.351	3.02
4	5990	.475	7.79	614	.076	.13	5270	.526	7.83
5	3940	.306	3.31	555	.061	.092	2640	.278	2.02
6	2890	.226	1.77	753	.123	.34	2500	.240	1.62
7	2530	.203	1.39	780	.192	.40	2200	.220	1.31
8	2200	.180	1.07	800	.117	.25	1800	.216	1.05
9	1840	.151	.75	810	.108	.24	1500	.207	.84
10	1450	.132	.52	910	.194	.48	1200	.200	.65
11	1240	.129	.43	1100	.288	.85	1000	.192	.52
12	948	.124	.32	1200	.172	.56	900	.168	.41
13	896	.132	.32	1300	.150	.53	2000	.373	2.02
14	1050	.105	.30	1400	.194	.73	5270	.464	6.65
15	897	.101	.25	1500	.163	.66	5530	.377	5.70
16	750	.098	.20	1870	.163	.82	5790	.379	6.01
17	708	.080	.15	1810	.157	.77	2930	.273	2.18
18	704	.093	.18	1420	.150	.57	2110	.253	1.45
19	749	.093	.19	1120	.156	.47	1610	.215	.94
20	861	.077	.18	988	.153	.41	3000	.278	2.67
21	661	.076	.14	1110	.273	.90	3640	.415	4.18
22	628	.083	.14	701	.137	.26	3630	.360	3.57
23	590	.073	.12	2760	.333	3.58	2600	.347	2.46
24	560	.070	.11	3120	.340	3.07	1970	.295	1.56
25	510	.077	.11	1800	.202	.99	1660	.232	1.04
26	557	.086	.13	10000	.864	26.3	1480	.200	.80
27	506	.077	.11	3970	.298	3.21	1400	.211	.81
28	452	.077	.094	2870	.267	2.08	1850	.351	1.77
29	456	.072	.089	2620	.240	1.70	1170	.260	.83
30	523	.077	.11	2350	.215	1.37	958	.268	.69
31	---	---	---	2570	.276	1.98	---	---	---
TOTAL	46176	---	30.523	54719	---	54.259	73498	---	66.71
		JULY			AUGUST			SEPTEMBER	
1	909	.282	.69	497	.187	.25	541	.460	.97
2	862	.204	.48	419	.180	.20	318	.240	.22
3	786	.170	.36	366	.167	.16	200	.143	.078
4	795	.170	.36	394	.225	.27	157	.121	.051
5	625	.162	.27	784	.442	1.08	143	.111	.043
6	552	.122	.18	446	.153	.19	146	.110	.043
7	502	.268	.36	363	.143	.14	270	.140	.14
8	455	.215	.27	388	.190	.20	1150	.470	1.55
9	436	.132	.16	315	.150	.13	418	.273	.32
10	457	.104	.13	288	.127	.099	356	.172	.17
11	426	.106	.12	284	.113	.087	375	.193	.20
12	407	.110	.12	272	.103	.076	261	.179	.13
13	408	.116	.13	301	.128	.13	215	.165	.096
14	389	.120	.13	423	.248	.34	270	.167	.13
15	373	.125	.13	272	.116	.086	851	.283	.68
16	358	.113	.11	277	.123	.092	512	.207	.29
17	342	.097	.090	243	.116	.076	491	.203	.27
18	341	.096	.089	222	.096	.058	386	.185	.19
19	353	.095	.091	211	.091	.052	322	.192	.17
20	558	.190	.30	283	.140	.11	271	.179	.13
21	401	.129	.14	395	.192	.22	234	.143	.091
22	348	.132	.13	254	.150	.10	1790	.564	8.62
23	380	.176	.18	218	.160	.094	2880	.675	7.47
24	325	.156	.14	201	.150	.082	663	.220	.40
25	281	.160	.12	186	.025	.013	429	.180	.21
26	390	.174	.18	180	.064	.029	355	.162	.15
27	1050	.629	1.82	167	.026	.012	315	.146	.12
28	1420	.575	2.25	162	.080	.035	335	.127	.11
29	677	.318	.60	318	.153	.14	326	.120	.11
30	547	.220	.32	323	.160	.14	293	.106	.085
31	578	.203	.32	234	.136	.086	---	---	---
TOTAL	16731	---	10.770	9686	---	4.777	15273	---	23.237
YEAR	354361		269.776						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	129	15	5.2	201	6	3.4	418	8	9.4
2	123	13	4.4	222	10	5.9	405	9	10
3	155	12	5.1	307	22	19	342	10	9.1
4	164	12	5.3	606	57	101	331	9	8.1
5	163	12	5.4	1610	162	1180	365	8	8.1
6	157	15	6.3	1560	227	1030	371	7	7.1
7	153	13	5.3	1060	101	292	359	6	5.9
8	143	10	3.9	953	64	164	333	5	4.1
9	137	9	3.5	806	40	87	315	6	5.1
10	140	11	4.3	1500	216	1090	295	4	3.6
11	192	19	9.9	1330	140	529	297	5	3.9
12	248	37	26	1020	54	149	281	6	4.7
13	152	18	7.4	1260	87	318	274	9	6.5
14	135	9	3.2	1260	67	233	343	9	9.5
15	133	12	4.2	1030	53	147	637	30	53
16	137	15	5.4	891	61	147	480	14	18
17	143	18	6.8	854	43	99	442	12	15
18	840	227	601	727	23	45	425	9	11
19	429	75	95	639	17	30	434	7	8.0
20	280	28	22	1150	157	648	763	59	146
21	248	20	14	1720	239	1230	1050	72	208
22	638	114	254	1150	50	159	715	31	60
23	766	127	298	933	27	67	1060	95	305
24	507	30	42	805	19	42	965	52	138
25	384	17	18	714	15	29	874	34	83
26	315	11	9.8	677	15	28	804	16	34
27	267	13	9.5	631	22	37	893	19	46
28	262	12	8.3	627	17	28	3350	622	7200
29	235	10	6.3	594	11	18	2370	324	2180
30	213	7	4.1	478	9	12	1550	181	767
31	197	5	2.9	---	---	---	1120	84	257
TOTAL	8185	---	1496.5	27315	---	7967.3	22661	---	11624.1
		JANUARY			FEBRUARY			MARCH	
1	1050	52	149	996	26	69	598	12	19
2	969	37	97	823	16	36	543	12	18
3	803	21	45	767	12	25	537	10	15
4	686	23	42	666	10	18	573	10	16
5	596	23	37	574	9	14	787	84	192
6	840	45	119	532	8	11	877	82	194
7	1630	115	599	489	5	6.4	724	25	50
8	3710	593	6320	465	5	6.9	643	14	24
9	1990	153	857	457	5	6.4	609	12	20
10	1320	62	223	446	3	3.2	605	11	18
11	1130	44	135	443	2	2.2	594	9	15
12	1200	48	156	438	1	1.3	585	7	11
13	1170	42	132	432	1	1.2	556	6	9.2
14	919	43	107	963	54	162	556	7	10
15	1130	42	128	1220	66	229	695	18	35
16	940	29	72	1270	64	227	667	14	25
17	860	23	54	810	21	47	624	9	15
18	780	20	43	672	11	20	818	49	120
19	680	17	32	650	10	17	787	29	64
20	600	16	27	650	9	16	705	11	22
21	700	17	32	1120	102	493	843	26	64
22	620	14	23	1640	120	553	682	11	21
23	540	10	15	1240	47	163	668	12	22
24	520	5	7.3	814	34	75	619	12	20
25	517	6	8.8	807	26	56	538	11	16
26	1720	542	3880	821	21	45	491	10	14
27	1710	181	952	742	17	34	454	10	12
28	1130	38	118	629	14	23	588	22	36
29	1080	28	83	---	---	---	905	135	343
30	1220	29	97	---	---	---	2590	504	4600
31	1160	27	85	---	---	---	3160	355	3140
TOTAL	33920	---	14675.1	21576	---	2360.6	24621	---	9180.2

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	2990	174	1410	495	10	13	1940	186	986
2	2750	176	1310	605	12	19	1750	147	698
3	5350	631	10400	818	45	105	2200	177	1310
4	5990	655	10800	614	16	28	5270	598	9010
5	3940	320	3520	555	11	17	2640	294	2150
6	2890	214	1670	753	55	178	2500	183	1240
7	2530	167	1140	780	149	313	2200	135	802
8	2200	138	823	800	41	88	1800	107	519
9	1840	146	724	810	19	42	1500	124	504
10	1450	90	355	910	55	134	1200	123	400
11	1240	58	193	1100	128	379	1000	83	224
12	948	53	135	1200	84	271	900	82	199
13	896	53	127	1300	94	331	2000	463	2500
14	1050	36	102	1400	106	402	5270	649	9340
15	897	30	72	1500	74	302	5530	674	10200
16	750	22	44	1870	75	378	5790	699	11200
17	708	20	39	1810	63	307	2930	338	2750
18	704	30	57	1420	49	188	2110	205	1180
19	749	21	41	1120	42	129	1610	151	660
20	861	12	26	988	41	109	3000	580	6770
21	661	10	17	1110	68	210	3640	485	5010
22	628	9	15	701	39	75	3630	312	3160
23	590	7	12	2760	280	3760	2600	181	1280
24	560	8	12	3120	330	3110	1970	139	743
25	510	10	14	1800	132	650	1660	117	523
26	557	17	27	10000	1430	45800	1480	105	420
27	506	9	13	3970	471	5300	1400	120	467
28	452	9	12	2870	242	1890	1850	184	956
29	456	10	13	2620	216	1530	1170	94	302
30	523	9	12	2350	186	1190	958	71	184
31	---	---	---	2570	258	1880	---	---	---
TOTAL	46176	---	33135	54719	---	69128	73498	---	75687
	JULY			AUGUST			SEPTEMBER		
1	909	65	160	497	42	57	541	229	592
2	862	59	138	419	32	37	318	32	29
3	786	53	112	366	32	31	200	25	13
4	795	125	287	394	77	105	157	22	9.4
5	625	76	133	784	189	487	143	21	8.0
6	552	24	35	446	33	41	146	19	7.7
7	502	25	33	363	30	29	270	43	73
8	455	23	29	388	65	71	1150	817	3200
9	436	18	22	315	24	21	418	96	122
10	457	27	33	288	18	14	356	47	45
11	426	18	21	284	14	11	375	49	50
12	407	16	18	272	13	9.2	261	36	26
13	408	16	17	301	25	27	215	27	16
14	389	13	13	423	84	107	270	51	53
15	373	10	9.7	272	29	22	851	253	666
16	358	8	8.1	277	29	22	512	82	114
17	342	10	9.4	243	20	13	491	54	72
18	341	10	8.9	222	17	10	386	33	35
19	353	14	14	211	13	7.7	322	24	21
20	558	56	93	283	26	22	271	22	16
21	401	23	25	395	30	35	234	23	14
22	348	18	17	254	20	14	1790	770	14000
23	380	25	26	218	16	9.7	2880	904	10300
24	325	19	17	201	18	9.8	663	143	276
25	281	24	18	186	18	8.9	429	43	52
26	390	32	35	180	17	8.4	355	26	25
27	1050	346	1040	167	14	6.5	315	18	15
28	1420	473	1940	162	14	6.1	335	15	14
29	677	116	228	318	31	33	326	14	12
30	547	72	107	323	24	22	293	13	10
31	578	63	99	234	14	8.5	---	---	---
TOTAL	16731	---	4746.1	9686	---	1305.8	15273	---	29886.1
YEAR	354361		261184.1						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	275	120	87.4	483	98	128	634	93	159
2	1070	67	185	377	96	97.8	626	92	155
3	762	79	163	448	97	117	638	95	163
4	696	85	160	405	96	105	468	110	143
5	632	80	137	373	97	97.8	401	170	186
6	580	81	127	414	97	109	394	210	222
7	522	80	112	530	94	132	509	220	301
8	488	81	106	769	88	183	509	230	316
9	425	82	93.7	590	92	147	472	190	250
10	527	85	121	526	92	131	432	150	174
11	588	88	138	492	94	124	419	140	162
12	360	92	89.8	463	96	120	402	150	159
13	287	100	79.6	427	96	111	370	160	160
14	246	100	67.4	427	97	112	350	160	147
15	229	100	64.0	946	91	220	320	140	125
16	223	100	63.1	3320	71	627	300	160	129
17	1580	77	322	1480	76	303	290	160	128
18	810	80	174	978	81	213	280	160	124
19	1190	90	286	894	85	204	260	160	115
20	1360	83	303	907	89	218	250	160	111
21	906	89	219	777	93	195	240	160	107
22	807	97	211	809	91	198	230	160	102
23	647	100	177	789	90	192	230	160	101
24	644	100	182	714	110	204	220	160	92.9
25	674	100	185	679	120	213	210	150	86.7
26	592	96	153	879	120	278	210	150	84.7
27	523	93	131	802	110	242	200	150	81.4
28	438	93	110	1030	100	288	200	160	86.2
29	415	96	108	1020	100	283	190	180	91.8
30	414	97	108	868	100	237	190	290	149
31	410	99	109	---	---	---	2990	110	873
TOTAL	19320	---	4572.0	23616	---	5829.6	13434	---	5284.7
		JANUARY			FEBRUARY			MARCH	
1	2700	100	741	989	270	685	1360	130	473
2	1710	110	497	6100	120	1850	1340	110	399
3	1230	110	379	4470	95	1140	1390	98	366
4	2010	110	570	5100	100	1390	1130	93	284
5	2330	92	577	3980	94	1020	1040	89	250
6	1770	95	454	3140	80	678	994	97	260
7	1460	98	388	2530	79	542	914	100	250
8	1390	100	380	2040	79	434	869	99	232
9	1250	99	333	1770	85	408	1070	100	302
10	1650	130	577	2300	84	522	1180	120	375
11	1390	140	536	1690	83	381	1070	110	327
12	1160	140	446	1490	84	337	1030	100	279
13	971	160	432	1280	82	285	976	92	242
14	853	200	454	1290	91	319	942	88	225
15	937	180	447	4420	170	1870	930	87	219
16	1170	210	658	7740	75	1590	860	91	211
17	1190	200	655	4110	73	811	852	97	223
18	1610	190	841	2880	72	556	760	97	199
19	1350	150	541	2670	64	465	666	100	181
20	1340	140	519	2180	62	364	635	100	175
21	2240	160	945	1850	65	325	602	100	167
22	1790	120	579	2070	92	519	586	100	163
23	1580	110	486	2230	94	567	579	100	162
24	1410	110	436	1870	110	540	485	100	137
25	1290	110	387	1560	140	586	390	110	111
26	1250	110	363	1350	140	527	374	110	107
27	1070	100	297	1350	150	531	366	110	105
28	988	100	266	1530	160	648	357	110	102
29	929	120	298	---	---	---	354	110	101
30	983	240	637	---	---	---	373	110	107
31	867	310	722	---	---	---	368	110	105
TOTAL	43868	---	15841	75979	---	19890	24842	---	6839

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	614	100	167	535	97	140	904	62	150
2	1380	85	316	507	96	132	781	64	134
3	1060	97	277	480	95	124	738	65	130
4	1420	93	348	680	97	178	659	67	120
5	1230	95	312	1580	76	331	601	70	113
6	991	100	272	834	83	185	572	72	110
7	838	100	232	624	90	152	594	73	118
8	779	100	217	544	90	132	914	62	143
9	716	100	202	529	93	132	1690	49	217
10	2570	91	562	545	99	145	1270	52	178
11	5100	79	1060	510	100	141	847	62	142
12	2500	81	551	433	100	119	706	67	127
13	1790	77	372	1380	93	345	560	69	105
14	1710	73	338	971	90	237	412	73	80.9
15	1610	76	330	701	110	205	371	76	76.5
16	1300	74	262	4040	68	610	322	80	69.8
17	1200	80	259	4250	46	516	282	85	64.4
18	1000	81	219	2620	53	368	252	89	60.6
19	845	84	192	1830	56	275	233	94	58.9
20	745	87	176	1670	54	244	225	97	59.1
21	3290	63	560	1750	53	252	311	82	68.8
22	1950	41	217	1450	52	205	225	93	56.5
23	1330	49	176	1110	56	168	1050	58	158
24	1080	62	181	898	61	147	768	71	147
25	963	75	195	764	64	131	548	74	108
26	812	78	171	1060	56	158	440	76	89.9
27	696	86	162	790	63	133	391	78	82.8
28	635	85	146	648	69	120	376	82	82.6
29	579	89	139	1960	50	244	437	76	89.3
30	552	93	139	1830	47	230	358	85	82.1
31	---	---	---	1140	58	177	---	---	---
TOTAL	41285	---	8750	38663	---	6676	17837	---	3222.2
		JULY			AUGUST			SEPTEMBER	
1	348	84	78.4	614	70	115	197	100	53.5
2	259	95	65.9	532	81	117	190	100	51.9
3	193	96	50.0	508	85	116	185	100	50.3
4	175	97	45.9	511	83	114	194	100	52.4
5	162	99	43.4	2350	49	299	285	98	74.9
6	161	100	43.7	2080	49	268	725	89	156
7	147	100	40.7	2820	44	323	10200	41	1100
8	134	100	37.7	1190	58	184	5280	46	643
9	125	110	35.8	1010	60	164	4750	45	564
10	136	110	39.7	899	58	140	3050	49	405
11	210	99	53.0	762	64	132	2100	52	297
12	1440	64	249	616	74	124	1630	55	241
13	1140	71	216	1500	66	253	1510	57	232
14	834	76	171	981	69	179	1450	58	224
15	769	78	161	664	82	147	1980	49	259
16	586	85	134	584	86	136	1730	51	231
17	645	81	139	496	86	115	1360	55	200
18	489	82	109	470	86	110	1040	59	166
19	1670	75	286	911	81	193	1020	61	167
20	1130	75	221	727	78	152	1000	63	170
21	1550	72	299	598	88	142	795	68	145
22	1780	73	338	670	93	169	1020	64	176
23	2570	66	451	491	96	127	1030	66	180
24	1470	77	305	386	99	104	1180	62	193
25	1130	81	248	377	98	100	684	73	133
26	950	83	213	377	98	99.5	603	76	124
27	874	85	199	364	100	98.4	677	77	141
28	766	86	178	374	99	99.4	587	79	125
29	609	88	145	325	99	87.2	581	79	123
30	546	88	129	245	100	66.9	753	69	141
31	948	60	149	208	100	56.7	---	---	---
TOTAL	23946	---	4874.2	24640	---	4531.1	47786	---	6819.0
YEAR	395216		93132.7						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	275	4.30	3.2	483	2.87	3.7	634	1.85	3.2
2	1070	1.96	5.3	377	2.68	2.7	626	1.90	3.2
3	762	2.06	4.2	448	2.61	3.2	638	2.01	3.5
4	696	2.00	3.8	405	2.47	2.7	468	2.04	2.6
5	632	2.10	3.6	373	2.62	2.6	401	1.95	2.1
6	580	2.24	3.5	414	2.65	3.0	394	1.80	1.9
7	522	2.15	3.0	530	2.68	3.8	509	1.87	2.6
8	488	2.35	3.1	769	2.20	4.6	509	2.08	2.9
9	425	2.34	2.7	590	2.16	3.4	472	2.04	2.6
10	527	2.30	3.2	526	2.18	3.1	432	2.21	2.6
11	588	1.92	2.9	492	2.37	3.1	419	2.31	2.6
12	360	2.17	2.1	463	2.54	3.2	402	2.27	2.5
13	287	2.95	2.3	427	2.51	2.9	370	2.04	2.0
14	246	3.44	2.3	427	2.58	3.0	350	1.85	1.7
15	229	3.39	2.1	946	2.14	5.0	320	1.77	1.5
16	223	3.36	2.0	3320	1.25	11	300	2.44	2.0
17	1580	2.04	8.3	1480	1.34	5.3	290	2.71	2.1
18	810	1.62	3.5	978	1.39	3.7	280	2.83	2.1
19	1190	1.95	6.3	894	1.44	3.5	260	2.96	2.1
20	1360	1.53	5.7	907	1.50	3.7	250	3.10	2.1
21	906	1.68	4.1	777	1.55	3.3	240	3.24	2.1
22	807	2.00	4.3	809	1.45	3.1	230	3.39	2.1
23	647	2.16	3.8	789	1.40	3.0	230	3.57	2.2
24	644	2.66	4.6	714	1.49	2.9	220	3.45	2.1
25	674	2.77	5.0	679	1.64	3.0	210	3.46	2.0
26	592	2.45	3.9	879	1.57	3.7	210	3.41	1.9
27	523	2.35	3.3	802	1.72	3.7	200	3.87	2.1
28	438	2.41	2.8	1030	1.40	3.9	200	3.95	2.1
29	415	2.57	2.9	1020	1.48	4.1	190	3.64	1.9
30	414	2.55	2.9	868	1.76	4.1	190	3.01	1.5
31	410	2.83	3.1	---	---	---	2990	1.33	11
TOTAL	19320	---	113.8	23616	---	112.0	13434	---	78.9
		JANUARY			FEBRUARY			MARCH	
1	2700	1.33	9.7	989	1.91	5.0	1360	1.22	4.5
2	1710	1.45	6.7	6100	1.12	18	1340	1.26	4.5
3	1230	1.58	5.2	4470	1.13	14	1390	1.19	4.4
4	2010	1.48	7.6	5100	1.04	14	1130	1.31	4.0
5	2330	1.34	8.3	3980	1.07	11	1040	1.26	3.5
6	1770	1.48	7.1	3140	1.25	11	994	1.35	3.6
7	1460	1.60	6.3	2530	1.28	8.7	914	1.63	4.0
8	1390	1.66	6.2	2040	1.28	7.1	869	1.58	3.7
9	1250	1.71	5.8	1770	1.30	6.2	1070	1.47	4.2
10	1650	1.57	7.0	2300	1.14	7.1	1180	1.50	4.7
11	1390	1.55	5.8	1690	1.14	5.2	1070	1.60	4.6
12	1160	1.70	5.3	1490	1.30	5.2	1030	1.37	3.8
13	971	1.87	4.9	1280	1.34	4.7	976	1.36	3.6
14	853	2.01	4.6	1290	1.35	4.7	942	1.40	3.6
15	937	1.99	5.0	4420	1.21	13	930	1.34	3.4
16	1170	1.72	5.4	7740	.965	20	860	1.36	3.2
17	1190	1.78	5.7	4110	1.03	11	852	1.40	3.2
18	1610	1.62	7.0	2880	1.06	8.3	760	1.40	2.9
19	1350	1.53	5.6	2670	1.16	8.4	666	1.41	2.5
20	1340	1.58	5.7	2180	1.17	6.9	635	1.49	2.6
21	2240	1.26	7.6	1850	1.10	5.5	602	1.53	2.5
22	1790	1.28	6.2	2070	1.02	5.6	586	1.55	2.5
23	1580	1.40	6.0	2230	.956	5.8	579	1.58	2.5
24	1410	1.42	5.4	1870	.938	4.7	485	1.61	2.1
25	1290	1.51	5.3	1560	.971	4.1	390	1.66	1.7
26	1250	1.53	5.2	1350	1.09	4.0	374	1.71	1.7
27	1070	1.55	4.5	1350	1.13	4.1	366	1.76	1.7
28	988	1.63	4.4	1530	1.14	4.7	357	1.81	1.7
29	929	1.82	4.6	---	---	---	354	1.87	1.8
30	983	1.86	4.9	---	---	---	373	1.92	1.9
31	867	1.87	4.4	---	---	---	368	1.97	2.0
TOTAL	43868	---	183.4	75979	---	228.0	24842	---	96.6

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	614	1.68	2.7	535	1.96	2.8	904	1.58	3.8
2	1380	1.24	4.6	507	2.35	3.2	781	1.67	3.5
3	1060	1.42	4.1	480	2.30	3.0	738	1.77	3.5
4	1420	1.27	4.8	680	2.19	4.0	659	1.87	3.3
5	1230	1.19	3.9	1580	1.60	7.2	601	1.98	3.2
6	991	1.27	3.4	834	1.60	3.6	572	2.06	3.2
7	838	1.34	3.0	624	1.89	3.2	594	2.14	3.4
8	779	1.41	3.0	544	2.00	2.9	914	1.82	4.2
9	716	1.49	2.9	529	2.16	3.1	1690	1.28	5.6
10	2570	1.30	7.8	545	2.07	3.0	1270	1.34	4.5
11	5100	.995	13	510	2.00	2.7	847	1.70	3.9
12	2500	1.11	7.5	433	1.80	2.1	706	1.91	3.6
13	1790	1.19	5.7	1380	1.63	6.0	560	2.05	3.1
14	1710	1.21	5.6	971	1.47	3.9	412	2.21	2.5
15	1610	1.29	5.6	701	1.70	3.2	371	2.38	2.4
16	1300	1.32	4.7	4040	1.14	10	322	2.56	2.2
17	1200	1.47	4.8	4250	.759	8.6	282	2.75	2.1
18	1000	1.47	4.0	2620	.827	5.8	252	2.96	2.0
19	845	1.35	3.1	1830	.901	4.5	233	3.18	2.0
20	745	1.49	3.0	1670	.964	4.4	225	3.38	2.1
21	3290	1.22	11	1750	1.00	4.7	311	2.80	2.3
22	1950	1.42	7.4	1450	1.07	4.2	225	3.23	1.9
23	1330	1.56	5.6	1110	1.16	3.5	1050	1.59	4.2
24	1080	1.39	4.1	898	1.22	2.9	768	1.96	4.0
25	963	1.24	3.2	764	1.33	2.7	548	2.22	3.3
26	812	1.26	2.8	1060	1.20	3.4	440	2.29	2.7
27	696	1.24	2.3	790	1.28	2.7	391	2.43	2.6
28	635	1.40	2.4	648	1.43	2.5	376	2.70	2.7
29	579	1.63	2.5	1960	1.17	5.8	437	2.38	2.8
30	552	1.70	2.5	1830	1.18	5.7	358	2.71	2.6
31	---	---	---	1140	1.45	4.4	---	---	---
TOTAL	41285	---	141.0	38663	---	129.7	17837	---	93.2
		JULY			AUGUST			SEPTEMBER	
1	348	3.03	2.8	614	1.68	2.8	197	3.00	1.6
2	259	3.38	2.3	532	1.96	2.8	190	3.00	1.5
3	193	3.54	1.8	508	2.00	2.7	185	3.00	1.5
4	175	3.59	1.7	511	1.97	2.7	194	3.00	1.6
5	162	3.65	1.6	2350	1.13	6.8	285	2.83	2.1
6	161	3.71	1.6	2080	1.29	7.0	725	2.26	4.0
7	147	3.76	1.5	2820	.946	7.2	10200	1.06	28
8	134	3.82	1.4	1190	1.09	3.5	5280	1.14	16
9	125	3.88	1.3	1010	1.27	3.5	4750	1.19	15
10	136	3.94	1.4	899	1.43	3.5	3050	1.27	10
11	210	3.29	1.6	762	1.69	3.5	2100	1.36	7.7
12	1440	1.25	4.8	616	1.86	3.1	1630	1.43	6.3
13	1140	1.47	4.4	1500	1.44	5.5	1510	1.51	6.1
14	834	1.66	3.7	981	1.30	3.3	1450	1.53	5.9
15	769	1.65	3.4	664	2.04	3.6	1980	1.27	6.7
16	586	1.84	2.9	584	2.42	3.8	1730	1.25	5.6
17	645	1.88	3.2	496	2.17	2.9	1360	1.19	4.3
18	489	2.06	2.7	470	2.19	2.8	1040	1.39	3.9
19	1670	1.93	6.1	911	2.11	5.0	1020	1.49	4.1
20	1130	1.62	4.7	727	1.96	3.8	1000	1.54	4.2
21	1550	1.55	6.4	598	1.90	3.0	795	1.61	3.5
22	1780	1.48	6.7	670	1.89	3.4	1020	1.39	3.8
23	2570	1.21	8.3	491	2.09	2.7	1030	1.39	3.8
24	1470	1.44	5.7	386	2.27	2.4	1180	1.30	4.1
25	1130	1.61	4.9	377	2.38	2.4	684	1.70	3.1
26	950	1.75	4.5	377	2.48	2.5	603	1.82	3.0
27	874	1.91	4.5	364	2.60	2.5	677	1.85	3.4
28	766	2.08	4.3	374	2.71	2.7	587	1.87	3.0
29	609	2.26	3.7	325	2.83	2.5	581	1.88	2.9
30	546	2.39	3.5	245	2.96	2.0	753	1.69	3.4
31	948	1.40	3.5	208	3.00	1.7	---	---	---
TOTAL	23946	---	110.9	24640	---	107.6	47786	---	170.1
YEAR	395216		1567.5						

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	275	.85	.64	483	.80	1.04	634	1.1	1.86
2	1070	1.2	3.47	377	.80	.81	626	1.1	1.82
3	762	.88	1.82	448	.76	.92	638	1.1	1.92
4	696	.80	1.51	405	.78	.85	468	1.1	1.42
5	632	.82	1.40	373	.74	.75	401	1.4	1.55
6	580	.75	1.18	414	.69	.77	394	1.9	2.03
7	522	.62	.88	530	.83	1.30	509	1.7	2.32
8	488	.65	.86	769	.85	1.79	509	1.2	1.71
9	425	.62	.71	590	.73	1.17	472	1.6	2.06
10	527	.79	1.20	526	.68	.96	432	1.8	2.05
11	588	.93	1.59	492	.68	.90	419	1.6	1.78
12	360	.64	.62	463	.64	.80	402	1.8	1.93
13	287	.65	.50	427	.70	.80	370	2.1	2.13
14	246	.69	.46	427	.65	.75	350	2.2	2.08
15	229	.71	.44	946	.81	2.87	320	2.3	2.00
16	223	.75	.46	3320	2.3	21.3	300	2.2	1.81
17	1580	1.6	7.36	1480	1.5	6.12	290	2.0	1.59
18	810	.82	1.82	978	1.1	3.00	280	1.9	1.40
19	1190	.82	2.77	894	1.1	2.61	260	1.7	1.19
20	1360	.85	3.16	907	1.1	2.60	250	1.5	1.04
21	906	.82	2.00	777	1.0	2.20	240	1.4	.91
22	807	.73	1.60	809	1.1	2.35	230	1.3	.79
23	647	.64	1.12	789	1.1	2.39	230	1.2	.72
24	644	.67	1.18	714	1.1	2.06	220	1.1	.64
25	674	.71	1.30	679	1.1	1.93	210	.99	.56
26	592	.68	1.09	879	1.2	2.90	210	.96	.54
27	523	.72	1.02	802	.89	1.94	200	.94	.51
28	438	.82	.97	1030	1.4	3.97	200	1.2	.67
29	415	.81	.91	1020	1.3	3.58	190	1.3	.67
30	414	.76	.85	868	1.1	2.65	190	1.5	.77
31	410	.79	.88	---	---	---	2990	2.3	18.6
TOTAL	19320	---	45.77	23616	---	78.08	13434	---	61.07
		JANUARY			FEBRUARY			MARCH	
1	2700	2.0	14.5	989	.87	2.44	1360	.79	2.91
2	1710	1.6	7.47	6100	2.2	36.2	1340	.84	3.07
3	1230	1.3	4.39	4470	1.2	15.0	1390	1.0	3.83
4	2010	1.6	9.65	5100	1.2	17.3	1130	.94	2.87
5	2330	1.6	10.4	3980	.95	10.3	1040	.97	2.71
6	1770	1.0	4.80	3140	.80	6.81	994	.90	2.41
7	1460	.71	2.81	2530	.72	4.90	914	.82	2.02
8	1390	.68	2.54	2040	.82	4.52	869	.85	1.99
9	1250	.70	2.37	1770	.85	4.10	1070	.99	2.95
10	1650	.82	3.69	2300	.84	5.32	1180	1.1	3.39
11	1390	.73	2.75	1690	.72	3.29	1070	.77	2.23
12	1160	.76	2.38	1490	.77	3.08	1030	.78	2.16
13	971	.74	1.94	1280	.82	2.84	976	1.3	3.47
14	853	.78	1.82	1290	.88	3.08	942	1.2	3.14
15	937	.82	2.08	4420	1.6	22.1	930	.99	2.49
16	1170	.87	2.74	7740	1.3	28.1	860	.91	2.11
17	1190	.91	2.94	4110	.93	10.4	852	.84	1.92
18	1610	1.2	5.26	2880	.81	6.29	760	.74	1.53
19	1350	.95	3.48	2670	.93	6.74	666	.74	1.32
20	1340	.80	3.00	2180	.94	5.57	635	.84	1.45
21	2240	1.1	6.42	1850	.74	3.73	602	.83	1.34
22	1790	.88	4.23	2070	.96	5.79	586	.79	1.24
23	1580	.81	3.50	2230	.98	5.94	579	.75	1.17
24	1410	.68	2.59	1870	.82	4.17	485	.71	.93
25	1290	.68	2.36	1560	.79	3.31	390	.69	.73
26	1250	.62	2.10	1350	.77	2.82	374	.69	.69
27	1070	.67	1.95	1350	.83	3.07	366	.68	.67
28	988	.70	1.86	1530	1.0	4.35	357	.67	.65
29	929	.66	1.66	---	---	---	354	.67	.64
30	983	.82	2.16	---	---	---	373	.66	.66
31	867	.90	2.12	---	---	---	368	.66	.65
TOTAL	43868	---	121.96	75979	---	231.56	24842	---	59.34

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	614	.86	1.47	535	.40	.58	904	1.0	2.49
2	1380	1.1	4.12	507	<.20	.20	781	.93	1.97
3	1060	.83	2.39	480	<.20	.23	738	.85	1.70
4	1420	.98	3.93	680	.36	.79	659	.78	1.39
5	1230	.86	2.88	1580	.58	2.60	601	.72	1.16
6	991	.76	2.04	834	.48	1.08	572	.72	1.10
7	838	.71	1.62	624	.46	.77	594	.73	1.18
8	779	.67	1.41	544	.47	.69	914	.93	2.48
9	716	.63	1.22	529	.61	.87	1690	1.3	6.31
10	2570	1.4	15.6	545	.76	1.11	1270	1.1	3.67
11	5100	1.9	28.6	510	.75	1.04	847	.95	2.18
12	2500	1.2	8.35	433	.81	.94	706	.90	1.72
13	1790	.73	3.55	1380	1.6	6.21	560	.86	1.30
14	1710	.65	3.01	971	.85	2.25	412	.81	.91
15	1610	.63	2.76	701	.75	1.43	371	.79	.79
16	1300	.60	2.12	4040	3.1	40.5	322	.77	.67
17	1200	.65	2.10	4250	1.8	21.6	282	.75	.57
18	1000	.69	1.87	2620	1.1	7.64	252	.74	.50
19	845	.73	1.66	1830	.98	4.86	233	.72	.45
20	745	.76	1.54	1670	.84	3.77	225	.72	.44
21	3290	1.6	15.2	1750	.80	3.78	311	.90	.76
22	1950	1.1	5.93	1450	.76	2.99	225	.84	.51
23	1330	.83	3.00	1110	.75	2.25	1050	1.3	3.97
24	1080	.68	1.97	898	.77	1.88	768	1.0	2.17
25	963	.70	1.83	764	.73	1.51	548	.98	1.46
26	812	.78	1.71	1060	1.1	3.09	440	.88	1.05
27	696	.75	1.42	790	.91	1.95	391	.80	.85
28	635	.69	1.19	648	.76	1.34	376	.72	.74
29	579	.68	1.06	1960	1.4	8.66	437	.81	.97
30	552	.81	1.20	1830	1.4	6.90	358	.68	.65
31	---	---	---	1140	1.1	3.48	---	---	---
TOTAL	41285	---	126.75	38663	---	136.99	17837	---	46.11
		JULY			AUGUST			SEPTEMBER	
1	348	.64	.60	614	1.0	1.69	197	.42	.22
2	259	.61	.43	532	.89	1.27	190	.40	.21
3	193	.59	.31	508	.89	1.22	185	.40	.20
4	175	.58	.27	511	.95	1.33	194	.40	.21
5	162	.57	.25	2350	1.8	12.1	285	.52	.43
6	161	.55	.24	2080	1.4	8.34	725	1.2	3.25
7	147	.54	.22	2820	1.5	11.7	10200	4.7	130
8	134	.53	.19	1190	.85	2.76	5280	2.8	41.9
9	125	.52	.18	1010	.72	1.98	4750	2.4	31.5
10	136	.51	.19	899	.69	1.68	3050	1.6	13.1
11	210	.60	.40	762	.75	1.54	2100	1.3	7.52
12	1440	2.0	7.58	616	.76	1.27	1630	1.2	5.17
13	1140	1.3	4.24	1500	1.5	7.10	1510	1.0	4.23
14	834	1.0	2.28	981	1.2	3.60	1450	1.1	4.30
15	769	.95	1.98	664	.91	1.63	1980	1.5	8.30
16	586	.85	1.35	584	.82	1.30	1730	1.7	9.22
17	645	.99	1.79	496	.74	.99	1360	1.2	4.46
18	489	.89	1.18	470	.72	.92	1040	.88	2.47
19	1670	1.4	10.8	911	1.2	3.29	1020	.98	2.70
20	1130	1.2	4.10	727	.99	1.99	1000	.82	2.22
21	1550	1.3	5.67	598	.84	1.38	795	.99	2.11
22	1780	1.4	8.21	670	.86	1.55	1020	1.2	3.37
23	2570	1.8	12.6	491	.73	.98	1030	1.1	3.17
24	1470	1.4	5.39	386	.70	.73	1180	1.3	4.09
25	1130	1.1	3.49	377	.70	.71	684	.88	1.65
26	950	.96	2.47	377	.65	.66	603	.93	1.51
27	874	.88	2.08	364	.65	.64	677	1.1	1.95
28	766	.86	1.77	374	.67	.68	587	.88	1.40
29	609	.83	1.37	325	.63	.55	581	.86	1.35
30	546	.86	1.29	245	.55	.37	753	1.3	2.61
31	948	1.4	3.88	208	.48	.27	---	---	---
TOTAL	23946	---	86.80	24640	---	76.22	47786	---	294.82
YEAR	395216		1365.15						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	275	10	7.9	483	20	26	634	22	38
2	1070	286	949	377	11	12	626	15	25
3	762	84	176	448	10	13	638	18	31
4	696	42	80	405	7	7.5	468	26	32
5	632	34	58	373	9	9.5	401	39	42
6	580	31	49	414	13	14	394	53	57
7	522	18	26	530	28	56	509	85	117
8	488	11	15	769	69	160	509	59	81
9	425	16	18	590	15	24	472	45	58
10	527	85	160	526	10	14	432	51	59
11	588	124	263	492	7	9.6	419	62	70
12	360	14	13	463	6	7.0	402	61	66
13	287	9	7.0	427	8	8.9	370	54	55
14	246	10	6.9	427	9	11	350	56	53
15	229	19	12	946	88	501	320	57	49
16	223	11	6.6	3320	512	5250	300	58	47
17	1580	449	2330	1480	129	531	290	52	40
18	810	107	250	978	82	218	280	44	33
19	1190	229	965	894	63	153	260	18	13
20	1360	149	577	907	64	158	250	7	5.0
21	906	42	105	777	59	125	240	6	3.9
22	807	26	57	809	39	84	230	6	3.8
23	647	20	34	789	41	87	230	7	4.1
24	644	22	38	714	52	99.6	220	5	3.2
25	674	26	47	679	47	86	210	5	2.8
26	592	24	38	879	66	160	210	4	2.4
27	523	18	26	802	41	90	200	6	3.1
28	438	45	53	1030	284	814	200	8	4.1
29	415	27	31	1020	106	293	190	12	5.9
30	414	16	17	868	33	79	190	69	35
31	410	17	19	---	---	---	2990	561	4530
TOTAL	19320	---	6434.4	23616	---	9101.1	13434	---	5569.3
		JANUARY			FEBRUARY			MARCH	
1	2700	151	1100	989	39	119	1360	48	177
2	1710	107	492	6100	734	13600	1340	43	156
3	1230	74	244	4470	392	4960	1390	42	160
4	2010	377	2930	5100	480	6740	1130	33	101
5	2330	252	1730	3980	274	2970	1040	29	80
6	1770	128	615	3140	203	1730	994	27	74
7	1460	88	345	2530	165	1130	914	24	58
8	1390	65	245	2040	135	746	869	23	54
9	1250	76	257	1770	125	607	1070	92	290
10	1650	99	451	2300	259	1660	1180	58	187
11	1390	54	205	1690	97	445	1070	27	78
12	1160	46	144	1490	63	252	1030	27	75
13	971	41	109	1280	55	192	976	23	62
14	853	30	71	1290	54	193	942	17	43
15	937	31	81	4420	648	11000	930	14	35
16	1170	50	160	7740	469	10100	860	17	39
17	1190	64	214	4110	286	3220	852	11	26
18	1610	112	494	2880	194	1520	760	11	23
19	1350	67	246	2670	139	1010	666	10	18
20	1340	116	494	2180	134	790	635	9	16
21	2240	245	1520	1850	111	557	602	10	16
22	1790	80	391	2070	163	989	586	8	13
23	1580	53	229	2230	143	867	579	8	12
24	1410	46	175	1870	67	341	485	7	9.2
25	1290	55	193	1560	50	211	390	6	6.3
26	1250	41	141	1350	42	152	374	5	5.3
27	1070	27	78	1350	44	164	366	6	5.8
28	988	23	63	1530	75	310	357	6	6.1
29	929	19	47	---	---	---	354	8	7.4
30	983	18	47	---	---	---	373	8	8.1
31	867	29	69	---	---	---	368	9	9.0
TOTAL	43868	---	13580	75979	---	66575	24842	---	1850.2

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	614	40	77	535	16	24	904	43	106
2	1380	205	805	507	19	26	781	33	71
3	1060	68	197	480	19	25	738	31	63
4	1420	88	386	680	22	50	659	28	49
5	1230	45	157	1580	92	450	601	24	38
6	991	21	57	834	26	59	572	22	34
7	838	16	37	624	23	39	594	22	36
8	779	14	29	544	14	20	914	83	272
9	716	12	23	529	15	22	1690	596	3470
10	2570	245	4080	545	20	30	1270	266	982
11	5100	552	8470	510	19	26	847	63	146
12	2500	220	1520	433	14	16	706	47	90
13	1790	101	494	1380	136	580	560	35	53
14	1710	79	365	971	95	254	412	26	29
15	1610	70	304	701	34	68	371	25	25
16	1300	61	215	4040	310	4190	322	25	22
17	1200	51	164	4250	355	4520	282	20	16
18	1000	32	88	2620	199	1430	252	16	11
19	845	24	56	1830	137	681	233	19	12
20	745	20	40	1670	114	515	225	20	12
21	3290	340	3390	1750	97	458	311	27	24
22	1950	140	760	1450	82	320	225	18	11
23	1330	78	283	1110	71	215	1050	577	2040
24	1080	48	141	898	55	133	768	152	328
25	963	39	102	764	46	94	548	60	92
26	812	36	80	1060	100	307	440	53	65
27	696	29	55	790	60	128	391	41	44
28	635	23	39	648	46	82	376	43	46
29	579	21	33	1960	365	2540	437	88	107
30	552	18	27	1830	201	1060	358	46	45
31	---	---	---	1140	68	213	---	---	---
TOTAL	41285	---	22474	38663	---	18575	17837	---	8339
		JULY			AUGUST			SEPTEMBER	
1	348	35	33	614	99	170	197	6	3.3
2	259	29	21	532	41	59	190	8	3.9
3	193	28	15	508	33	46	185	10	4.8
4	175	25	12	511	36	53	194	10	5.3
5	162	23	9.9	2350	815	6130	285	21	19
6	161	23	9.8	2080	462	3170	725	135	585
7	147	20	8.1	2820	793	7000	10200	1630	44400
8	134	16	5.8	1190	144	478	5280	674	10100
9	125	12	4.2	1010	75	205	4750	883	12200
10	136	16	5.9	899	60	146	3050	307	2610
11	210	29	24	762	52	108	2100	191	1100
12	1440	791	2650	616	47	79	1630	139	616
13	1140	201	675	1500	614	3150	1510	127	518
14	834	174	441	981	163	518	1450	122	520
15	769	131	291	664	44	79	1980	226	1310
16	586	60	95	584	28	45	1730	169	889
17	645	138	283	496	36	47	1360	96	364
18	489	61	81	470	46	59	1040	57	161
19	1670	450	5440	911	170	528	1020	61	170
20	1130	404	1390	727	87	176	1000	56	153
21	1550	506	2310	598	79	145	795	38	82
22	1780	527	3590	670	102	185	1020	62	174
23	2570	563	4240	491	53	76	1030	60	181
24	1470	183	742	386	25	26	1180	65	223
25	1130	111	342	377	16	17	684	32	60
26	950	79	204	377	12	12	603	28	45
27	874	66	155	364	9	8.6	677	23	41
28	766	55	114	374	10	9.6	587	19	30
29	609	44	73	325	9	7.8	581	18	29
30	546	60	99	245	7	4.9	753	41	84
31	948	431	1260	208	6	3.5	---	---	---
TOTAL	23946	---	24623.7	24640	---	22741.4	47786	---	76681.3
YEAR	395216		276526.7						

STREAMS TRIBUTARY TO LAKE ERIE

04209000 CHAGRIN RIVER AT WILLOUGHBY, OH

LOCATION.--Lat 41°37'51", long 81°24'13", in T.9 N., R.10 W., Lake County, Hydrologic Unit 04110003, on left bank, 150 ft downstream from city waterworks dam, 800 ft downstream from East Branch, 1.0 mi southeast of Willoughby, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--246 mi².

PERIOD OF RECORD.--July 1925 to November 1935, October 1939 to 1984, March 25, 1988 to current year. [July 1925 to September 1932 monthly run-off in inches, adjusted for diversion, published in WSP 1307; previously published run-off was unadjusted and should not be used].

REVISED RECORDS.--WSP 1084: 1929(M), 1931(M). WSP 1307: 1926-28(M), 1930(M), 1932-35(M), 1942(M). WSP 1912: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 594.57 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1939, nonrecording gage at site 150 ft upstream at datum 7 ft higher.

REMARKS.--Estimated daily discharges: Dec. 14-30, June 14-22, July 1-11. Records fair except for periods of estimated record which are poor. Water diverted 200 ft upstream from station for municipal supply of city of Willoughby until 1988 when water treatment plant was relocated downstream of gaging station. Water-quality data collected at this site 1965 to 1977. Sediment data collected at this site 1969 to 1981.

AVERAGE DISCHARGE.--57 years, 338 ft³/s, 18.66 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s Mar. 22, 1948, gage height, 17.95 ft (from high-water mark in well), from rating curve extended above 14,000 ft³/s on basis of contracted-opening measurements of peak flow; minimum daily, 3.0 ft³/s July 25, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 10.3 ft. from floodmark, former site and datum discharge, 24,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 31	1800	5,330	7.81	May 16	1400	*9,750	*11.32
Feb. 2	1530	6,250	8.61	May 17	0900	4,350	6.94
Feb. 15	2400	7,190	9.41	Aug. 7	0300	5,420	7.89
Apr. 10	2300	7,900	10.00	Sept. 7	0730	4,890	7.43
				Sept. 9	1000	5,530	7.98

Minimum daily discharge, 30 ft³/s Sept. 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	114	172	2590	378	274	162	125	195	94	169	34
2	224	105	156	1150	4900	307	725	117	150	82	104	32
3	147	111	149	790	2250	478	575	112	134	74	95	32
4	102	142	154	1800	1780	276	1460	197	134	66	90	31
5	86	120	155	2140	1080	202	1530	1030	132	60	350	30
6	80	129	164	901	692	168	730	360	113	56	675	51
7	80	159	211	535	672	137	455	158	103	54	2890	3290
8	78	307	147	415	518	140	467	100	129	50	508	741
9	80	240	125	352	448	310	329	81	179	48	159	2610
10	135	187	141	1030	922	477	2570	83	215	44	101	1080
11	290	178	125	835	527	359	4150	83	142	42	81	360
12	120	155	118	657	371	270	1320	83	115	222	92	163
13	94	137	108	391	311	206	850	771	103	270	1090	103
14	85	127	100	344	289	169	580	472	90	193	490	116
15	84	580	90	352	2710	149	604	187	84	211	136	543
16	107	2210	84	583	4520	131	408	3520	78	135	88	1450
17	810	789	78	845	1340	144	379	3090	74	145	74	897
18	243	404	74	1300	644	133	311	1450	70	174	64	296
19	550	314	68	773	473	119	226	604	68	292	68	232
20	407	864	64	587	325	117	209	309	66	452	84	241
21	269	562	62	1470	243	103	1810	413	94	460	79	136
22	325	262	58	844	949	97	556	194	70	390	69	260
23	199	209	56	601	1070	99	286	108	154	861	59	268
24	151	179	52	526	665	95	203	72	492	285	53	468
25	129	171	50	435	363	84	166	72	414	157	47	219
26	120	479	48	424	293	85	157	328	186	123	42	119
27	111	300	46	326	308	81	151	246	127	110	39	82
28	102	619	44	297	359	80	146	172	135	102	39	70
29	97	313	42	274	---	80	141	791	151	98	39	65
30	95	209	40	295	---	83	133	743	118	87	37	87
31	100	---	2640	271	---	88	---	325	---	344	35	---
TOTAL	5575	10675	5621	24133	29400	5541	21789	16396	4315	5781	7946	14106
MEAN	180	356	181	778	1050	179	726	529	144	186	256	470
MAX	810	2210	2640	2590	4900	478	4150	3520	492	861	2890	3290
MIN	75	105	40	271	243	80	133	72	66	42	35	30
CFSM	.73	1.45	.74	3.16	4.27	.73	2.95	2.15	.58	.76	1.04	1.91
IN.	.84	1.61	.85	3.65	4.45	.84	3.29	2.48	.65	.87	1.20	2.13

CAL YR 1989 TOTAL 134898 MEAN 370 MAX 10300 MIN 40 CFSM 1.50 IN. 20.40
WTR YR 1990 TOTAL 151278 MEAN 414 MAX 4900 MIN 30 CFSM 1.68 IN. 22.88

04212100 GRAND RIVER NEAR PAINESVILLE, OH

LOCATION.--Lat 41°43'08", long 81°13'41", Lake County, Hydrologic Unit 04110004, on downstream left abutment of bridge on State Highway 84 (Walnut Avenue), 0.9 mi downstream from Big Creek in Painesville.

DRAINAGE AREA.--685 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 596.37 ft above National Geodetic Vertical Datum of 1929. Previously published, in error, as 620.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 13-30. Records fair except periods of estimated record, which are poor.

AVERAGE DISCHARGE.--16 years, 1,054 ft³/s, 20.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft³/s June 11, 1986, gage height, 13.07 ft; maximum gage height, 13.16 ft Dec. 25, 1979; minimum, 6.0 ft³/s Aug. 13, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 6,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 31	1130	8,180	8.15	Apr. 10	2330	8,510	8.32
Jan. 5	1830	7,960	8.03	May 16	1500	8,510	8.32
Feb. 2	1830	8,410	8.27	May 17	1230	8,620	8.38
Feb. 16	1430	*12,000	*10.06	Sept. 16	1800	9,270	8.71

Minimum daily discharge, 24 ft³/s July 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	122	847	4490	695	841	130	144	1110	100	811	73
2	68	114	704	4860	5780	903	1070	123	1020	94	595	53
3	67	113	650	3410	7940	1340	2720	95	704	70	530	42
4	171	113	2120	4320	5900	1220	3710	156	360	55	318	36
5	221	113	805	6540	5150	943	3830	1700	247	45	196	33
6	171	114	868	4810	4410	729	2220	2250	208	36	261	40
7	113	129	1000	2670	3790	608	1250	1420	166	31	1050	3640
8	73	260	961	1910	2820	545	887	865	147	24	782	4030
9	51	388	717	1510	1820	659	620	479	133	48	580	3580
10	47	684	636	1690	1890	1190	2640	297	113	92	315	5170
11	107	934	537	1910	2170	1430	8140	224	109	88	177	3450
12	72	864	423	1680	1460	1290	6260	191	105	138	129	1650
13	72	705	370	1230	1120	1020	3510	843	114	191	1760	1110
14	75	554	330	981	856	825	2410	2040	116	291	1780	703
15	67	631	280	911	2930	702	1930	1580	82	460	725	1360
16	68	3100	240	1260	11000	607	1340	4000	67	1120	368	4590
17	777	3700	210	2390	8930	545	900	7290	59	1240	235	5090
18	535	2460	190	3750	5010	504	661	6520	51	824	192	2840
19	1140	1760	170	2960	3730	484	484	3770	42	554	140	1970
20	1160	2380	160	1820	2650	321	383	2770	42	326	108	2280
21	1150	3000	140	3270	1410	175	2010	3320	39	209	104	1510
22	1100	1690	130	2910	1700	128	2460	1930	34	153	93	1140
23	906	1130	120	1980	3170	122	1360	1020	32	220	87	2380
24	712	890	110	1700	2520	121	768	683	238	317	87	3790
25	536	800	100	1450	1600	122	487	462	393	509	78	2250
26	407	1590	96	1180	1140	107	354	365	359	646	67	1160
27	320	2110	90	960	946	89	276	312	345	449	59	672
28	238	1880	82	829	902	84	237	279	273	222	68	425
29	187	1540	78	724	---	79	178	498	186	124	67	304
30	156	1130	74	682	---	79	141	895	127	81	74	261
31	134	---	3180	633	---	88	---	1170	---	436	102	---
TOTAL	10943	34998	16418	71420	93459	17900	53366	47691	7021	9193	11938	55632
MEAN	353	1167	530	2304	3338	577	1779	1538	234	297	385	1854
MAX	1160	3700	3180	6540	11000	1430	8140	7290	1110	1240	1780	5170
MIN	42	113	74	633	695	79	130	95	32	24	59	33
CFSM	.52	1.70	.77	3.36	4.87	.84	2.60	2.25	.34	.43	.56	2.71
IN.	.59	1.90	.89	3.88	5.08	.97	2.90	2.59	.38	.50	.65	3.02

CAL YR 1989 TOTAL 435284 MEAN 1193 MAX 13300 MIN 28 CFSM 1.74 IN. 23.64
WTR YR 1990 TOTAL 429979 MEAN 1178 MAX 11000 MIN 24 CFSM 1.72 IN. 23.35

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
CHLORIDE: February 1988 to current year.
NITROGEN, NITRITE + NITRATE: February 1988 to current year.
NITROGEN, AMMONIA + ORGANIC: February 1988 to current year.
PHOSPHORUS: February 1988 to current year.
SUSPENDED SEDIMENT DISCHARGE: November 1978 to current year.

INSTRUMENTATION.--Refrigerated water-quality pumping sampler; controlled by data logger since February 1988.

REMARKS.--Water-quality samples were collected by pumping sampler once daily and more often during storm events. Sediment samples were collected by a local observer on an approximate once daily basis. Chemical loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was sub-divided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations. Concentrations reported as below the limit of detection (for example, <0.10) were assumed to have a value of half of the detection limit for the purpose of load calculation. Alachlor concentrations for 1989-1990 will be published in the 1991 WDR.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 79 mg/L Feb. 14, 1989; minimum daily mean, <10 mg/L on several days during the period of record.
DISSOLVED CHLORIDE LOADS: Maximum daily, 650 tons Feb. 16, 1990; minimum daily, .57 tons Aug. 13, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 3.4 mg/L July 18, 1990; minimum daily mean, <.100 mg/L on many days during the period of record.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 21 tons May 26, 1989; minimum daily, .00 ton many days during the period of record.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 12.0 mg/L April 11, 1990; minimum daily mean, .30 mg/L March 22, 1988 and Dec. 29, 1989.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 345 tons May 26, 1989; minimum daily, .007 ton July 10, 14, 17, 19, Aug. 13, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 2.66 mg/L April 11, 1990; minimum daily mean, .012 mg/L April 29, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily, 93 tons May 26, 1989; minimum daily, .001 ton on several days during 1988 water year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,360 mg/L May 26, 1989; minimum daily mean, 1 mg/L Nov. 18, 1981, Oct. 26, 27, 1982.
SEDIMENT LOADS: Maximum daily, 53,900 tons May 26, 1989; minimum daily, 0.09 ton Oct. 26, 27, 1982.

EXTREMES FOR 1989 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 79 mg/L Feb. 14; minimum daily mean, <10 mg/L on several days during the year.
DISSOLVED CHLORIDE LOADS: Maximum daily, 524 tons April 3; minimum daily, 1.84 tons July 19.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 1.95 mg/L Oct. 21; minimum daily mean, <.100 mg/L on many days during the year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 21 tons May 26; minimum daily, .00 ton July 19, Sept. 11-13.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 9.0 mg/L May 26; minimum daily mean, .40 mg/L on several days during the year.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 345 tons May 26; minimum daily, .018 ton Oct. 1.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 2.41 mg/L May 26; minimum daily mean, .021 mg/L March 13.
TOTAL PHOSPHORUS LOADS: Maximum daily, 93 tons May 26; minimum daily, .003 ton Oct. 3, 4.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1360 mg/L May 26; minimum daily mean, 4 mg/L Dec. 12, 19.
SEDIMENT LOADS: Maximum daily, 53,900 tons May 26; minimum daily, 0.40 ton Oct. 1, 4.

EXTREMES FOR CURRENT YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 59 mg/L Dec. 7, 27-30; minimum daily mean, <10 mg/L Sept. 17.
DISSOLVED CHLORIDE LOADS: Maximum daily, 650 tons Feb. 16; minimum daily, 2.39 tons July 8.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 3.4 mg/L July 18; minimum daily mean, <.1 several days during the year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 18 tons Feb. 16; minimum daily, .01 ton several days during the year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 12 mg/L April 11; minimum daily mean, .30 mg/L Dec. 29.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily, 267 tons April 11; minimum daily, .036 ton July 8.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean, 2.66 mg/L April 11; minimum daily mean, .013 mg/L Nov. 5.
TOTAL PHOSPHORUS LOADS: Maximum daily, 58.3 ton April 11; minimum daily, .002 ton July 8.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 552 mg/L April 11; minimum daily mean, 4 mg/L Nov. 5, Dec. 22.
SEDIMENT LOADS: Maximum daily, 15,800 tons Feb. 16; minimum daily, 0.56 ton Oct. 1.

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	15	46	1.92	431	34	40.1	456	27	32.7
2	15	47	1.88	372	36	35.8	456	29	35.8
3	15	52	2.07	359	37	35.4	463	31	39.5
4	15	54	2.15	672	35	63.6	635	31	53.6
5	61	57	9.54	1830	35	152	571	29	44.7
6	89	50	12.2	2660	24	170	451	29	35.4
7	88	54	12.9	2090	26	146	390	29	30.6
8	131	52	18.2	1950	28	145	328	29	25.7
9	96	57	14.8	1690	27	124	283	29	22.3
10	88	51	12.1	1710	26	119	248	31	20.8
11	102	46	12.8	2260	24	148	254	35	23.7
12	136	47	17.2	1860	24	122	227	36	21.8
13	155	47	19.8	1970	24	126	235	37	23.6
14	126	48	16.3	2470	23	156	293	46	36.9
15	114	48	14.9	1770	22	107	643	58	90.7
16	108	49	14.3	1170	23	72.5	785	45	96.0
17	84	50	11.2	927	26	65.7	758	40	81.7
18	1130	45	132	738	27	54.4	592	39	62.3
19	1400	44	166	579	26	40.1	425	39	45.2
20	1300	36	125	685	25	47.2	1260	36	113
21	1040	32	90.2	2590	19	131	3720	26	265
22	927	33	81.7	2770	18	134	2500	29	194
23	942	30	75.4	1590	19	79.7	1780	30	145
24	842	30	69.1	1110	22	64.2	2030	30	165
25	714	34	64.8	792	24	51.3	1710	31	144
26	620	36	60.9	589	24	38.1	1280	33	113
27	724	44	87.0	468	23	29.5	937	34	86.1
28	1240	41	134	426	24	27.5	3290	27	220
29	952	34	87.2	427	26	29.5	5050	24	331
30	742	34	68.7	442	25	30.2	3130	26	215
31	561	35	52.4	---	---	---	1790	27	130
TOTAL	14572	---	1488.66	39397	---	2584.8	36970	---	2944.1
		JANUARY			FEBRUARY			MARCH	
1	1500	28	115	905	26	62.4	331	49	43.4
2	1200	30	96.9	797	25	53.8	323	46	40.0
3	900	32	76.6	698	27	51.6	322	46	39.9
4	700	33	62.8	583	29	45.9	447	48	59.7
5	560	34	51.4	511	32	44.4	1340	51	182
6	1300	29	102	400	36	38.3	1890	36	181
7	2000	24	131	350	37	34.7	1430	34	129
8	7600	21	432	320	38	32.5	914	35	85.1
9	4000	25	268	300	38	31.2	611	37	61.4
10	2000	30	161	290	39	30.8	454	39	48.1
11	1600	30	128	280	42	31.7	371	41	41.1
12	1300	31	108	270	42	30.5	335	43	38.9
13	1000	31	83.8	260	40	27.9	286	45	34.9
14	764	31	63.2	1190	79	249	302	47	38.4
15	700	39	73.2	3150	52	422	410	43	47.8
16	620	37	62.6	2300	49	300	496	38	51.1
17	560	33	49.2	1100	40	119	543	38	55.6
18	520	34	47.2	700	37	69.9	1430	35	132
19	470	34	43.1	600	37	60.5	1830	34	170
20	430	34	39.5	560	40	60.0	1210	36	119
21	739	35	69.1	540	46	67.2	983	39	103
22	702	33	63.1	2050	36	194	859	41	94.1
23	600	33	53.1	2350	31	198	894	41	99.7
24	524	32	45.0	1430	31	121	927	38	93.9
25	529	32	46.0	1000	36	96.0	856	36	83.5
26	3620	33	269	677	39	71.6	772	36	75.0
27	6060	20	319	542	39	57.6	682	37	67.9
28	3930	19	203	456	42	51.3	915	36	86.3
29	2020	20	107	---	---	---	2500	33	229
30	1400	22	83.8	---	---	---	5440	28	388
31	1060	24	68.9	---	---	---	5760	28	436
TOTAL	50908	---	3521.5	24609	---	2652.8	35863	---	3354.8

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4920	31	409	332	35	31.4	4770	<10	91.6
2	4860	32	421	385	36	37.5	4390	<10	59.3
3	8390	23	524	757	38	78.0	3810	<10	51.4
4	9050	20	491	883	34	81.7	4890	<10	73.8
5	7190	17	337	877	31	74.2	3670	<10	95.2
6	4850	18	235	827	32	71.5	2060	11	62.2
7	3610	18	176	1250	38	128	1450	12	48.2
8	2680	18	132	2140	31	174	1030	13	37.4
9	1730	20	92.2	2320	27	168	751	16	32.2
10	1210	23	76.3	2810	25	173	708	17	33.3
11	1040	28	79.0	4990	18	240	741	17	34.1
12	964	28	73.5	4380	18	213	691	19	34.5
13	962	34	89.5	3310	18	161	679	20	37.4
14	954	32	83.4	2660	19	133	1040	19	53.8
15	872	30	71.0	2220	19	114	2130	18	105
16	803	30	64.7	2120	20	112	3870	14	143
17	738	32	63.6	2290	18	111	3540	12	114
18	965	41	106	1850	18	90.6	3120	12	98.1
19	951	35	88.6	1470	19	75.8	2450	12	77.7
20	927	33	81.6	1150	21	64.5	3680	<10	71.2
21	855	31	71.6	912	21	51.4	7260	<10	98.0
22	749	31	62.9	865	20	47.5	5490	<10	74.1
23	638	31	54.0	1820	19	89.6	5700	<10	77.0
24	545	32	46.7	5450	12	179	4600	<10	62.1
25	483	32	41.8	4200	13	142	3030	<10	42.4
26	438	33	39.0	12400	<10	191	2080	<10	39.9
27	394	34	36.0	13300	<10	180	1240	11	35.3
28	363	34	33.3	8460	<10	114	985	15	38.9
29	339	34	31.4	5430	<10	73.3	1660	11	49.0
30	336	35	31.7	3720	<10	50.3	1380	12	45.1
31	---	---	---	4060	<10	78.0	---	---	---
TOTAL	62806	---	4142.8	99638	---	3528.3	82895	---	1915.2
		JULY			AUGUST			SEPTEMBER	
1	901	14	35.1	191	24	12.1	33	36	3.20
2	594	16	24.9	131	27	9.55	65	36	6.37
3	419	16	18.0	100	28	7.58	49	37	4.85
4	354	16	15.1	78	28	5.81	59	37	5.95
5	310	16	13.1	70	32	6.02	69	38	7.00
6	236	16	9.91	63	31	5.28	62	38	6.39
7	187	15	7.82	53	32	4.52	46	38	4.78
8	168	15	6.96	110	32	9.39	53	39	5.53
9	172	15	7.07	132	31	11.2	45	39	4.72
10	162	15	6.59	96	32	8.39	33	39	3.49
11	126	15	5.17	70	33	6.24	34	40	3.59
12	106	16	4.56	55	34	4.96	34	39	3.56
13	97	16	4.30	43	35	4.07	35	37	3.49
14	77	17	3.51	35	37	3.50	40	40	4.30
15	65	17	3.04	30	37	3.02	64	47	8.12
16	55	18	2.66	31	38	3.18	53	46	6.62
17	44	19	2.19	35	37	3.54	86	45	10.3
18	40	20	2.10	47	37	4.79	89	43	10.4
19	34	20	1.84	54	36	5.18	116	42	13.1
20	101	23	5.55	56	36	5.41	134	41	14.7
21	456	17	20.5	53	37	5.33	97	39	10.3
22	370	17	16.7	42	36	4.16	772	37	65.9
23	734	16	30.9	36	36	3.52	1460	32	123
24	534	16	23.2	43	38	4.37	431	34	39.4
25	317	17	14.9	34	35	3.22	627	32	54.9
26	234	19	11.8	34	33	3.02	432	33	38.8
27	338	19	16.7	33	35	3.05	236	34	21.6
28	467	23	28.5	28	34	2.62	132	34	12.2
29	470	19	24.8	33	36	3.16	80	35	7.50
30	353	21	19.8	38	37	3.73	54	37	5.38
31	281	21	16.2	30	37	2.98	---	---	---
TOTAL	8802	---	403.47	1884	---	162.89	5520	---	509.44
YEAR	463864		27208.54						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	15	.154	.01	431	.949	1.1	456	.600	.74
2	15	.184	.01	372	.841	.85	456	.600	.74
3	15	.297	.01	359	.797	.77	463	.600	.75
4	15	.156	.01	672	.722	1.3	635	.600	1.0
5	61	.231	.04	1830	.629	3.1	571	.600	.92
6	89	.300	.07	2660	.761	5.5	451	.540	.66
7	88	.310	.07	2090	.905	5.1	390	.500	.53
8	131	.428	.15	1950	1.08	5.7	328	.504	.45
9	96	.661	.17	1690	1.10	5.0	283	.578	.44
10	88	.637	.15	1710	1.07	4.9	248	.600	.40
11	102	.614	.17	2260	1.00	6.1	254	.600	.41
12	136	.656	.24	1860	1.00	5.0	227	.600	.37
13	155	.688	.29	1970	1.00	5.3	235	.600	.38
14	126	.649	.22	2470	1.00	6.7	293	.600	.48
15	114	.604	.19	1770	1.00	4.8	643	.641	1.1
16	108	.562	.16	1170	1.14	3.6	785	.700	1.5
17	84	.522	.12	927	1.11	2.8	758	.641	1.3
18	1130	1.40	5.0	738	1.03	2.1	592	.600	.96
19	1400	1.41	5.3	579	.859	1.3	425	.600	.69
20	1300	1.82	6.4	685	.696	1.3	1260	.655	2.4
21	1040	1.95	5.4	2590	.683	4.8	3720	.868	8.8
22	927	1.83	4.6	2770	.726	5.4	2500	.864	5.8
23	942	1.57	4.0	1590	.831	3.5	1780	.832	4.0
24	842	1.43	3.3	1110	.899	2.7	2030	.802	4.4
25	714	1.47	2.8	792	.873	1.9	1710	.773	3.6
26	620	1.40	2.3	589	.815	1.3	1280	.745	2.6
27	724	1.23	2.4	468	.722	.91	937	.718	1.8
28	1240	1.20	4.0	426	.620	.71	3290	.889	8.4
29	952	1.17	3.0	427	.600	.69	5050	.936	13
30	742	1.10	2.2	442	.600	.72	3130	.877	7.4
31	561	1.06	1.6	---	---	---	1790	.821	4.0
TOTAL	14572	---	54.38	39397	---	94.95	36970	---	80.02
		JANUARY			FEBRUARY			MARCH	
1	1500	.769	3.1	905	.702	1.7	331	.700	.63
2	1200	.719	2.3	797	.645	1.4	323	.700	.61
3	900	.674	1.6	698	.600	1.1	322	.700	.61
4	700	.631	1.2	583	.600	.94	447	.716	.88
5	560	.601	.91	511	.600	.83	1340	.796	2.9
6	1300	.640	2.2	400	.602	.65	1890	.837	4.3
7	2000	.693	3.7	350	.619	.58	1430	.900	3.5
8	7600	.748	15	320	.640	.55	914	.900	2.2
9	4000	.777	8.4	300	.662	.54	611	.899	1.5
10	2000	.814	4.4	290	.685	.54	454	.870	1.1
11	1600	.971	4.2	280	.662	.50	371	.827	.83
12	1300	.960	3.4	270	.600	.44	335	.786	.71
13	1000	.811	2.2	260	.601	.42	286	.747	.58
14	764	.768	1.6	1190	.719	2.4	302	.708	.58
15	700	.701	1.3	3150	.733	6.3	410	.596	.65
16	620	.700	1.2	2300	.708	4.4	496	.471	.63
17	560	.646	.98	1100	.856	2.5	543	.401	.59
18	520	.600	.84	700	.900	1.7	1430	.634	2.7
19	470	.600	.76	600	.886	1.4	1830	.700	3.5
20	430	.600	.70	560	.809	1.2	1210	.637	2.1
21	739	.600	1.2	540	.800	1.2	983	.600	1.6
22	702	.600	1.1	2050	.800	4.4	859	.600	1.4
23	600	.580	.94	2350	.761	4.9	894	.590	1.4
24	524	.529	.75	1430	.745	2.9	927	.513	1.3
25	529	.596	.85	1000	.800	2.2	856	.500	1.2
26	3620	.727	7.7	677	.800	1.5	772	.474	.99
27	6060	.813	13	542	.796	1.2	682	.274	.51
28	3930	.941	9.8	456	.723	.89	915	.266	.68
29	2020	1.20	6.5	---	---	---	2500	.297	1.9
30	1400	1.33	5.0	---	---	---	5440	.509	8.2
31	1060	1.10	3.2	---	---	---	5760	.600	9.3
TOTAL	50908	---	110.03	24609	---	49.28	35863	---	59.58

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4920	.600	8.0	332	<.100	.04	4770	.424	5.5
2	4860	.594	7.8	385	<.100	.05	4390	.569	6.7
3	8390	.527	12	757	<.100	.16	3810	.526	5.4
4	9050	.583	14	883	<.100	.15	4890	.508	6.8
5	7190	.600	12	877	<.100	.12	3670	.407	4.1
6	4850	.578	7.6	827	<.100	.11	2060	.426	2.4
7	3610	.504	4.9	1250	.153	.54	1450	.497	1.9
8	2680	.464	3.4	2140	.244	1.4	1030	.457	1.3
9	1730	.401	1.9	2320	.320	2.0	751	.400	.81
10	1210	.448	1.5	2810	.408	3.7	708	.457	.87
11	1040	.439	1.2	4990	.635	8.7	741	.564	1.1
12	964	.332	.87	4380	.542	6.4	691	.558	1.0
13	962	.295	.76	3310	.548	4.9	679	.166	.30
14	954	.226	.58	2660	.440	3.2	1040	.166	.47
15	872	.269	.63	2220	.400	2.4	2130	.109	.61
16	803	.191	.41	2120	.400	2.3	3870	.100	1.0
17	738	.123	.25	2290	.400	2.5	3540	<.100	.81
18	965	.194	.51	1850	.400	2.0	3120	<.100	.43
19	951	.161	.41	1470	.361	1.4	2450	<.100	.33
20	927	.101	.25	1150	.168	.53	3680	.249	3.5
21	855	.144	.33	912	<.100	.13	7260	.427	8.4
22	749	<.100	.20	865	<.100	.12	5490	.351	5.2
23	638	<.100	.09	1820	.129	.98	5700	.325	5.0
24	545	<.100	.07	5450	.643	9.5	4600	.300	3.7
25	483	<.100	.07	4200	.597	6.8	3030	.305	2.5
26	438	<.100	.06	12400	.602	21	2080	.349	1.9
27	394	<.100	.05	13300	.488	18	1240	.396	1.3
28	363	<.100	.05	8460	.401	9.2	985	.400	1.1
29	339	<.100	.05	5430	.348	5.2	1660	.433	2.0
30	336	<.100	.05	3720	.300	3.0	1380	.539	2.0
31	---	---	---	4060	.372	4.3	---	---	---
TOTAL	62806	---	79.99	99638	---	120.83	82895	---	78.43
		JULY			AUGUST			SEPTEMBER	
1	901	.543	1.3	191	.460	.24	33	.107	.01
2	594	.435	.70	131	.235	.08	65	.168	.03
3	419	.345	.39	100	<.100	.02	49	.117	.02
4	354	.270	.26	78	<.100	.01	59	<.100	.02
5	310	.212	.18	70	<.100	.01	69	<.100	.02
6	236	.167	.11	63	<.100	.01	62	<.100	.01
7	187	.131	.07	53	<.100	.01	46	<.100	.01
8	168	.103	.05	110	<.100	.01	53	<.100	.01
9	172	<.100	.04	132	<.100	.02	45	<.100	.01
10	162	<.100	.03	96	<.100	.01	33	<.100	.01
11	126	<.100	.02	70	<.100	.01	34	<.100	.00
12	106	<.100	.01	55	<.100	.01	34	<.100	.00
13	97	<.100	.01	43	<.100	.01	35	<.100	.00
14	77	<.100	.01	35	<.100	.01	40	<.100	.01
15	65	<.100	.01	30	.161	.01	64	<.100	.01
16	55	<.100	.01	31	.200	.02	53	<.100	.01
17	44	<.100	.01	35	.200	.02	86	<.100	.01
18	40	<.100	.01	47	.171	.02	89	<.100	.02
19	34	<.100	.00	54	.103	.01	116	<.100	.02
20	101	<.100	.04	56	.100	.02	134	<.100	.03
21	456	.226	.28	53	.141	.02	97	<.100	.02
22	370	.205	.21	42	.251	.03	772	.214	1.4
23	734	.355	.71	36	.300	.03	1460	.619	2.8
24	534	.331	.48	43	.296	.03	431	.362	.43
25	317	.277	.24	34	.222	.02	627	.544	.92
26	234	.232	.15	34	.200	.02	432	.471	.55
27	338	.491	.56	33	.200	.02	236	.402	.26
28	467	.688	.90	28	.216	.02	132	.356	.13
29	470	.825	1.1	33	.258	.02	80	.247	.05
30	353	.584	.56	38	.151	.02	54	.256	.04
31	281	.694	.52	30	.101	.01	---	---	---
TOTAL	8802	---	8.97	1884	---	0.80	5520	---	6.86
YEAR	463864		743.40						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	15	.44	.018	431	.60	.70	456	.40	.49
2	15	.55	.022	372	.60	.60	456	.40	.49
3	15	.54	.022	359	.53	.52	463	.43	.54
4	15	.43	.017	672	.58	1.07	635	.50	.86
5	61	.67	.12	1830	1.3	7.86	571	.45	.69
6	89	.61	.15	2660	1.4	10.3	451	.46	.55
7	88	.52	.12	2090	1.0	5.93	390	.50	.53
8	131	.52	.18	1950	1.0	5.35	328	.49	.44
9	96	.57	.15	1690	1.0	4.79	283	.42	.32
10	88	.47	.11	1710	.94	4.34	248	.41	.27
11	102	.43	.12	2260	1.0	6.08	254	.49	.34
12	136	.50	.19	1860	.96	4.83	227	.45	.28
13	155	.58	.24	1970	.85	4.49	235	.40	.25
14	126	.56	.19	2470	.97	6.42	293	.40	.32
15	114	.53	.16	1770	1.0	4.94	643	.57	1.03
16	108	.48	.14	1170	.84	2.69	785	.55	1.16
17	84	.43	.098	927	.71	1.77	758	.44	.91
18	1130	1.3	4.69	738	.66	1.33	592	.40	.64
19	1400	1.3	4.88	579	.60	.94	425	.40	.46
20	1300	1.4	4.81	685	.66	1.26	1260	.78	3.77
21	1040	1.2	3.37	2590	1.2	8.81	3720	1.4	13.7
22	927	1.0	2.56	2770	1.2	9.18	2500	1.2	8.00
23	942	.90	2.28	1590	.87	3.76	1780	1.0	4.84
24	842	.82	1.87	1110	.80	2.39	2030	.87	4.78
25	714	.66	1.27	792	.74	1.59	1710	.75	3.46
26	620	.74	1.24	589	.63	1.01	1280	.64	2.23
27	724	.64	1.26	468	.60	.75	937	.55	1.40
28	1240	1.0	3.56	426	.52	.60	3290	1.2	12.8
29	952	.84	2.18	427	.49	.56	5050	1.4	19.4
30	742	.61	1.22	442	.41	.49	3130	1.2	10.2
31	561	.60	.91	---	---	---	1790	1.0	4.83
TOTAL	14572	---	38.147	39397	---	105.35	36970	---	99.98
		JANUARY			FEBRUARY			MARCH	
1	1500	.84	3.39	905	.75	1.84	331	.69	.62
2	1200	.70	2.27	797	.64	1.39	323	.63	.55
3	900	.58	1.42	698	.54	1.02	322	.67	.58
4	700	.49	.92	583	.56	.89	447	.68	.89
5	560	.47	.71	511	.52	.72	1340	.90	3.26
6	1300	.68	2.40	400	.50	.54	1890	.90	4.59
7	2000	1.1	6.06	350	.50	.47	1430	.85	3.31
8	7600	2.3	47.9	320	.50	.43	914	.74	1.85
9	4000	1.6	17.3	300	.50	.40	611	.64	1.05
10	2000	.90	4.85	290	.50	.39	454	.59	.72
11	1600	.80	3.46	280	.46	.35	371	.57	.57
12	1300	.76	2.66	270	.40	.29	335	.56	.50
13	1000	.61	1.66	260	.40	.28	286	.54	.42
14	764	.60	1.24	1190	.79	3.65	302	.53	.43
15	700	.56	1.06	3150	1.2	10.9	410	.51	.56
16	620	.50	.84	2300	1.4	9.05	496	.50	.67
17	560	.45	.67	1100	1.1	3.33	543	.54	.79
18	520	.40	.56	700	.80	1.51	1430	1.1	4.88
19	470	.40	.51	600	.68	1.10	1830	1.1	5.62
20	430	.40	.46	560	.61	.92	1210	.80	2.65
21	739	.40	.80	540	.62	.91	983	.55	1.47
22	702	.40	.76	2050	.89	5.16	859	.43	.99
23	600	.42	.68	2350	.83	5.30	894	.48	1.16
24	524	.47	.66	1430	.70	2.71	927	.51	1.28
25	529	.40	.58	1000	.64	1.75	856	.59	1.36
26	3620	3.2	49.1	677	.60	1.09	772	.60	1.25
27	6060	3.0	49.5	542	.54	.78	682	.58	1.07
28	3930	1.6	17.8	456	.65	.79	915	.83	2.16
29	2020	.98	5.43	---	---	---	2500	1.5	9.75
30	1400	.77	2.94	---	---	---	5440	1.5	23.6
31	1060	.74	2.11	---	---	---	5760	1.6	25.0
TOTAL	50908	---	230.70	24609	---	57.96	35863	---	103.60

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4920	1.3	17.9	332	.64	.58	4770	2.3	29.0
2	4860	1.1	15.0	385	.70	.73	4390	1.8	21.9
3	8390	1.9	43.9	757	.76	1.56	3810	1.8	18.5
4	9050	1.1	27.7	883	.86	2.04	4890	2.2	28.8
5	7190	1.0	19.9	877	.68	1.61	3670	1.8	18.5
6	4850	1.0	13.4	827	.69	1.53	2060	1.5	8.56
7	3610	1.0	10.2	1250	.83	2.84	1450	1.4	5.37
8	2680	.87	6.31	2140	1.4	7.99	1030	1.3	3.73
9	1730	.80	3.74	2320	1.4	8.96	751	1.2	2.42
10	1210	.70	2.30	2810	1.3	11.4	708	1.1	2.14
11	1040	.54	1.51	4990	2.0	26.7	741	.87	1.73
12	964	.50	1.30	4380	1.4	16.8	691	.88	1.64
13	962	.50	1.30	3310	1.3	11.6	679	1.0	1.92
14	954	.50	1.29	2660	1.1	8.06	1040	1.1	3.00
15	872	.49	1.15	2220	.99	5.98	2130	1.7	10.3
16	803	.43	.92	2120	.86	4.89	3870	2.0	20.4
17	738	.51	1.02	2290	.89	5.46	3540	1.7	15.9
18	965	.57	1.48	1850	.96	4.80	3120	1.4	12.1
19	951	.54	1.37	1470	.80	3.20	2450	1.3	8.34
20	927	.51	1.28	1150	.71	2.19	3680	2.2	26.3
21	855	.45	1.03	912	.72	1.78	7260	2.3	44.9
22	749	.50	1.01	865	.83	1.93	5490	1.3	20.2
23	638	.50	.86	1820	1.1	6.33	5700	1.6	24.2
24	545	.51	.75	5450	2.2	31.9	4600	1.3	15.9
25	483	.64	.83	4200	1.5	17.8	3030	1.2	9.52
26	438	.55	.65	12400	9.0	345	2080	1.3	7.00
27	394	.69	.73	13300	5.3	194	1240	1.2	4.15
28	363	.77	.75	8460	2.6	60.4	985	.99	2.65
29	339	.73	.67	5430	1.8	26.4	1660	1.3	5.88
30	336	.72	.66	3720	1.7	17.0	1380	1.3	5.00
31	---	---	---	4060	2.4	28.0	---	---	---
TOTAL	62806	---	180.91	99638	---	859.46	82895	---	379.95
		JULY			AUGUST			SEPTEMBER	
1	901	1.3	3.29	191	.86	.44	33	.76	.068
2	594	1.2	1.99	131	.81	.29	65	.82	.14
3	419	1.2	1.32	100	.79	.22	49	.74	.097
4	354	1.1	1.06	78	.73	.15	59	.73	.12
5	310	1.1	.89	70	.76	.14	69	.78	.15
6	236	1.0	.64	63	.63	.11	62	.74	.12
7	187	.96	.49	53	.66	.094	46	.68	.085
8	168	.92	.42	110	.67	.20	53	.87	.13
9	172	.88	.41	132	.62	.22	45	.90	.11
10	162	.84	.37	96	.67	.17	33	.90	.080
11	126	.88	.30	70	.70	.13	34	.90	.082
12	106	1.3	.37	55	.64	.094	34	.83	.075
13	97	1.2	.31	43	.60	.069	35	.55	.052
14	77	1.0	.21	35	.67	.062	40	.47	.050
15	65	.81	.14	30	.64	.052	64	.60	.10
16	55	.75	.11	31	.82	.070	53	.61	.088
17	44	.74	.088	35	.72	.068	86	.74	.17
18	40	.76	.082	47	.72	.093	89	.73	.18
19	34	.73	.067	54	.76	.11	116	.78	.24
20	101	1.0	.36	56	.70	.11	134	.81	.29
21	456	1.6	1.94	53	.70	.10	97	.70	.18
22	370	1.0	1.01	42	.75	.085	772	.84	3.39
23	734	1.3	2.70	36	.60	.059	1460	1.5	6.65
24	534	1.3	1.84	43	.61	.071	431	1.1	1.29
25	317	1.1	.92	34	.93	.086	627	1.3	2.22
26	234	.92	.58	34	.75	.068	432	1.1	1.27
27	338	1.1	1.09	33	.64	.056	236	.79	.51
28	467	1.3	1.72	28	.80	.060	132	.60	.22
29	470	1.5	1.91	33	.85	.075	80	.70	.15
30	353	1.1	1.05	38	.70	.071	54	.68	.099
31	281	.92	.70	30	.64	.052	---	---	---
TOTAL	8802	---	28.377	1884	---	3.675	5520	---	18.406
YEAR	463864		2106.574						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	15	.090	.004	431	.035	.041	456	.048	.059
2	15	.090	.004	372	.030	.030	456	.040	.050
3	15	.084	.003	359	.030	.029	463	.041	.051
4	15	.080	.003	672	.038	.072	635	.045	.078
5	61	.111	.019	1830	.256	1.88	571	.040	.062
6	89	.178	.043	2660	.213	1.54	451	.040	.049
7	88	.109	.025	2090	.109	.62	390	.040	.042
8	131	.079	.028	1950	.123	.65	328	.039	.035
9	96	.060	.016	1690	.107	.49	283	.033	.025
10	88	.054	.013	1710	.123	.60	248	.038	.026
11	102	.055	.015	2260	.141	.86	254	.038	.026
12	136	.090	.034	1860	.122	.62	227	.031	.019
13	155	.114	.048	1970	.119	.66	235	.033	.021
14	126	.103	.035	2470	.131	.87	293	.043	.034
15	114	.092	.028	1770	.112	.55	643	.081	.15
16	108	.083	.024	1170	.092	.29	785	.064	.14
17	84	.074	.017	927	.078	.20	758	.044	.091
18	1130	.328	1.21	738	.067	.13	592	.040	.064
19	1400	.221	.84	579	.056	.088	425	.040	.046
20	1300	.188	.66	685	.069	.14	1260	.069	.33
21	1040	.141	.40	2590	.206	1.55	3720	.277	2.82
22	927	.109	.27	2770	.194	1.49	2500	.211	1.46
23	942	.087	.22	1590	.111	.48	1780	.162	.78
24	842	.066	.15	1110	.081	.24	2030	.150	.83
25	714	.061	.12	792	.064	.14	1710	.122	.56
26	620	.066	.11	589	.053	.085	1280	.099	.34
27	724	.057	.11	468	.049	.063	937	.081	.20
28	1240	.156	.54	426	.043	.049	3290	.234	2.54
29	952	.115	.30	427	.048	.056	5050	.274	3.74
30	742	.048	.096	442	.050	.060	3130	.214	1.83
31	561	.040	.061	---	---	---	1790	.167	.81
TOTAL	14572	---	5.446	39397	---	14.573	36970	---	17.308
		JANUARY			FEBRUARY			MARCH	
1	1500	.131	.53	905	.075	.18	331	.052	.046
2	1200	.102	.33	797	.064	.14	323	.050	.044
3	900	.079	.19	698	.054	.10	322	.050	.043
4	700	.062	.12	583	.050	.079	447	.065	.092
5	560	.070	.11	511	.049	.068	1340	.256	.995
6	1300	.221	.78	400	.042	.045	1890	.154	.79
7	2000	.693	3.74	350	.043	.041	1430	.105	.42
8	7600	1.13	23.3	320	.047	.041	914	.080	.20
9	4000	.413	4.46	300	.052	.042	611	.067	.11
10	2000	.119	.64	290	.057	.044	454	.049	.061
11	1600	.097	.42	280	.048	.036	371	.037	.037
12	1300	.087	.30	270	.030	.022	335	.027	.025
13	1000	.071	.19	260	.036	.025	286	.021	.017
14	764	.070	.14	1190	.091	.48	302	.026	.021
15	700	.062	.12	3150	.263	2.29	410	.033	.037
16	620	.050	.084	2300	.270	1.68	496	.036	.049
17	560	.045	.067	1100	.197	.59	543	.034	.049
18	520	.040	.056	700	.125	.24	1430	.136	.63
19	470	.040	.051	600	.069	.11	1830	.176	.86
20	430	.041	.047	560	.077	.12	1210	.139	.46
21	739	.047	.094	540	.088	.13	983	.073	.20
22	702	.041	.078	2050	.198	1.17	859	.052	.12
23	600	.042	.068	2350	.168	1.09	894	.050	.12
24	524	.047	.066	1430	.111	.43	927	.050	.13
25	529	.040	.058	1000	.094	.26	856	.048	.11
26	3620	.780	13.3	677	.077	.14	772	.041	.085
27	6060	1.26	20.7	542	.056	.082	682	.035	.065
28	3930	.370	4.20	456	.057	.070	915	.121	.33
29	2020	.201	1.11	---	---	---	2500	.254	1.59
30	1400	.139	.53	---	---	---	5440	.374	6.04
31	1060	.098	.28	---	---	---	5760	.431	6.72
TOTAL	50908	---	76.159	24609	---	9.745	35863	---	20.496

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	4920	.287	3.83	332	.065	.058	4770	.593	7.56
2	4860	.229	3.05	385	.095	.099	4390	.395	4.71
3	8390	.515	12.0	757	.132	.27	3810	.330	3.43
4	9050	.311	7.60	883	.125	.30	4890	.468	6.21
5	7190	.287	5.58	877	.089	.21	3670	.343	3.44
6	4850	.257	3.37	827	.062	.14	2060	.266	1.49
7	3610	.252	2.47	1250	.099	.35	1450	.218	.86
8	2680	.189	1.38	2140	.235	1.38	1030	.214	.60
9	1730	.142	.67	2320	.210	1.33	751	.220	.45
10	1210	.109	.36	2810	.241	2.30	708	.183	.35
11	1040	.065	.18	4990	.459	6.25	741	.133	.27
12	964	.050	.13	4380	.312	3.72	691	.145	.27
13	962	.057	.15	3310	.208	1.87	679	.220	.40
14	954	.059	.15	2660	.158	1.14	1040	.202	.56
15	872	.049	.12	2220	.147	.88	2130	.360	2.27
16	803	.033	.072	2120	.079	.44	3870	.430	4.48
17	738	.045	.090	2290	.052	.32	3540	.318	3.05
18	965	.092	.24	1850	.049	.24	3120	.261	2.20
19	951	.045	.12	1470	.039	.16	2450	.223	1.48
20	927	.061	.15	1150	.031	.095	3680	.242	2.62
21	855	.040	.092	912	.033	.081	7260	.256	5.02
22	749	.034	.069	865	.048	.11	5490	.167	2.58
23	638	.030	.052	1820	.124	.85	5700	.204	3.21
24	545	.044	.064	5450	.465	6.86	4600	.196	2.46
25	483	.049	.064	4200	.317	3.69	3030	.172	1.41
26	438	.046	.054	12400	2.41	93.0	2080	.165	.92
27	394	.093	.098	13300	1.51	55.0	1240	.154	.52
28	363	.139	.14	8460	.686	16.3	985	.140	.38
29	339	.077	.071	5430	.369	5.45	1660	.258	1.17
30	336	.057	.052	3720	.300	3.03	1380	.199	.75
31	---	---	---	4060	.584	7.10	---	---	---
TOTAL	62806	---	42.468	99638	---	213.023	82895	---	65.12
		JULY			AUGUST			SEPTEMBER	
1	901	.162	.40	191	.069	.036	33	.095	.009
2	594	.146	.23	131	.046	.016	65	.147	.026
3	419	.133	.15	100	.048	.013	49	.141	.019
4	354	.123	.12	78	.057	.012	59	.136	.022
5	310	.113	.095	70	.051	.010	69	.131	.024
6	236	.104	.067	63	.050	.008	62	.126	.021
7	187	.096	.049	53	.050	.007	46	.121	.015
8	168	.089	.040	110	.091	.028	53	.116	.017
9	172	.082	.038	132	.066	.024	45	.112	.014
10	162	.076	.033	96	.081	.021	33	.108	.010
11	126	.083	.028	70	.084	.016	34	.103	.009
12	106	.152	.043	55	.067	.010	34	.093	.008
13	97	.131	.035	43	.062	.007	35	.065	.006
14	77	.104	.022	35	.102	.009	40	.054	.006
15	65	.072	.013	30	.108	.009	64	.054	.009
16	55	.055	.008	31	.135	.011	53	.044	.006
17	44	.054	.006	35	.108	.010	86	.068	.016
18	40	.069	.007	47	.111	.014	89	.077	.019
19	34	.089	.008	54	.088	.013	116	.072	.022
20	101	.159	.064	56	.084	.013	134	.068	.025
21	456	.315	.39	53	.099	.014	97	.064	.017
22	370	.177	.18	42	.104	.012	772	.122	.75
23	734	.325	.66	36	.063	.006	1460	.332	1.51
24	534	.249	.37	43	.064	.007	431	.179	.21
25	317	.160	.14	34	.077	.007	627	.201	.34
26	234	.102	.065	34	.071	.006	432	.163	.19
27	338	.115	.12	33	.064	.006	236	.098	.066
28	467	.097	.12	28	.081	.006	132	.036	.013
29	470	.189	.23	33	.095	.008	80	.072	.015
30	353	.152	.15	38	.080	.008	54	.072	.011
31	281	.101	.077	30	.077	.006	---	---	---
TOTAL	8802	---	3.958	1884	---	0.373	5520	---	3.425
YEAR	463864		472.049						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	15	10	.40	431	10	12	456	12	15
2	15	12	.49	372	8	8.0	456	8	9.8
3	15	12	.49	359	8	7.8	463	9	11
4	15	10	.40	672	30	54	635	12	21
5	61	64	11	1830	325	2640	571	9	14
6	89	23	5.5	2660	247	1800	451	7	8.5
7	88	28	6.7	2090	80	451	390	6	6.3
8	131	20	7.1	1950	41	216	328	6	5.3
9	96	16	4.1	1690	39	178	283	18	14
10	88	12	2.9	1710	75	346	248	10	6.7
11	102	12	3.3	2260	52	317	254	14	9.6
12	136	9	3.3	1860	49	246	227	4	2.5
13	155	13	5.4	1970	80	426	235	6	3.8
14	126	8	2.7	2470	52	347	293	6	4.7
15	114	10	3.1	1770	38	182	643	128	222
16	108	15	4.4	1170	30	95	785	28	59
17	84	16	3.6	927	24	60	758	10	20
18	1130	717	2660	738	21	42	592	13	21
19	1400	130	491	579	18	28	425	4	4.6
20	1300	85	298	685	30	55	1260	278	1630
21	1040	31	87	2590	105	734	3720	321	3130
22	927	32	80	2770	80	598	2500	80	540
23	942	24	61	1590	32	137	1780	52	250
24	842	22	50	1110	22	66	2030	44	241
25	714	17	33	792	18	38	1710	26	120
26	620	14	23	589	12	19	1280	23	79
27	724	12	23	468	12	15	937	20	51
28	1240	75	251	426	11	13	3290	545	5620
29	952	15	39	427	8	9.2	5050	175	2390
30	742	13	26	442	10	12	3130	23	194
31	561	9	14	---	---	---	1790	14	68
TOTAL	14572	---	4200.88	39397	---	9152.0	36970	---	14771.8
		JANUARY			FEBRUARY			MARCH	
1	1550	22	89	905	24	59	331	12	11
2	---	22	71	797	20	43	323	14	12
3	---	25	61	698	19	36	322	12	10
4	---	17	32	583	24	38	447	75	118
5	---	568	859	511	36	50	1340	120	434
6	---	70	246	460	12	13	1890	77	393
7	---	29	157	375	20	19	1430	58	224
8	---	35	718	708	19	16	914	36	89
9	---	380	4100	676	14	11	611	25	41
10	---	232	1250	776	10	7.8	454	18	22
11	1520	240	1040	809	10	7.6	371	16	16
12	1300	55	193	630	18	13	335	12	11
13	1000	26	70	481	16	11	286	13	10
14	764	18	37	1190	85	273	302	10	8.2
15	769	20	38	3150	275	2340	410	18	20
16	788	13	22	2300	86	534	496	10	13
17	776	10	15	2020	67	365	543	13	19
18	723	14	20	2740	30	222	1430	250	1150
19	688	12	15	4140	28	313	1830	132	652
20	704	14	16	674	25	45	1210	55	180
21	739	14	28	767	37	77	983	24	64
22	702	22	42	2050	131	725	859	22	51
23	600	19	31	2350	115	730	894	14	34
24	524	12	17	1430	60	232	927	12	30
25	529	10	14	1000	32	86	856	13	30
26	3620	924	14700	677	24	44	772	10	21
27	6060	460	7530	542	18	26	682	12	22
28	3930	130	1380	456	16	20	915	40	99
29	2020	78	425	---	---	---	2500	234	1520
30	1400	44	166	---	---	---	5440	461	7910
31	1060	32	92	---	---	---	5760	270	4200
TOTAL	---	---	33474	33895	---	6356.4	35863	---	17414.2

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	4920	130	1730	332	7	3.4	4770	210	2700
2	4860	188	2750	385	18	10	4390	110	1300
3	8390	565	13100	757	16	21	3810	130	1340
4	9050	445	10900	883	18	29	4890	190	2510
5	7190	175	3390	877	14	22	3670	80	793
6	4850	106	1340	827	10	15	2060	80	445
7	3610	82	713	1250	37	90	1450	48	188
8	2680	62	375	2140	72	334	1030	34	95
9	1730	52	187	2320	65	333	751	32	65
10	1210	31	73	2810	245	2910	708	23	44
11	1040	98	193	4990	462	6220	741	20	40
12	964	24	43	4380	70	828	691	35	65
13	962	26	47	3310	44	393	679	45	82
14	954	24	43	2660	46	330	1040	155	435
15	872	14	22	2220	30	180	2130	207	1190
16	803	13	19	2120	37	212	3870	130	1360
17	738	18	23	2290	32	198	3540	97	927
18	965	22	40	1850	27	135	3120	90	758
19	951	28	50	1470	22	87	2450	76	503
20	927	18	31	1150	12	37	3680	348	4830
21	855	14	22	912	9	22	7260	430	8430
22	749	8	11	865	170	397	5490	120	1780
23	638	10	11	1820	282	2330	5700	240	3690
24	545	10	8.8	5450	238	3500	4600	90	1120
25	483	13	9.9	4200	75	850	3030	64	524
26	438	10	6.8	12400	1360	53900	2080	56	314
27	394	10	6.0	13300	340	12200	1240	46	154
28	363	7	3.8	8460	160	3650	985	30	80
29	339	6	3.0	5430	102	1500	1660	79	354
30	336	7	3.4	3720	98	984	1380	65	242
31	---	---	---	4060	426	5730	---	---	---
TOTAL	62806	---	35154.7	99638	---	97450.4	82895	---	36358
	JULY			AUGUST			SEPTEMBER		
1	901	59	144	191	30	15	33	14	1.2
2	594	32	51	131	12	4.2	65	10	1.8
3	419	22	25	100	9	2.4	49	8	1.1
4	354	14	13	78	10	2.1	59	14	2.2
5	310	28	23	70	8	1.5	69	22	4.1
6	236	11	7.0	63	8	1.4	62	21	3.5
7	187	22	11	53	12	1.7	46	11	1.4
8	168	12	5.4	110	18	5.3	53	232	33
9	172	12	5.6	132	13	4.6	45	10	1.2
10	162	12	5.2	96	19	4.9	33	10	.89
11	126	65	22	70	228	43	34	27	2.5
12	106	21	6.0	55	13	1.9	34	12	1.1
13	97	20	5.2	43	11	1.3	35	10	.94
14	77	11	2.3	35	41	3.9	40	118	13
15	65	8	1.4	30	13	1.1	64	14	2.4
16	55	7	1.0	31	12	1.0	53	8	1.1
17	44	10	1.2	35	34	3.2	86	12	2.8
18	40	10	1.1	47	18	2.3	89	29	7.0
19	34	10	.92	54	12	1.7	116	26	8.1
20	101	46	13	56	14	2.1	134	50	18
21	456	78	96	53	17	2.4	97	17	4.5
22	370	42	42	42	26	2.9	772	285	2370
23	734	78	155	36	37	3.6	1460	389	2840
24	534	49	71	43	20	2.3	431	39	45
25	317	34	29	34	22	2.0	627	38	64
26	234	35	22	34	11	1.0	432	30	35
27	338	82	75	33	10	.89	236	14	8.9
28	467	48	61	28	14	1.1	132	12	4.3
29	470	28	36	33	122	11	80	14	3.0
30	353	24	23	38	8	.82	54	8	1.2
31	281	37	28	30	10	.81	---	---	---
TOTAL	8802	---	982.32	1884	---	133.42	5520	---	5483.23

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	42	39	4.31	122	35	11.6	847	28	64.3
2	68	41	7.46	114	35	10.8	704	31	59.2
3	67	39	7.09	113	36	10.9	650	34	59.0
4	171	34	15.6	113	35	10.7	2120	34	192
5	221	34	20.1	113	35	10.8	805	36	77.2
6	171	34	15.7	114	34	10.5	868	38	89.9
7	113	33	10.2	129	36	12.5	1000	59	160
8	73	32	6.32	260	38	26.7	961	44	115
9	51	34	4.64	388	35	36.3	717	41	80.0
10	47	38	4.87	684	33	61.2	636	43	73.0
11	107	39	11.3	934	31	79.0	537	43	62.2
12	72	37	7.24	864	31	71.7	423	45	50.9
13	72	36	6.90	705	31	58.1	370	45	45.3
14	75	34	6.87	554	32	47.2	330	48	42.7
15	67	35	6.39	631	31	50.0	280	52	39.1
16	68	37	6.74	3100	22	184	240	54	34.9
17	777	25	51.0	3700	21	214	210	54	30.8
18	535	26	38.1	2460	22	144	190	55	28.1
19	1140	30	90.3	1760	25	118	170	55	25.3
20	1160	26	80.5	2380	38	252	160	56	24.0
21	1150	29	91.1	3000	26	215	140	56	21.1
22	1100	26	78.9	1690	21	94.3	130	56	19.8
23	906	27	65.8	1130	24	73.7	120	57	18.4
24	712	30	58.0	890	29	69.2	110	57	17.0
25	536	31	45.4	800	31	67.7	100	58	15.6
26	407	32	35.4	1590	37	154	96	58	15.1
27	320	32	27.9	2110	26	147	90	59	14.2
28	238	33	21.4	1880	28	139	82	59	13.1
29	187	34	17.3	1540	26	110	78	59	12.5
30	156	35	14.6	1130	26	77.7	74	59	11.9
31	134	35	12.6	---	---	---	3180	43	347
TOTAL	10943	---	870.03	34998	---	2567.6	16418	---	1858.6
		JANUARY			FEBRUARY			MARCH	
1	4490	26	310	695	62	123	841	31	70.8
2	4860	24	318	5780	43	537	903	34	83.8
3	3410	28	257	7940	19	401	1340	32	114
4	4320	28	316	5900	20	322	1220	27	89.9
5	6540	25	443	5150	19	271	943	27	69.9
6	4810	29	376	4410	20	241	729	27	52.6
7	2670	34	243	3790	20	207	608	27	45.0
8	1910	39	202	2820	19	148	545	30	44.5
9	1510	46	185	1820	21	104	659	37	67.1
10	1690	46	208	1890	23	116	1190	34	108
11	1910	37	189	2170	20	115	1430	27	103
12	1680	34	153	1460	20	78.7	1290	24	84.1
13	1230	33	111	1120	23	69.7	1020	23	63.6
14	981	34	89.5	856	31	71.3	825	24	53.0
15	911	38	93.7	2930	53	407	702	24	45.7
16	1260	41	140	11000	22	650	607	25	41.4
17	2390	35	227	8950	14	347	545	27	39.5
18	3750	26	264	5010	14	192	504	27	37.0
19	2960	28	224	3730	15	153	484	28	36.2
20	1820	31	150	2650	15	105	321	28	24.3
21	3270	29	251	1410	16	60.0	175	28	13.2
22	2910	33	255	1700	27	140	128	29	9.86
23	1980	28	150	3170	21	180	122	30	9.80
24	1700	28	128	2520	18	121	121	31	10.0
25	1450	31	119	1600	21	90.1	122	31	10.2
26	1180	34	108	1140	25	77.6	107	31	8.90
27	960	30	78.1	946	31	79.1	89	30	7.29
28	829	30	66.8	902	33	80.6	84	31	7.11
29	724	31	60.1	---	---	---	79	32	6.91
30	682	40	73.3	---	---	---	79	34	7.32
31	633	54	92.7	---	---	---	88	35	8.36
TOTAL	71420	---	5881.2	93459	---	5487.1	17900	---	1372.35

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	130	37	13.0	144	23	9.04	1110	17	49.6
2	1070	33	91.7	123	22	7.45	1020	17	46.6
3	2720	31	233	95	24	6.14	704	17	32.2
4	3710	33	306	156	27	12.8	360	16	15.6
5	3830	20	206	1700	26	114	247	18	11.7
6	2220	22	132	2250	17	101	208	20	11.4
7	1250	24	81.2	1420	16	61.3	166	22	9.88
8	887	28	66.4	865	18	41.3	147	24	9.52
9	620	25	41.5	479	20	26.3	133	25	8.94
10	2640	31	212	297	23	18.0	113	25	7.71
11	8140	12	262	224	24	14.4	109	24	6.98
12	6260	13	214	191	24	12.5	105	20	5.79
13	3510	14	129	843	22	47.0	114	21	6.58
14	2410	17	107	2040	16	89.5	116	22	6.95
15	1930	18	93.8	1580	16	69.0	82	23	5.16
16	1340	18	63.5	4000	16	166	67	24	4.41
17	900	21	49.7	7290	11	204	59	26	4.07
18	661	20	36.6	6520	<10	94.0	51	27	3.66
19	484	21	27.6	3770	<10	71.5	42	28	3.19
20	383	22	23.2	2770	12	86.5	42	29	3.28
21	2010	23	120	3320	10	93.9	39	30	3.18
22	2460	14	94.3	1930	11	59.1	34	31	2.90
23	1360	16	56.7	1020	13	34.3	32	33	2.84
24	768	18	37.7	683	14	25.2	238	44	29.2
25	487	21	27.5	462	16	19.4	393	33	35.6
26	354	22	21.0	365	20	19.4	359	26	25.5
27	276	22	16.7	312	19	16.2	345	26	23.7
28	237	23	14.7	279	18	13.9	273	30	21.9
29	178	24	11.6	498	17	22.1	186	33	16.7
30	141	24	9.25	895	18	44.6	127	32	11.1
31	---	---	---	1170	18	57.9	---	---	---
TOTAL	53366	---	2798.65	47691	---	1657.73	7021	---	425.84
		JULY			AUGUST			SEPTEMBER	
1	100	31	8.40	811	21	45.0	73	33	6.39
2	94	32	8.03	595	19	30.4	53	34	4.80
3	70	34	6.52	530	18	25.6	42	34	3.88
4	55	35	5.25	318	21	18.0	36	35	3.44
5	45	36	4.39	196	24	12.6	33	36	3.24
6	36	37	3.58	261	30	21.2	40	36	3.68
7	31	38	3.16	1050	23	62.5	3640	15	143
8	24	37	2.39	782	23	47.7	4030	16	167
9	48	35	4.25	580	23	35.9	3580	15	142
10	92	33	7.95	315	21	17.8	5170	11	149
11	88	34	8.00	177	21	9.93	3450	11	98.2
12	138	35	13.2	129	22	7.58	1650	13	57.6
13	191	35	18.3	1760	19	81.4	1110	14	43.2
14	291	35	27.9	1780	17	81.8	703	17	32.1
15	460	38	45.9	725	17	33.2	1360	16	55.4
16	1120	32	96.9	368	20	19.9	4590	<10	110
17	1240	29	98.0	235	21	13.3	5090	<10	68.8
18	824	25	55.8	192	21	10.9	2840	<10	76.7
19	554	24	35.9	140	22	8.30	1970	13	66.6
20	326	23	20.5	108	25	7.19	2280	12	70.9
21	209	24	13.5	104	29	8.00	1510	12	47.9
22	153	24	9.98	93	28	7.13	1140	15	47.2
23	220	28	16.6	87	27	6.44	2380	13	76.1
24	317	24	20.4	87	28	6.62	3790	<10	63.5
25	509	24	33.6	78	31	6.53	2250	10	60.1
26	646	27	47.0	67	34	6.09	1160	13	40.1
27	449	26	31.6	59	34	5.42	672	15	26.9
28	222	24	14.4	68	20	3.46	425	16	18.7
29	124	23	7.69	67	<10	2.40	304	18	14.9
30	81	23	5.03	74	34	6.72	261	19	13.6
31	436	23	26.6	102	32	8.83	---	---	---
TOTAL	9193	---	700.72	11938	---	657.84	55632	---	1714.93
YEAR	429979		25994.67						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	42	.211	.02	122	.122	.04	847	.484	1.1
2	68	.298	.06	114	.110	.03	704	.482	.92
3	67	.360	.07	113	<.100	.02	650	.486	.85
4	171	.347	.16	113	<.100	.02	2120	.494	2.8
5	221	.425	.25	113	<.100	.02	805	.514	1.1
6	171	.469	.22	114	<.100	.02	868	.507	1.2
7	113	.389	.12	129	<.100	.02	1000	.526	1.4
8	73	.353	.07	260	.152	.11	961	.488	1.3
9	51	.341	.05	388	.130	.14	717	.500	.97
10	47	.296	.04	684	.206	.40	636	.535	.92
11	107	.522	.16	934	.282	.71	537	.523	.76
12	72	.311	.06	864	.306	.71	423	.493	.56
13	72	.137	.03	705	.279	.53	370	.480	.48
14	75	<.100	.01	554	.210	.32	330	.490	.44
15	67	<.100	.01	631	.214	.39	280	.523	.40
16	68	<.100	.01	3100	.399	3.4	240	.538	.35
17	777	.429	1.0	3700	.477	4.8	210	.535	.30
18	535	.397	.57	2460	.466	3.1	190	.533	.27
19	1140	.375	1.2	1760	.454	2.2	170	.530	.24
20	1160	.401	1.3	2380	.520	3.7	160	.527	.23
21	1150	.488	1.5	3000	.667	5.5	140	.524	.20
22	1100	.472	1.4	1690	.568	2.6	130	.522	.18
23	906	.542	1.3	1130	.519	1.6	120	.519	.17
24	712	.716	1.4	890	.526	1.3	110	.516	.15
25	536	.691	1.0	800	.516	1.1	100	.514	.14
26	407	.661	.73	1590	.553	2.4	96	.511	.13
27	320	.553	.48	2110	.667	3.8	90	.509	.12
28	238	.438	.28	1880	.616	3.1	82	.506	.11
29	187	.326	.17	1540	.497	2.1	78	.503	.11
30	156	.227	.10	1130	.494	1.5	74	.502	.10
31	134	.173	.06	---	---	---	3180	.573	5.0
TOTAL	10943	---	13.83	34998	---	45.68	16418	---	23.00
		JANUARY			FEBRUARY			MARCH	
1	4490	.681	8.3	695	.522	.99	841	.430	.98
2	4860	.681	8.9	5780	.573	8.9	903	.441	1.1
3	3410	.663	6.1	7940	.543	12	1340	.455	1.6
4	4320	.693	8.2	5900	.540	8.6	1220	.418	1.4
5	6540	.732	13	5150	.529	7.4	943	.418	1.1
6	4810	.701	9.1	4410	.508	6.0	729	.459	.90
7	2670	.671	4.9	3790	.516	5.3	608	.470	.77
8	1910	.643	3.3	2820	.494	3.8	545	.492	.72
9	1510	.616	2.5	1820	.492	2.4	659	.516	.91
10	1690	.665	3.1	1890	.476	2.4	1190	.467	1.5
11	1910	.651	3.3	2170	.431	2.5	1430	.440	1.7
12	1680	.657	3.0	1460	.446	1.8	1290	.439	1.5
13	1230	.678	2.3	1120	.570	1.7	1020	.403	1.1
14	981	.676	1.8	856	.552	1.3	825	.317	.71
15	911	.650	1.6	2930	.592	5.0	702	.300	.57
16	1260	.611	2.1	11000	.597	18	607	.300	.49
17	2390	.582	3.8	8950	.524	13	545	.273	.40
18	3750	.509	5.1	5010	.501	6.8	504	.203	.28
19	2960	.506	4.0	3730	.441	4.5	484	.200	.26
20	1820	.532	2.6	2650	.387	2.8	321	.317	.25
21	3270	.534	4.7	1410	.363	1.4	175	.500	.24
22	2910	.554	4.3	1700	.437	2.1	128	.500	.17
23	1980	.587	3.1	3170	.427	3.6	122	.500	.16
24	1700	.614	2.8	2520	.410	2.8	121	.500	.16
25	1450	.595	2.3	1600	.423	1.8	122	.500	.16
26	1180	.549	1.7	1140	.446	1.4	107	.500	.14
27	960	.539	1.4	946	.477	1.2	89	.500	.12
28	829	.536	1.2	902	.472	1.1	84	.500	.11
29	724	.536	1.0	---	---	---	79	.500	.11
30	682	.527	.97	---	---	---	79	.500	.11
31	633	.530	.91	---	---	---	88	.500	.12
TOTAL	71420	---	121.38	93459	---	130.59	17900	---	19.84

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	130	.500	.18	144	.297	.12	1110	.255	.76
2	1070	.500	1.4	123	.200	.07	1020	.290	.79
3	2720	.500	3.7	95	.200	.05	704	.454	.85
4	3710	.500	5.0	156	.221	.11	360	.361	.36
5	3830	.500	5.2	1700	.431	2.0	247	.286	.19
6	2220	.460	2.8	2250	.401	2.4	208	.131	.07
7	1250	.400	1.4	1420	.400	1.5	166	<.100	.04
8	887	.400	.96	865	.454	1.1	147	<.100	.02
9	620	.400	.67	479	.269	.36	133	<.100	.02
10	2640	.408	3.0	297	.120	.10	113	<.100	.02
11	8140	.400	8.8	224	.100	.06	109	<.100	.03
12	6260	.400	6.8	191	.100	.05	105	.290	.08
13	3510	.400	3.8	843	.216	.62	114	.278	.09
14	2410	.356	2.3	2040	.425	2.4	116	.263	.08
15	1930	.300	1.6	1580	.386	1.7	82	.249	.06
16	1340	.300	1.1	4000	.409	5.2	67	.236	.04
17	900	.300	.73	7290	.543	11	59	.223	.04
18	661	.279	.50	6520	.507	8.9	51	.211	.03
19	484	.205	.27	3770	.548	5.5	42	.201	.02
20	383	.200	.21	2770	.496	3.7	42	.200	.02
21	2010	.330	1.8	3320	.517	4.7	39	.200	.02
22	2460	.443	3.0	1930	.401	2.1	34	.200	.02
23	1360	.343	1.3	1020	.400	1.1	32	.201	.02
24	768	.233	.49	683	.400	.74	238	.458	.35
25	487	.126	.17	462	.400	.50	393	.538	.57
26	354	.120	.11	365	.400	.39	359	.365	.35
27	276	.297	.22	312	.394	.33	345	.450	.42
28	237	.350	.22	279	.345	.26	273	.728	.53
29	178	.187	.09	498	.319	.44	186	.781	.39
30	141	.455	.17	895	.242	.59	127	.642	.22
31	---	---	---	1170	.297	.94	---	---	---
TOTAL	53366	---	57.99	47691	---	59.03	7021	---	6.50
		JULY			AUGUST			SEPTEMBER	
1	100	.511	.14	811	.605	1.3	73	<.100	.01
2	94	.471	.12	595	.501	.80	53	<.100	.01
3	70	.402	.08	530	.477	.69	42	<.100	.01
4	55	.400	.06	318	.404	.35	36	.181	.02
5	45	.348	.04	196	.433	.23	33	.200	.02
6	36	.300	.03	261	.499	.35	40	.221	.03
7	31	.300	.03	1050	.544	1.6	3640	.736	7.3
8	24	.300	.02	782	.498	1.1	4030	.549	6.1
9	48	.345	.05	580	.361	.58	3580	.541	5.4
10	92	.428	.11	315	.295	.25	5170	.446	6.2
11	88	.400	.10	177	.209	.10	3450	.400	3.7
12	138	.438	.17	129	.121	.04	1650	.400	1.8
13	191	.640	.33	1760	.585	3.6	1110	.356	1.1
14	291	1.00	.80	1780	.694	3.4	703	.300	.57
15	460	1.27	1.5	725	.493	.99	1360	.301	1.1
16	1120	1.28	4.0	368	.375	.38	4590	.379	4.8
17	1240	2.69	8.8	235	.265	.17	5090	.352	4.9
18	824	3.40	7.6	192	.201	.10	2840	.332	2.5
19	554	2.36	3.6	140	.200	.08	1970	.389	2.0
20	326	1.59	1.4	108	.200	.06	2280	.308	1.9
21	209	1.23	.70	104	.336	.10	1510	.315	1.3
22	153	1.08	.44	93	.395	.10	1140	.405	1.2
23	220	.914	.54	87	.320	.08	2380	.313	2.0
24	317	.927	.79	87	.293	.07	3790	.240	2.4
25	509	.887	1.2	78	.243	.05	2250	.288	1.7
26	646	.659	1.1	67	.203	.04	1160	.300	.94
27	449	.600	.73	59	.200	.03	672	.300	.54
28	222	.539	.33	68	.134	.02	425	.300	.34
29	124	.426	.14	67	<.100	.01	304	.325	.27
30	81	.238	.05	74	.100	.02	261	.440	.31
31	436	.401	.53	102	<.100	.02	---	---	---
TOTAL	9193	---	35.53	11938	---	16.71	55632	---	60.47
YEAR	429979		589.11						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	42	.56	.063	122	.61	.20	847	.59	1.35
2	68	.64	.12	114	.63	.19	704	.55	1.04
3	67	.75	.14	113	.60	.18	650	.45	.79
4	171	.85	.39	113	.66	.20	2120	.49	2.98
5	221	.73	.43	113	.81	.25	805	.51	1.12
6	171	.69	.32	114	.57	.18	868	.60	1.41
7	113	.60	.18	129	.52	.18	1000	.60	1.64
8	73	.55	.11	260	.58	.41	961	.69	1.80
9	51	.57	.078	388	.74	.78	717	.71	1.38
10	47	.47	.059	684	1.1	2.07	636	.57	.97
11	107	.59	.17	934	.91	2.30	537	.45	.66
12	72	.49	.096	864	.82	1.91	423	.52	.59
13	72	.49	.096	705	.71	1.36	370	.64	.64
14	75	.51	.10	554	.55	.82	330	.55	.49
15	67	.51	.091	631	1.0	2.17	280	.39	.30
16	68	.52	.096	3100	2.3	19.5	240	.34	.22
17	777	1.2	2.74	3700	1.6	16.0	210	.34	.19
18	535	1.0	1.47	2460	1.2	7.96	190	.33	.17
19	1140	1.2	3.99	1760	.82	3.95	170	.33	.15
20	1160	1.2	3.73	2380	.91	6.87	160	.33	.14
21	1150	1.1	3.38	3000	1.3	11.2	140	.32	.12
22	1100	1.0	2.99	1690	.77	3.58	130	.32	.11
23	906	.94	2.30	1130	.62	1.91	120	.32	.10
24	712	.87	1.69	890	.58	1.39	110	.32	.094
25	536	.73	1.05	800	.60	1.30	100	.31	.085
26	407	.74	.81	1590	.90	3.94	96	.31	.081
27	320	.66	.57	2110	.83	4.69	90	.31	.075
28	238	.58	.38	1880	.95	4.86	82	.31	.068
29	187	.59	.30	1540	.65	2.75	78	.30	.064
30	156	.61	.26	1130	.56	1.70	74	.31	.061
31	134	.60	.22	---	---	---	3180	.80	7.86
TOTAL	10943	---	28.419	34998	---	104.80	16418	---	26.748
		JANUARY			FEBRUARY			MARCH	
1	4490	2.4	30.4	695	.55	1.07	841	.59	1.34
2	4860	2.5	32.7	5780	2.0	34.5	903	.60	1.46
3	3410	2.1	19.7	7940	2.0	42.3	1340	.69	2.50
4	4320	2.4	29.8	5900	1.3	20.1	1220	.68	2.24
5	6540	2.5	44.8	5150	.88	12.2	943	.56	1.43
6	4810	1.8	24.1	4410	.77	9.12	729	.54	1.06
7	2670	1.3	9.62	3790	.74	7.56	608	.41	.67
8	1910	.94	4.91	2820	.63	4.79	545	.39	.57
9	1510	.68	2.80	1820	.59	2.91	659	.47	.84
10	1690	.60	2.74	1890	.58	3.00	1190	.52	1.69
11	1910	.74	3.81	2170	.72	4.25	1430	.54	2.08
12	1680	.78	3.54	1460	.64	2.52	1290	.50	1.75
13	1230	.67	2.22	1120	.71	2.16	1020	.51	1.39
14	981	.83	2.18	856	.67	1.55	825	.44	.99
15	911	.79	1.95	2930	1.2	13.3	702	.47	.89
16	1260	.80	2.72	11000	1.7	50.3	607	.43	.70
17	2390	.77	4.96	8950	1.1	28.4	545	.46	.68
18	3750	1.3	13.3	5010	.95	12.7	504	.47	.63
19	2960	1.0	8.21	3730	.96	9.73	484	.42	.55
20	1820	1.1	5.55	2650	.80	5.68	321	.47	.40
21	3270	1.2	10.1	1410	.82	3.16	175	.61	.28
22	2910	.83	6.58	1700	1.1	6.08	128	.50	.17
23	1980	.73	3.88	3170	1.2	9.93	122	.42	.14
24	1700	.76	3.49	2520	1.1	7.64	121	.39	.13
25	1450	.82	3.22	1600	.96	4.17	122	.40	.13
26	1180	.70	2.22	1140	.75	2.33	107	.46	.13
27	960	.72	1.86	946	.63	1.61	89	.39	.093
28	829	.65	1.45	902	.55	1.35	84	.41	.093
29	724	.76	1.48	---	---	---	79	.41	.088
30	682	.63	1.16	---	---	---	79	.44	.094
31	633	.44	.75	---	---	---	88	.42	.099
TOTAL	71420	---	286.20	93459	---	304.41	17900	---	25.307

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	130	.35	.13	144	.67	.26	1110	.98	2.94
2	1070	.91	3.17	123	.61	.20	1020	1.0	2.85
3	2720	1.6	11.8	95	.62	.16	704	1.1	2.02
4	3710	1.7	17.5	156	.64	.39	360	1.1	1.07
5	3830	1.4	14.8	1700	1.5	6.44	247	.84	.56
6	2220	.88	5.34	2250	1.4	8.39	208	.77	.43
7	1250	.72	2.47	1420	1.2	4.73	166	.99	.44
8	887	.60	1.45	865	.97	2.28	147	1.2	.46
9	620	.56	.95	479	.96	1.23	133	1.1	.39
10	2640	2.0	31.2	297	.82	.66	113	1.1	.33
11	8140	12	267	224	.81	.49	109	1.0	.30
12	6260	5.3	94.1	191	.61	.31	105	.87	.25
13	3510	3.9	37.5	843	.74	1.93	114	.89	.28
14	2410	2.2	14.5	2040	1.1	6.14	116	.92	.29
15	1930	2.3	12.1	1580	.93	4.02	82	.94	.21
16	1340	2.6	9.40	4000	3.5	55.6	67	.97	.17
17	900	1.6	3.90	7290	2.6	51.2	59	1.0	.16
18	661	1.1	1.92	6520	1.9	34.6	51	1.0	.14
19	484	1.1	1.41	3770	1.3	13.0	42	.99	.11
20	383	.97	1.02	2770	1.2	9.21	42	.76	.086
21	2010	3.9	22.1	3320	1.5	13.2	39	.70	.074
22	2460	2.0	13.5	1930	1.3	6.68	34	.68	.063
23	1360	.96	3.69	1020	1.1	3.19	32	.65	.056
24	768	.74	1.53	683	.90	1.67	238	.97	.73
25	487	.76	1.00	462	.65	.82	393	.91	.98
26	354	.76	.72	365	.58	.57	359	.91	.88
27	276	.77	.58	312	.61	.51	345	1.4	1.27
28	237	.69	.44	279	.61	.46	273	1.1	.79
29	178	.76	.37	498	.93	1.44	186	.84	.42
30	141	.68	.26	895	.87	2.10	127	.76	.26
31	---	---	---	1170	.95	3.00	---	---	---
TOTAL	53366	---	575.85	47691	---	234.88	7021	---	19.009
		JULY			AUGUST			SEPTEMBER	
1	100	.76	.20	811	1.1	2.45	73	.66	.13
2	94	.68	.17	595	1.0	1.67	53	.58	.083
3	70	.69	.13	530	1.0	1.47	42	.60	.069
4	55	.71	.11	318	.88	.77	36	.74	.073
5	45	.70	.086	196	.76	.40	33	.65	.058
6	36	.64	.062	261	.92	.74	40	.66	.088
7	31	.55	.047	1050	2.0	5.95	3640	3.1	31.0
8	24	.57	.036	782	1.4	3.05	4030	2.4	26.2
9	48	.65	.091	580	1.1	1.79	3580	2.4	24.8
10	92	.70	.18	315	1.5	1.29	5170	2.3	32.0
11	88	.74	.18	177	1.2	.60	3450	1.4	13.6
12	138	.80	.30	129	1.0	.37	1650	1.2	5.57
13	191	.78	.41	1760	2.8	17.4	1110	1.1	3.29
14	291	.84	.66	1780	1.7	8.49	703	1.1	2.02
15	460	1.0	1.28	725	1.0	1.98	1360	1.3	4.76
16	1120	1.4	4.35	368	.95	.95	4590	2.1	31.2
17	1240	1.8	6.00	235	.87	.55	5090	1.8	25.0
18	824	1.5	3.36	192	.81	.42	2840	1.2	8.90
19	554	1.2	1.84	140	.84	.32	1970	1.2	6.20
20	326	1.1	.93	108	.80	.23	2280	1.2	7.21
21	209	.83	.47	104	.68	.19	1510	.94	3.89
22	153	.77	.32	93	.62	.16	1140	.84	2.58
23	220	.72	.43	87	.65	.15	2380	.98	6.47
24	317	.81	.70	87	.64	.15	3790	1.4	14.8
25	509	1.0	1.45	78	.61	.13	2250	.99	6.11
26	646	1.2	2.01	67	.61	.11	1160	.87	2.74
27	449	1.1	1.31	59	.70	.11	672	.96	1.74
28	222	1.0	.61	68	.66	.12	425	.88	1.02
29	124	.92	.31	67	.59	.11	304	.66	.54
30	81	.94	.21	74	.58	.12	261	.67	.47
31	436	1.2	1.41	102	.75	.21	---	---	---
TOTAL	9193	---	29.652	11938	---	52.45	55632	---	262.611
YEAR	429979		1950.344						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	42	.036	.004	122	.026	.009	847	.045	.10
2	68	.076	.014	114	.039	.012	704	.034	.065
3	67	.136	.026	113	.039	.012	650	.029	.051
4	171	.183	.083	113	.018	.005	2120	.034	.21
5	221	.142	.085	113	.013	.004	805	.045	.097
6	171	.099	.046	114	.016	.005	868	.048	.11
7	113	.068	.021	129	.027	.009	1000	.043	.12
8	73	.054	.011	260	.035	.025	961	.041	.11
9	51	.058	.008	388	.037	.039	717	.038	.074
10	47	.038	.005	684	.085	.17	636	.038	.064
11	107	.092	.028	934	.110	.28	537	.039	.056
12	72	.050	.010	864	.074	.17	423	.032	.037
13	72	.052	.010	705	.047	.089	370	.028	.028
14	75	.039	.008	554	.041	.061	330	.031	.028
15	67	.033	.006	631	.097	.27	280	.032	.024
16	68	.033	.006	3100	.615	5.11	240	.032	.021
17	777	.271	.65	3700	.415	4.19	210	.032	.018
18	535	.211	.30	2460	.218	1.48	190	.032	.016
19	1140	.197	.64	1760	.122	.58	170	.031	.014
20	1160	.169	.53	2380	.155	1.24	160	.031	.014
21	1150	.144	.45	3000	.229	1.93	140	.031	.012
22	1100	.114	.34	1690	.095	.45	130	.031	.011
23	906	.087	.21	1130	.059	.18	120	.031	.010
24	712	.064	.12	890	.053	.13	110	.031	.009
25	536	.054	.078	800	.058	.13	100	.031	.008
26	407	.051	.056	1590	.094	.42	96	.031	.008
27	320	.047	.041	2110	.108	.62	90	.030	.007
28	238	.039	.025	1880	.107	.55	82	.030	.007
29	187	.033	.017	1540	.078	.33	78	.030	.006
30	156	.031	.013	1130	.058	.18	74	.031	.006
31	134	.029	.010	---	---	---	3180	.113	1.15
TOTAL	10943	---	3.851	34998	---	18.680	16418	---	2.491
		JANUARY			FEBRUARY			MARCH	
1	4490	.475	5.93	695	.048	.10	841	.056	.13
2	4860	.436	5.75	5780	.583	10.3	903	.054	.13
3	3410	.316	2.94	7940	.596	12.9	1340	.073	.26
4	4320	.403	5.29	5900	.368	5.94	1220	.073	.24
5	6540	.482	8.50	5150	.209	2.92	943	.065	.17
6	4810	.313	4.15	4410	.171	2.05	729	.055	.11
7	2670	.203	1.49	3790	.139	1.43	608	.038	.062
8	1910	.132	.69	2820	.121	.92	545	.032	.048
9	1510	.086	.35	1820	.116	.57	659	.036	.064
10	1690	.089	.41	1890	.110	.57	1190	.048	.16
11	1910	.092	.47	2170	.136	.81	1430	.051	.20
12	1680	.083	.37	1460	.097	.39	1290	.061	.21
13	1230	.082	.28	1120	.068	.21	1020	.050	.14
14	981	.071	.19	856	.054	.12	825	.037	.083
15	911	.069	.17	2930	.239	3.33	702	.034	.065
16	1260	.076	.27	11000	.529	15.6	607	.029	.047
17	2390	.133	.88	8950	.293	7.50	545	.037	.055
18	3750	.279	2.88	5010	.180	2.45	504	.042	.057
19	2960	.196	1.60	3730	.134	1.36	484	.034	.045
20	1820	.129	.64	2650	.088	.63	321	.036	.030
21	3270	.260	2.27	1410	.083	.32	175	.044	.021
22	2910	.126	1.02	1700	.136	.80	128	.045	.015
23	1980	.090	.48	3170	.207	1.78	122	.038	.013
24	1700	.080	.37	2520	.144	.998	121	.033	.011
25	1450	.068	.27	1600	.104	.46	122	.030	.010
26	1180	.057	.18	1140	.073	.22	107	.029	.008
27	960	.055	.14	946	.065	.17	89	.026	.006
28	829	.052	.12	902	.060	.15	84	.025	.006
29	724	.050	.098	---	---	---	79	.024	.005
30	682	.042	.078	---	---	---	79	.025	.005
31	633	.035	.060	---	---	---	88	.024	.006
TOTAL	71420	---	48.336	93459	---	74.998	17900	---	2.412

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

PHOSPHORUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/ DAY)
		APRIL			MAY			JUNE	
1	130	.028	.010	144	.039	.015	1110	.140	.42
2	1070	.136	.52	123	.041	.014	1020	.144	.40
3	2720	.329	2.42	95	.038	.010	704	.130	.25
4	3710	.342	3.61	156	.058	.043	360	.121	.12
5	3830	.261	2.81	1700	.226	.998	247	.077	.051
6	2220	.123	.75	2250	.206	1.25	208	.062	.035
7	1250	.089	.31	1420	.145	.57	166	.062	.028
8	887	.056	.13	865	.100	.24	147	.064	.025
9	620	.047	.079	479	.068	.089	133	.063	.023
10	2640	.579	10.7	297	.056	.045	113	.069	.021
11	8140	2.66	58.3	224	.050	.030	109	.073	.021
12	6260	1.81	31.1	191	.038	.020	105	.089	.025
13	3510	1.48	14.2	843	.095	.29	114	.091	.028
14	2410	.783	5.14	2040	.172	.95	116	.092	.029
15	1930	.643	3.34	1580	.095	.42	82	.093	.021
16	1340	.630	2.29	4000	.761	13.0	67	.095	.017
17	900	.646	1.57	7290	.602	11.9	59	.096	.015
18	661	.670	1.20	6520	.395	7.16	51	.098	.013
19	484	.485	.64	3770	.213	2.18	42	.090	.010
20	383	.335	.35	2770	.158	1.19	42	.052	.006
21	2010	.878	4.98	3320	.230	2.06	39	.045	.005
22	2460	1.33	8.81	1930	.187	1.00	34	.047	.004
23	1360	.460	1.89	1020	.128	.36	32	.048	.004
24	768	.095	.20	683	.101	.19	238	.159	.14
25	487	.058	.077	462	.082	.10	393	.142	.15
26	354	.044	.043	365	.066	.066	359	.104	.10
27	276	.033	.024	312	.062	.052	345	.163	.15
28	237	.035	.022	279	.056	.042	273	.114	.085
29	178	.036	.017	498	.076	.11	186	.063	.032
30	141	.035	.013	895	.088	.22	127	.047	.016
31	---	---	---	1170	.139	.44	---	---	---
TOTAL	53366	---	155.545	47691	---	45.054	7021	---	2.244
		JULY			AUGUST			SEPTEMBER	
1	100	.039	.011	811	.214	.47	73	.068	.014
2	94	.029	.007	595	.185	.30	53	.040	.006
3	70	.024	.005	530	.176	.25	42	.041	.005
4	55	.025	.004	318	.172	.15	36	.045	.004
5	45	.028	.003	196	.098	.052	33	.038	.003
6	36	.030	.003	261	.131	.11	40	.063	.010
7	31	.030	.003	1050	.579	1.72	3640	.721	7.40
8	24	.030	.002	782	.293	.62	4030	.556	6.17
9	48	.049	.008	580	.169	.27	3580	.587	6.12
10	92	.077	.020	315	.129	.11	5170	.511	7.08
11	88	.068	.016	177	.091	.044	3450	.263	2.61
12	138	.068	.026	129	.075	.027	1650	.221	.99
13	191	.082	.042	1760	.603	4.22	1110	.180	.54
14	291	.088	.069	1780	.353	1.82	703	.166	.32
15	460	.101	.13	725	.134	.27	1360	.220	.85
16	1120	.233	.74	368	.112	.11	4590	.500	7.87
17	1240	.240	.81	235	.088	.056	5090	.453	6.31
18	824	.168	.38	192	.073	.038	2840	.206	1.62
19	554	.135	.20	140	.093	.034	1970	.218	1.19
20	326	.118	.11	108	.080	.024	2280	.213	1.32
21	209	.086	.049	104	.062	.017	1510	.142	.59
22	153	.076	.031	93	.056	.014	1140	.124	.38
23	220	.081	.048	87	.050	.012	2380	.160	1.06
24	317	.090	.077	87	.050	.012	3790	.257	2.65
25	509	.117	.16	78	.042	.009	2250	.179	1.12
26	646	.146	.26	67	.036	.006	1160	.124	.40
27	449	.126	.15	59	.038	.006	672	.095	.17
28	222	.099	.060	68	.053	.010	425	.081	.094
29	124	.080	.027	67	.045	.008	304	.069	.057
30	81	.083	.018	74	.039	.008	261	.058	.041
31	436	.160	.21	102	.103	.029	---	---	---
TOTAL	9193	---	3.679	11938	---	10.826	55632	---	56.994
YEAR	429979		425.018						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH
SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	42	5	.56	122	91	30	847	14	33
2	68	15	2.9	114	157	48	704	14	26
3	67	17	3.2	113	34	10	650	14	24
4	171	94	47	113	7	2.1	2120	16	90
5	221	45	27	113	4	1.1	805	12	26
6	171	14	6.4	114	7	2.2	868	10	24
7	113	6	1.9	129	5	1.6	1000	10	27
8	73	6	1.1	260	6	4.1	961	9	24
9	51	7	.92	388	9	9.6	717	9	18
10	47	7	.89	684	10	19	636	11	19
11	107	57	20	934	11	27	537	13	18
12	72	29	5.5	864	11	27	423	9	11
13	72	91	18	705	12	23	370	12	12
14	75	15	3.1	554	12	19	330	11	9.4
15	67	6	1.1	631	22	50	280	10	7.4
16	68	12	2.6	3100	156	1330	240	8	5.5
17	777	307	741	3700	168	1710	210	9	4.9
18	535	64	94	2460	75	510	190	9	4.8
19	1140	157	534	1760	61	292	170	10	4.5
20	1160	75	235	2380	145	1170	160	8	3.5
21	1150	47	146	3000	90	782	140	5	1.7
22	1100	30	91	1690	41	190	130	4	1.5
23	906	24	59	1130	24	75	120	5	1.6
24	712	27	52	890	17	42	110	5	1.6
25	536	18	27	800	18	39	100	6	1.6
26	407	12	13	1590	129	667	96	6	1.7
27	320	10	8.3	2110	81	476	90	7	1.7
28	238	9	6.1	1880	86	442	82	8	1.7
29	187	7	3.4	1540	34	145	78	8	1.8
30	156	5	2.2	1130	20	62	74	9	1.9
31	134	12	4.2	---	---	---	3180	382	4300
TOTAL	10943	---	2158.37	34998	---	8205.7	16418	---	4708.8
		JANUARY			FEBRUARY			MARCH	
1	4490	376	4270	695	13	25	841	17	39
2	4860	94	1250	5780	126	2420	903	19	46
3	3410	94	866	7940	400	8550	1340	32	117
4	4320	119	1470	5900	280	4530	1220	36	119
5	6540	229	4050	5150	118	1650	943	35	89
6	4810	130	1750	4410	83	990	729	27	53
7	2670	78	574	3790	64	660	608	25	42
8	1910	48	250	2820	52	395	545	19	28
9	1510	43	175	1820	40	197	659	25	45
10	1690	62	285	1890	37	192	1190	40	129
11	1910	45	233	2170	49	285	1430	50	195
12	1680	30	139	1460	53	209	1290	41	144
13	1230	26	88	1120	47	144	1020	39	106
14	981	23	60	856	24	56	825	30	68
15	911	19	47	2930	382	5940	702	30	57
16	1260	29	103	11000	550	15800	607	19	31
17	2390	71	480	8950	168	4250	545	16	23
18	3750	113	1150	5010	98	1340	504	13	17
19	2960	79	644	3730	71	720	484	12	15
20	1820	49	243	2650	52	375	321	9	8.2
21	3270	81	721	1410	35	136	175	10	4.7
22	2910	49	392	1700	263	1850	128	11	3.9
23	1980	45	241	3170	212	1760	122	9	2.8
24	1700	42	191	2520	65	452	121	8	2.5
25	1450	29	113	1600	47	206	122	6	1.8
26	1180	23	73	1140	34	104	107	5	1.5
27	960	20	52	946	27	68	89	7	1.7
28	829	17	37	902	19	47	84	6	1.3
29	724	15	30	---	---	---	79	6	1.2
30	682	14	25	---	---	---	79	7	1.6
31	633	12	21	---	---	---	88	5	1.2
TOTAL	71420	---	20023	93459	---	53351	17900	---	1395.4

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	130	10	3.9	144	10	3.9	1110	67	202
2	1070	71	267	123	10	3.3	1020	64	176
3	2720	154	1130	95	8	2.0	704	56	108
4	3710	209	2320	156	24	24	360	37	37
5	3830	198	2140	1700	205	864	247	18	12
6	2220	59	376	2250	73	451	208	20	11
7	1250	26	91	1420	39	152	166	19	8.4
8	887	17	42	865	21	50	147	23	9.3
9	620	13	21	479	25	33	133	31	11
10	2640	193	3450	297	18	15	113	33	10
11	8140	552	12100	224	10	6.0	109	19	5.5
12	6260	184	3260	191	7	3.4	105	14	3.9
13	3510	93	896	843	44	159	114	13	3.9
14	2410	67	437	2040	224	1240	116	15	4.5
15	1930	49	255	1580	57	257	82	13	3.0
16	1340	36	130	4000	324	5670	67	12	2.2
17	900	37	90	7290	265	5360	59	12	1.9
18	661	45	80	6520	149	2710	51	16	2.2
19	484	19	25	3770	83	856	42	17	2.0
20	383	16	17	2770	75	569	42	13	1.4
21	2010	188	1080	3320	143	1300	39	12	1.3
22	2460	70	469	1930	105	561	34	19	1.8
23	1360	46	176	1020	52	148	32	17	1.5
24	768	28	60	683	42	78	238	74	70
25	487	15	20	462	28	36	393	76	83
26	354	13	12	365	21	21	359	34	33
27	276	9	7.0	312	32	27	345	50	46
28	237	11	6.8	279	44	33	273	40	30
29	178	12	5.7	498	35	44	186	28	14
30	141	11	4.0	895	35	86	127	29	10
31	---	---	---	1170	69	221	---	---	---
TOTAL	53366	---	28971.4	47691	---	20983.6	7021	---	905.8
		JULY			AUGUST			SEPTEMBER	
1	100	27	7.3	811	73	165	73	19	3.8
2	94	24	6.1	595	44	71	53	13	1.9
3	70	18	3.4	530	43	62	42	10	1.1
4	55	37	5.4	318	28	25	36	13	1.3
5	45	24	3.0	196	22	12	33	12	1.0
6	36	14	1.4	261	60	63	40	13	2.1
7	31	15	1.3	1050	367	1120	3640	494	5180
8	24	14	.90	782	117	249	4030	173	2000
9	48	66	12	580	57	90	3580	167	1910
10	92	51	14	315	22	20	5170	171	2390
11	88	32	7.7	177	14	6.6	3450	94	918
12	138	34	13	129	7	2.8	1650	65	293
13	191	43	23	1760	124	882	1110	47	143
14	291	40	32	1780	35	168	703	44	83
15	460	52	67	725	33	66	1360	70	267
16	1120	87	271	368	26	26	4590	299	5400
17	1240	90	306	235	20	13	5090	242	3450
18	824	55	125	192	20	10	2840	89	710
19	554	37	57	140	15	5.9	1970	79	443
20	326	28	25	108	14	4.0	2280	69	425
21	209	23	13	104	13	3.7	1510	43	175
22	153	22	9.1	93	10	2.5	1140	53	165
23	220	23	13	87	13	3.1	2380	261	1850
24	317	25	21	87	15	3.6	3790	317	3420
25	509	36	50	78	51	10	2250	56	350
26	646	38	67	67	25	4.6	1160	38	121
27	449	25	31	59	10	1.6	672	27	50
28	222	27	16	68	15	2.8	425	21	24
29	124	21	7.2	67	16	2.9	304	16	14
30	81	16	3.5	74	26	5.4	261	28	19
31	436	52	69	102	23	6.3	---	---	---
TOTAL	9193	---	1281.30	11938	---	3107.8	55632	---	29811.2
YEAR	429979		174953.14						

STREAMS TRIBUTARY TO LAKE ERIE

04212200 GRAND RIVER AT PAINESVILLE, OH
(National stream-quality accounting network station)

LOCATION.--Lat 41°44'09", long 81°15'59", in T.11 N., R.8 W., Lake County, Hydrologic Unit 04110004, at bridge on State Highway 535 in Painesville, 2.2 mi upstream from mouth, and 8.0 mi downstream from Kellogg Creek.

DRAINAGE.--701 mi².

PERIOD OF RECORD.--March 1950 to February 1952, October 1962 to current year.

REMARKS.--Water temperatures available for Mar. 1950 to February 1952, October 1962 to December 1966. Four parameter (Specific conductance, pH, Water Temperature, and Dissolved Oxygen) Water quality monitor at site from December 1966 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
24...	1130	719	550	8.1	20.5	12.0	7.4	10.3	98	K200	K98
APR											
03...	1115	2650	340	7.9	4.0	5.0	59	11.6	95	K1100	K4500
JUN											
05...	1030	247	720	8.0	18.5	16.5	6.7	8.9	94	K73	95
JUL											
25...	1130	522	540	8.2	26.0	24.0	53	8.1	99	K150	K100

DATE	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE WATER DIS IT FIELD MG/L AS HCO3	CARBONATE WATER DIS IT FIELD MG/L AS CO3	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT											
24...	160	50	8.9	37	5.2	107	0	86	43	83	0.1
APR											
03...	98	28	6.7	19	2.4	67	0	55	28	37	<0.1
JUN											
05...	210	73	7.7	52	2.9	90	0	75	30	160	0.2
JUL											
25...	170	54	8.2	35	4.0	87	0	71	38	99	<0.1

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
OCT											
24...	6.3	296	0.02	0.82	0.07	0.06	0.70	0.05	0.02	0.01	30
APR											
03...	3.4	240	0.01	0.30	0.03	0.03	0.90	0.07	0.05	0.02	80
JUN											
05...	4.2	503	<0.01	0.50	0.06	0.06	0.90	0.06	0.02	<0.01	30
JUL											
25...	4.8	363	<0.01	1.20	0.03	0.02	0.80	0.03	<0.01	<0.01	20

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT										
24...	<1	33	<0.5	<1.0	3	<3	3	170	<1	4
APR										
03...	1	20	<0.5	1.0	<5	<3	<10	220	<10	<4
JUN										
05...	1	38	<0.5	<1.0	9	<3	6	240	1	8
JUL										
25...	1	33	<0.5	<1.0	3	<3	9	96	1	9

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)
OCT										
24...	31	<0.1	<10	2	<1	<1.0	150	<6	5	71
APR										
03...	20	0.1	<10	<10	<1	1.0	89	<6	7	171
JUN										
05...	37	<0.1	<10	4	1	<1.0	220	<6	12	17
JUL										
25...	13	0.1	<10	5	<1	<1.0	160	<6	4	17

K Results based on colony count outside the acceptable range.

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

LOCATION.--Lat 41°53'36", long 80°47'44", Ashtabula County, Hydrologic Unit 04110003, on left upstream side of bridge at E. 15 th Street in Ashtabula, 1,750 ft upstream from mouth.

DRAINAGE AREA.--3.63 mi².

PERIOD OF RECORD.--April 1983 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1983 to current year.
pH: April 1983 to current year.
WATER TEMPERATURES: April 1983 to current year.
DISSOLVED OXYGEN: April 1983 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1983. Digital recorder set for one-hour-interval punches.

REMARKS.--Interruptions in the water-quality record were due to malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 20,600 microsiemens May 4, 1986; minimum, 420 microsiemens Nov. 26, 1985.
pH: Maximum, > 10.0 units Jan. 3, 4, 17; minimum, 2.7 units Oct. 28, 1984.
WATER TEMPERATURES: Maximum, 34.0°C July 23, 1987, Aug. 4, 12, 13, 1988; minimum, 1.5°C Dec. 24, 25, 1983, Jan. 20, 21, 1985.
DISSOLVED OXYGEN: Maximum, 15.1 mg/L Feb. 2, 1990; minimum, 1.4 mg/L Aug. 10, 1986.

EXTREMES FOR CURRENT YEAR. --
SPECIFIC CONDUCTANCE: Maximum, 18,800 microsiemens March 6; minimum, 620 microsiemens Sept. 19.
pH: Maximum, 8.8 units April 24; minimum, 3.3 units on Jan. 27.
WATER TEMPERATURES: Maximum, 30.0°C on July 4, Sept. 2; minimum, 2.0°C Feb. 15.
DISSOLVED OXYGEN: Maximum, 15.1 mg/L Feb. 2; minimum, 2.8 mg/L Sept. 3.

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4660	3980	4160	4060	3560	3770	5680	3240	3660	2520	1760	2060
2	4680	3700	4250	4300	3980	4100	3620	3300	3500	2380	1960	2090
3	4420	4000	4180	4340	3960	4120	3780	3460	3550	2580	1380	1820
4	5160	4280	4530	4400	4240	4320	4080	3600	3880	1760	1160	1420
5	4960	4400	4620	4400	4140	4300	5460	4000	4330	1980	1200	1620
6	4680	4480	4590	4300	1060	2430	5360	3840	4080	4420	1960	2860
7	4740	4600	4670	2760	1720	2240	3840	2360	3190	2900	2560	2770
8	4720	4440	4550	2380	2060	2180	2620	2080	2320	3080	2880	2990
9	5000	4600	4780	3700	2140	2780	2840	2460	2640	5860	2900	3760
10	5060	2160	3830	3880	2360	3120	5840	2360	3360	5840	2160	2650
11	4380	3360	3780	4760	2740	3270	3260	2520	2820	2800	2360	2580
12	4820	3580	4440	3680	3220	3510	10300	3240	4200	3100	2480	2770
13	4900	4460	4720	3540	3020	3230	3680	3500	3580	3420	3060	3280
14	4440	4100	4180	3520	3100	3320	5140	3520	3720	3500	3140	3320
15	4440	4120	4320	3720	1780	3300	6500	3780	4660	4380	3240	3560
16	4620	3860	4440	2340	1500	1790	14100	3540	4410	3600	2160	2770
17	4580	3500	4010	2740	1740	2190	4700	3440	3970	12100	2160	3460
18	4060	3720	3920	4600	2800	3120	3680	3240	3500	3960	2400	2860
19	3920	640	2910	3060	2740	3000	3900	3540	3690	3160	2660	2950
20	3200	2320	2790	2960	2360	2590	14500	3860	4930	4740	1820	3150
21	2720	2320	2520	13900	1860	6210	4640	3060	3720	2240	1740	1880
22	4120	2540	3490	2580	1820	2180	3240	2920	3070	2580	2140	2360
23	4480	4160	4310	3520	2100	2600	6980	2960	4520	2720	2260	2480
24	4260	4060	4160	3640	3240	3470	4500	3900	4230	4660	2460	2820
25	4460	4020	4150	3420	2920	3230	10800	3980	5560	2840	2520	2670
26	4300	3320	3840	2880	2200	2340	10800	3860	5710	2940	2600	2820
27	3900	3040	3410	2680	2220	2470	3860	3220	3530	2860	1140	2500
28	11600	4020	4890	2920	2580	2760	7260	3040	3510	16600	2200	4600
29	4860	4120	4420	4160	2800	3280	3880	3180	3600	5220	3220	3550
30	4280	3760	4000	6940	3100	4050	12400	3520	4800	4120	2240	3130
31	4540	4040	4260	---	---	---	5200	1820	3080	2800	2200	2370
MONTH	11600	640	4100	13900	1060	3180	14500	1820	3850	16600	1140	2770
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3300	2360	2960	3380	2600	2900	12200	3240	4260	3460	2300	2780
2	2100	1060	1360	4120	2560	3080	3300	3040	3190	2860	2220	2480
3	6800	1440	2370	6780	2580	4030	4880	1960	2640	3780	3020	3450
4	2600	2240	2420	3560	2800	3140	2060	1680	1850	3780	1640	3200
5	2860	2580	2710	7140	3220	3690	2700	2040	2350	2780	1680	1880
6	4360	2660	3030	18800	1180	5290	3020	2600	2800	14400	1960	3950
7	10300	2680	3360	4500	3240	3450	3320	2900	3110	2860	2340	2610
8	3200	2760	2990	3680	3400	3500	16900	3040	4970	3240	2820	3030
9	3180	2960	3070	3600	2280	3040	4600	3280	3540	3400	2800	3060
10	3380	2920	3070	2640	2120	2350	3520	900	2310	3340	2640	3160
11	3920	3340	3460	2380	1840	2060	1440	820	962	3380	2560	2960
12	16900	3420	5170	5440	2340	2760	2400	1500	1980	3720	3300	3440
13	3740	2420	3210	3220	2480	2690	2820	2260	2610	3800	2220	2850
14	2380	1940	2110	---	---	---	3560	2580	3010	2900	2200	2520
15	3140	1000	2050	---	---	---	3240	2760	3010	3240	2160	2740
16	1380	1020	1110	---	---	---	3240	2740	2920	3200	1560	2210
17	8660	1600	3530	---	---	---	3640	2920	3200	3540	1440	1740
18	6420	2640	3680	---	---	---	3580	3080	3340	2720	1720	2170
19	3420	2960	3180	---	---	---	3580	3260	3430	3460	2680	2970
20	7740	3360	4710	---	---	---	3620	2780	3380	3600	2900	3250
21	3800	3620	3700	---	---	---	8040	2380	2980	3700	3080	3370
22	3840	1040	2340	---	---	---	4020	2420	2900	3940	3460	3650
23	2120	1080	1550	---	---	---	3520	2280	2810	3880	3520	3670
24	11600	2100	3620	---	---	---	2800	2040	2320	4780	3540	3810
25	2960	2320	2690	---	---	---	3380	2700	2960	4120	3380	3610
26	7760	2260	3430	3200	3060	3170	3580	2920	3230	3600	2960	3260
27	9880	2220	4230	3380	2220	2810	3600	3080	3200	3820	3040	3420
28	7400	2080	2700	3580	2300	2920	3640	3320	3490	4020	3360	3530
29	---	---	---	3980	3280	3510	3320	2960	3160	6880	3120	3580
30	---	---	---	4080	3500	3720	3300	2880	3050	4020	2840	3520
31	---	---	---	3980	3620	3740	---	---	---	4240	2940	3480
MONTH	16900	1000	2990	18800	1180	3260	16900	820	2970	14400	1440	3080

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	3520	2400	2740	3600	3080	3530	4060	3540	3760	3800	2960	3410
2	3580	2660	3150	4740	3700	4030	3820	2560	3180	3560	3100	3280
3	3760	2560	3230	3780	2600	3220	3620	2180	2650	4180	3660	3820
4	3200	2620	2830	2700	2020	2350	3840	2800	3230	3900	3040	3410
5	2800	2220	2490	2160	1900	2030	4260	3520	3820	3140	2760	2930
6	3340	2000	2440	2460	2020	2230	4100	2620	3540	3800	1060	2840
7	3740	3020	3320	2880	2080	2400	3200	1380	2570	1320	720	955
8	5860	3200	3620	3900	2660	3400	3720	2540	2990	2500	1420	1890
9	4500	3480	3920	4200	3120	3590	3560	2740	3030	2520	1160	1670
10	4120	3380	3710	4420	3380	3890	4780	3060	3500	2280	1580	1960
11	6160	3540	4180	4820	3580	4020	4400	3700	3900	2740	2260	2540
12	4740	3620	3940	4100	3440	3660	6160	2820	4600	2680	2220	2440
13	7220	3880	4440	3800	2700	3310	5220	1780	2460	3200	2660	3000
14	4400	3560	4010	3240	2700	2880	2220	1900	2100	3480	1520	3030
15	4300	3520	3850	3760	2480	3120	1900	1660	1770	2180	1200	1670
16	4920	3560	4110	3660	3040	3240	2860	1840	2170	2420	800	1420
17	16500	4080	5660	3300	2740	3000	2980	2640	2830	2360	1080	1850
18	4720	3840	4190	3240	2020	2660	2960	2640	2790	2140	1100	1440
19	4460	2420	3570	2160	1640	1930	3320	2860	2980	1220	620	927
20	4580	2400	3350	2740	2180	2420	3260	2860	3080	1540	640	908
21	5400	3700	4430	3460	2220	2590	3340	2780	3020	1340	1000	1150
22	4280	3600	3950	4320	2700	3440	3000	2700	2800	1480	640	1200
23	4500	3680	4070	3600	2880	3220	2800	2340	2630	1700	640	946
24	4240	3320	3690	4280	3380	3750	2660	2240	2440	1800	1360	1470
25	4500	3800	4070	3980	3500	3690	2760	2400	2560	2220	1780	1930
26	5060	3920	4260	4000	3500	3710	3240	2720	2980	2680	1740	2150
27	4840	4040	4450	4000	2960	3470	3740	3060	3310	3040	2360	2800
28	4840	2900	4260	4260	3500	3860	7680	3200	3940	3140	2560	2820
29	4700	3540	4140	8740	3680	4390	3820	2860	3210	3340	2840	3020
30	4120	3480	3680	3900	3280	3560	2980	2420	2710	3200	2840	2950
31	---	---	---	4660	3580	3950	3300	2860	3030	---	---	---
MONTH	16500	2000	3790	8740	1640	3240	7680	1380	3020	4180	620	2190
YEAR	18800	620	3200									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.7	7.8	8.0	7.4	7.9	7.9	7.8	7.8	7.4	7.3	7.4
2	7.9	7.7	7.8	8.0	7.8	7.9	7.9	7.8	7.8	7.6	7.4	7.5
3	8.0	7.8	7.9	8.0	7.7	7.9	7.9	7.7	7.8	7.8	7.6	7.7
4	7.9	7.6	7.8	8.0	7.8	7.9	8.0	7.7	7.8	7.5	7.3	7.4
5	7.8	7.7	7.8	8.1	7.8	7.9	7.9	7.8	7.8	7.4	7.3	7.4
6	7.9	7.8	7.8	8.4	7.7	8.0	8.2	7.7	7.8	7.7	7.5	7.6
7	7.9	7.8	7.8	8.0	7.7	7.8	7.8	7.7	7.8	7.7	7.6	7.6
8	7.9	7.8	7.8	8.1	7.8	7.9	8.0	7.8	7.9	7.7	7.6	7.7
9	7.9	7.8	7.8	7.9	7.7	7.8	8.1	7.8	7.9	7.8	7.6	7.7
10	8.1	7.7	7.8	7.8	7.5	7.6	8.1	7.8	7.9	7.7	7.5	7.5
11	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.9	7.9	7.6	7.5	7.6
12	7.9	7.7	7.8	7.9	7.7	7.8	8.0	7.8	7.9	7.7	7.6	7.6
13	7.8	7.6	7.7	8.0	7.8	7.9	8.0	7.8	7.9	7.7	7.6	7.7
14	8.0	7.8	7.9	8.0	7.8	7.9	7.9	7.8	7.9	7.7	7.6	7.7
15	8.0	7.8	7.9	8.0	7.6	7.9	7.9	7.6	7.8	7.7	7.6	7.7
16	7.9	7.7	7.9	7.6	7.4	7.5	8.0	7.8	7.9	7.7	7.6	7.7
17	7.7	7.6	7.7	7.7	7.4	7.5	8.0	7.8	7.8	7.8	7.6	7.7
18	7.8	7.7	7.8	7.7	7.6	7.6	8.0	7.7	7.8	7.7	7.6	7.6
19	7.8	7.6	7.7	7.7	7.5	7.6	8.0	7.8	7.9	7.8	7.6	7.7
20	7.8	7.6	7.8	7.6	7.4	7.6	7.9	7.8	7.9	7.8	7.5	7.7
21	7.8	7.7	7.8	7.9	7.5	7.7	7.9	7.8	7.9	7.5	7.4	7.5
22	7.8	7.7	7.7	8.2	7.7	7.8	7.9	7.7	7.8	7.7	7.5	7.6
23	8.2	7.7	7.8	7.7	7.6	7.7	7.9	7.5	7.7	7.8	7.7	7.7
24	8.0	7.8	7.9	7.8	7.6	7.7	8.1	7.6	7.8	8.3	7.7	7.8
25	8.0	7.8	7.9	7.8	7.6	7.7	8.2	7.7	7.9	7.9	7.7	7.8
26	8.0	7.8	7.9	7.6	7.4	7.5	7.8	7.7	7.7	7.8	7.7	7.8
27	8.1	7.8	7.9	7.8	7.6	7.7	7.9	7.7	7.8	7.9	3.3	7.3
28	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.8	7.9	7.7	7.2	7.6
29	8.0	7.8	7.9	7.8	7.6	7.7	7.9	7.7	7.8	7.8	7.7	7.7
30	8.1	7.8	7.9	7.9	7.7	7.8	8.0	7.7	7.8	8.0	7.8	7.9
31	8.0	7.8	7.9	---	---	---	7.9	7.4	7.7	8.1	7.8	7.9
MONTH	8.2	7.6	7.8	8.4	7.4	7.8	8.2	7.4	7.8	8.3	3.3	7.6

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.6	7.8	7.9	7.8	7.9	8.2	7.7	7.9	8.6	7.8	8.1
2	7.6	7.4	7.5	7.9	7.8	7.8	8.1	7.7	7.8	8.6	7.9	8.2
3	7.6	7.3	7.5	7.9	7.7	7.8	7.8	7.6	7.7	8.3	7.8	8.0
4	7.6	7.5	7.6	8.0	7.8	7.9	7.8	7.5	7.6	8.0	7.8	7.9
5	7.7	7.6	7.7	8.0	7.8	7.9	7.9	7.6	7.7	7.7	7.6	7.7
6	7.7	7.6	7.7	8.1	7.8	7.9	8.0	7.6	7.8	8.1	7.7	7.8
7	7.8	7.6	7.7	8.2	7.8	8.0	8.1	7.7	7.9	8.2	7.8	7.9
8	7.9	7.7	7.8	8.1	7.9	7.9	8.2	7.7	7.9	8.1	7.8	8.0
9	7.8	7.7	7.8	7.9	7.7	7.8	8.2	7.7	7.9	8.1	7.9	8.0
10	7.8	7.7	7.7	7.9	7.7	7.8	7.8	7.6	7.7	8.0	7.9	8.0
11	7.8	7.7	7.8	7.9	7.7	7.8	7.7	7.5	7.6	8.1	7.9	8.0
12	7.9	7.7	7.8	8.1	7.8	7.9	7.9	7.6	7.7	8.0	7.8	7.9
13	8.0	7.8	7.9	8.1	7.9	8.0	8.0	7.7	7.8	7.9	7.7	7.8
14	8.1	7.9	8.0	---	---	---	7.9	7.7	7.8	7.9	7.7	7.8
15	7.9	7.5	7.7	---	---	---	8.1	7.7	7.9	8.2	7.8	8.0
16	7.5	7.3	7.4	---	---	---	8.3	7.8	8.0	7.9	7.7	7.8
17	7.6	7.4	7.5	---	---	---	8.2	7.8	8.0	7.8	7.7	7.7
18	7.8	7.6	7.7	---	---	---	8.6	7.7	8.0	7.8	7.7	7.8
19	8.2	7.8	8.0	---	---	---	8.5	7.8	8.1	7.9	7.6	7.8
20	8.0	7.8	7.9	---	---	---	8.3	7.8	8.0	8.0	7.8	7.9
21	8.0	7.8	7.9	---	---	---	8.1	7.8	7.9	8.0	7.9	7.9
22	7.9	7.5	7.8	---	---	---	8.6	7.8	8.1	8.1	7.9	8.0
23	7.6	7.5	7.5	---	---	---	8.7	7.8	8.2	8.2	7.9	8.0
24	7.7	7.5	7.6	---	---	---	8.8	7.8	8.3	8.2	7.9	8.0
25	7.7	7.6	7.7	---	---	---	8.7	7.8	8.2	8.2	7.9	8.0
26	7.7	7.5	7.6	8.3	7.8	8.1	8.7	7.8	8.1	8.2	8.0	8.1
27	7.9	7.5	7.8	8.5	7.7	8.1	8.6	7.8	8.1	8.3	7.9	8.1
28	7.9	7.8	7.9	8.5	7.7	8.1	8.5	7.7	8.0	8.3	7.9	8.1
29	---	---	---	8.4	7.7	8.0	8.5	7.8	8.1	8.0	8.0	8.0
30	---	---	---	8.0	7.7	7.9	8.5	7.8	8.1	8.2	8.0	8.1
31	---	---	---	8.3	7.8	7.9	---	---	---	8.3	7.9	8.1
MONTH	8.2	7.3	7.7	8.5	7.7	7.9	8.8	7.5	7.9	8.6	7.6	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.3	8.0	8.1	8.0	7.9	7.9	8.2	7.9	8.0	8.0	7.7	7.8
2	8.3	7.9	8.1	8.1	8.0	8.0	8.3	7.6	8.1	7.9	7.7	7.8
3	8.3	7.9	8.1	8.3	7.9	8.1	8.4	8.0	8.2	7.9	7.7	7.7
4	8.3	7.9	8.1	8.3	8.0	8.1	8.3	7.9	8.1	7.9	7.7	7.8
5	8.5	8.0	8.2	8.3	8.0	8.1	8.2	7.9	8.0	7.9	7.8	7.8
6	8.4	7.9	8.1	8.3	8.0	8.1	8.2	7.9	8.0	7.9	7.2	7.6
7	8.3	7.8	8.0	8.3	7.9	8.1	8.0	7.6	7.8	7.5	7.2	7.3
8	8.0	7.7	7.9	8.2	7.9	8.0	8.2	7.9	8.0	7.7	7.5	7.6
9	8.1	7.8	7.9	8.1	7.9	8.0	8.1	7.9	8.0	7.7	7.4	7.6
10	7.9	7.8	7.9	8.1	7.8	8.0	8.2	8.0	8.1	7.9	7.6	7.7
11	8.1	7.8	8.0	8.1	7.9	8.0	8.2	8.0	8.1	8.0	7.8	7.9
12	8.1	7.8	7.9	8.0	7.9	8.0	8.2	7.8	8.0	8.1	7.9	8.0
13	8.1	7.8	7.9	8.2	8.0	8.1	7.9	7.6	7.7	8.0	7.9	8.0
14	8.4	7.8	8.1	8.2	8.0	8.1	8.1	7.8	8.0	8.0	7.5	7.9
15	8.3	7.6	8.1	8.1	7.9	8.0	8.3	8.0	8.2	7.8	7.6	7.7
16	8.1	7.8	8.0	8.2	7.9	8.0	8.3	5.0	8.0	7.8	7.3	7.5
17	8.1	7.8	7.9	8.3	8.0	8.1	8.2	7.9	8.0	8.0	7.4	7.6
18	8.2	7.9	8.0	8.3	7.9	8.1	8.1	8.0	8.0	8.2	7.8	8.0
19	8.3	7.9	8.1	8.4	7.5	8.1	8.1	7.9	8.0	8.1	7.7	7.9
20	8.1	7.9	8.0	8.3	8.0	8.1	8.0	7.9	8.0	8.2	7.7	8.0
21	8.0	7.7	7.9	8.3	8.0	8.1	8.0	7.9	7.9	8.5	8.2	8.2
22	8.0	7.9	7.9	8.1	7.9	8.0	8.1	7.9	8.0	8.2	7.7	8.1
23	8.0	7.9	7.9	8.4	7.9	8.1	8.2	7.9	8.0	7.9	7.7	7.8
24	8.0	7.9	7.9	8.2	7.8	8.0	8.2	8.0	8.1	8.1	7.9	8.0
25	8.0	7.8	7.9	8.2	7.9	8.1	8.2	8.0	8.1	8.2	7.3	8.1
26	8.1	7.8	8.0	8.3	8.0	8.1	8.2	7.9	8.1	8.3	8.0	8.1
27	8.1	7.9	8.0	8.3	8.0	8.1	8.2	7.8	8.0	8.1	7.4	8.1
28	8.2	7.9	8.0	8.3	7.9	8.1	8.0	7.6	7.8	8.2	7.8	8.1
29	8.1	7.9	8.0	8.2	7.9	8.0	8.0	7.7	7.9	8.1	8.0	8.0
30	8.1	8.0	8.0	8.2	7.9	8.0	8.1	7.8	7.9	8.1	8.0	8.0
31	---	---	---	8.2	7.9	8.0	8.0	7.7	7.9	---	---	---
MONTH	8.5	7.6	8.0	8.4	7.5	8.1	8.4	5.0	8.0	8.5	7.2	7.9
YEAR	8.8	3.3	7.9									

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.5	21.5	22.5	17.5	16.5	17.0	10.5	9.0	10.0	5.0	3.5	4.0
2	24.0	22.0	23.0	17.5	16.5	17.0	10.0	8.5	9.5	6.5	5.0	6.0
3	23.0	20.5	21.5	16.0	15.5	16.0	8.5	6.5	7.5	8.0	6.5	7.0
4	20.5	19.5	20.0	16.0	15.0	15.5	8.0	6.5	7.5	6.5	3.5	5.0
5	21.5	19.0	20.0	17.0	15.0	16.0	9.5	7.5	8.5	6.0	3.5	5.0
6	21.5	20.5	21.0	16.5	15.5	16.5	10.5	8.0	9.5	7.5	6.0	7.0
7	20.5	19.0	19.5	16.0	14.0	15.0	8.0	7.0	7.5	9.0	7.0	8.0
8	19.5	18.5	19.0	15.5	14.0	15.0	9.0	8.0	8.0	10.0	8.0	9.0
9	19.5	18.0	18.5	15.5	13.5	14.5	9.0	8.0	8.5	10.5	9.0	9.5
10	18.5	16.0	17.5	14.0	10.5	12.5	10.0	8.5	9.0	9.0	5.5	6.5
11	19.0	16.0	17.5	13.5	12.0	13.0	10.0	9.5	9.5	8.0	6.5	7.5
12	20.5	18.0	19.0	14.0	12.5	13.5	10.5	9.5	10.0	7.0	6.5	7.0
13	21.0	19.0	20.0	15.5	13.0	14.5	10.0	9.5	9.5	7.5	6.5	7.0
14	22.0	19.5	21.0	17.0	15.0	16.0	9.5	8.0	9.0	9.0	7.5	8.0
15	23.5	21.0	22.0	18.0	15.0	17.0	8.0	6.5	7.5	10.0	8.0	9.0
16	23.5	21.5	22.5	15.0	8.0	11.5	7.5	6.0	7.0	10.0	8.5	9.0
17	21.5	18.0	19.0	9.5	8.0	9.0	7.5	6.5	7.0	11.0	10.0	10.5
18	18.0	17.0	17.5	10.0	9.0	9.5	8.0	7.0	7.5	11.5	8.5	10.0
19	17.0	12.0	14.0	10.0	9.0	9.5	9.0	8.0	8.5	9.0	8.0	8.5
20	15.5	14.5	15.0	11.0	9.0	10.0	9.0	7.0	8.0	9.5	6.0	8.0
21	14.5	13.5	14.0	9.0	7.5	8.5	7.0	6.5	7.0	7.0	6.0	6.5
22	16.0	13.5	15.0	9.5	8.5	9.0	7.0	6.5	6.5	8.5	7.0	8.0
23	17.5	15.0	16.5	9.5	8.5	9.0	8.5	7.0	7.5	9.5	8.0	9.0
24	19.5	17.0	18.0	10.0	8.5	9.5	8.5	7.0	7.5	10.5	9.0	10.0
25	20.0	18.5	19.0	11.0	9.0	10.0	8.0	7.0	7.5	12.0	9.5	10.5
26	20.5	17.5	19.0	9.5	8.0	9.0	7.0	6.0	6.5	9.5	8.5	9.0
27	20.5	18.5	19.5	12.5	9.5	10.5	8.0	6.5	7.0	10.5	8.5	9.5
28	20.5	18.5	19.0	12.5	9.0	11.0	8.5	7.5	8.0	10.0	9.0	9.5
29	20.0	18.0	19.0	8.5	8.0	8.5	10.5	8.5	9.5	9.5	8.5	9.0
30	20.0	18.0	19.0	9.5	8.0	9.0	10.5	9.5	10.0	10.5	8.5	9.5
31	19.5	17.5	19.0	---	---	---	10.5	3.5	6.5	10.0	8.5	9.0
MONTH	24.0	12.0	19.0	18.0	7.5	12.5	10.5	3.5	8.0	12.0	3.5	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	10.0	7.5	9.0	10.5	7.0	8.0	14.5	12.5	13.5	21.0	18.5	19.5
2	6.5	3.5	4.5	11.0	7.0	8.5	13.0	12.5	12.5	20.5	17.0	18.5
3	6.5	4.0	5.5	8.5	7.0	7.5	12.0	7.5	9.5	20.0	16.5	18.0
4	6.5	5.0	5.5	9.5	7.0	8.5	10.0	6.0	8.0	19.0	13.0	17.0
5	8.0	6.0	7.0	10.0	8.0	9.0	13.0	9.0	10.5	14.5	13.0	14.0
6	9.5	7.0	8.0	9.5	7.0	8.0	14.0	9.5	11.5	19.0	14.0	16.0
7	10.0	8.0	9.0	10.0	7.0	8.0	14.0	11.0	12.0	20.5	16.0	18.0
8	12.0	9.5	10.5	10.5	7.5	9.0	15.5	10.5	12.5	22.5	18.0	19.5
9	12.5	10.5	11.5	10.0	8.0	9.0	17.0	12.0	14.0	22.0	19.0	20.0
10	11.0	9.0	10.0	11.5	8.0	10.0	14.0	9.0	12.5	20.5	16.5	19.0
11	10.5	9.0	9.5	11.5	10.0	10.5	11.5	7.0	9.5	19.0	14.5	16.5
12	11.0	8.5	9.5	16.0	12.0	14.0	14.0	9.5	11.5	17.5	16.0	17.0
13	12.5	10.0	11.0	17.5	15.5	16.5	15.0	11.0	13.0	17.5	13.5	15.0
14	11.0	8.5	10.0	---	---	---	14.0	13.0	13.5	19.0	13.0	16.0
15	8.5	2.0	5.5	---	---	---	16.0	12.5	14.0	21.0	18.0	19.5
16	5.0	2.5	4.0	---	---	---	18.0	13.0	15.5	20.5	17.0	19.0
17	6.0	4.5	5.0	---	---	---	16.0	13.0	15.0	19.5	17.5	18.5
18	8.5	5.5	7.0	---	---	---	16.0	11.5	13.5	18.0	16.0	17.0
19	9.0	7.0	8.0	---	---	---	18.0	12.5	15.0	19.5	16.5	18.0
20	10.0	7.0	8.5	---	---	---	17.0	15.5	16.0	22.0	19.0	20.0
21	11.5	8.5	10.0	---	---	---	15.5	14.0	15.0	19.5	18.0	19.0
22	10.5	5.0	7.5	---	---	---	18.0	13.0	15.5	22.0	17.5	19.5
23	7.0	6.0	6.5	---	---	---	20.0	14.5	17.0	23.0	18.5	20.5
24	7.5	5.0	6.5	---	---	---	21.0	15.5	18.0	22.0	19.5	21.0
25	5.5	4.5	5.0	---	---	---	23.0	18.0	20.0	23.5	20.0	21.5
26	7.5	4.5	6.0	12.5	10.5	12.5	24.0	19.5	21.5	23.0	21.0	22.0
27	8.5	6.5	7.5	14.0	9.5	11.5	24.0	19.5	21.5	24.0	20.0	22.0
28	8.5	6.0	7.0	15.0	10.0	12.0	23.0	20.0	21.5	23.5	20.0	21.5
29	---	---	---	13.5	11.5	12.5	22.0	19.5	20.5	20.5	18.0	19.0
30	---	---	---	13.5	12.5	13.0	22.5	19.0	20.5	21.0	16.5	19.0
31	---	---	---	14.0	13.0	13.5	---	---	---	22.0	18.0	19.5
MONTH	12.5	2.0	7.5	17.5	7.0	10.5	24.0	6.0	15.0	24.0	13.0	18.5

04212680 FIELDS BROOK AT ASHTABULA, OH

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	22.5	18.5	20.5	26.5	23.5	25.0	28.0	25.0	26.5	29.0	26.5	27.5
2	23.5	20.5	21.5	29.0	26.0	28.5	28.5	25.5	27.0	30.0	27.5	28.5
3	24.5	21.5	22.5	28.0	25.0	26.5	28.5	25.5	27.0	28.5	26.5	28.0
4	21.0	19.0	20.0	30.0	26.0	28.0	28.0	26.5	27.0	27.5	26.0	27.0
5	22.5	18.0	20.0	28.5	26.5	27.5	28.0	27.0	27.5	28.0	26.5	27.0
6	23.5	20.0	21.5	27.5	25.5	26.5	27.0	26.0	26.5	28.0	22.0	25.5
7	25.0	21.5	23.0	27.5	24.0	25.5	25.5	20.0	23.5	23.0	20.5	22.0
8	24.0	22.0	23.0	28.5	25.5	27.0	27.5	24.5	26.0	25.0	22.5	23.5
9	27.0	23.0	24.5	27.5	26.5	27.0	28.5	25.0	26.5	24.5	20.0	22.0
10	23.5	22.5	23.0	28.0	27.0	27.5	28.5	26.0	27.0	25.0	22.0	23.5
11	25.5	22.0	23.5	27.0	26.0	26.5	29.0	26.5	27.5	26.5	25.0	25.5
12	24.5	22.0	23.5	26.0	24.5	25.0	28.5	25.0	27.5	26.0	24.5	25.5
13	27.0	22.5	24.5	25.5	24.0	24.5	25.0	22.0	23.5	27.5	24.5	26.0
14	27.0	25.0	26.0	25.0	23.5	24.5	27.0	23.5	25.0	27.5	21.5	26.0
15	28.5	25.5	26.5	25.0	24.0	24.5	27.5	25.0	26.0	21.5	20.0	20.5
16	28.5	24.5	26.5	27.0	23.5	25.0	29.0	26.0	27.5	21.0	15.5	17.5
17	29.0	26.0	27.5	28.5	25.0	26.5	29.5	27.5	28.5	19.0	16.0	17.5
18	29.5	26.5	28.0	29.0	26.0	27.5	28.5	27.5	28.0	20.5	18.0	19.5
19	26.5	24.5	25.5	29.5	26.0	27.5	28.0	26.5	27.5	20.0	15.5	18.0
20	25.0	23.5	24.5	28.5	27.0	27.5	27.5	26.5	27.0	20.5	16.5	18.5
21	28.5	25.0	26.5	29.0	26.5	27.5	26.5	26.0	26.0	21.5	19.5	20.5
22	27.5	25.5	26.5	27.0	25.0	26.5	26.5	26.0	26.5	20.5	15.5	19.5
23	26.0	23.0	24.5	27.5	25.0	26.0	27.0	25.5	26.5	16.0	15.0	15.5
24	23.0	21.0	22.0	28.5	25.0	26.5	27.0	26.5	26.5	18.5	16.5	17.5
25	26.5	21.5	24.0	29.0	25.5	27.0	28.5	26.0	27.0	20.0	18.0	19.0
26	28.0	23.5	25.5	29.5	26.0	27.5	29.5	27.0	28.0	22.0	19.5	20.5
27	28.5	26.0	27.0	29.5	26.5	28.0	29.5	28.0	28.5	23.0	21.0	22.0
28	27.5	26.0	26.5	29.5	26.5	28.0	29.5	26.0	27.5	23.5	21.5	22.5
29	27.5	26.0	27.0	29.5	26.5	28.0	28.0	26.0	27.0	23.5	23.0	23.5
30	29.0	25.5	27.0	28.0	26.5	27.5	28.5	25.5	27.0	23.5	21.5	22.5
31	---	---	---	26.5	25.5	26.0	28.5	25.5	27.0	---	---	---
MONTH	29.5	18.0	24.5	30.0	23.5	26.5	29.5	20.0	27.0	30.0	15.0	22.5
YEAR	30.0	2.0	17.0									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.3	5.9	6.6	9.6	8.7	9.0	10.8	10.5	10.6	11.7	11.0	11.3
2	8.0	5.6	6.6	9.8	8.8	9.0	10.9	10.5	10.7	11.3	10.8	11.0
3	8.7	7.5	8.0	9.8	9.0	9.2	11.2	10.8	11.0	11.0	10.6	10.8
4	8.9	8.1	8.3	10.0	8.9	9.3	11.0	10.1	10.8	11.7	10.9	11.3
5	8.4	8.0	8.3	10.0	8.6	9.1	10.6	9.6	9.9	11.8	11.2	11.5
6	8.2	8.0	8.0	10.0	8.6	8.9	10.8	9.8	10.2	12.3	11.6	12.0
7	8.6	8.1	8.4	9.0	8.2	8.6	11.1	10.6	10.9	12.1	11.6	11.9
8	8.7	8.4	8.5	9.5	8.6	8.9	10.7	10.5	10.6	11.9	11.2	11.5
9	8.7	8.4	8.5	9.4	8.5	8.9	10.8	10.4	10.6	11.7	11.0	11.3
10	8.8	8.4	8.6	9.6	8.8	9.2	11.0	10.5	10.7	12.3	11.2	12.0
11	8.8	8.4	8.6	9.5	9.0	9.2	11.4	10.5	10.8	12.3	11.1	11.8
12	8.6	8.1	8.4	9.6	8.3	9.0	11.9	11.3	11.5	11.7	11.1	11.4
13	8.5	8.0	8.2	9.5	8.2	8.8	11.9	11.3	11.4	11.8	11.4	11.5
14	8.5	7.7	8.1	9.8	9.2	9.4	12.1	11.4	11.6	11.6	11.0	11.3
15	8.2	7.5	7.8	9.9	9.2	9.5	11.9	11.6	11.8	11.1	10.8	11.0
16	8.2	7.4	7.7	10.0	9.3	9.6	12.3	11.3	11.8	11.0	10.6	10.8
17	8.5	7.6	8.2	11.4	9.8	10.4	11.3	10.7	11.0	10.6	10.1	10.4
18	8.9	8.4	8.7	13.4	11.4	12.4	10.8	10.2	10.5	10.6	10.1	10.4
19	9.5	8.9	9.1	14.3	12.7	13.9	10.8	10.3	10.5	11.3	10.7	10.9
20	9.1	8.6	8.9	12.6	9.8	11.1	11.0	10.6	10.8	11.1	10.4	10.7
21	9.2	9.0	9.1	10.1	9.5	9.9	10.7	10.4	10.6	11.2	10.9	11.0
22	9.3	8.9	9.1	10.1	9.7	9.9	11.5	10.7	10.9	11.0	10.6	10.8
23	9.1	7.9	8.4	10.0	9.6	9.8	12.2	11.2	11.7	11.0	10.1	10.6
24	8.3	8.0	8.1	10.3	9.7	9.9	12.0	11.0	11.5	10.6	9.9	10.2
25	8.5	8.1	8.2	11.1	10.0	10.4	11.8	11.0	11.2	10.3	9.5	10.0
26	8.7	8.1	8.3	11.7	10.9	11.1	11.5	10.9	11.3	11.0	10.0	10.4
27	8.7	8.1	8.3	11.8	11.1	11.5	11.9	11.2	11.4	11.0	9.2	10.3
28	8.7	8.1	8.3	11.8	10.3	11.2	11.4	10.6	11.1	9.6	9.1	9.3
29	9.0	8.1	8.4	10.9	10.5	10.7	11.4	10.8	11.0	9.2	9.0	9.1
30	9.2	8.2	8.6	10.9	10.6	10.7	10.8	9.9	10.4	9.6	9.0	9.3
31	9.5	8.4	8.7	---	---	---	11.7	9.8	11.2	10.9	9.5	10.0
MONTH	9.5	5.6	8.3	14.3	8.2	9.9	12.3	9.6	11.0	12.3	9.0	10.8

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.5	10.9	11.6	9.3	8.4	8.9	8.8	7.1	7.7	9.7	7.2	8.2
2	15.1	12.9	14.3	9.3	8.1	8.8	8.6	7.3	7.7	10.0	7.8	8.7
3	15.0	12.9	14.0	10.8	9.9	10.5	9.3	7.5	8.4	9.7	8.0	8.8
4	13.8	12.9	13.4	11.4	10.5	11.0	9.8	8.6	9.2	9.1	8.0	8.4
5	13.2	10.7	12.1	11.3	10.9	11.1	9.2	8.1	8.6	9.3	8.5	9.0
6	11.4	10.7	11.0	11.5	11.0	11.2	9.2	7.9	8.5	9.3	8.1	8.8
7	10.8	10.2	10.6	11.7	10.4	11.0	9.1	8.0	8.4	9.0	7.7	8.4
8	10.6	9.2	9.9	10.6	9.9	10.3	9.1	7.8	8.4	8.6	7.5	8.0
9	9.2	8.8	9.0	10.4	10.0	10.1	9.1	7.7	8.3	8.4	7.3	7.9
10	10.2	8.8	9.7	10.6	9.5	10.1	9.3	7.6	8.3	8.3	7.5	7.9
11	11.7	10.0	10.8	9.9	9.3	9.6	10.2	9.3	9.7	9.7	8.2	8.9
12	12.0	9.7	11.1	9.2	8.3	8.9	11.1	9.3	9.9	9.0	8.3	8.7
13	11.3	8.5	9.6	8.6	7.7	8.2	10.4	8.8	9.6	9.4	8.3	9.0
14	12.1	9.1	10.5	---	---	---	9.4	8.9	9.2	10.6	8.0	9.2
15	11.4	9.8	10.7	---	---	---	10.1	8.8	9.4	8.5	7.4	8.0
16	11.4	10.2	10.9	---	---	---	10.3	8.5	9.3	8.2	7.6	7.8
17	10.4	10.0	10.2	---	---	---	10.4	8.5	9.4	8.2	7.9	8.0
18	10.0	9.3	9.7	---	---	---	11.8	9.1	10.3	8.9	8.3	8.5
19	9.4	8.8	9.1	---	---	---	11.5	8.2	9.9	8.7	7.9	8.4
20	9.3	8.4	9.0	---	---	---	10.2	8.2	8.7	8.0	7.4	7.7
21	10.8	8.5	9.0	---	---	---	9.9	8.4	9.0	8.5	7.7	8.1
22	8.8	7.7	8.4	---	---	---	10.8	8.0	9.4	8.6	7.5	8.1
23	9.4	8.1	8.4	---	---	---	10.7	7.7	9.2	8.5	7.3	7.9
24	12.5	7.7	9.4	---	---	---	10.7	7.5	8.9	8.2	7.3	7.8
25	12.0	9.4	10.5	---	---	---	10.3	7.2	8.4	8.2	7.0	7.6
26	11.6	9.9	10.9	11.6	10.2	11.3	10.0	6.8	8.1	7.8	6.9	7.3
27	9.8	9.4	9.5	12.6	7.9	10.9	9.5	6.6	7.8	8.0	6.8	7.4
28	9.7	9.3	9.5	12.6	7.3	9.9	9.5	6.9	7.7	8.2	7.0	7.5
29	---	---	---	11.7	7.3	9.0	9.6	7.0	7.9	8.3	7.1	7.8
30	---	---	---	8.3	7.1	7.6	9.4	7.1	8.0	9.0	7.8	8.4
31	---	---	---	8.7	7.2	7.7	---	---	---	9.0	7.4	8.3
MONTH	15.1	7.7	10.5	12.6	7.1	9.8	11.8	6.6	8.8	10.6	6.8	8.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.9	7.2	8.1	---	---	---	8.9	8.1	8.4	8.3	6.8	7.7
2	8.5	7.0	7.6	7.4	6.7	7.2	8.7	8.0	8.3	7.8	5.2	7.0
3	8.4	6.7	7.4	7.8	6.8	7.2	8.6	7.9	8.2	7.7	2.8	6.7
4	8.9	6.9	7.7	7.8	6.6	7.1	8.4	7.6	8.0	8.0	6.9	7.4
5	9.1	7.1	7.9	8.2	6.6	7.3	7.8	7.4	7.6	7.7	7.1	7.3
6	8.4	6.0	7.2	8.7	7.2	7.8	8.0	7.3	7.5	7.8	7.1	7.4
7	8.3	6.2	7.0	9.0	7.5	8.1	8.3	7.7	7.9	7.7	7.4	7.6
8	7.5	6.2	6.8	9.2	7.6	8.2	8.1	7.6	7.9	8.0	7.6	7.8
9	7.5	6.0	6.5	8.5	7.6	7.9	8.1	7.6	7.9	8.3	7.6	7.8
10	7.3	6.2	6.6	8.8	7.8	8.2	8.3	7.5	7.9	8.0	7.6	7.8
11	7.9	6.5	7.0	8.7	8.0	8.3	8.2	7.2	7.7	7.9	7.5	7.7
12	7.8	6.6	7.1	8.9	8.3	8.5	7.9	6.8	7.3	7.8	7.4	7.7
13	7.9	6.1	7.0	9.2	8.6	8.8	7.5	6.8	7.0	7.7	7.2	7.5
14	7.2	6.2	6.6	9.1	8.5	8.8	7.0	6.7	6.9	7.5	6.8	7.2
15	7.1	6.1	6.5	9.1	8.4	8.6	6.9	6.3	6.6	7.8	7.3	7.7
16	7.1	6.1	6.5	9.1	8.2	8.7	7.2	5.8	6.3	8.5	7.6	8.1
17	7.0	6.0	6.4	9.1	8.0	8.5	6.3	5.5	5.9	8.3	7.9	8.1
18	7.1	5.9	6.4	8.9	7.9	8.3	6.0	5.5	5.7	8.1	7.7	7.9
19	7.3	6.3	6.8	8.9	7.8	8.3	5.8	5.5	5.6	9.0	7.8	8.3
20	7.6	6.7	7.0	8.6	7.7	8.0	5.9	5.5	5.7	8.7	8.3	8.5
21	7.2	6.4	6.8	8.4	7.5	7.8	5.9	5.6	5.8	8.4	7.9	8.2
22	7.0	6.5	6.7	7.6	7.4	7.5	7.2	5.7	6.2	8.8	8.1	8.3
23	7.0	6.5	6.8	7.7	6.9	7.4	7.2	6.7	6.9	9.0	8.6	8.8
24	7.6	7.1	7.4	8.0	7.0	7.4	7.4	6.8	7.0	8.8	8.4	8.6
25	7.5	6.8	7.1	8.1	7.2	7.6	7.5	6.8	7.1	8.5	8.0	8.3
26	7.2	6.4	6.9	8.4	7.4	7.7	7.6	6.9	7.2	8.0	7.7	7.9
27	---	---	---	8.7	7.4	7.9	7.6	6.8	7.1	7.8	7.4	7.6
28	---	---	---	8.8	7.6	8.1	8.6	7.1	7.8	7.6	7.0	7.3
29	---	---	---	9.0	7.8	8.2	8.6	7.8	8.0	7.0	6.6	6.8
30	---	---	---	9.0	7.9	8.2	8.5	7.2	7.9	6.7	6.4	6.6
31	---	---	---	9.0	8.1	8.4	8.5	7.3	7.8	---	---	---
MONTH	9.1	5.9	7.0	9.2	6.6	8.0	8.9	5.5	7.2	9.0	2.8	7.7
YEAR	15.1	2.8	8.9									

04213000 CONNEAUT CREEK AT CONNEAUT, OH

LOCATION.--Lat 41°55'37", long 80°36'15", Ashtabula County, Hydrologic Unit 04120101, on right bank at downstream side of Keefus Road bridge at Conneaut, and 6.4 mi upstream from mouth.

DRAINAGE AREA.--175 mi².

PERIOD OF RECORD.--July 1922 to December 1935, March 1950 to September 1961 (published as "at Amboy"), October 1961 to current year.

REVISED RECORDS.--WSP 714: 1926. WSP 784: 1933. WSP 1437: 1923-25(M), 1926-30, 1931-32(M), 1933, 1935(M). WSP 1912: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 610.30 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1924, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 14-30, June 11-23, 29, July 3-13, 27-30, Aug. 2-6, 11-12, 19-27. Records good except for estimated records, which are poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--53 years, 272 ft³/s, 21.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s Jan. 22, 1959, gage height, 11.70 ft; maximum gage height, 12.94 ft Mar. 4, 1934 (backwater from ice); minimum discharge, 0.2 ft³/s July 31, Aug. 1, 1933, Aug. 1, 2, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 1	1100	*12,100	*10.83	Apr. 12	0200	3,190	6.18
Feb. 3	1500	3,630	6.56	Aug. 29	0300	3,670	6.59
Feb. 16	1900	6,340	8.33	Sept. 8	1500	3,410	6.37

Minimum daily discharge, 9.0 ft³/s July 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	47	205	3200	239	238	171	70	107	46	37	146
2	34	48	172	1950	1530	268	410	61	76	39	29	92
3	23	57	163	1150	3190	358	784	55	59	32	23	63
4	68	53	146	1100	1220	373	669	74	56	24	20	44
5	47	50	154	2140	1070	270	897	628	58	18	17	41
6	35	51	167	1920	573	208	646	878	50	13	16	260
7	23	55	177	666	547	168	445	371	40	10	192	1690
8	20	92	192	440	537	165	290	208	37	9.0	86	2900
9	20	202	155	361	404	238	208	141	37	16	40	1140
10	21	307	145	533	672	933	365	109	37	26	37	1810
11	34	440	120	729	757	1440	2280	96	36	21	33	956
12	42	346	105	589	387	1080	2080	112	32	26	30	298
13	72	203	94	415	284	514	578	364	30	34	463	183
14	52	145	88	347	247	342	366	1400	28	106	275	162
15	38	128	80	358	801	258	394	583	25	115	140	802
16	30	422	72	496	4450	216	443	489	23	1010	71	1640
17	75	839	66	1550	3770	194	292	1900	21	489	41	1830
18	158	448	62	2090	802	248	225	1960	19	169	39	753
19	195	301	56	1560	500	238	186	887	17	86	32	449
20	330	366	54	653	378	202	160	392	16	56	28	1100
21	285	750	50	1340	262	190	395	734	15	38	25	630
22	224	540	46	1400	534	160	683	597	14	39	23	501
23	232	293	43	731	1390	145	357	313	13	44	21	1300
24	154	220	40	602	941	136	228	202	60	37	19	1090
25	112	195	38	589	545	125	174	151	140	41	18	538
26	92	424	36	448	316	112	144	123	137	38	16	275
27	78	732	34	378	362	100	124	104	67	31	15	182
28	67	450	32	299	320	92	106	91	39	27	90	142
29	59	538	31	274	---	88	93	93	33	24	2370	120
30	52	310	30	253	---	94	83	116	39	22	1690	123
31	49	---	563	244	---	125	---	150	---	70	305	---
TOTAL	2741	9052	3416	28805	27028	9318	14276	13452	1361	2756.0	6241	21260
MEAN	88.4	302	110	929	965	301	476	434	45.4	88.9	201	709
MAX	330	839	563	3200	4450	1440	2280	1960	140	1010	2370	2900
MIN	20	47	30	244	239	88	83	55	13	9.0	15	41
CFSM	.51	1.72	.63	5.31	5.52	1.72	2.72	2.48	.26	.51	1.15	4.05
IN.	.58	1.92	.73	6.12	5.75	1.98	3.03	2.86	.29	.59	1.33	4.52

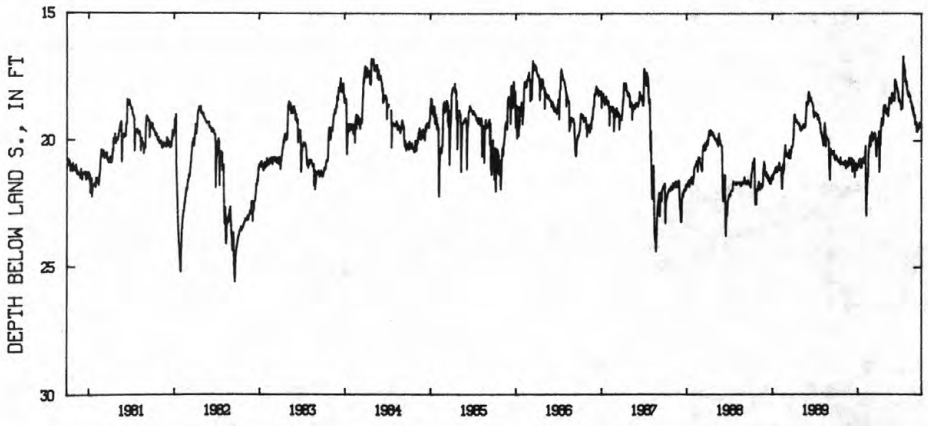
CAL YR 1989 TOTAL 85759 MEAN 235 MAX 1300 MIN 10 CFSM 1.34 IN. 18.23
WTR YR 1990 TOTAL 139706.0 MEAN 383 MAX 4450 MIN 9.0 CFSM 2.19 IN. 29.70

404838082563100. Local number, CR-1.
LOCATION.--Lat 40°48'38", long 82°56'31", Hydrologic Unit 04100011, Timken Roller Bearing Co., U.S. 30 in Bucyrus.
Owner: Timken Roller Bearing Co.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled test water-table well, diameter 6 in., depth 54 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 1039.13 ft above National Geodetic Vertical Datum of 1929. Measuring point: Floor of instrument shelter 3.50 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of water.
PERIOD OF RECORD.--April 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 37.64 ft below land-surface datum, Dec. 11, 1962; minimum daily low, 16.68 ft below land-surface datum, July 15, 1990.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.58	20.94	20.92	21.07	20.69	19.88	19.85	18.78	18.42	18.47	18.05	19.02
2	20.67	20.89	20.83	21.05	20.52	19.66	19.63	18.89	18.23	18.50	18.06	19.00
3	20.73	20.94	20.95	20.95	20.41	19.77	19.77	18.94	18.14	18.50	18.17	19.36
4	20.74	20.93	20.77	20.95	20.21	19.81	21.24	18.86	18.33	18.56	18.17	19.26
5	20.67	20.86	20.69	20.94	21.34	19.87	21.02	18.72	18.36	18.52	18.05	19.25
6	20.70	20.93	20.70	20.88	22.13	19.99	20.40	18.79	18.30	18.78	18.25	19.26
7	20.76	20.90	20.76	20.82	22.80	19.99	20.12	18.81	18.42	18.69	18.15	19.39
8	20.75	20.86	20.70	20.75	22.92	19.85	20.16	18.84	18.34	18.65	18.12	19.38
9	20.81	20.79	21.21	20.74	22.21	19.76	20.09	18.84	17.62	18.63	18.15	19.28
10	20.75	20.97	21.14	20.88	22.07	19.77	19.60	18.82	17.59	18.51	18.27	19.65
11	20.82	20.95	20.87	20.72	21.63	19.74	19.45	19.03	17.82	18.71	18.22	19.59
12	20.82	21.09	20.87	20.98	21.59	19.74	19.30	19.02	17.69	18.20	18.24	19.62
13	20.85	20.96	20.89	21.06	21.38	19.77	19.28	18.80	17.68	17.48	18.26	19.64
14	20.77	20.90	21.00	20.96	21.42	19.68	19.14	18.76	17.70	17.04	18.24	19.58
15	20.80	20.84	20.78	20.97	21.12	19.69	19.11	18.62	17.82	16.68	18.46	19.53
16	20.80	20.87	20.93	21.00	20.51	19.80	19.14	18.52	17.86	16.95	18.43	19.50
17	20.90	20.91	20.96	20.92	20.48	19.75	19.33	18.31	17.89	16.96	18.46	19.57
18	20.93	21.03	21.03	21.06	20.24	19.84	19.40	18.36	17.90	17.01	18.51	19.54
19	20.79	21.03	21.00	21.06	20.14	19.95	19.34	18.36	18.01	17.11	18.51	19.37
20	20.66	20.83	21.44	20.80	20.19	20.25	19.23	18.34	17.98	17.17	18.61	19.52
21	20.82	21.00	21.15	20.73	20.08	20.53	19.00	18.43	18.11	17.22	18.72	19.51
22	20.92	20.81	21.02	20.75	19.81	20.62	18.72	18.50	18.11	17.21	18.62	19.29
23	20.89	20.88	21.09	20.75	19.87	20.28	18.63	18.46	18.08	17.67	18.61	19.38
24	20.90	20.95	21.03	20.69	20.13	20.00	18.61	18.52	18.23	17.52	18.72	19.43
25	20.91	20.68	20.88	20.70	20.22	19.99	18.65	18.52	18.30	17.59	18.85	19.30
26	20.91	20.73	21.05	20.78	20.14	20.07	18.66	18.35	18.45	17.63	18.71	19.41
27	20.91	20.73	21.04	20.84	19.96	20.09	18.66	18.14	18.36	17.80	18.95	19.46
28	20.90	20.92	21.16	20.88	19.98	20.02	18.60	18.12	18.42	17.74	18.86	19.47
29	20.88	20.95	21.08	20.72	---	19.96	18.77	18.26	18.37	17.68	18.89	19.47
30	20.84	20.86	21.09	20.76	---	19.90	18.63	18.34	18.38	17.81	19.01	19.50
31	20.88	---	20.93	20.83	---	19.87	---	18.43	---	17.99	19.06	---
MAX	20.93	21.09	21.44	21.07	22.92	20.62	21.24	19.03	18.45	18.78	19.06	19.65

CAL YR 1989 LOW 21.89
WTR YR 1990 LOW 22.92



404838082563100 CR-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

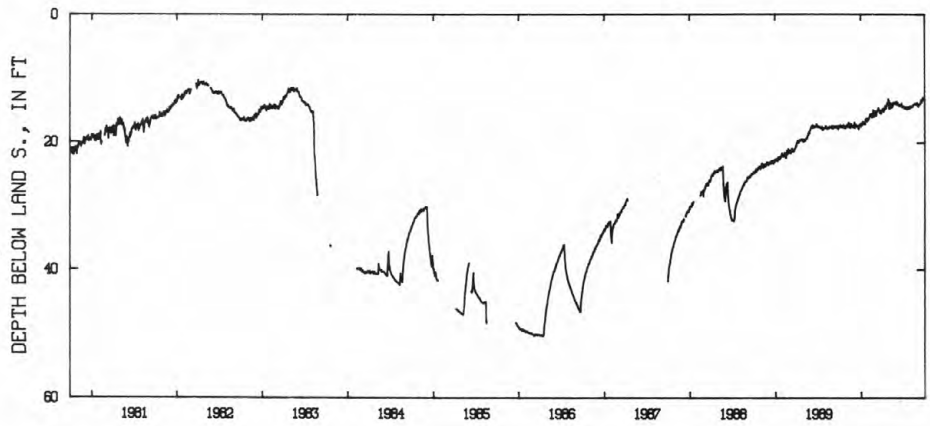
GEAUGA COUNTY

412518081221500. Local number, GE-3A.
LOCATION.--Lat 41°25'18", long 81°22'15", Hydrologic Unit 04110003, 1.2 mi southeast of Chagrin Falls.
Owner: City of Chagrin Falls.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth drilled 120 ft, present depth 89 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 1130 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
PERIOD OF RECORD.--September 1951 to current year.
REMARKS.--Water level affected by pumping wells nearby for Chagrin Falls municipal supply.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 52.85 ft below land-surface datum, Oct. 2, 1965; minimum daily low, 8.70 ft below land-surface datum, May 17, 1973.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.54	17.51	17.48	17.45	16.39	15.55	14.99	13.89	14.01	14.35	14.45	14.12
2	17.35	17.49	17.32	17.49	16.31	15.13	14.90	14.49	13.89	14.45	14.49	14.14
3	17.52	17.49	17.29	17.42	16.32	15.08	14.79	14.72	13.57	14.47	14.41	14.31
4	17.57	17.50	17.26	17.20	16.18	15.24	14.72	14.59	13.89	14.35	14.34	14.32
5	17.45	17.34	16.87	17.32	16.24	15.34	14.91	13.77	13.96	14.39	14.29	14.16
6	17.25	17.30	17.25	17.19	16.11	15.74	14.95	13.99	13.79	14.59	14.32	14.05
7	17.45	17.30	17.72	17.15	16.00	15.80	14.99	14.09	13.99	14.67	14.39	13.93
8	17.45	17.14	17.70	16.90	16.00	15.61	15.13	14.22	13.95	14.62	14.39	14.01
9	17.58	16.89	17.42	16.73	15.61	15.15	15.12	14.25	13.90	14.47	14.33	13.91
10	17.47	17.27	17.18	16.87	15.52	15.21	14.82	13.89	14.08	14.54	14.15	13.87
11	17.54	17.27	17.30	16.73	15.56	15.10	14.57	14.50	14.22	14.56	14.12	13.89
12	17.50	17.60	17.29	16.83	15.80	15.03	14.76	14.52	14.27	14.57	14.17	13.84
13	17.59	17.56	17.22	17.15	15.60	15.02	14.81	14.44	14.17	14.59	14.04	13.77
14	17.47	17.28	17.27	17.13	15.86	14.90	14.58	14.45	14.09	14.53	14.09	13.58
15	17.39	17.16	17.28	17.01	15.67	14.81	14.27	14.45	14.11	14.49	14.05	13.28
16	17.37	17.02	17.43	17.05	15.50	14.77	14.23	14.38	14.19	14.66	13.99	13.42
17	17.55	17.24	17.48	16.96	16.04	14.58	14.41	14.02	14.19	14.76	13.98	13.68
18	17.69	17.67	17.55	17.02	16.00	14.93	14.61	14.04	14.08	14.74	13.89	13.68
19	17.55	17.69	17.51	17.12	15.72	14.99	14.62	14.08	14.09	14.67	13.88	13.35
20	17.23	17.09	17.44	16.82	15.93	14.99	14.40	13.74	14.10	14.55	13.96	13.29
21	17.35	17.39	17.63	16.32	15.83	14.99	14.13	13.84	14.12	14.45	13.96	13.29
22	17.73	17.40	17.83	16.36	15.42	14.98	14.15	13.84	14.14	14.44	13.91	12.95
23	17.75	17.37	17.88	16.45	14.94	15.31	14.03	13.83	13.87	14.41	13.89	12.93
24	17.75	17.51	17.74	16.25	15.32	15.37	13.82	13.86	14.19	14.49	13.96	12.93
25	17.79	17.32	17.25	16.20	15.95	15.29	13.78	13.88	14.43	14.59	13.99	12.93
26	17.75	17.40	17.24	16.41	15.96	15.38	13.69	13.66	14.44	14.68	13.99	13.13
27	17.75	17.41	17.24	16.43	15.53	15.45	13.58	13.64	14.42	14.61	13.96	13.25
28	17.70	17.47	17.36	16.66	15.62	15.41	13.20	13.64	14.44	14.53	13.92	13.29
29	17.62	17.61	17.36	16.46	---	15.38	13.39	13.70	14.40	14.40	13.79	13.28
30	17.50	17.33	17.25	16.27	---	15.15	13.49	13.91	14.32	14.27	13.99	13.29
31	17.31	---	17.01	16.52	---	15.00	---	14.01	---	14.37	14.12	---
MAX	17.79	17.69	17.88	17.49	16.39	15.80	15.13	14.72	14.44	14.76	14.49	14.32

CAL YR 1989 LOW 22.89
WTR YR 1990 LOW 17.88



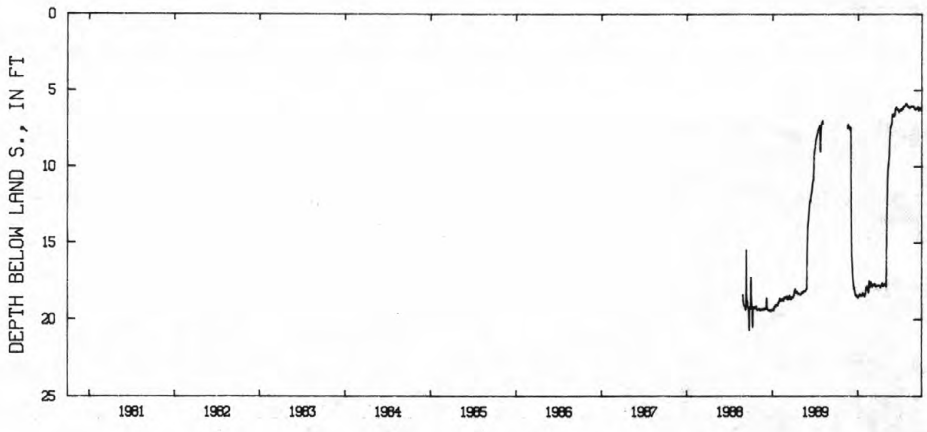
412518081221500 GE-3A CHAGRIN FALLS W DPT NR CHAGRIN FALLS OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

405940083275500. Local number, HA-3.
LOCATION.--Lat 40°59'40", long 83°27'55", Hydrologic Unit 04100008, 2 miles north of Vanlue.
Owner: City of Findlay.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 10 in., diameter 6 in. below 55 ft., depth 240 ft, cased to 55 ft.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 815 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 1.40 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--May 1947 to October 1972 and August 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 20.67 ft below land-surface datum, Sept. 22, 1988; minimum daily low, 4.06 ft below land-surface datum, June 8, 1947.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	7.45	18.59	18.33	17.83	17.77	17.83	6.67	6.30	6.07	6.20
2	---	---	8.59	18.59	18.30	17.88	17.82	17.88	6.58	6.31	6.07	6.22
3	---	---	12.43	18.52	18.26	17.88	17.81	16.99	6.51	6.27	6.04	6.26
4	---	---	13.81	18.47	18.03	17.75	17.79	14.79	6.65	6.19	6.01	6.25
5	---	---	15.15	18.49	17.89	17.71	17.87	13.31	6.67	6.23	6.08	6.17
6	---	---	15.81	18.48	17.87	17.73	17.87	12.46	6.53	6.30	6.12	6.14
7	---	---	16.18	18.42	17.91	17.73	17.91	11.48	6.63	6.29	6.13	6.25
8	---	---	16.46	18.35	17.88	17.73	17.91	10.81	6.52	6.22	6.13	6.25
9	---	---	16.85	18.32	17.82	17.77	17.86	10.41	6.28	6.15	6.11	6.20
10	---	---	17.22	18.44	17.93	17.76	17.80	9.92	6.17	6.22	6.08	6.16
11	---	---	17.39	18.44	17.98	17.70	17.79	10.01	6.20	6.18	6.12	6.19
12	---	---	17.54	18.40	18.13	17.72	17.80	9.87	6.15	6.17	6.13	6.14
13	---	---	17.74	18.46	18.07	17.73	17.78	9.53	6.10	6.18	6.07	6.14
14	---	---	17.85	18.41	18.23	17.67	17.66	9.50	6.11	6.06	6.05	6.07
15	---	---	18.01	18.37	18.24	17.78	17.61	9.13	6.20	6.01	6.02	6.11
16	---	---	17.90	18.39	18.11	17.84	17.63	8.84	6.23	6.05	6.03	6.24
17	---	7.31	18.06	18.38	17.70	17.87	17.74	8.17	6.23	6.07	6.02	6.32
18	---	7.47	18.07	18.40	17.48	17.85	17.85	7.89	6.18	6.04	6.02	6.29
19	---	7.47	18.17	18.46	17.68	17.79	17.82	7.76	6.27	6.04	6.05	6.18
20	---	7.24	18.28	18.41	17.66	17.76	17.74	7.35	6.21	6.02	6.07	6.22
21	---	7.40	18.39	18.25	17.56	17.86	17.72	7.42	6.29	6.02	6.02	6.21
22	---	7.39	18.44	18.33	17.91	17.86	17.75	7.35	6.27	6.01	6.02	6.13
23	---	7.39	18.42	18.36	17.74	17.80	17.72	7.28	6.25	5.91	6.04	6.25
24	---	7.40	18.37	18.36	17.74	17.81	17.72	7.21	6.36	5.87	6.07	6.25
25	---	7.38	18.38	18.32	17.68	17.82	17.74	7.18	6.41	5.90	6.10	6.16
26	---	7.51	18.44	18.33	17.55	17.80	17.73	6.95	6.36	5.92	6.09	6.26
27	---	7.56	18.49	18.43	17.66	17.79	17.73	6.69	6.33	5.91	6.09	6.29
28	---	7.41	18.52	18.43	17.70	17.78	17.65	6.56	6.34	5.90	6.05	6.28
29	---	7.43	18.50	18.49	---	17.75	17.75	6.61	6.26	5.89	6.09	6.28
30	---	7.41	18.52	18.41	---	17.77	17.77	6.69	6.26	5.94	6.16	6.29
31	---	---	18.48	18.42	---	17.77	---	6.71	---	6.02	6.21	---
MAX	---	7.56	18.52	18.59	18.33	17.88	17.91	17.88	6.67	6.31	6.21	6.32

CAL YR 1989 LOW 19.41
WTR YR 1990 LOW 18.59



405940083275500 HA-3 CTY OF FINDLAY NR VANLUE OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

GROUND-WATER RECORDS

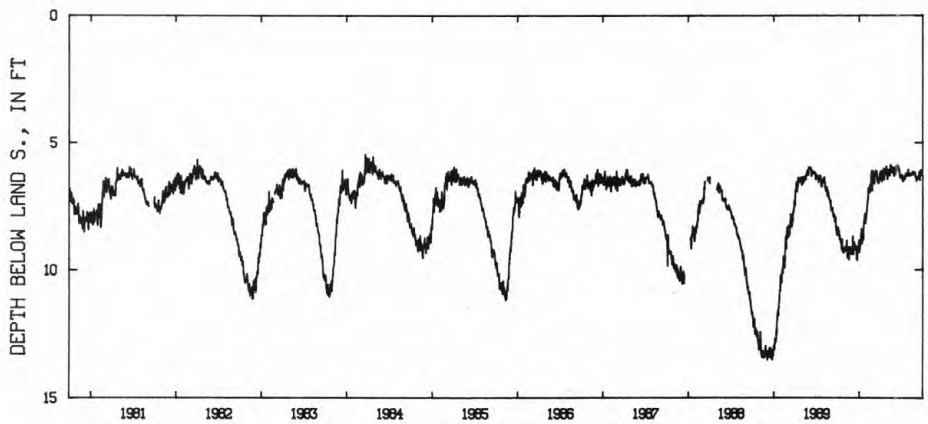
HARDIN COUNTY

404648083412600. Local number, HN-2A.
LOCATION.--Lat 40°46'48", long 83°41'26", Hydrologic Unit 04100007, at southeast edge of Dola.
Owner: Kevin Eikenbary.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 51 ft cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 945 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 2.88 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--December 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 15.86 ft below land-surface datum, Jan. 20, 21, 1965; minimum daily low, 5.46 ft below land-surface datum, Mar. 21, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.33	9.22	9.20	9.30	7.80	6.42	6.19	6.30	6.29	6.32	6.31	6.36
2	8.35	9.22	9.10	9.30	7.70	6.11	6.15	6.40	6.20	6.36	6.31	6.40
3	8.55	9.25	9.11	9.21	7.70	6.19	6.17	6.44	6.00	6.34	6.27	6.51
4	8.63	9.25	9.10	9.05	7.50	6.25	6.12	6.34	6.22	6.29	6.22	6.51
5	8.55	9.10	8.67	9.09	7.50	6.35	6.26	6.08	6.24	6.35	6.24	6.45
6	8.45	9.15	9.05	9.01	7.36	6.62	6.30	6.13	6.11	6.50	6.28	6.34
7	8.64	9.13	9.38	8.95	7.24	6.62	6.43	6.13	6.24	6.53	6.30	6.37
8	8.65	9.04	9.38	8.75	7.24	6.43	6.53	6.14	6.15	6.51	6.30	6.42
9	8.79	8.85	9.15	8.57	6.79	6.19	6.48	6.11	5.92	6.40	6.30	6.38
10	8.66	9.20	8.91	8.70	6.79	6.20	6.20	6.05	6.02	6.50	6.23	6.36
11	8.79	9.26	9.09	8.38	6.86	6.18	6.22	6.31	6.10	6.47	6.27	6.42
12	8.81	9.52	9.07	8.81	6.96	6.19	6.30	6.30	6.01	6.45	6.29	6.38
13	8.89	9.39	9.00	8.96	6.83	6.21	6.30	6.25	5.90	6.45	6.24	6.34
14	8.84	9.24	9.05	8.89	6.97	6.10	6.11	6.26	5.87	6.34	6.25	6.26
15	8.83	9.11	9.05	8.75	6.80	6.17	6.01	6.12	5.97	6.31	6.21	6.15
16	8.84	9.15	9.18	8.79	6.65	6.15	6.08	5.87	6.00	6.37	6.21	6.30
17	9.12	9.21	9.19	8.65	6.92	6.13	6.30	5.90	6.00	6.40	6.19	6.48
18	9.22	9.58	9.24	8.80	6.87	6.27	6.47	6.00	5.92	6.38	6.15	6.48
19	9.10	9.58	9.23	8.81	6.65	6.53	6.37	6.00	6.03	6.33	6.21	6.25
20	8.80	9.10	9.21	8.36	6.74	6.53	6.20	5.96	5.99	6.25	6.26	6.27
21	9.09	9.27	9.46	8.08	6.62	6.40	6.12	6.11	6.14	6.23	6.22	6.27
22	9.26	9.27	9.55	8.12	6.20	6.37	6.14	6.17	6.13	6.23	6.17	6.08
23	9.26	9.28	9.61	8.11	6.10	6.60	6.07	6.17	6.11	6.20	6.20	6.23
24	9.26	9.34	9.52	7.86	6.63	6.60	6.03	6.18	6.30	6.25	6.25	6.25
25	9.32	9.12	9.08	7.80	6.88	6.48	6.10	6.18	6.37	6.29	6.27	6.16
26	9.31	9.18	9.06	7.95	6.87	6.51	6.09	6.02	6.37	6.32	6.27	6.21
27	9.31	9.15	9.06	8.10	6.44	6.55	6.03	6.00	6.34	6.28	6.26	6.28
28	9.25	9.32	9.24	8.17	6.48	6.48	5.93	5.96	6.40	6.22	6.16	6.30
29	9.22	9.38	9.13	7.82	---	6.38	6.08	6.19	6.29	6.16	6.18	6.29
30	9.15	9.16	9.12	7.79	---	6.23	6.20	6.25	6.27	6.06	6.29	6.32
31	9.11	---	8.83	8.00	---	6.19	---	6.33	---	6.25	6.36	---
MAX	9.32	9.58	9.61	9.30	7.80	6.62	6.53	6.44	6.40	6.53	6.36	6.51

CAL YR 1989 LOW 13.10
WTR YR 1990 LOW 9.61



404648083412600 HN-2A
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

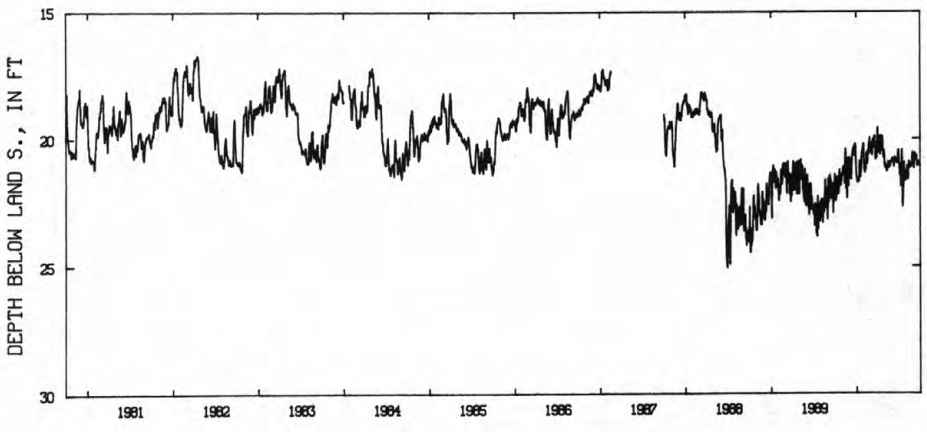
HENRY COUNTY

412123083574000. Local number, HY-2.
LOCATION.--Lat 41°21'23", long 83°57'40", Hydrologic Unit 04100009, 1.4 Mi southwest of McClure.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth drilled 300 ft, cased to 43 ft.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 680 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
PERIOD OF RECORD.--June 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 25.04 ft below land-surface datum, June 28, 1988; minimum daily low, 14.55 ft below land-surface datum, Mar. 22, 1978.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.39	21.48	21.08	21.39	20.20	20.51	19.80	20.69	20.89	20.72	21.49	20.86
2	21.50	21.39	20.76	21.49	20.64	20.55	19.56	20.97	20.86	20.75	21.61	21.00
3	22.29	21.41	20.79	21.52	20.85	20.50	19.92	21.12	20.77	20.97	21.56	21.16
4	22.32	21.38	21.41	21.59	21.15	20.36	20.16	21.10	20.83	21.17	21.56	21.17
5	22.15	21.15	21.35	21.65	21.20	20.18	20.46	20.99	20.89	21.19	21.27	20.93
6	22.43	21.18	20.94	21.71	21.26	20.26	20.55	21.08	20.81	21.42	21.07	20.69
7	22.07	21.10	20.92	21.67	21.33	20.56	20.54	21.15	20.87	21.43	21.37	20.54
8	22.30	21.21	20.89	21.64	21.31	20.58	20.37	21.17	20.83	21.34	21.55	20.63
9	22.13	21.27	21.58	21.57	21.03	20.63	20.18	21.17	20.83	21.28	21.55	20.73
10	21.50	21.24	21.59	21.64	21.19	20.63	19.90	21.07	20.99	21.85	21.58	20.79
11	22.02	21.23	21.40	21.63	21.19	20.31	20.13	21.28	21.10	21.86	21.47	20.74
12	22.19	21.75	21.10	21.66	20.86	20.02	20.45	21.28	21.00	21.31	21.17	20.73
13	21.94	21.67	20.85	21.67	20.54	20.19	20.62	21.17	20.80	21.01	20.94	20.78
14	21.56	21.14	20.65	21.42	20.83	20.33	20.49	21.21	20.72	20.70	20.89	20.66
15	21.76	20.78	20.59	21.00	20.83	20.32	20.13	21.16	20.76	20.42	20.99	20.65
16	22.16	20.39	20.47	20.87	20.99	20.25	19.88	21.08	20.82	20.82	20.95	20.84
17	22.16	20.55	20.48	20.99	20.99	20.21	20.23	20.90	20.83	22.41	21.06	21.06
18	22.12	21.94	20.43	21.42	20.88	19.96	20.25	21.01	20.86	22.66	21.08	21.08
19	21.92	21.94	20.41	21.51	20.48	19.90	20.40	21.04	20.91	22.53	21.13	20.96
20	21.52	21.19	20.33	21.36	20.46	19.89	20.46	21.02	20.82	22.29	21.15	20.96
21	21.23	21.46	20.45	21.25	20.62	20.13	20.36	21.15	20.93	22.07	21.10	20.97
22	21.52	22.33	20.52	21.17	20.61	20.40	20.17	21.12	20.90	21.82	21.07	20.88
23	21.46	22.28	20.65	20.97	20.31	20.77	19.91	21.07	20.81	21.16	21.06	20.99
24	21.56	21.77	20.65	20.55	20.14	20.81	20.13	21.08	20.89	20.92	21.01	21.02
25	21.64	21.20	20.33	20.53	20.23	20.78	20.45	21.06	20.96	21.24	21.07	20.94
26	21.84	20.81	20.19	20.44	20.21	20.45	20.61	20.90	20.86	21.37	21.07	20.92
27	21.84	20.74	20.21	20.44	19.94	20.58	20.73	20.89	20.69	21.43	20.89	21.01
28	21.60	21.71	20.23	20.48	20.35	20.74	20.73	20.90	20.70	21.65	20.70	21.09
29	21.66	21.85	20.33	20.41	---	20.73	20.68	20.89	20.48	21.58	20.54	21.05
30	21.65	21.47	20.66	20.21	---	20.31	20.45	20.88	20.44	21.34	20.68	21.09
31	21.36	---	20.94	20.28	---	20.00	---	20.94	---	21.37	20.84	---
MAX	22.43	22.33	21.59	21.71	21.33	20.81	20.73	21.28	21.10	22.66	21.61	21.17

CAL YR 1989 LOW 23.81
WTR YR 1990 LOW 22.66



412123083574000 HY-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

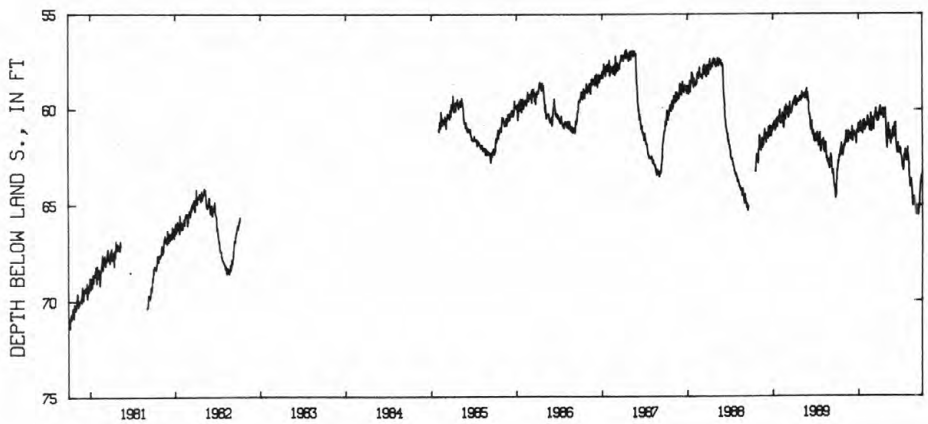
LUCAS COUNTY

413704083362200. Local number, LU-1.
LOCATION.--Lat 41°37'04", long 83°36'22", Hydrologic Unit 04100001, at Toledo State Hospital.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth drilled 525 ft, present depth 523.0 ft, cased to 93 ft.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 624 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 2.98 ft above land-surface datum (Revised from 1978 and 1979).
REMARKS.--Station operated by Ohio Departmnet of Natural Resources, Division of Water. Prior to Aug. 23, 1978, measuring point was 3.10 ft above land-surface datum. Reported in 1979 as 3.00 ft above land-surface datum.
PERIOD OF RECORD.--March 1946 to September 1982 continuous, October 1983 to January 1985 periodic, continuous thereafter.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 117.25 ft below land-surface datum, Sept. 18, 1957; minimum daily low, 56.87 ft below land-surface datum, Apr. 16, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63.42	61.95	61.43	61.21	60.75	60.84	60.04	61.73	61.42	62.40	62.44	65.08
2	63.09	61.89	61.20	61.21	60.88	60.41	59.90	61.97	61.19	62.40	62.51	65.26
3	63.17	61.91	61.36	61.13	60.88	60.47	59.93	62.00	60.77	62.46	62.70	65.43
4	63.11	61.87	61.27	61.03	60.85	60.56	59.82	61.80	60.97	62.48	62.79	65.47
5	62.88	61.62	60.87	61.14	60.85	60.73	59.97	61.11	60.96	62.75	63.21	65.46
6	62.69	61.61	61.23	61.09	60.76	61.04	60.03	61.07	60.69	62.90	63.46	65.46
7	62.82	61.58	61.64	61.03	60.76	61.05	60.21	60.99	60.87	62.98	63.58	65.46
8	62.65	61.45	61.60	60.84	60.76	60.88	60.33	60.83	60.67	62.91	63.84	65.46
9	62.69	61.13	61.37	60.62	60.34	60.45	60.27	60.74	60.91	62.90	64.01	65.13
10	62.40	61.46	61.12	60.80	60.43	60.45	60.03	60.86	61.48	63.10	64.00	65.30
11	62.52	61.45	61.24	60.67	60.54	60.35	60.07	61.51	61.84	63.16	63.99	65.45
12	62.38	61.74	61.22	60.91	60.70	60.27	60.24	61.55	61.94	63.05	63.89	65.46
13	62.43	61.60	61.18	61.17	60.57	60.33	60.29	61.49	62.13	63.04	63.62	65.50
14	62.26	61.31	61.18	61.09	60.84	60.15	60.11	61.51	62.23	62.72	63.64	65.33
15	62.16	61.17	61.19	61.00	60.60	60.11	59.95	61.21	62.26	62.37	63.87	65.13
16	62.05	61.13	61.32	61.04	60.59	60.10	59.97	61.11	62.22	62.41	64.06	65.00
17	62.26	61.27	61.37	60.92	61.08	59.93	60.32	61.48	62.03	62.41	64.21	65.10
18	62.37	61.70	61.41	61.18	61.03	60.22	60.47	61.75	61.73	62.36	64.29	65.03
19	62.18	61.70	61.38	61.26	60.95	60.53	60.44	61.78	61.93	62.28	64.77	64.53
20	61.75	61.13	61.34	60.95	61.09	60.56	60.21	61.42	62.15	62.06	65.01	64.37
21	61.90	61.44	61.58	60.60	60.96	60.43	60.11	61.59	62.26	62.19	64.92	64.28
22	62.14	61.41	61.73	60.71	60.56	60.21	60.13	61.59	62.21	62.32	64.59	63.81
23	62.11	61.45	61.76	60.76	60.18	60.60	60.03	61.49	62.09	62.52	64.54	63.80
24	62.11	61.49	61.63	60.58	60.67	60.60	59.95	61.52	62.15	62.66	64.53	63.79
25	62.12	61.22	61.16	60.55	61.11	60.48	59.97	61.52	62.20	62.67	64.53	63.52
26	62.34	61.35	61.08	60.76	61.13	60.56	59.93	61.20	62.07	62.65	64.61	63.44
27	62.39	61.34	61.08	60.76	60.83	60.59	60.14	61.06	61.98	62.55	64.63	63.52
28	62.29	61.49	61.16	61.08	60.90	60.52	60.46	60.96	62.01	62.40	64.57	63.45
29	62.18	61.56	61.09	60.85	---	60.44	60.96	60.97	62.14	62.19	64.67	63.40
30	62.03	61.33	61.08	60.69	---	60.16	61.28	61.25	62.30	61.97	64.91	63.30
31	61.83	---	60.74	60.95	---	60.07	---	61.43	---	62.36	65.06	---
MAX	63.42	61.95	61.76	61.26	61.13	61.05	61.28	62.00	62.30	63.16	65.06	65.50

CAL YR 1989 LOW 64.60
WTR YR 1990 LOW 65.50



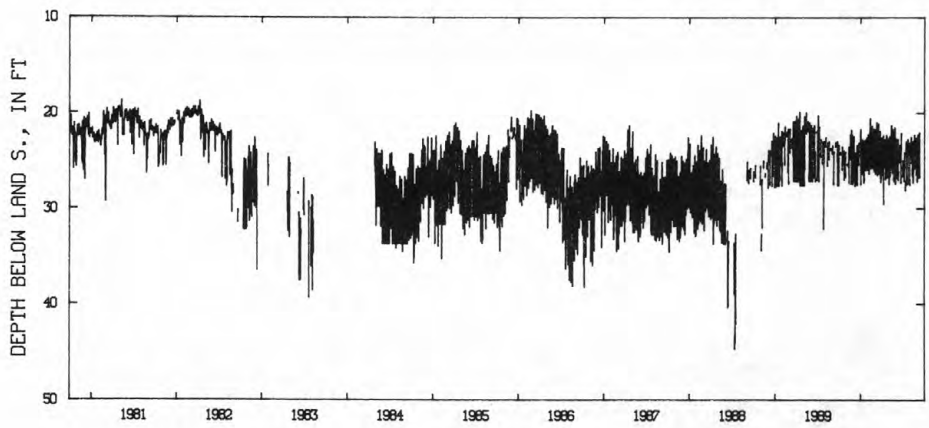
413704083362200 LU-1 STATE OF OHIO STATE HOSPITAL TOLEDO OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

410142082005900. Local number, MD-1.
LOCATION.--Lat 41°01'42", long 82°00'59", Hydrologic Unit 04110001. Waterworks plant at Lodi.
Owner: Lodi Water Dept.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 65 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 910 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 1.90 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--September 1946 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 45.21 ft below land-surface datum, July 8, 1988; minimum daily low, 7.60 ft below land-surface datum, July 6, 1969.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.38	---	26.44	21.71	22.99	24.26	22.59	24.85	26.15	24.97	---	24.01
2	---	27.00	26.91	27.44	23.57	23.24	24.98	26.25	24.97	---	---	22.41
3	---	---	22.40	---	22.23	22.57	24.98	27.44	22.71	---	---	22.27
4	---	25.42	27.17	26.82	22.38	21.66	26.48	25.65	---	24.91	24.08	---
5	26.42	25.35	26.75	---	25.15	26.21	24.44	23.08	26.78	---	22.52	26.73
6	---	---	---	24.84	26.31	26.32	24.78	22.44	24.94	27.08	25.22	26.13
7	24.10	---	---	22.79	24.71	26.32	23.38	26.60	26.08	25.64	24.46	23.44
8	24.30	---	27.60	26.18	22.83	23.55	22.38	26.17	25.72	24.12	---	22.85
9	---	---	24.13	26.35	23.15	24.07	27.43	24.19	23.10	---	25.95	22.04
10	---	---	24.23	24.57	21.72	22.56	29.47	23.54	22.75	---	26.51	26.68
11	---	25.55	---	26.17	20.59	21.01	---	22.90	26.98	28.09	23.33	---
12	---	23.52	---	25.81	23.97	25.40	---	22.84	26.08	27.09	22.99	---
13	---	27.31	24.60	22.85	24.56	25.93	25.63	21.29	---	---	27.29	---
14	25.86	---	27.45	23.71	25.77	26.47	22.71	25.59	---	23.97	25.91	---
15	23.55	26.82	26.56	27.28	22.74	24.66	23.58	25.28	---	23.01	25.53	---
16	---	---	24.16	27.03	21.80	25.08	---	23.42	25.09	27.49	25.45	---
17	---	---	23.37	24.56	21.76	25.18	26.88	26.22	23.37	27.42	25.76	---
18	---	24.75	27.47	24.28	21.38	21.14	24.26	25.03	---	---	23.41	---
19	---	22.25	---	25.17	24.46	26.21	25.28	21.67	---	---	22.32	---
20	---	---	---	24.16	25.67	26.31	24.26	22.58	25.72	---	---	---
21	25.21	27.34	---	22.81	25.74	26.01	23.22	25.94	---	23.95	---	---
22	23.95	26.78	---	26.00	22.96	26.28	22.30	25.75	27.27	22.75	25.77	---
23	26.97	21.81	---	25.75	22.37	25.04	24.85	26.89	23.67	27.37	25.30	---
24	---	---	25.37	24.63	21.74	23.96	26.71	27.12	22.14	---	23.96	---
25	---	22.24	23.14	25.60	21.65	21.90	23.52	26.32	---	27.45	22.62	---
26	---	23.09	---	25.74	23.45	25.13	24.88	23.71	---	---	22.62	---
27	---	27.25	26.79	23.06	23.00	26.74	24.12	21.53	25.63	---	26.47	---
28	26.67	27.38	---	22.60	26.09	27.20	23.18	22.64	---	24.03	---	---
29	24.07	25.95	---	24.56	---	26.83	22.66	25.75	26.56	23.12	---	---
30	---	26.21	---	25.58	---	24.25	26.04	27.36	26.53	27.49	27.02	---
31	---	---	24.55	25.90	---	23.33	---	23.15	---	---	27.17	---
MAX	26.97	27.38	27.60	27.44	26.31	27.20	29.47	27.44	27.27	28.09	27.29	26.73

CAL YR 1989 LOW 32.07
WTR YR 1990 LOW 29.47



410142082005900 MD-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

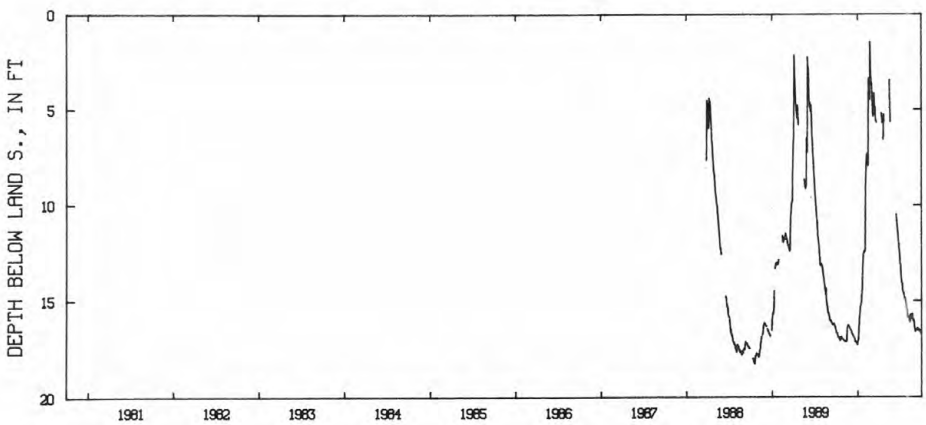
OTTAWA COUNTY

413434082494000. Local number, O-2.
LOCATION.--Lat 41°34'34", long 82°49'40", Hydrologic Unit 04100010. Catawba Island near Port Clinton.
Owner: William Williams.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled water table well, diameter 6 in., depth 62 ft, cased to 26 ft.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 591 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 1.60 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--March 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 18.27 ft below land-surface datum, Sept. 17, 1989; minimum daily low, 1.45 ft below land-surface datum, Feb. 23, 1990.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.61	17.05	16.51	17.14	12.41	3.60	---	---	---	12.80	15.65	16.35
2	16.66	17.07	16.53	17.08	12.30	3.65	---	---	---	13.01	15.75	16.46
3	16.68	17.08	16.57	17.02	10.45	4.05	---	---	---	13.14	15.87	16.52
4	16.68	17.10	16.58	16.98	9.13	4.45	---	---	---	13.33	15.84	16.60
5	16.69	17.10	16.58	16.72	8.63	4.72	---	---	---	13.50	15.86	16.52
6	16.72	17.12	16.63	16.29	8.18	5.15	---	---	---	13.75	15.83	16.53
7	16.77	17.12	16.71	16.17	7.87	5.33	---	---	---	13.86	15.84	16.54
8	16.82	17.12	16.73	15.92	7.63	5.35	---	---	---	13.97	15.85	16.56
9	16.89	17.08	16.75	15.79	7.33	5.31	---	---	---	14.07	15.92	16.54
10	16.91	17.09	16.76	15.69	7.42	4.99	---	---	---	14.15	16.06	16.47
11	16.90	17.09	16.80	15.53	7.51	4.15	---	---	---	14.10	16.08	16.49
12	16.89	17.14	16.82	15.33	7.67	4.16	5.21	---	---	14.33	16.13	16.46
13	16.96	17.12	16.85	15.27	7.78	4.43	5.36	---	---	14.50	16.06	16.48
14	16.99	17.11	16.86	15.24	7.96	4.65	5.40	---	---	14.55	15.73	16.44
15	17.03	17.04	16.89	15.14	7.86	5.00	5.48	---	10.47	14.57	15.72	16.48
16	17.05	16.77	16.93	15.13	4.27	5.07	5.72	---	10.65	14.57	15.74	16.52
17	17.05	16.46	16.95	15.07	3.37	4.90	---	3.45	10.78	14.60	15.84	16.56
18	17.07	16.35	16.97	14.86	3.53	5.32	---	4.29	10.96	14.68	15.95	16.53
19	17.07	16.32	16.98	14.63	4.16	5.59	6.50	4.70	11.04	14.71	15.93	16.50
20	16.93	16.26	17.13	14.34	4.44	5.64	6.56	5.25	11.20	14.80	15.77	16.50
21	16.88	16.30	17.08	13.82	4.48	5.62	6.24	5.65	11.40	14.89	15.72	16.49
22	16.90	16.29	17.14	13.33	4.45	5.67	5.24	---	11.40	14.91	15.68	16.58
23	16.87	16.32	17.16	13.02	1.45	---	5.39	---	11.61	14.86	15.69	16.61
24	16.91	16.34	17.14	12.74	2.00	---	5.65	---	11.78	14.90	15.83	16.58
25	16.93	16.33	17.13	12.55	2.63	---	---	---	11.96	14.98	15.94	16.55
26	16.93	16.37	17.20	12.54	2.92	---	---	---	12.01	15.05	16.04	16.61
27	16.94	16.37	17.21	12.47	3.29	---	---	---	12.25	15.13	16.02	16.64
28	16.99	16.45	17.25	12.50	3.44	---	---	---	12.30	15.22	16.00	16.67
29	17.02	16.47	17.26	12.44	---	---	---	---	12.45	15.39	16.05	16.74
30	17.01	16.50	17.29	12.36	---	---	---	---	12.63	15.38	16.08	16.79
31	17.02	---	17.28	12.44	---	---	---	---	---	15.49	16.19	---
MAX	17.07	17.14	17.29	17.14	12.41	5.67	6.56	5.65	12.63	15.49	16.19	16.79

CAL YR 1989 LOW 17.29
WTR YR 1990 LOW 17.29



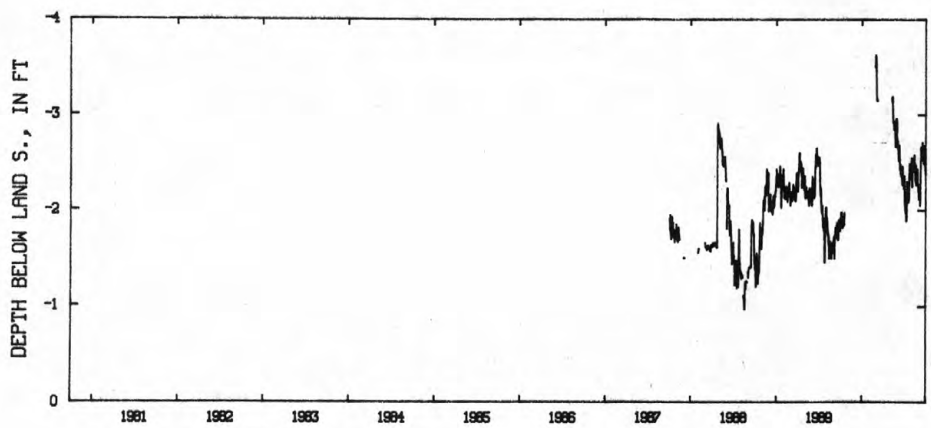
413434082494000 O-2 W WILLIAMS NR PORT CLINTON OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

410540081213600. Local number, PO-7.
LOCATION.--Lat 41°05'40", long 81°21'36", Hydrologic Unit 04110002, Sunnybrook golf course near Brimfield.
Owner: City of Talmidge.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 101 ft cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 1065 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 7.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--March 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 0.97 ft above land-surface datum, Aug. 17-18, 1988; minimum daily low, 3.94 ft above land-surface datum, Mar. 15-16, 1986.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-1.79	---	---	---	---	-3.63	---	---	-2.66	-2.30	-2.55	-2.12
2	-1.89	---	---	---	---	-3.61	---	---	-2.68	-2.36	-2.48	-2.23
3	-1.92	---	---	---	---	-3.53	---	---	-2.73	-2.06	-2.25	-2.23
4	-1.89	---	---	---	---	-3.30	---	---	-2.67	-2.06	-2.26	-2.20
5	-1.98	---	---	---	---	-3.16	---	---	-2.64	-2.01	-2.50	-2.18
6	-1.86	---	---	---	---	-3.17	---	---	-2.60	-1.98	-2.50	-2.05
7	-1.95	---	---	---	---	-3.17	---	---	-2.52	-2.05	-2.48	-2.13
8	-1.98	---	---	---	---	-3.15	---	---	-2.55	-2.08	-2.44	-2.31
9	-1.85	---	---	---	---	---	---	-3.18	-2.56	-1.92	-2.41	-2.47
10	-1.85	---	---	---	---	---	---	-3.14	-2.68	-1.89	-2.41	-2.67
11	-1.82	---	---	---	---	---	---	-3.15	-2.54	-1.90	-2.52	-2.53
12	-1.83	---	---	---	---	---	---	-3.19	-2.43	-2.07	-2.57	-2.57
13	-1.84	---	---	---	---	---	---	-3.06	-2.43	-2.30	-2.58	-2.61
14	-1.92	---	---	---	---	---	---	-2.92	-2.48	-2.21	-2.50	-2.61
15	-1.92	---	---	---	---	---	---	-2.93	-2.38	-2.27	-2.50	-2.61
16	-1.89	---	---	---	---	---	---	-2.92	-2.43	-2.24	-2.47	-2.70
17	-1.86	---	---	---	---	---	---	-2.93	-2.44	-2.15	-2.32	-2.71
18	-1.85	---	---	---	---	---	---	-2.85	-2.36	-2.13	-2.30	-2.54
19	-1.97	---	---	---	---	---	---	-2.92	-2.37	-2.09	-2.47	-2.53
20	---	---	---	---	---	---	---	-2.92	-2.42	-2.11	-2.28	-2.53
21	---	---	---	---	---	---	---	-2.86	-2.32	-2.13	-2.27	-2.50
22	---	---	---	---	---	---	---	-2.85	-2.27	-2.28	-2.27	-2.49
23	---	---	---	---	---	---	---	-2.81	-2.38	-2.48	-2.27	-2.57
24	---	---	---	---	---	---	---	-2.67	-2.46	-2.49	-2.27	-2.61
25	---	---	---	---	---	---	---	-2.77	-2.27	-2.44	-2.35	-2.68
26	---	---	---	---	---	---	---	-2.95	-2.32	-2.34	-2.43	-2.58
27	---	---	---	---	---	---	---	-2.95	-2.27	-2.33	-2.28	-2.50
28	---	---	---	---	-3.50	---	---	-2.85	-2.27	-2.44	-2.28	-2.43
29	---	---	---	---	---	---	---	-2.96	-2.27	-2.48	-2.25	-2.43
30	---	---	---	---	---	---	---	-2.96	-2.23	-2.49	-2.20	-2.38
31	---	---	---	---	---	---	---	-2.84	---	-2.44	-2.25	---
MAX	-1.79	---	---	---	-3.50	-3.15	---	-2.67	-2.23	-1.89	-2.20	-2.05

CAL YR 1989 LOW -1.46
WTR YR 1990 LOW -1.79



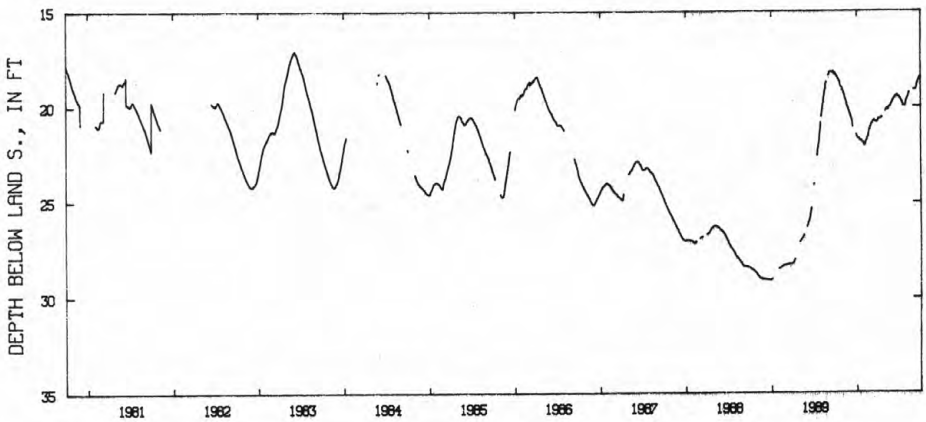
410540081213600 PO-7 CITY OF TALMIDGE NR BRIMFIELD OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

410920081192000. Local number, PO-6.
LOCATION.--Lat 41°09'20", long 81°19'20", Hydrologic Unit 04110002, State Rt 59, east of Kent.
Owner: Testa Bros.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 72 ft, cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 1040 ft above National Geodetic Vetical Datum of 1929, from topographic map. Measuring point: Top of platform 4.50 ft below land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--April 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 29.06 ft below land-surface datum, Dec. 23-26, 28-29, 1988; minimum daily low, 14.28 ft below-land surface datum, May 5, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.28	19.16	20.36	21.55	21.99	21.05	20.72	---	19.80	19.49	19.64	19.11
2	18.27	19.16	20.35	21.62	22.05	20.96	20.68	20.25	19.75	19.56	19.63	19.10
3	18.37	19.22	20.39	21.62	22.05	20.92	20.61	20.24	19.70	19.57	19.60	19.12
4	18.37	19.22	20.39	21.65	22.04	20.92	20.61	20.23	19.68	19.56	19.57	19.12
5	18.36	19.24	20.42	21.65	22.04	20.91	20.64	20.15	19.68	19.60	19.52	19.10
6	18.38	19.32	20.52	21.67	22.00	20.89	20.64	20.15	19.64	19.63	19.52	19.09
7	18.41	19.32	20.58	21.67	21.95	20.89	20.65	20.15	19.63	19.64	19.51	19.09
8	18.42	19.34	20.58	21.67	21.93	20.86	20.65	20.15	19.62	19.64	19.47	19.11
9	18.45	19.41	20.59	21.67	21.84	20.80	20.65	20.14	19.57	19.66	19.43	19.10
10	18.46	19.50	20.66	21.69	21.77	20.79	20.61	20.10	19.57	19.71	19.37	19.07
11	18.51	19.51	20.72	21.69	21.76	20.78	20.60	20.17	19.57	19.73	19.33	19.07
12	18.55	19.60	20.75	21.71	21.74	20.78	20.62	20.17	19.55	19.77	19.31	19.02
13	18.55	19.60	20.85	21.75	21.73	20.77	20.63	20.14	19.50	19.77	19.27	18.96
14	18.56	19.60	21.06	21.75	21.65	20.76	20.61	20.15	19.47	19.77	---	18.90
15	18.59	19.61	---	21.77	21.62	20.72	20.57	20.11	19.45	19.82	---	18.78
16	18.62	19.73	---	21.77	21.60	20.72	20.55	20.10	19.45	19.87	---	18.78
17	18.67	19.74	---	21.77	21.59	20.72	20.55	20.05	19.45	19.96	---	18.75
18	18.69	19.87	---	21.80	21.58	20.78	20.57	20.05	19.43	19.93	---	18.75
19	18.69	19.90	---	21.80	21.52	20.80	20.57	20.05	19.42	19.95	---	18.72
20	18.69	19.85	---	21.80	21.52	20.80	---	20.03	19.42	19.96	---	18.63
21	18.80	20.00	---	21.79	21.37	20.80	---	20.02	19.42	19.96	---	18.62
22	18.87	20.00	---	21.82	21.31	20.78	---	20.01	19.42	19.96	---	18.61
23	18.92	20.02	---	21.82	21.18	20.80	---	20.00	19.40	19.97	---	18.59
24	18.95	20.07	---	21.84	21.18	20.80	---	19.99	19.45	19.97	---	18.52
25	18.97	20.07	---	21.84	21.22	20.80	---	19.96	19.49	19.96	---	18.60
26	18.97	20.14	---	21.87	21.21	20.82	---	19.95	19.49	19.95	---	18.46
27	18.98	20.15	---	21.87	21.10	20.82	---	19.88	19.49	19.90	---	18.50
28	18.99	20.23	---	21.92	21.07	20.80	---	19.87	19.49	19.83	---	18.50
29	19.00	20.25	---	21.91	---	20.79	---	19.86	19.49	19.77	---	18.48
30	19.01	20.27	21.47	21.91	---	20.77	---	19.80	19.49	19.71	---	18.52
31	19.08	---	21.50	21.98	---	20.74	---	19.80	---	19.66	19.12	---
MAX	19.08	20.27	21.50	21.98	22.05	21.05	20.72	20.25	19.80	19.97	19.64	19.12

CAL YR 1989 LOW 29.02
WTR YR 1990 LOW 22.05



410920081192000 PO-6
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

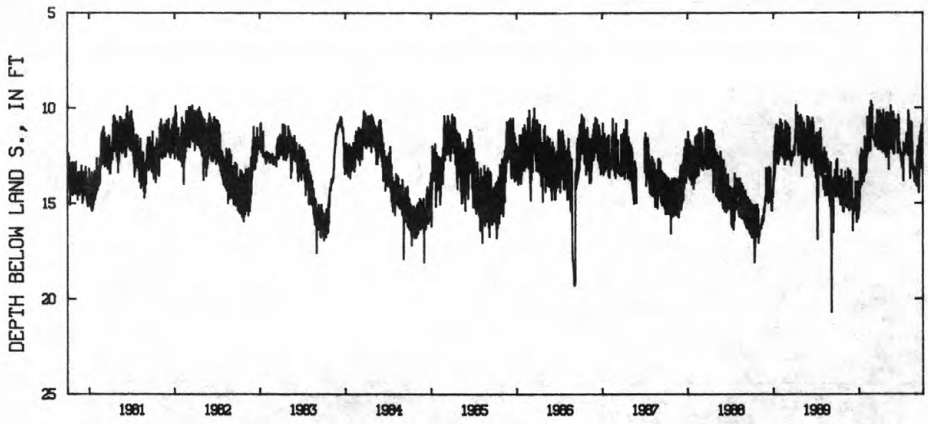
PUTNAM COUNTY

405505084032900. Local number, PU-1.
LOCATION.--Lat 40°55'05", long 84°03'29", Hydrologic Unit 04100007, Center and Broadway Streets, Columbus Grove.
Owner: Columbus Grove Water Department.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 110 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resource, Division of Water.
PERIOD OF RECORD.--July 1946 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 24.30 ft below land-surface datum, Aug. 24, 1962; minimum daily low, 9.50 ft below land-surface datum, Jan. 5, 1950.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.69	14.90	15.13	15.12	13.39	11.43	11.87	12.12	10.59	12.35	12.36	13.91
2	14.56	15.14	13.67	15.36	13.26	11.56	11.79	12.37	12.35	12.85	10.30	13.53
3	14.30	15.08	15.09	14.93	12.29	11.43	11.87	12.17	10.80	12.48	12.27	14.07
4	14.57	13.35	14.90	14.86	12.47	11.63	10.38	10.24	11.63	13.15	12.42	13.99
5	14.24	14.93	14.78	14.74	12.57	11.49	12.21	11.84	11.50	12.60	12.45	12.70
6	14.53	14.86	16.45	12.56	12.48	11.66	10.33	11.92	11.40	12.74	12.30	14.11
7	14.42	14.86	15.61	14.23	10.47	11.72	11.94	12.02	11.60	12.86	12.69	12.25
8	14.64	14.93	15.60	12.44	12.40	11.66	10.38	10.29	11.51	12.83	13.70	14.05
9	14.24	14.67	15.42	13.98	12.34	11.44	12.13	13.24	10.61	13.12	11.29	12.03
10	14.75	14.90	14.97	13.78	12.26	11.74	10.89	10.65	11.49	13.83	13.01	13.97
11	13.62	15.18	14.91	13.75	10.99	11.61	12.00	11.89	11.26	11.84	10.73	12.33
12	14.66	14.76	15.22	12.15	12.00	12.01	10.65	12.17	11.47	12.51	12.98	13.23
13	14.92	14.96	14.93	13.93	12.04	10.85	12.32	11.69	11.49	12.26	11.54	13.06
14	15.08	15.25	15.11	14.04	11.95	12.03	11.97	11.22	11.77	12.13	12.95	14.46
15	14.84	14.77	15.10	13.73	10.91	11.94	11.79	11.69	11.75	11.92	10.75	13.51
16	14.81	13.20	14.71	13.48	11.56	11.41	10.12	11.83	12.38	12.43	13.08	12.95
17	14.14	14.71	15.23	13.73	10.01	11.42	12.04	11.28	11.86	12.05	11.78	11.53
18	14.76	14.79	13.87	12.24	11.59	11.42	10.57	9.87	12.12	12.20	13.17	12.83
19	13.26	15.03	15.03	13.70	11.55	11.48	12.07	11.57	10.36	12.36	13.25	12.89
20	14.63	14.30	15.40	13.71	12.26	11.74	10.95	10.25	12.01	12.30	12.96	13.17
21	14.48	15.38	15.16	13.67	10.13	10.12	12.10	11.94	10.53	12.27	13.39	11.24
22	15.08	14.70	15.46	13.86	11.29	11.87	11.95	11.69	11.92	11.75	13.41	12.80
23	14.64	15.12	15.99	13.31	9.64	11.72	12.33	12.20	11.85	11.34	13.46	11.56
24	15.12	13.31	15.59	13.28	11.43	12.18	12.00	11.93	11.83	11.58	13.08	12.97
25	15.42	15.25	---	13.54	11.30	10.17	12.44	12.06	12.10	11.62	13.39	10.90
26	15.32	13.37	15.70	11.52	11.46	11.88	10.93	11.86	12.26	11.85	13.75	12.92
27	13.73	15.14	15.77	13.49	11.54	11.31	12.45	11.68	12.20	11.62	13.89	13.06
28	15.46	15.05	13.86	11.59	9.83	11.97	10.26	10.20	12.47	11.89	13.71	13.18
29	14.11	14.94	15.82	13.17	---	10.42	12.61	12.34	12.36	11.78	13.18	12.11
30	15.21	15.27	15.66	13.42	---	11.79	10.54	10.33	12.69	12.50	13.65	13.28
31	14.67	---	15.52	13.35	---	10.14	---	12.44	---	10.13	13.69	---
MAX	15.46	15.38	16.45	15.36	13.39	12.18	12.61	13.24	12.69	13.83	13.89	14.46

CAL YR 1989 LOW 20.70
WTR YR 1990 LOW 16.45



405505084032900 PU-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

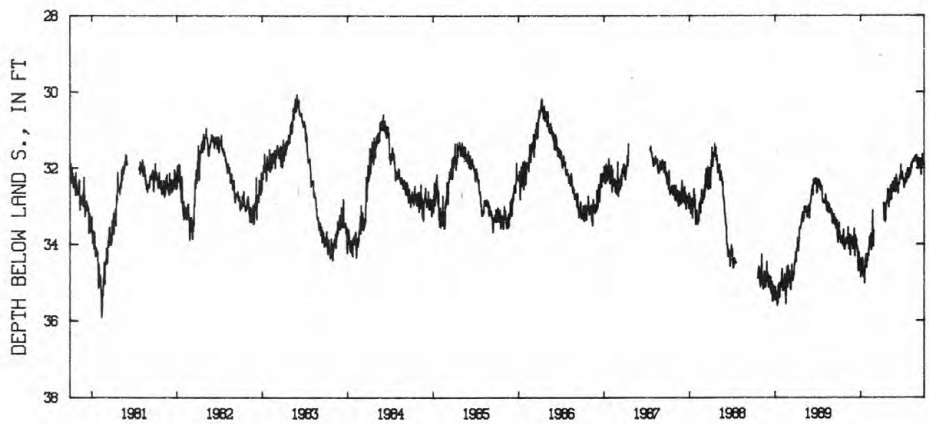
RICHLAND COUNTY

405753082360800. Local number, R-3.
LOCATION.--Lat 40°57'53", long 82°36'08", Hydrologic Unit 04100012, Voisard plant in Shiloh.
Owner: Voisard Corp.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 150 ft, cased.
INSTRUMENTATION.--Digital recorder --60-minute punch.
DATUM.--Elevation of land-surface datum is 1080 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.17 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--April 1946 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 35.90 ft below land-surface datum, Feb. 12, 1981; minimum daily low, 23.68 ft below land-surface datum, June 15, 23, 1947.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.49	33.98	33.95	34.85	34.26	---	---	32.83	32.60	32.21	32.18	31.86
2	33.43	33.94	33.79	34.86	34.29	---	---	32.96	32.47	32.29	32.17	31.86
3	33.66	33.96	33.91	34.75	34.29	---	---	33.02	32.19	32.30	32.12	32.02
4	33.75	33.98	33.86	34.67	34.27	---	---	32.91	32.48	32.29	32.00	31.98
5	33.70	33.82	33.59	34.78	34.29	---	---	32.58	32.51	32.34	31.89	31.84
6	33.80	33.87	33.91	34.73	34.15	---	---	32.64	32.29	32.51	31.96	31.73
7	33.88	33.87	34.29	34.71	34.10	---	---	32.69	32.49	32.51	32.00	31.76
8	33.84	33.75	34.30	34.48	34.10	---	---	32.72	32.45	32.45	32.01	31.82
9	33.96	33.55	34.00	34.35	33.80	---	---	32.66	32.39	32.39	31.96	31.76
10	33.81	33.91	33.76	34.56	33.82	---	32.92	32.46	32.53	32.42	31.83	31.91
11	33.90	33.91	33.92	34.42	33.86	---	33.11	32.85	32.67	32.42	31.83	31.94
12	33.90	34.12	33.93	34.65	33.99	---	33.32	32.83	32.63	32.30	31.86	31.93
13	33.97	34.06	33.84	34.86	33.79	---	33.37	32.77	32.40	32.31	31.79	31.92
14	33.85	33.88	33.89	34.83	33.98	---	33.10	32.81	32.41	32.15	31.83	31.78
15	33.78	33.74	33.89	34.78	33.76	---	32.93	32.65	32.43	32.18	31.81	31.76
16	33.78	33.76	34.07	34.84	33.72	---	32.94	32.53	32.42	32.31	31.82	31.93
17	33.93	33.92	34.06	34.81	34.15	---	33.24	32.39	32.38	32.37	31.81	32.18
18	34.03	34.27	34.15	34.98	34.10	---	33.40	32.55	32.22	32.32	31.77	32.17
19	33.85	34.28	34.09	35.01	33.89	---	33.34	32.56	32.30	32.24	31.74	31.89
20	33.61	33.77	34.14	34.67	34.03	---	33.13	32.37	32.21	32.12	31.83	31.94
21	33.79	33.99	34.42	34.38	33.91	---	32.96	32.58	32.21	32.05	31.79	31.93
22	34.07	34.01	34.64	34.46	33.47	---	32.95	32.62	32.20	32.01	31.73	31.64
23	34.08	33.98	34.70	34.49	33.11	---	32.91	32.61	31.91	32.04	31.70	31.82
24	34.11	34.02	34.61	34.30	33.60	---	32.87	32.59	32.12	32.11	31.77	31.85
25	34.13	33.82	34.21	34.26	34.05	---	32.86	32.59	32.29	32.20	31.80	31.77
26	34.12	33.86	34.34	34.42	34.04	---	32.82	32.33	32.24	32.26	31.79	31.89
27	34.06	33.90	34.34	34.42	33.64	---	32.78	32.32	32.22	32.20	31.74	31.93
28	34.03	34.02	34.57	34.60	---	---	32.54	32.27	32.28	32.15	31.69	31.93
29	33.98	34.12	34.52	34.39	---	---	32.70	32.41	32.11	32.12	31.67	31.88
30	33.91	33.86	34.55	34.24	---	---	32.72	32.55	32.13	32.02	31.84	31.90
31	33.83	---	34.37	34.43	---	---	---	32.63	---	32.13	31.88	---
MAX	34.13	34.28	34.70	35.01	34.29	---	33.40	33.02	32.67	32.51	32.18	32.18

CAL YR 1989 LOW 35.60
WTR YR 1990 LOW 35.01



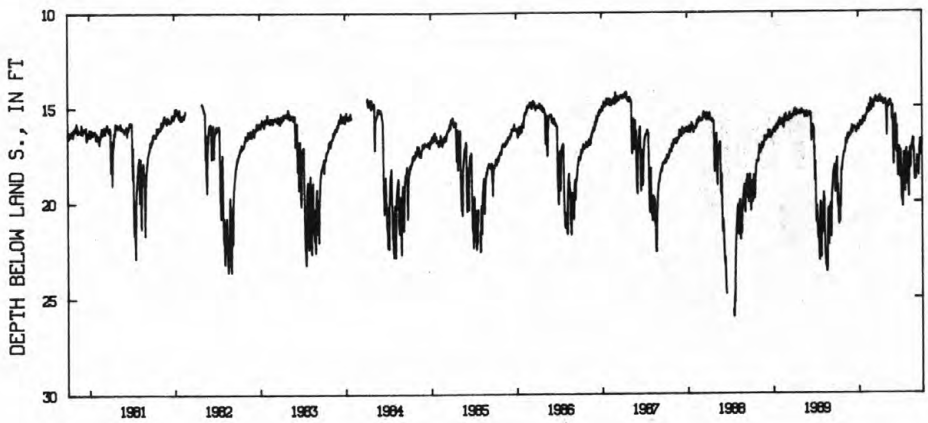
405753082360800 R-3
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

411914083045300. Local number, S-3.
LOCATION.--Lat 41°19'14", long 83°04'53", Hydrologic Unit 04100011, 2.6 mi southeast of Fremont Post Office.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled test artesian well, diameter 12 in., depth 121 ft, cased to 93 ft.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 627 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
PERIOD OF RECORD.--December 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 25.97 ft below land-surface datum, July 17, 1988; minimum daily low, 14.02 ft below land-surface datum, Mar. 24, 1975.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.83	17.45	16.34	16.22	15.54	14.96	14.50	14.97	18.02	17.29	17.52	18.78
2	17.68	17.43	16.24	16.24	15.51	14.69	14.46	15.77	17.40	17.56	17.48	18.67
3	18.97	17.37	16.27	16.17	15.47	14.74	14.50	16.52	16.97	18.21	18.41	18.81
4	19.92	17.38	16.22	16.02	15.49	14.79	14.42	15.81	16.25	18.96	19.35	18.76
5	20.20	17.23	16.00	16.06	15.45	14.87	14.57	15.12	16.02	19.66	19.72	18.26
6	19.09	17.16	16.14	16.09	15.39	15.07	14.60	15.11	15.70	19.90	18.79	18.38
7	19.65	17.10	16.39	15.99	15.38	15.07	14.70	15.09	15.70	18.99	18.11	18.15
8	20.55	16.92	16.32	15.90	15.36	14.94	14.79	15.04	15.52	19.27	17.73	17.86
9	21.06	16.71	16.16	15.79	15.13	14.69	14.78	14.96	15.43	20.06	17.50	17.59
10	21.15	16.87	16.11	15.83	15.15	14.72	14.60	14.76	15.47	20.25	17.30	17.88
11	20.46	16.86	16.16	15.79	15.19	14.67	14.56	15.01	15.72	19.40	17.17	18.17
12	19.73	16.95	16.13	15.85	15.30	14.67	14.72	15.00	17.08	18.59	18.22	18.05
13	20.86	16.94	16.08	16.00	15.18	14.72	14.78	14.92	17.41	18.23	17.87	18.34
14	21.02	16.94	16.04	16.02	15.32	14.61	14.63	14.98	16.65	17.81	17.39	18.37
15	20.13	16.72	16.07	15.90	15.15	14.60	14.61	14.88	16.16	17.46	17.21	18.61
16	19.89	16.47	16.09	15.92	14.94	14.54	14.62	14.75	16.02	17.43	17.19	18.25
17	20.28	16.59	16.14	15.82	15.30	14.49	14.79	14.67	17.17	17.93	17.19	17.90
18	19.64	16.71	16.16	15.92	15.21	14.66	14.91	14.77	18.14	18.50	17.01	17.70
19	19.09	16.70	16.13	15.95	15.18	14.77	14.87	14.82	18.66	19.32	17.27	17.32
20	18.53	16.41	16.12	15.75	15.24	14.76	14.72	14.75	18.18	19.46	17.02	17.12
21	18.22	16.57	16.24	15.58	15.16	14.66	14.67	14.90	18.20	18.49	16.88	17.05
22	18.35	16.55	16.36	15.64	14.94	14.57	14.73	14.94	18.26	17.95	16.75	16.75
23	18.25	16.56	16.37	15.62	14.61	14.77	14.75	14.93	17.35	17.53	16.66	16.71
24	18.12	16.61	16.32	15.59	14.93	14.77	14.81	14.94	17.11	17.39	16.66	16.75
25	18.01	16.46	16.11	15.56	15.21	14.73	14.75	15.68	17.67	17.29	16.67	17.01
26	17.89	16.48	16.21	15.65	15.21	14.80	14.76	15.19	17.14	17.23	17.32	17.30
27	17.79	16.49	16.19	15.65	14.95	14.82	14.72	15.05	17.59	17.70	17.25	17.56
28	17.68	16.48	16.22	15.82	15.03	14.77	14.64	14.95	18.57	18.82	17.93	17.15
29	17.62	16.52	16.20	15.69	---	14.68	14.81	15.63	18.73	19.10	18.11	16.95
30	17.51	16.35	16.16	15.55	---	14.53	14.86	16.99	17.78	18.22	18.64	16.77
31	17.41	---	15.95	15.68	---	14.53	---	17.76	---	17.69	18.87	---
MAX	21.15	17.45	16.39	16.24	15.54	15.07	14.91	17.76	18.73	20.25	19.72	18.81

CAL YR 1989 LOW 23.62
WTR YR 1990 LOW 21.15



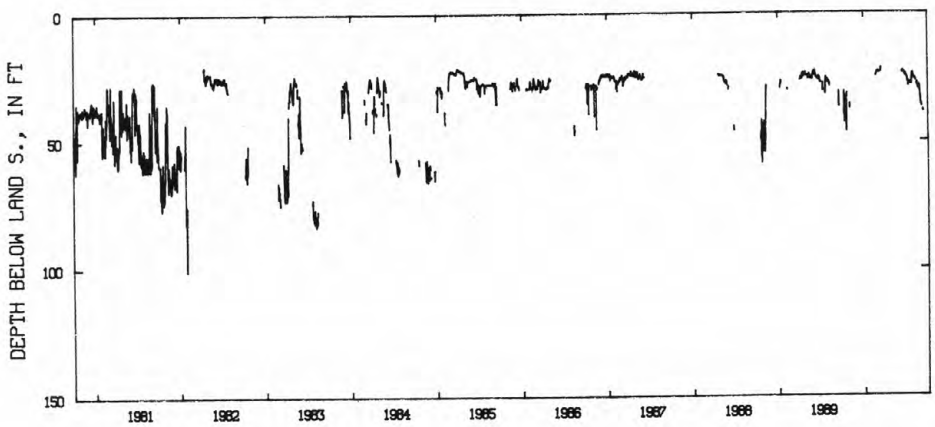
411914083045300 S-3 H KEISER COLE RD SE OF FREMONT OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

412703083213600. Local number, S-2.
LOCATION.--Lat 41°27'03", long 83°21'36", Hydrologic Unit 04100010, at water works in Woodville.
Owner: Woodville Water department.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 198 ft cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 635 ft above National Geodetic Vertical Datum of 1929 from topographic map. Measuring point: Top of casing at land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--June 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 100.97 ft below land-surface datum, Jan. 29, 1982; minimum daily low, 18.60 ft below land-surface datum, May 6, 1977.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	37.52	---	---	---	23.38	---	---	---	24.68	25.18	35.88
2	---	35.86	---	---	---	23.24	---	---	---	25.16	25.86	35.65
3	36.20	---	---	---	---	23.56	---	---	---	25.26	26.01	36.28
4	---	---	---	---	---	23.62	---	---	---	25.53	25.57	36.81
5	30.14	---	---	---	---	23.56	---	---	---	25.77	25.88	---
6	---	---	---	---	---	23.78	---	---	---	26.24	25.95	---
7	---	---	---	---	---	23.66	---	---	---	27.31	26.20	---
8	39.94	---	---	---	---	23.46	---	---	---	26.98	26.19	---
9	30.90	---	---	---	---	23.56	---	---	---	26.98	26.19	38.17
10	42.94	---	---	---	---	23.54	---	---	---	28.82	26.84	38.79
11	32.52	---	---	---	---	23.46	---	---	---	---	---	---
12	---	---	---	---	---	23.36	---	---	---	---	---	---
13	---	---	---	---	---	23.20	---	---	23.24	---	28.20	---
14	---	41.36	---	---	---	23.20	---	---	23.76	---	27.80	---
15	---	---	---	---	---	23.22	---	---	23.38	---	27.45	---
16	---	---	---	---	---	21.92	---	---	23.40	26.95	27.65	---
17	42.66	---	---	---	---	---	---	---	23.30	---	28.41	---
18	46.36	---	---	---	---	---	---	---	23.07	27.46	29.14	---
19	40.96	---	---	---	---	---	---	---	23.44	28.18	29.36	---
20	31.78	---	---	---	---	---	---	---	23.66	---	29.43	---
21	---	---	---	---	24.92	---	---	---	23.64	28.79	30.11	---
22	---	---	---	---	24.56	---	---	---	23.63	---	29.82	---
23	---	---	---	---	24.48	---	---	---	23.73	28.20	29.25	---
24	---	---	---	---	23.76	---	---	---	23.79	26.59	29.13	---
25	---	---	---	---	23.54	---	---	---	24.64	24.82	28.42	---
26	---	---	---	---	23.24	---	---	---	24.77	24.05	28.93	---
27	---	---	---	---	23.34	---	---	---	24.03	23.85	29.51	---
28	---	---	---	---	23.32	---	---	---	24.61	23.96	30.44	---
29	---	---	---	---	---	---	---	---	24.64	23.79	33.39	---
30	---	---	---	---	---	---	---	---	24.59	24.61	32.68	30.13
31	---	---	---	---	---	---	---	---	---	24.93	34.23	---
MAX	46.36	41.36	---	---	24.92	23.78	---	---	24.77	28.82	34.23	38.79

CAL YR 1989 LOW 46.36
WTR YR 1990 LOW 46.36



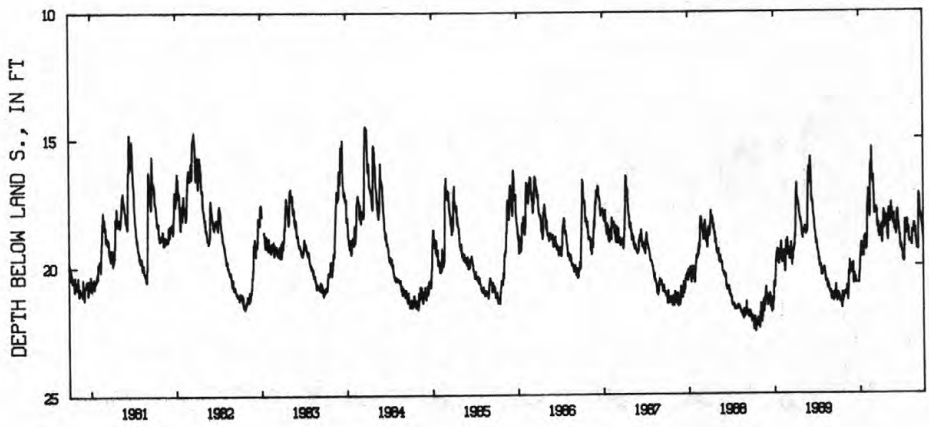
412703083213600 S-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

410802083093900. Local number, SE-2.
LOCATION.--Lat 41°08'02", long 83°09'39", Hydrologic Unit 04100011, Tiffin State Hospital, Tiffin.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 250 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 0.50 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--July 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 23.76 ft below land-surface datum, Nov. 22, 1964; minimum daily low, 14.48 ft below land-surface datum, Mar. 22, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.06	21.13	20.15	20.28	19.14	16.77	18.58	18.74	18.61	19.35	19.04	19.10
2	21.12	21.13	20.02	20.27	18.92	16.45	18.49	18.91	18.53	19.48	19.07	19.18
3	21.24	21.12	20.18	19.98	18.60	16.92	18.50	19.00	18.29	19.47	19.06	19.35
4	21.31	21.15	20.14	19.73	17.82	17.21	18.40	18.91	18.61	19.41	19.01	19.36
5	21.19	20.99	19.90	19.63	17.74	17.50	18.71	18.01	18.68	19.54	19.08	19.23
6	21.13	21.09	20.30	19.48	17.40	17.96	18.78	17.88	18.51	19.76	19.08	19.20
7	21.29	21.05	20.73	19.42	17.39	17.97	18.99	17.77	18.78	19.83	19.06	19.34
8	21.26	20.95	20.67	19.22	17.38	17.85	19.12	17.79	18.62	19.74	19.05	19.39
9	21.43	20.78	20.41	19.10	17.01	17.69	19.05	17.81	18.15	19.70	19.00	19.34
10	21.26	21.17	20.31	19.28	17.26	17.72	18.82	17.78	17.92	19.86	19.00	17.55
11	21.43	21.15	20.45	19.25	17.52	17.72	18.35	18.30	17.94	19.83	19.14	17.15
12	21.41	21.36	20.45	19.48	17.77	17.74	18.31	18.30	17.83	19.28	19.22	17.19
13	21.46	21.26	20.41	19.66	17.77	17.85	18.24	18.17	17.81	19.24	19.13	17.34
14	21.36	21.01	20.43	19.62	18.09	17.73	17.97	18.18	17.90	18.77	18.70	17.22
15	21.34	20.90	20.47	19.51	17.89	17.83	17.83	17.95	18.16	18.22	18.61	17.36
16	21.37	20.23	20.62	19.55	16.69	17.86	17.90	17.78	18.28	18.41	18.64	17.76
17	21.59	20.30	20.69	19.44	16.27	17.82	18.35	17.53	18.37	18.55	18.70	18.12
18	21.67	20.39	20.65	19.62	16.07	18.17	18.53	17.78	18.35	18.65	18.71	18.12
19	21.48	20.39	---	19.65	15.97	18.48	18.46	17.85	18.60	18.74	18.74	17.95
20	21.04	19.81	---	19.27	16.30	18.50	18.25	17.78	18.59	18.73	18.58	18.16
21	21.19	20.14	---	18.90	16.27	18.38	18.15	18.04	18.81	18.77	18.47	18.20
22	21.43	20.12	---	18.96	16.05	18.31	18.14	18.17	18.78	18.71	18.34	18.03
23	21.34	20.12	---	18.96	15.36	18.74	18.01	18.23	18.81	18.20	18.34	18.36
24	21.30	20.16	---	18.86	16.04	18.72	18.02	18.31	19.10	18.20	18.43	18.40
25	21.28	19.94	---	18.82	16.64	18.66	18.16	18.35	19.29	18.34	18.50	18.29
26	21.24	20.05	---	19.14	16.65	18.81	18.20	18.08	19.22	18.48	18.55	18.53
27	21.20	20.06	---	19.13	16.54	18.88	18.22	18.04	19.27	18.49	18.60	18.68
28	21.14	20.27	20.70	19.39	16.77	18.85	18.09	17.96	19.36	18.51	18.53	18.77
29	21.11	20.30	20.69	19.17	---	18.76	18.38	18.23	19.16	18.50	18.66	18.84
30	21.04	20.09	20.63	19.08	---	18.60	18.49	18.44	19.24	18.58	18.89	18.92
31	21.03	---	20.38	19.35	---	18.61	---	18.58	---	18.86	19.06	---
MAX	21.67	21.36	20.73	20.28	19.14	18.88	19.12	19.00	19.36	19.86	19.22	19.39

CAL YR 1989 LOW 21.67
WTR YR 1990 LOW 21.67



410802083093900 SE-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

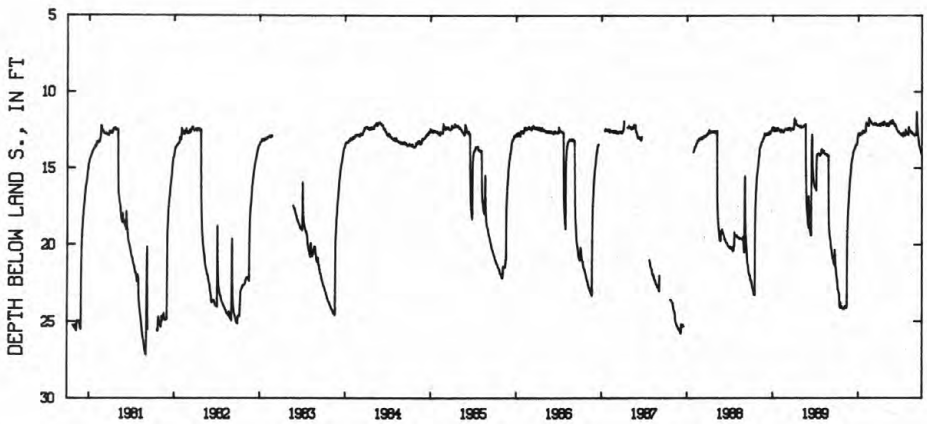
SUMMIT COUNTY

410330081282000. Local number, SU-6.
LOCATION.--Lat 41°03'30", long 81°28'20", Hydrologic Unit 04110002, Seiberling St, Akron.
Owner: Goodyear Tire and Rubber Co.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 24 in., depth 89 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 1000 ft above National Geodetic Vertical Datum of 1929 from topographic map. Measuring point: Floor of instrument shelter 2.63 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--March 1944 to current year. Records for May 14-Sept. 30, 1980, published in USGS-WRD-OH-80-1, are unreliable and should not be used.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 59.47 ft below land-surface datum, Oct. 18, 1947; minimum daily low, 11.32 ft below land-surface datum, Sept. 8, 1990.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.03	24.09	15.09	12.73	12.61	12.07	12.14	12.18	12.07	12.71	12.73	12.86
2	22.19	24.09	14.89	12.73	12.52	12.09	12.10	12.24	12.05	12.75	12.78	12.79
3	22.27	24.19	14.72	12.75	12.20	12.10	12.17	12.25	12.00	12.80	12.81	12.76
4	22.44	24.09	14.58	12.85	12.11	12.09	12.13	12.25	12.08	12.81	12.80	12.79
5	22.62	24.06	14.46	12.87	11.99	12.09	12.20	12.11	12.14	12.77	12.41	12.82
6	22.79	24.01	14.40	12.86	12.07	12.16	12.23	12.07	12.19	12.84	12.30	12.84
7	22.92	24.07	14.37	12.76	12.19	12.17	12.25	12.07	12.26	12.85	12.42	12.58
8	22.95	24.07	14.29	12.70	12.17	12.15	12.22	12.14	12.24	12.84	12.50	11.32
9	23.02	24.07	14.21	12.72	12.19	12.11	12.18	12.14	12.13	12.84	12.54	11.34
10	23.13	24.09	14.09	12.83	12.15	12.11	12.15	12.16	12.13	12.89	12.58	11.88
11	23.15	24.11	13.93	12.74	12.11	12.03	12.03	12.25	12.21	12.92	12.58	12.29
12	23.27	24.13	13.90	12.78	12.14	12.06	12.11	12.25	12.27	12.81	12.56	12.56
13	23.73	24.07	13.85	12.79	12.18	12.11	12.13	12.09	12.34	12.66	12.52	12.76
14	23.95	24.03	13.80	12.74	12.23	12.14	12.09	12.11	12.39	12.68	12.56	12.85
15	24.05	20.96	13.76	12.66	12.15	12.13	12.00	12.16	12.47	12.67	12.63	12.95
16	24.10	19.54	13.72	12.67	11.69	12.09	12.03	12.09	12.51	12.73	12.70	13.04
17	23.76	18.84	13.72	12.67	11.81	12.04	12.15	11.96	12.49	12.77	12.73	13.22
18	23.90	18.32	13.73	12.75	11.79	12.03	12.18	11.96	12.50	12.80	12.73	13.37
19	23.95	17.95	13.62	12.75	11.83	12.09	12.18	11.96	12.56	12.85	12.65	13.49
20	23.98	17.57	13.50	12.66	11.90	12.11	12.15	11.91	12.57	12.87	12.66	13.57
21	24.01	17.27	13.50	12.52	11.92	12.14	12.05	11.97	12.63	12.87	12.71	13.63
22	24.01	17.03	13.50	12.57	11.91	12.17	11.93	11.98	12.64	12.80	12.72	13.70
23	24.05	16.77	13.51	12.60	11.92	12.22	11.95	12.00	12.59	12.48	12.78	13.72
24	24.09	16.51	13.51	12.61	11.97	12.22	11.98	12.07	12.59	12.57	12.79	13.82
25	24.13	16.24	13.49	12.63	11.94	12.16	12.03	12.09	12.62	12.68	12.80	13.87
26	24.17	15.94	13.49	12.67	11.94	12.15	12.07	12.06	12.67	12.72	12.78	13.98
27	24.17	15.73	13.37	12.65	12.06	12.19	12.07	11.93	12.72	12.77	12.75	14.07
28	24.16	15.55	13.35	12.55	12.07	12.20	12.07	11.88	12.74	12.79	12.80	14.07
29	24.15	15.43	13.14	12.53	---	12.19	12.05	11.84	12.76	12.77	12.82	14.07
30	24.09	15.26	12.98	12.59	---	12.20	12.09	11.94	12.76	12.75	12.87	14.09
31	24.09	---	12.90	12.64	---	12.16	---	12.03	---	12.68	12.87	---
MAX	24.17	24.19	15.09	12.87	12.61	12.22	12.25	12.25	12.76	12.92	12.87	14.09

CAL YR 1989 LOW 24.19
WTR YR 1990 LOW 24.19



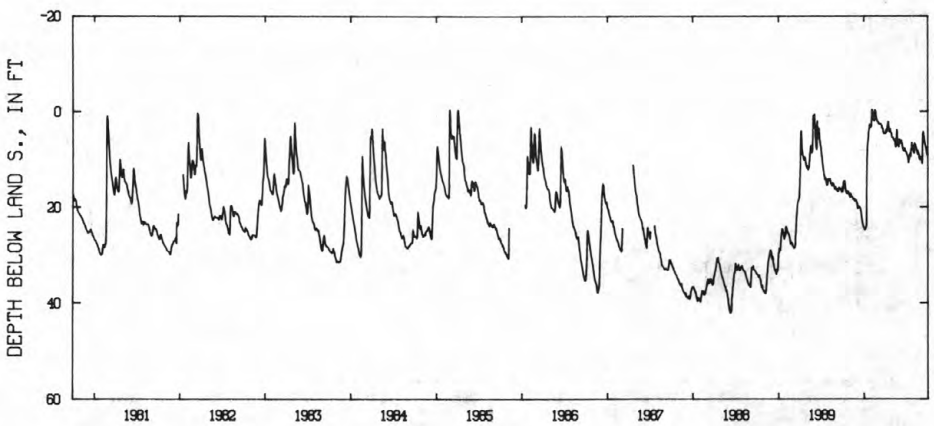
410330081282000 SU-6
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

410846081271600. Local number, SU-7.
LOCATION.--Lat 41°08'46", long 81°27'16", Hydrologic Unit 04110002, Monroe Falls Road, Cuyahoga Falls.
Owner: Cuyahoga Falls Water Department.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table, diameter 6 in., depth 100 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 994 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 5.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--August 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 44.19 ft below land-surface datum, Sept. 7, 1971; minimum daily low, 0.48 ft above land-surface datum, Feb. 5, 1990.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.13	17.77	19.05	24.40	3.20	2.16	4.69	5.44	5.92	8.54	8.63	10.11
2	16.81	17.94	19.04	24.55	3.01	2.14	4.53	5.48	5.85	8.83	8.32	10.07
3	16.43	18.02	19.25	24.58	1.85	2.17	4.59	5.46	6.08	8.87	8.73	10.00
4	16.09	17.78	19.46	24.76	.44	2.27	4.47	5.48	6.30	9.11	8.44	10.25
5	15.33	17.27	20.31	24.79	-.48	2.56	4.10	5.47	6.50	9.30	7.38	10.42
6	14.87	17.18	20.31	24.73	-.33	2.58	3.78	5.47	6.61	9.37	6.68	10.92
7	14.60	17.81	20.26	24.61	.01	2.66	4.13	5.88	6.69	9.41	6.93	10.06
8	14.60	17.84	20.06	24.42	.52	2.67	4.28	5.85	6.70	9.80	6.92	6.79
9	15.05	17.83	19.93	24.20	1.02	2.62	4.06	5.76	6.42	10.08	7.11	4.76
10	14.49	17.88	19.83	24.09	1.46	2.57	3.80	6.00	6.01	10.65	7.14	4.50
11	14.65	17.88	19.92	23.98	1.54	2.64	3.41	6.19	6.29	10.64	7.56	4.19
12	14.88	17.89	20.07	23.49	1.81	2.56	2.71	5.92	6.54	9.94	7.66	4.49
13	15.61	17.91	20.03	14.94	1.80	2.55	2.59	5.90	6.87	9.17	8.02	4.89
14	16.02	18.12	20.03	10.79	1.94	2.64	2.14	6.29	7.42	9.60	8.07	5.24
15	16.36	18.30	20.13	9.04	1.81	2.68	2.12	7.02	7.39	9.15	8.10	5.52
16	16.61	18.40	20.26	8.08	.66	2.69	2.66	7.34	7.89	9.64	8.50	5.94
17	16.78	18.47	20.46	7.18	-.31	2.92	3.43	7.39	8.01	8.84	8.68	6.41
18	17.05	18.39	20.75	6.50	-.32	3.02	3.63	7.42	8.23	9.28	8.86	6.64
19	17.17	18.30	20.91	5.89	-.28	3.25	3.93	7.04	8.28	9.46	8.27	6.87
20	17.18	18.29	21.11	5.15	-.04	3.49	4.24	6.18	8.25	9.09	8.68	7.21
21	16.78	18.51	21.80	4.40	.53	3.53	4.07	4.92	8.23	8.41	9.05	7.36
22	16.83	18.64	22.05	3.99	.87	3.53	3.59	3.79	8.28	7.89	8.93	7.47
23	16.90	18.76	22.46	3.57	1.26	3.77	3.80	4.74	8.07	7.68	8.80	7.86
24	17.27	18.80	22.72	3.43	1.45	4.02	3.81	5.83	7.69	6.64	8.99	8.15
25	16.70	18.68	23.07	2.68	1.64	4.48	4.18	7.07	7.92	6.57	9.60	8.58
26	16.73	18.83	23.40	2.73	1.87	4.50	4.30	6.92	8.29	7.04	9.87	8.90
27	17.00	18.90	23.59	2.77	1.94	4.62	4.42	7.02	8.39	7.10	10.11	8.76
28	17.09	18.54	23.70	2.97	2.10	4.36	4.52	7.08	8.44	7.69	9.73	9.17
29	16.98	18.76	23.95	2.94	---	4.41	4.63	7.29	8.47	7.82	9.64	8.82
30	17.24	18.95	24.11	3.14	---	4.59	5.00	7.39	8.44	8.03	9.51	9.02
31	17.54	---	24.21	3.22	---	4.62	---	6.31	---	8.25	9.89	---
MAX	17.54	18.95	24.21	24.79	3.20	4.62	5.00	7.42	8.47	10.65	10.11	10.92

CAL YR 1989 LOW 29.62
WTR YR 1990 LOW 24.79



410846081271600 SU-7
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

GROUND-WATER RECORDS

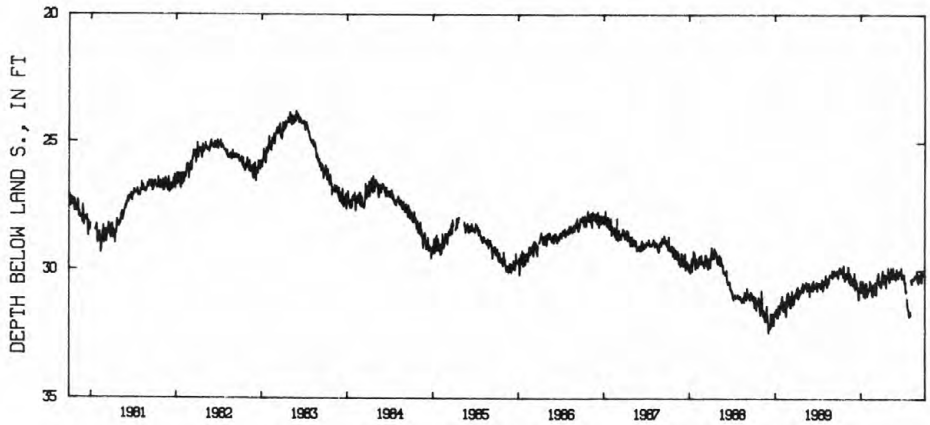
VAN WERT COUNTY

405215084335400. Local number, VW-1.
LOCATION.--Lat 40°52'15", long 84°33'54", Hydrologic Unit 04100007, Ridge Road near Van Wert.
Owner: Marsh Foundation.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 340 ft, cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 790.37 ft above National Geodetic Vertical Datum of 1929. Measuring point: Floor of instrument shelter 6.15 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low 32.81 ft below land-surface datum, Mar. 2, 1977; minimum daily low, 18.85 ft below land-surface datum, Mar. 6, 1959.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.95	30.25	30.50	30.80	30.70	30.80	30.20	30.25	30.30	30.20	---	---
2	29.90	30.20	30.30	30.85	30.80	30.50	30.15	30.40	30.15	30.32	---	30.30
3	30.05	30.30	30.50	30.75	30.80	30.45	30.10	30.45	29.95	30.20	30.35	30.50
4	30.10	30.25	30.40	30.70	30.80	30.50	30.00	30.40	30.20	30.15	30.35	30.45
5	30.00	30.10	30.10	30.75	30.80	30.60	30.20	30.05	30.20	30.25	30.45	30.35
6	29.90	30.20	30.40	30.75	30.70	30.85	30.30	30.10	30.15	30.45	30.50	30.25
7	30.00	30.15	30.75	30.70	30.75	30.95	30.40	30.20	30.20	30.50	30.50	30.15
8	30.00	30.00	30.70	30.55	30.70	30.80	30.50	30.20	30.15	30.40	30.40	30.25
9	30.10	29.85	30.55	30.40	30.40	30.45	30.40	30.10	30.05	30.45	30.30	30.20
10	29.95	30.20	30.35	30.60	30.45	30.45	30.15	29.90	30.15	30.65	30.30	30.30
11	30.05	30.25	30.50	30.50	30.60	30.35	30.30	30.30	30.30	30.70	30.30	30.40
12	30.05	30.45	30.50	30.70	30.70	30.30	30.40	30.30	30.20	30.85	30.30	---
13	30.10	30.35	30.45	31.00	30.60	30.40	30.45	30.25	30.10	30.85	30.35	---
14	30.00	30.20	30.50	30.90	30.75	30.30	30.20	30.30	30.05	30.80	30.35	30.05
15	29.95	30.10	30.50	30.80	30.55	30.15	30.15	30.20	30.05	---	30.35	30.05
16	29.90	30.10	30.65	30.85	30.60	30.15	30.20	30.15	30.10	---	30.30	30.40
17	30.20	30.20	30.70	30.80	30.95	30.10	30.50	29.95	30.10	31.10	30.25	30.45
18	30.25	30.55	30.75	31.00	30.90	30.20	30.65	30.10	30.00	31.30	30.20	30.40
19	30.20	30.55	30.70	31.05	30.90	30.40	30.55	30.10	30.10	31.35	30.25	30.20
20	29.80	30.20	30.70	30.80	31.00	30.55	30.35	29.90	30.00	31.40	30.30	30.20
21	30.00	30.40	30.95	30.50	30.90	30.55	30.30	30.15	30.15	31.50	30.20	30.10
22	30.25	30.35	31.10	30.60	30.55	30.40	30.30	30.25	30.10	31.50	30.20	30.00
23	30.25	30.40	31.13	30.65	---	30.50	30.25	30.30	29.90	31.50	30.20	30.15
24	30.35	30.45	31.05	30.50	---	30.60	30.20	30.30	30.10	31.65	30.20	30.15
25	30.40	30.30	30.70	30.50	---	30.60	30.25	30.30	30.30	31.75	30.25	30.10
26	30.40	30.40	30.65	30.70	---	30.50	30.20	30.10	30.30	31.80	30.20	30.10
27	30.35	30.35	30.65	30.85	---	30.60	30.10	30.10	30.20	31.75	30.20	30.20
28	30.30	30.55	30.75	31.00	30.90	30.65	29.90	30.10	30.25	31.70	30.10	30.20
29	30.25	30.60	30.70	30.75	---	30.60	30.00	30.15	30.25	31.70	30.05	30.20
30	30.20	30.45	30.65	30.70	---	30.40	30.10	30.30	30.15	31.60	30.20	30.20
31	30.10	---	30.40	30.90	---	30.25	---	30.35	---	31.75	30.40	---
MAX	30.40	30.60	31.13	31.05	31.00	30.95	30.65	30.45	30.30	31.80	30.50	30.50

CAL YR 1989 LOW 31.85
WTR YR 1990 LOW 31.80



405215084335400 VW-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

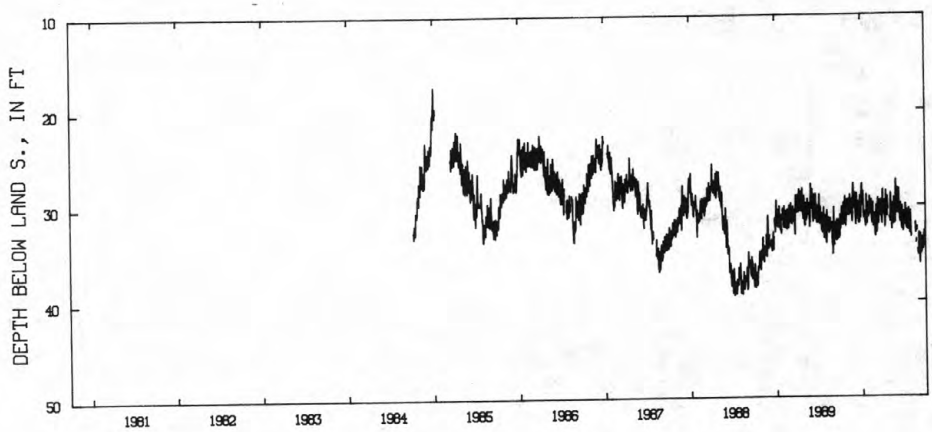
WILLIAMS COUNTY

412821084313600. Local number, WM-1.
LOCATION.--Lat 41°28'21", long 84°31'36", Hydrologic Unit 04100006, Bryan Water Treatment Plant, Bryan.
Owner: City of Bryan.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused production well, diameter 8 in., depth 118 ft, cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 747 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.30 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--May 1951 to May 1957, discontinued June 1957 to September 1984, reactivated October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 39.35 ft below land-surface datum, July 7, 1988; minimum daily low, 1.45 ft below land-surface datum, Jan. 27, 1952.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.95	30.40	30.20	27.80	30.80	33.20	28.40	31.20	30.80	30.65	33.30	35.20
2	32.15	31.00	30.30	27.75	30.90	32.75	30.10	31.20	30.80	31.30	---	34.25
3	32.40	30.65	28.70	28.50	30.55	30.90	30.40	31.40	28.20	31.60	---	32.90
4	32.05	30.80	29.75	29.80	29.10	30.00	30.70	31.70	29.50	31.80	---	33.35
5	32.00	29.30	30.80	29.90	30.65	31.90	30.50	29.50	29.60	31.90	31.80	---
6	31.80	30.35	31.35	29.90	30.55	32.55	30.90	28.75	30.60	32.00	---	34.90
7	30.40	30.70	32.00	28.55	30.60	32.80	31.00	30.00	30.80	31.00	33.30	36.10
8	30.15	31.00	31.50	29.70	30.85	32.15	29.50	31.10	30.25	29.90	---	34.80
9	31.65	30.60	30.55	30.70	30.85	32.00	30.60	31.30	29.45	31.20	---	33.00
10	31.90	30.35	28.75	31.30	30.90	30.10	30.85	31.50	28.30	31.70	---	34.00
11	31.45	29.50	30.35	30.65	29.40	29.25	32.30	32.50	30.00	32.20	---	34.25
12	31.70	28.90	30.95	30.70	30.90	31.15	31.95	31.20	30.65	32.30	32.20	34.50
13	32.05	30.80	31.40	30.85	31.45	31.55	31.25	29.80	30.95	32.45	---	35.10
14	30.30	30.90	30.65	30.65	31.85	31.90	29.30	30.90	31.45	32.30	---	34.90
15	29.70	30.70	30.80	31.10	31.00	31.45	28.50	31.35	31.75	30.50	---	34.80
16	30.90	30.45	30.90	31.80	30.80	30.75	29.00	31.70	31.75	30.95	---	33.35
17	31.05	30.50	29.60	31.60	30.50	30.80	29.70	31.55	29.80	31.60	---	34.05
18	31.30	29.70	31.15	32.20	29.70	29.50	29.80	31.95	30.75	32.15	---	34.15
19	31.90	29.30	31.85	31.20	31.50	31.00	30.05	31.20	31.40	32.60	31.85	34.10
20	31.30	30.90	31.10	31.20	32.20	30.80	31.00	29.20	31.80	---	32.90	34.65
21	29.70	31.70	31.40	28.90	31.60	30.80	31.15	31.00	32.00	31.30	---	34.60
22	29.10	31.50	31.70	30.80	30.90	31.05	29.10	31.55	32.45	30.35	33.95	34.05
23	31.05	30.80	31.80	31.10	31.30	31.05	29.80	31.85	31.00	31.55	33.65	33.10
24	31.55	28.95	29.90	31.90	31.30	31.15	30.25	31.45	30.10	31.20	---	33.25
25	32.15	28.30	29.00	30.95	30.85	29.40	30.40	31.75	31.45	32.20	32.70	32.70
26	31.55	27.70	29.60	31.20	31.55	30.75	---	29.90	31.60	32.75	32.30	33.75
27	31.20	29.20	30.70	30.15	32.60	31.00	---	28.50	32.50	32.95	---	34.30
28	30.45	29.50	31.30	29.70	33.00	31.55	---	27.35	32.70	---	---	34.10
29	29.40	30.25	30.40	30.05	---	31.90	---	28.35	32.50	30.60	34.65	34.00
30	30.40	30.10	29.80	31.20	---	30.75	---	30.10	31.40	31.65	35.00	31.90
31	30.95	---	28.25	31.00	---	29.00	---	30.20	---	32.65	35.10	---
MAX	32.40	31.70	32.00	32.20	33.00	33.20	32.30	32.50	32.70	32.95	35.10	36.10

CAL YR 1989 LOW 35.05
WTR YR 1990 LOW 36.10



412821084313600 WM-1 CITY OF BRYAN AT BRYAN OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

GROUND-WATER RECORDS

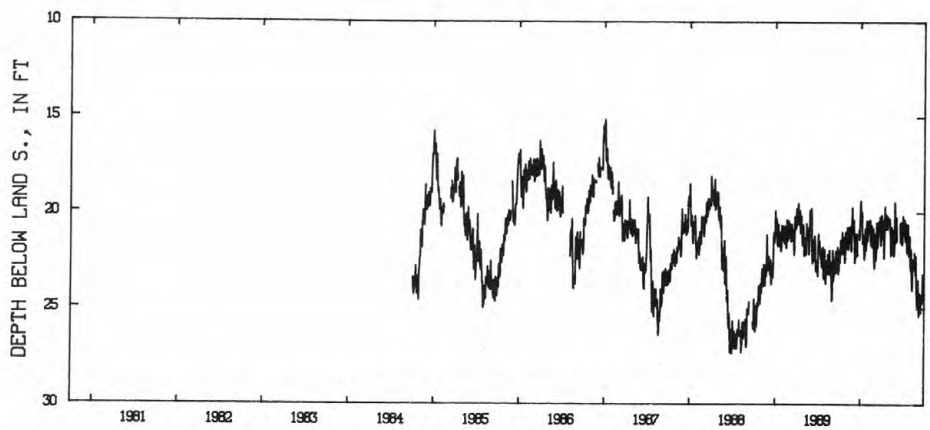
WILLIAMS COUNTY--Continued

412930084320900. Local number, WM-3.
LOCATION.--Lat 41°29'30", long 84°32'09", Hydrologic Unit 04100006, Union Street, Bryan.
Owner: City of Bryan.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused test well, diameter 8 in., depth 174 ft, cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 760 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 2.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 27.35 ft below land-surface datum, June 30 - July 1, 1988; minimum daily low, 15.15 ft below land-surface datum, Jan. 4, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.10	21.75	21.15	19.60	21.45	22.90	20.35	---	21.55	20.80	22.30	24.90
2	21.95	21.85	21.15	19.35	21.20	22.75	20.10	---	21.50	20.15	22.70	24.45
3	22.45	21.80	20.35	19.40	21.20	22.00	20.60	---	20.50	20.60	23.00	23.50
4	22.60	21.80	20.40	20.00	20.40	21.10	21.00	---	20.25	20.80	22.90	23.60
5	22.60	21.00	21.25	20.40	20.50	21.30	21.20	---	21.05	20.95	21.90	24.50
6	22.25	20.75	21.85	20.45	20.75	22.00	21.25	---	21.45	21.15	22.10	24.75
7	22.20	21.40	22.60	20.00	20.80	22.50	21.30	20.30	---	21.00	23.00	25.40
8	21.40	21.85	22.60	19.95	20.95	22.30	20.60	20.90	---	20.40	23.60	25.30
9	21.50	21.90	22.40	20.95	20.90	22.10	20.40	21.15	---	20.35	23.90	24.30
10	21.80	21.90	21.30	21.60	20.95	21.60	21.15	21.55	---	20.95	24.05	24.20
11	21.75	21.40	21.10	21.50	20.35	20.50	22.35	22.25	---	21.15	23.70	24.45
12	21.90	20.75	21.70	21.60	20.45	20.90	22.35	22.05	---	21.45	22.40	24.65
13	21.90	21.00	22.30	21.60	21.25	21.50	21.85	21.10	---	21.50	22.45	25.20
14	21.70	21.55	22.20	21.20	21.70	21.85	20.90	20.75	---	21.50	---	25.20
15	21.00	21.55	22.00	21.15	21.60	21.80	20.00	21.30	---	20.75	---	25.20
16	22.15	21.45	21.80	21.70	21.50	21.70	19.65	21.70	---	20.55	---	24.40
17	---	21.40	21.10	21.95	21.30	21.30	20.05	21.80	---	21.20	---	24.30
18	---	21.35	21.50	22.45	20.65	20.50	20.25	22.15	---	21.60	---	24.50
19	---	20.70	22.20	22.20	20.95	20.45	20.25	22.00	20.55	22.05	---	24.50
20	---	20.90	22.20	22.00	21.80	20.95	20.85	20.90	21.05	22.10	22.10	24.70
21	---	21.90	22.20	21.00	21.75	20.95	20.80	20.90	21.15	21.75	22.90	24.70
22	---	22.00	---	20.80	21.50	20.95	20.20	21.55	21.55	20.95	23.00	24.40
23	21.25	21.90	---	21.20	21.30	21.00	20.10	21.90	21.30	20.60	---	23.85
24	22.10	21.05	---	21.95	21.30	21.00	20.70	22.25	20.50	21.25	23.20	23.20
25	22.55	20.30	---	21.90	20.80	20.20	20.75	22.25	20.50	21.90	22.95	23.30
26	22.60	19.70	---	21.60	21.10	20.25	20.85	21.70	20.90	22.25	22.25	23.45
27	22.35	19.90	20.90	21.55	22.00	20.90	20.80	20.70	21.50	22.20	23.10	---
28	22.00	20.90	21.40	20.80	22.55	21.40	20.60	19.45	21.65	22.10	23.80	---
29	21.00	21.05	21.35	20.40	---	21.70	20.20	19.90	21.65	21.20	24.20	---
30	21.00	21.10	21.00	21.20	---	21.40	---	20.70	21.50	21.25	24.60	---
31	21.65	---	20.45	21.40	---	21.30	---	21.30	---	21.90	24.85	---
MAX	22.60	22.00	22.60	22.45	22.55	22.90	22.35	22.25	21.65	22.25	24.85	25.40

CAL YR 1989 LOW 24.60
WTR YR 1990 LOW 25.40



412930084320900 WM-3 CITY OF BRYAN AT BRYAN OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL.LSD

413108084415300. Local number, WM-12.
LOCATION.--Lat 41°31'08", long 84°41'53", Hydrologic Unit 04100003, 1.7 mi east of Blakeslee.
Owner: State of Ohio.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled test artesian well, diameter 10 in., depth 115 ft, cased to 115 ft, screened 85 ft to 115 ft.
INSTRUMENTATION.--Periodic measurement with chalked tape by ODNR personnel.
DATUM.--Elevation of land-surface datum is 830 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 1.50 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--1974 to September 1982 continuous, periodic October 1983 to December 1984, continuous January 1985 to November 1986, periodic thereafter.
EXTREMES FOR PERIOD OF RECORD.--Maximum measured low, 10.59 ft below land-surface datum, Oct. 25, 1989; minimum daily low, 3.83 ft below land-surface datum, Mar. 17, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM
INSTANTANEOUS OBSERVATIONS

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 25, 1989	10.59	Apr. 11, 1990	7.33	July 24, 1990	9.24

GROUND-WATER RECORDS

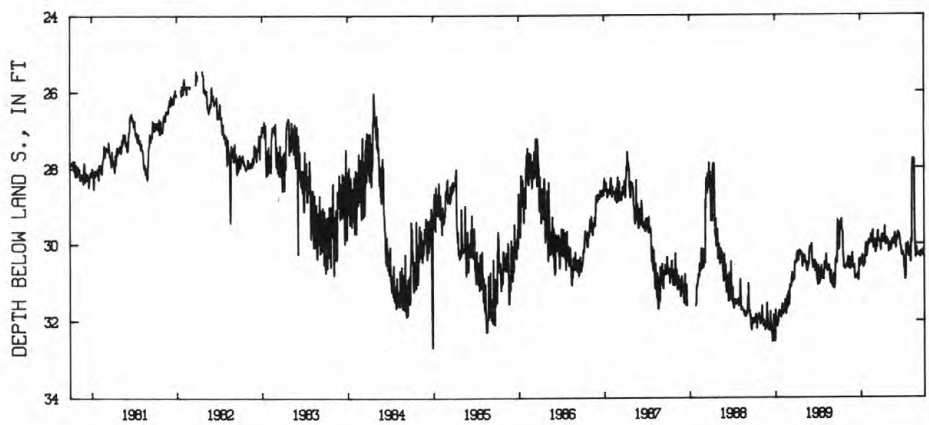
WYANDOT COUNTY

405009083172600. Local number, WY-1.
LOCATION.--Lat 40°50'09", long 83°17'26", Hydrologic Unit 04100011, State Rt 199, Upper Sandusky.
Owner: Karg Supply Co.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 5 in, depth 90 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 850 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--September 1951 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 40.90 ft below land-surface datum, July 12, 15, 17, 21, Aug. 26, 1961; minimum daily low, 25.75 ft below land-surface datum, Apr. 16, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.16	30.55	30.63	30.40	30.15	30.03	29.89	30.01	30.00	30.26	30.19	30.30
2	30.09	30.56	30.63	30.44	30.02	30.04	29.82	30.13	30.12	30.22	30.29	30.30
3	30.09	30.60	30.65	30.54	29.98	30.04	29.78	30.20	30.06	30.30	30.48	30.29
4	29.77	30.61	30.65	30.54	30.00	30.03	29.79	30.20	29.85	30.31	30.45	30.28
5	29.63	30.59	30.54	30.48	30.03	29.89	29.76	30.04	29.90	30.34	30.22	30.29
6	29.50	30.50	30.58	30.47	29.99	30.01	29.76	30.01	29.90	30.44	29.91	30.29
7	29.45	30.50	30.83	30.50	29.90	30.23	29.86	29.97	29.91	30.63	29.88	30.28
8	29.43	30.43	30.90	30.50	29.91	30.23	29.90	30.03	29.91	30.63	29.93	30.29
9	29.44	30.34	30.91	30.35	30.01	30.05	29.96	30.06	29.83	30.66	29.97	30.29
10	29.44	30.39	30.87	30.29	29.96	29.96	29.95	30.03	29.79	30.78	29.13	30.23
11	29.40	30.47	30.82	30.32	29.90	30.08	29.81	30.13	29.69	30.93	28.14	30.28
12	29.36	30.63	30.83	30.38	29.93	30.00	29.81	30.17	29.72	30.90	27.93	30.31
13	29.38	30.65	30.84	30.59	29.91	30.11	29.85	30.13	29.72	30.84	27.81	30.35
14	29.61	30.61	30.84	30.61	29.92	30.07	29.81	30.07	29.71	30.66	27.77	30.35
15	29.67	30.58	30.84	30.59	29.92	29.90	29.61	30.06	29.75	30.24	27.95	30.27
16	29.68	30.36	30.88	30.53	29.76	29.79	29.54	30.03	29.78	30.02	27.92	30.24
17	29.68	30.42	30.89	30.49	29.88	29.73	29.74	29.92	29.78	30.13	27.83	30.19
18	29.70	30.56	30.89	30.43	29.91	29.67	29.93	29.90	29.78	30.24	27.77	30.24
19	30.28	30.66	30.89	30.55	29.91	29.79	30.01	29.95	29.87	30.25	27.81	30.22
20	30.35	30.64	30.79	30.54	29.98	29.88	30.03	29.94	29.93	30.25	27.80	30.20
21	30.42	30.45	30.77	30.31	29.98	29.89	30.02	29.86	30.04	30.20	28.95	30.21
22	30.60	30.51	30.84	30.29	29.95	29.89	29.94	29.91	30.06	30.17	29.64	30.20
23	30.64	30.53	30.95	30.16	29.69	29.89	29.88	29.97	30.05	29.99	29.88	30.29
24	30.62	30.53	30.95	30.02	29.65	29.96	29.84	30.00	30.10	30.00	30.17	30.30
25	30.65	30.34	30.82	29.99	29.91	29.96	29.86	30.01	30.16	30.10	30.36	30.29
26	30.65	30.28	30.53	30.03	30.03	29.93	29.98	29.99	30.22	30.33	30.33	30.20
27	30.62	30.24	30.42	30.04	30.11	29.98	29.99	29.88	30.30	30.33	30.21	30.14
28	30.65	30.36	30.51	30.33	30.08	30.02	29.92	29.80	30.30	30.30	30.11	30.31
29	30.65	30.57	30.59	30.34	---	30.18	29.92	29.72	30.28	30.29	30.08	30.35
30	30.65	30.60	30.50	30.23	---	30.08	29.91	29.86	30.26	30.16	30.11	30.34
31	30.54	---	30.39	30.17	---	29.94	---	29.94	---	30.10	30.21	---
MAX	30.65	30.66	30.95	30.61	30.15	30.23	30.03	30.20	30.30	30.93	30.48	30.35

CAL YR 1989 LOW 32.28
WTR YR 1990 LOW 30.95



405009083172600 WY-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

QUALITY AND QUANTITY OF SURFACE WATER NEAR AN ACTIVE LONGWALL COAL MINE

The following data were collected as part of a 5-year study of the effects of underground longwall coal mining in Meigs, Gallia, and Vinton Counties. The study is being done in cooperation with the Ohio Department of Natural Resources.

Water-Quality and Stream-discharge data were collected at five sites. Discharge measurements wre taken at nine panel sites. Continuous stream-discharge data were collected at two of the sites and are presented in volume one of this report.

MISCELLANEOUS STATION ANALYSES

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
03160007	LEADING CR BL CARPENTER OH						
JUNE 1990 07...	1100	3.2	405	7.7	18.0	8.2	142
03201929	ZINNS RN NR RADCLIFF OH						
JUNE 1990 06...	1100	1.1	205	7.3	15.0	9.8	48
03201947	STRONGS RN NR EWINGTON OH						
JUNE 1990 06...	1530	5.3	185	7.3	18.5	8.9	43
390248082204100	FLATLICK RN NR WILKESVILLE OH						
JUNE 1990 06...	1330	3.5	170	7.3	17.0	8.2	29
390413082180900	STRONGS RN NR WILKESVILLE OH						
JUNE 1990 06...	1415	2.0	180	7.4	17.5	8.8	43

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
03160007	LEADING CR BL CARPENTER OH						
JUNE 1990 07...	420	250	40	810	70	290	280
390248082204100	FLATLICK RN NR WILKESVILLE OH						
JUNE 1990 06...	31	200	20	1300	420	540	520
03201929	ZINNS RN NR RADCLIFF OH						
JUNE 1990 06...	43	90	20	500	170	240	240
03201947	STRONGS RN NR EWINGTON OH						
JUNE 1990 06...	32	90	40	880	440	200	200
390413082180900	STRONGS RN NR WILKESVILLE OH						
JUNE 1990 06...	35	710	30	2000	260	250	210

INSTANTEOUS DISCHARGE AT MISCELLANEOUS SITES

Site number	Name	Drainage area (mi^2)	Date	Discharge (ft^3/s)
390759082155100	Unnamed tributary to Ogden Run near Carpenter, Ohio	2.04	6/07/90	0.164
390248082204100	Flatlich Run near Wilksville, Ohio	7.00	3/28/90	4.71
			5/10/90	7.32
			6/06/90	3.54
			7/17/90	.403
			8/03/90	.157
			9/25/90	.385
03160007	Leading Creek below Carpenter, Ohio	13.3	3/28/90	6.70
			5/11/90	5.18
			6/07/90	3.23
			7/17/90	.989
			8/08/90	.272
			9/25/90	.867
390413082180900	Strongs Run near Wilksville, Ohio	5.60	3/28/90	3.57
			5/10/90	4.11
			6/06/90	2.01
			7/17/90	.080
			8/08/90	.002
			9/25/90	.040

INSTANTANEOUS DISCHARGE AT PANEL SITES

Site number	Name	Date	Dischage (ft^3/s)
390451082175400	Strongs Run at County Road 48 (Site 1)	3/29/90	2.18
		7/18/90	Dry
		8/09/90	Dry
		9/26/90	Dry
390501082175300	Tributary to Strongs Run above County Road 48 (Site 2)	3/29/90	.195
		7/18/90	Dry
		8/09/90	Dry
		9/26/90	Dry
390504082180200	Strongs Run between Panel 1 & 2 (Site 3)	3/29/90	1.54
		7/18/90	.014
		8/09/90	Dry
		9/25/90	Dry
390511082180500	Strongs Run at County Road 45 (Site 4)	3/29/90	1.56
		7/18/90	.002
		8/09/90	Dry
		9/26/90	Dry
390530082181700	Strongs Run near Township Road 15 (Site 5)	3/29/90	1.50
		7/18/90	.004
		8/09/90	.007
		9/26/90	Dry
390530082181701	Tributary to Strongs Run near Township Road 15 (Site 6)	3/29/90	.078
		7/18/90	Dry
		8/09/90	Dry
		9/26/90	Dry
390545082182300	Strongs Run above Bucks Run (Site 7)	7/18/90	Dry
		8/09/90	Dry
		9/26/90	Dry
390544082182500	Bucks Run at Strongs Run (Site 8)	7/18/90	.013
		8/09/90	Dry
		9/26/90	Dry
390549082183400	Bucks Run above Township Road 15 (Site 9)	3/29/90	.894
		7/18/90	.022
		8/09/90	.014
		9/26/90	Dry

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT

The following tables contain ground-water-level measurements from a network of water-supply and monitoring wells near Wright-Patterson Air Force Base, Ohio. The data was collected as part of a cooperative study with Air Force Logistics Command, 2750 Air Base Wing/Environmental Management. The purpose of the study is to evaluate ground-water resources near Wright-Patterson Air Force Base, Ohio.

GROUND-WATER LEVELS

SITE	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394942084033500	GR-303	360ODVC	10-24-89	8.67	801.0
			12-05-89	8.72	
			02-16-90	5.06	
			03-19-90	7.77	
			04-16-90	7.76	
			05-09-90	7.34	
			06-08-90	7.57	
			07-24-90	6.88	
			08-15-90	8.12	
			09-27-90	8.37	
394855084033900	GR-304	360ODVC	10-24-89	1.79	798.1
			12-07-89	1.76	
			01-05-90	1.96	
			02-16-90	1.66	
			03-19-90	1.61	
			04-16-90	1.51	
			05-15-90	.61	
			06-08-90	1.35	
			07-26-90	1.15	
			08-15-90	1.39	
			09-27-90	1.64	
394831084042700	GR-305	360ODVC	10-24-89	5.07	796.4
			12-07-89	5.15	
			01-05-90	5.36	
			02-16-90	3.66	
			03-19-90	4.55	
			04-16-90	4.45	
			05-15-90	3.86	
			06-08-90	4.31	
			07-26-90	4.10	
			08-15-90	4.77	
			09-27-90	5.09	
394815084020700	GR-306	360ODVC	10-24-89	37.37	839.2
			12-07-89	34.04	
			01-06-90	32.73	
			02-16-90	31.62	
			03-19-90	30.86	
			04-03-90	30.77	
			04-16-90	30.27	
			05-15-90	29.78	
			06-08-90	29.12	
			07-25-90	28.54	
			08-15-90	28.17	
			09-27-90	27.77	
394743084024300	GR-307	360ODVC	10-24-89	31.48	838.1
			12-07-89	31.28	
			01-06-90	31.36	
			02-16-90	31.46	
			03-19-90	31.46	
			04-16-90	31.56	
			05-15-90	31.55	
			06-08-90	31.59	
			07-24-90	31.60	
			08-15-90	31.59	
			09-27-90	31.42	
394750084043800	GR-308	360ODVC	10-24-89	6.12	799.9
			12-05-89	5.51	
			01-05-90	5.33	
			02-16-90	3.53	
			03-19-90	3.39	
			04-16-90	3.23	
			05-09-90	3.08	
			06-08-90	3.17	

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

GROUND-WATER LEVELS--Continued

SITE	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
			07-24-90	3.10	
			08-15-90	4.75	
			09-27-90	5.31	
394706084045800	GR-309	357BFLD	10-25-89	26.55	976.6
			12-28-89	27.44	
			02-16-90	24.25	
			03-19-90	24.77	
			04-16-90	24.48	
			05-15-90	24.37	
			06-08-90	24.70	
			07-25-90	24.41	
			08-15-90	25.66	
			09-27-90	26.13	
394633084045300	GR-310	357BFLD	10-25-89	26.79	974.0
			12-28-89	26.38	
			02-16-90	22.94	
			03-19-90	23.68	
			04-16-90	23.16	
			05-15-90	23.22	
			06-08-90	24.32	
			07-25-90	24.57	
			08-15-90	25.48	
			09-27-90	25.62	
394852084023100	GR-311	360ODVC	10-24-89	158.89	815
			01-02-90	133.82	
			02-16-90	120.50	
			03-19-90	111.98	
			04-16-90	105.31	
			05-15-90	98.78	
			06-08-90	93.41	
			07-25-90	84.36	
			08-15-90	80.39	
			09-17-90	75.41	
394706084045801	GR-312	361WTTR	10-25-89	19.65	976.3
			12-28-89	20.02	
			02-16-90	20.48	
			03-19-90	20.68	
			04-16-90	20.74	
			05-15-90	21.08	
			06-08-90	20.98	
			07-25-90	21.20	
			08-15-90	21.29	
			09-27-90	21.57	
394645084055200	GR-313	360ODVC	10-25-89	33.88	806.5
			12-28-89	35.47	
			02-16-90	36.30	
			03-19-90	35.40	
			04-16-90	34.53	
			05-15-90	33.49	
			06-08-90	31.82	
			07-25-90	31.24	
			08-15-90	31.50	
394929084015000	GR-314	360ODVC	10-24-89	18.45	821.6
			12-05-89	18.61	
			01-05-90	18.90	
			02-16-90	18.58	
			03-19-90	18.42	
			04-16-90	18.23	
			05-09-90	18.22	
			06-08-90	17.78	
			07-24-90	17.37	
			08-15-90	17.54	
395032084023100	GR-315	360ODVC	10-24-89	213.53	812.2
			12-13-89	207.39	
			02-16-90	199.49	
			03-19-90	195.88	
			09-23-90	17.81	

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

GROUND-WATER LEVELS--Continued

SITE	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
			04-16-90	193.06	
			05-09-90	190.17	
			06-08-90	187.27	
			07-24-90	182.46	
			08-15-90	180.16	
			09-27-90	177.86	
395032084023101	GR-316	112OTSH	10-16-89	7.55	812.2
			10-24-89	7.66	
			12-05-89	7.55	
			01-05-90	7.40	
			02-16-90	5.22	
			03-19-90	6.75	
			04-16-90	6.68	
			05-09-90	6.54	
			06-08-90	5.98	
			07-24-90	5.38	
			08-15-90	6.71	
			09-27-90	7.50	
395032084023102	GR-317	112OTSH	10-16-89	8.61	812.2
			10-24-89	5.64	
			12-05-89	5.06	
			01-05-90	7.13	
			02-16-90	2.49	
			03-19-90	4.34	
			04-16-90	4.35	
			05-09-90	3.49	
			06-08-90	3.51	
			07-24-90	2.91	
			08-15-90	4.25	
			09-27-90	5.13	
394929084015001	GR-318	112OTSH	10-09-89	14.90	821.6
			10-24-89	15.33	
			12-05-89	16.13	
			01-05-90	21.78	
			02-16-90	15.38	
			03-19-90	14.59	
			04-16-90	14.28	
			05-09-90	14.10	
			06-08-90	12.60	
			07-24-90	11.28	
			08-15-90	12.43	
			09-27-90	14.11	
394929084015002	GR-319	112OTSH	10-24-89	18.73	821.6
			12-05-89	19.39	
			01-05-90	19.77	
			02-16-90	18.05	
			03-19-90	18.13	
			04-16-90	17.88	
			05-09-90	17.75	
			06-08-90	16.82	
			07-24-90	16.00	
			08-15-90	17.12	
			09-27-90	18.18	
394942084033501	GR-320	112OTSH	10-24-89	9.50	801.0
			02-16-90	4.81	
			03-19-90	8.62	
			04-16-90	8.69	
			05-09-90	8.33	
			06-08-90	8.25	
			07-24-90	7.90	
			08-15-90	8.98	
			09-27-90	9.27	
			12-05-89	9.48	

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

GROUND-WATER LEVELS--Continued

SITE	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394855084033901	GR-321	112OTSH	10-24-89	3.74	798.1
			12-07-89	3.84	
			01-05-90	3.97	
			02-16-90	1.82	
			03-19-90	3.01	
			04-16-90	3.03	
			05-15-90	2.19	
			06-08-90	2.83	798.1
			07-26-90	2.70	
			08-15-90	3.31	
			09-27-90	3.59	
394855084033902	GR-322	112OTSH	11-17-89	1.87	798.1
			12-07-89	2.93	
			01-05-90	3.02	
			02-16-90	.98	
			03-19-90	2.03	
			04-16-90	1.85	
			05-15-90	1.97	
			06-08-90	1.47	
			07-26-90	1.43	
			08-15-90	2.07	
			09-27-90	2.70	
394831084042701	GR-323	112OTSH	10-24-89	6.89	796.4
			12-07-89	7.00	
			01-05-90	7.03	
			02-16-90	4.82	
			03-19-90	6.65	
			04-16-90	6.59	
			05-15-90	6.05	
			06-08-90	6.51	
			07-26-90	6.46	
			08-15-90	6.81	
			09-27-90	6.97	
394831084042702	GR-324	112OTSH	10-24-89	6.18	796.4
			12-07-89	6.39	
			01-05-90	6.36	
			02-16-90	4.11	
			03-19-90	5.81	
			04-16-90	5.66	
			05-15-90	4.98	
			06-08-90	5.48	
			07-26-90	5.41	
			08-15-90	5.97	
			09-27-90	6.25	
394743084024301	GR-326	112OTSH	10-24-89	26.57	838.1
			12-07-89	28.28	
			01-06-90	28.71	
			02-16-90	28.41	
			03-19-90	27.59	
			04-16-90	27.14	
			05-15-90	26.56	
			06-08-90	25.59	
			07-24-90	24.91	
			08-15-90	25.70	
			09-27-90	26.40	
394743084024302	GR-327	112OTSH	10-05-89	26.40	838.1
			10-24-89	26.99	
			12-07-89	27.69	
			01-06-90	28.23	
			02-16-90	27.22	
			03-19-90	27.29	
			04-16-90	26.98	
			05-15-90	26.41	
			06-08-90	25.35	
			07-24-90	24.72	
			08-15-90	25.28	
			09-27-90	26.04	

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

GROUND-WATER LEVELS--Continued

SITE	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394743084024303	GR-328	112OTSH	02-16-90	31.57	838.1
			03-19-90	31.17	
			04-16-90	30.83	
			05-15-90	30.49	
			06-08-90	29.89	
			07-24-90	29.25	
			08-15-90	29.85	
394645084055201	GR-329	112OTSH	05-15-90	31.80	806.5
			06-08-90	30.85	
			07-25-90	29.95	
			08-15-90	30.11	
			09-27-90	30.88	
394815084020701	GR-330	112OTSH	06-08-90	28.63	839.2
			07-25-90	27.87	
			08-15-90	28.00	
			09-27-90	28.95	
394815084020702	GR-331	112OTSH	06-08-90	28.38	839.2
			07-25-90	27.66	
			08-15-90	27.86	
			09-27-90	28.83	
394815084020703	GR-332	112OTSH	05-15-90	28.57	839.2
			06-08-90	26.30	
			07-25-90	25.53	
			08-15-90	25.63	
			09-27-90	26.35	
394852084023101	GR-333	112OTSH	05-15-90	11.78	812.1
			06-08-90	11.41	
			07-25-90	10.75	
			08-15-90	11.52	
			09-27-90	12.27	
394852084023102	GR-334	112OTSH	05-15-90	11.64	812.1
			06-08-90	11.24	
			07-25-90	10.63	
			08-15-90	11.41	
			09-27-90	12.59	
394852084023103	GR-335	112OTSH	05-15-90	11.58	812.1
			06-08-90	11.13	
			07-25-90	10.53	
			08-15-90	11.31	
			09-27-90	11.58	
394623084064400	MT-133	360ODVC	10-25-89	30.77	791.4
			12-28-89	33.67	
			02-16-90	30.75	
			03-19-90	30.49	
			04-16-90	30.17	
			05-15-90	29.87	
			06-08-90	29.61	
			07-25-90	29.06	
			08-15-90	29.15	
			09-27-90	29.02	
394623084064401	MT-152	112OTSH	05-15-90	21.00	791.4
			06-08-90	19.70	
			07-25-90	19.59	
			08-15-90	20.35	
			09-27-90	21.10	
394623084064402	MT-153	112OTSH	05-15-90	21.62	791.4
			06-08-90	19.65	
			07-25-90	20.23	
			08-15-90	20.34	
			09-27-90	21.17	

Geologic Unit

112OTSH - Outwash, Pleistocene Epoch
112TILL - Glacial Till
357BFLD - Brassfield Limestone, Lower Silurian
361RCMD - Richmond Group, Upper Ordovician
111ALVM - Holocene Alluvium
360ODVC - Ordovician System
361WTTR - Whitewater Formation

394853084042200. Local number, GR-208.
LOCATION.--Lat 39°48'53" Long 84°04'22", Hydrologic Unit 05080001, at Wright-Patterson Air Force Base, Ohio.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Observation well drilled by hollow stem auger, diameter 4.0 in. depth 19.5 ft. Cased with stainless steel to 4.50 ft; .010 in screen from 4.5 to 19.5 ft, bentonite seal.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Altitude of land-surface datum is 796.29 Measuring point: Shelter floor 3.01 ft above land-surface datum.
PERIOD OF RECORD.--August 10, 1989 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 3.88 ft below land-surface datum, Februrary 16, 1990; lowest water-level measured 6.32 ft below land-surface datum, December 28, 29, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.07	6.06	6.01	5.88	6.02	5.66	5.61	5.87	5.22	5.86	5.69	6.02
2	6.08	6.06	6.03	5.83	5.92	5.68	5.46	5.89	5.28	5.89	5.72	6.03
3	6.09	6.06	6.05	5.86	5.68	5.71	5.40	5.90	5.36	5.91	5.75	6.05
4	6.10	6.06	6.05	5.89	5.54	5.74	5.46	5.90	5.41	5.95	5.75	6.06
5	6.10	6.06	6.07	5.89	4.96	5.77	5.51	4.79	5.46	5.97	5.75	6.07
6	6.10	6.06	6.08	5.92	5.10	5.80	5.57	4.93	5.49	5.99	5.76	6.08
7	6.11	6.05	6.09	5.94	5.21	5.82	5.62	5.07	5.50	6.02	5.80	6.09
8	6.11	5.99	6.10	5.98	5.29	5.84	5.67	5.19	5.51	6.04	5.82	6.09
9	6.11	5.89	6.11	6.02	5.31	5.86	5.70	5.27	5.45	---	5.84	6.09
10	6.11	5.88	6.12	6.05	5.33	5.88	5.70	5.36	5.40	---	5.87	6.07
11	6.10	5.89	6.14	6.07	5.37	5.78	5.20	5.45	5.44	---	5.89	6.05
12	6.12	5.92	6.15	6.10	5.42	5.43	5.23	5.46	5.47	---	5.90	6.03
13	6.12	5.93	6.16	6.13	5.47	5.44	5.31	5.36	5.51	---	5.91	6.03
14	6.12	5.95	6.18	6.16	5.50	5.50	5.38	4.78	5.53	---	5.93	6.02
15	6.12	5.95	6.18	6.19	5.41	5.54	5.45	4.85	5.49	---	5.94	6.02
16	6.12	5.79	6.21	6.21	4.33	5.54	5.49	4.54	5.50	---	5.94	6.02
17	6.11	5.75	6.21	6.22	4.66	5.50	5.56	4.38	5.54	---	5.95	6.01
18	6.10	5.75	6.23	6.24	4.86	5.53	5.61	4.53	5.58	---	5.96	6.01
19	6.09	5.76	6.23	6.25	5.05	5.57	5.64	4.74	5.61	---	5.99	6.01
20	6.04	5.79	6.25	6.23	5.18	5.62	5.67	4.90	5.61	---	5.99	6.01
21	6.03	5.83	6.25	5.84	5.28	5.66	5.67	5.05	5.64	---	5.99	6.01
22	6.03	5.84	6.25	5.69	5.35	5.69	5.66	5.17	5.64	---	5.95	6.01
23	6.03	5.87	6.28	5.70	5.43	5.74	5.68	5.26	5.65	---	5.93	6.01
24	6.03	5.89	6.28	5.76	5.49	5.77	5.70	5.34	5.68	---	5.93	6.02
25	6.04	5.91	6.28	5.82	5.54	5.80	5.72	5.37	5.71	5.43	5.93	6.04
26	6.05	5.93	6.30	5.87	5.58	5.83	5.75	5.37	5.73	5.49	5.95	6.06
27	6.06	5.94	6.30	5.92	5.62	5.85	5.78	5.34	5.75	5.52	5.98	6.14
28	6.06	5.97	6.32	5.96	5.64	5.87	5.80	5.36	5.79	5.56	6.00	6.14
29	6.06	5.98	6.32	5.98	---	5.88	5.83	5.03	5.81	5.59	6.00	6.13
30	6.06	6.00	6.30	6.00	---	5.82	5.85	4.98	5.84	5.63	6.00	6.13
31	6.06	---	6.18	6.02	---	5.75	---	5.11	---	5.66	6.00	---
MAX	6.12	6.06	6.32	6.25	6.02	5.88	5.85	5.90	5.84	6.04	6.00	6.14

CAL YR 1989 LOW 6.32
WTR YR 1990 LOW 6.32

GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

394851084042300. Local number, GR-210.
LOCATION.--Lat 39°48'51" Long 84°04'23", Hydrologic Unit 05080001, at Wright-Patterson Air Force Base, Ohio.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Observation well installed by hollow stem auger, diameter 4.0 in. depth 38.0 ft. Cased with stainless steel to 33.0 ft; .010 in screen from 33.0 to 38.0 ft, bentonite seal.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Altitude of land-surface datum is 796.07. Measuring point: Floor of shelter 2.97 ft above land-surface datum.
PERIOD OF RECORD.--August 10, 1989 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 1.22 ft below land-surface datum, July 12, 1990; lowest water-level measured 5.44 ft below land-surface datum, December 28, 29, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.06	5.05	4.99	4.92	5.09	---	4.56	4.90	4.12	4.84	4.61	4.94
2	5.07	5.05	5.01	4.93	4.93	---	4.41	4.92	4.19	4.86	4.64	4.95
3	5.09	5.05	5.03	4.96	4.64	---	4.40	4.94	4.29	4.89	4.67	4.97
4	5.09	5.05	5.04	4.99	4.54	---	4.47	4.93	4.37	4.91	4.68	4.98
5	5.09	5.05	5.07	4.99	4.49	---	4.54	3.67	4.42	4.94	4.68	4.99
6	5.10	5.04	5.08	5.01	4.35	---	4.59	3.83	4.45	4.96	4.71	5.00
7	5.11	5.04	5.13	5.04	4.56	---	4.65	4.00	4.47	4.98	4.73	5.01
8	5.11	4.97	5.14	5.07	4.60	---	4.69	4.14	4.47	4.99	4.74	5.01
9	5.11	4.84	5.16	5.12	4.63	---	4.73	4.24	4.36	5.00	4.76	5.00
10	5.11	4.86	5.18	5.15	4.66	---	4.74	4.35	4.35	3.80	4.78	4.93
11	5.11	4.88	5.20	5.17	4.68	---	4.13	4.44	4.40	3.88	4.79	4.93
12	5.12	4.90	5.21	5.22	4.72	---	4.19	4.47	4.44	3.11	4.80	4.94
13	5.12	4.94	5.23	5.24	4.75	---	4.28	4.34	4.47	2.25	4.80	4.93
14	5.13	4.93	5.25	5.26	4.78	---	4.36	3.66	4.49	2.59	4.81	4.93
15	5.13	4.93	5.27	5.29	4.82	---	4.44	3.60	4.41	3.00	4.86	4.92
16	5.13	4.76	5.29	5.30	4.84	---	4.50	3.34	4.46	3.36	4.87	4.94
17	5.13	4.69	5.30	5.31	4.85	---	4.59	3.14	4.49	3.62	4.88	4.96
18	5.13	4.73	5.31	5.33	4.87	---	4.64	3.29	4.54	3.79	4.89	4.96
19	5.11	4.75	5.32	5.33	4.89	---	4.68	3.54	4.57	3.92	4.90	4.96
20	5.06	4.78	5.34	5.32	4.90	---	4.70	3.76	4.58	4.04	4.91	4.96
21	5.06	4.82	5.36	4.83	4.37	4.66	4.70	3.93	4.62	4.05	4.86	4.96
22	5.06	4.84	5.38	4.75	4.39	4.71	4.68	4.06	4.62	4.06	4.80	4.96
23	5.06	4.87	5.39	4.79	4.47	4.76	4.71	4.17	4.64	4.14	4.81	4.97
24	5.06	4.89	5.39	4.86	4.54	4.79	4.74	4.26	4.68	4.21	4.84	4.98
25	5.07	4.91	5.39	4.92	4.55	4.82	4.77	4.30	4.70	4.28	4.86	4.99
26	5.04	4.93	5.41	4.97	4.47	4.85	4.79	4.30	4.73	4.34	4.88	5.01
27	5.04	4.93	5.42	5.02	4.52	4.88	4.81	4.25	4.75	4.38	4.89	5.03
28	5.05	4.96	5.44	5.05	4.58	4.91	4.83	4.29	4.77	4.43	4.92	5.04
29	5.05	4.97	5.44	5.07	---	4.91	4.86	3.88	4.79	4.48	4.91	5.04
30	5.05	4.98	5.40	5.09	---	4.83	4.88	3.85	4.82	4.53	4.92	5.05
31	5.05	---	5.26	5.10	---	4.74	---	4.00	---	4.57	4.93	---
MAX	5.13	5.05	5.44	5.33	5.09	4.91	4.88	4.94	4.82	5.00	4.93	5.05

CAL YR 1989 LOW 5.44
WTR YR 1990 LOW 5.44

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GROUND-WATER RECORDS FOR THE WRIGHT-PATTERSON AIR FORCE BASE PROJECT--Continued

395008084011500. Local number, GR-248.
LOCATION.--Lat 39°50'08" Long 84°01'15", Hydrologic Unit 05080001, at Wright-Patterson Air Force Base, Ohio.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Observation well drilled by cable tool, diameter 4.0 in. depth 31.0 ft. Cased with stainless steel to 21.0 ft; .010 in screen from 21.0 to 31.0 ft, bentonite seal.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Altitude of land-surface datum is 825.43 Measuring point: Shelter floor 2.32 ft above land-surface datum.
PERIOD OF RECORD.--June 23, 1989 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 4.44 ft below land-surface datum, July 21, 1990; lowest water-level measured 11.90 below land-surface datum, December 26, 1989.

WATER LEVEL, in FEET below land surface datum, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.78	11.18	11.49	11.30	8.35	8.49	8.96	6.04	7.30	5.69	7.90
2	---	10.82	11.20	11.59	11.24	8.34	8.61	9.19	6.06	7.39	5.77	7.98
3	---	10.86	11.23	11.63	11.16	8.41	8.90	9.41	6.07	7.65	5.85	8.07
4	---	10.89	11.24	11.87	11.10	8.45	8.80	9.10	6.16	7.63	5.91	8.13
5	---	10.91	11.26	11.68	10.78	8.50	9.20	8.44	6.36	7.63	5.86	8.19
6	---	10.92	11.29	11.60	10.53	8.64	9.25	8.21	6.30	7.85	6.01	8.26
7	---	10.89	11.40	11.59	10.42	8.64	9.04	8.42	6.22	7.86	6.13	8.34
8	---	10.84	11.38	11.58	10.34	8.64	8.98	8.38	6.31	8.01	6.34	8.39
9	---	10.74	11.37	11.58	10.23	8.65	8.95	8.42	6.13	8.00	6.32	8.30
10	---	10.82	11.40	11.60	10.11	8.69	8.80	8.49	6.05	7.48	6.42	8.35
11	---	10.86	11.44	11.83	10.02	8.49	8.63	8.73	6.15	7.35	6.52	8.44
12	---	10.92	11.45	11.67	9.98	8.26	8.68	8.51	6.21	6.33	6.60	8.49
13	10.37	10.94	11.48	11.68	10.06	8.36	8.76	8.24	6.39	5.17	6.62	8.56
14	10.38	11.04	11.51	11.67	9.93	8.28	8.66	7.79	6.38	5.05	6.72	8.61
15	10.41	10.98	11.54	11.65	9.81	8.36	8.59	7.72	6.10	4.74	6.83	8.62
16	10.43	10.83	11.57	11.65	9.28	8.35	8.52	7.41	6.20	4.67	6.92	8.73
17	10.59	10.82	11.59	11.64	8.87	8.27	8.62	7.12	6.27	4.63	7.01	8.81
18	10.50	10.91	11.62	11.60	8.73	8.36	8.60	6.66	6.33	4.62	7.04	8.85
19	10.50	10.92	11.64	11.59	8.59	8.42	8.54	6.57	6.50	4.67	7.17	8.99
20	10.40	10.95	11.67	11.59	8.64	8.56	8.52	6.49	6.47	4.71	7.24	8.90
21	10.46	10.98	11.71	11.39	8.47	8.48	8.48	6.45	6.48	4.54	7.02	8.94
22	10.52	10.99	11.73	11.35	8.37	8.52	8.39	6.43	6.50	4.57	7.17	8.99
23	10.56	11.02	11.75	11.35	8.25	8.58	8.43	6.43	6.52	4.69	7.25	9.07
24	10.59	11.04	11.76	11.35	8.33	8.60	8.48	6.43	6.61	4.94	7.36	9.11
25	10.63	11.05	11.77	11.35	8.36	8.64	8.52	6.45	6.71	4.94	7.44	9.15
26	10.72	11.06	11.90	11.35	8.36	8.68	8.69	6.36	6.79	5.04	7.52	9.23
27	10.69	11.07	11.84	11.35	8.33	8.72	8.67	6.24	6.97	5.12	7.59	9.28
28	10.72	11.11	11.86	11.36	8.34	8.75	8.64	6.28	7.18	5.22	7.68	9.33
29	10.74	11.13	11.87	11.34	---	8.76	8.67	5.97	7.27	5.30	7.65	9.39
30	10.76	11.15	11.83	11.31	---	8.63	8.83	5.91	7.26	5.41	7.71	9.45
31	10.78	---	11.68	11.47	---	8.54	---	5.96	---	5.64	7.81	---
MAX	10.78	11.15	11.90	11.87	11.30	8.76	9.25	9.41	7.27	8.01	7.81	9.45

CAL YR 1989 LOW 11.90
WTR YR 1990 LOW 11.90

The following tables list the results of chemical analysis of samples collected from 21 drainage basins in eastern Ohio during the period October 1, 1989 through September 30, 1990. All basins are in Ohio's coal region. The first table lists surface-water quality data and the second lists ground-water quality data and ground-water level measurements where available. These data will be used by the Ohio Department of Natural Resources, Division of Reclamation as base-line information for surface mining permit application and compliance. An asterisk denotes an active gaging station. Refer to report OH-90-1 for detailed flow records.

SURFACE-WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
03109100 M F L BEAVER C NR ROGERS OH (LAT 40 43 22N LONG 080 38 03W)							
OCT 1989 17...	0900	29	890	8.1	16.0	--	149
JUL 1990 10...	1330	47	630	8.1	23.5	--	109
03109500* L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)							
OCT 1989 17...	1100	67	900	8.2	16.5	--	155
SEP 1990 04...	1645	135	740	9.1	23.0	--	146
03110000* YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)							
OCT 1989 17...	1330	18	580	8.1	16.5	--	100
JUL 1990 10...	1630	25	585	8.5	27.0	--	93
03111500* SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)							
OCT 1989 18...	0830	42	2050	8.1	11.5	--	194
SEP 1990 05...	0945	72	2050	8.2	19.5	--	200
03111548 WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)							
OCT 1989 16...	1730	27	2350	8.4	18.0	--	215
SEP 1990 05...	1120	46	2100	8.2	20.0	--	220
03113550 MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)							
OCT 1989 16...	1600	26	910	8.4	17.5	--	165
SEP 1990 05...	1320	20	1020	8.1	21.5	--	168
03114000* CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)							
OCT 1989 16...	1330	38	515	8.5	17.0	--	158
SEP 1990 05...	1500	46	450	8.3	24.0	--	141
03114250 SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)							
OCT 1989 16...	1130	37	350	8.6	16.0	--	165
SEP 1990 05...	1615	9.4	400	8.5	26.5	--	129
03116950 NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)							
OCT 1989 17...	0900	19	585	7.9	16.0	--	263
JUL 1990							
03117500* SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)							
OCT 1989 18...	0830	88	550	7.9	12.5	--	134
SEP 1990 04...	1415	125	680	8.4	19.0	--	128

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
03109100 M F L BEAVER C NR ROGERS OH (LAT 40 43 22N LONG 080 38 03W)							
OCT 1989 17...	180	80	<10	300	10	90	60
JUL 1990 10...	140	1100	20	2700	20	300	70
03109500* L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)							
OCT 1989 17...	230	30	<10	120	10	40	20
SEP 1990 04...	200	260	10	190	10	20	20
03110000* YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)							
OCT 1989 17...	180	40	20	240	20	30	<10
JUL 1990 10...	170	120	60	160	<10	30	20
03111500* SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)							
OCT 1989 18...	1100	330	100	620	20	40	30
SEP 1990 05...	920	410	230	1000	210	50	50
03111548 WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)							
OCT 1989 16...	1300	500	340	860	20	110	80
SEP 1990 05...	1000	610	270	300	230	80	80
03113550 MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)							
OCT 1989 16...	300	1800	230	3100	20	120	40
SEP 1990 05...	340	720	420	1700	800	70	70
03114000* CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)							
OCT 1989 16...	100	270	<10	250	<10	30	20
SEP 1990 05...	63	470	180	750	260	50	60
03114250 SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)							
OCT 1989 16...	40	10	<10	110	10	10	<10
SEP 1990 05...	34	240	30	450	20	20	20
03116950 NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)							
OCT 1989 17...	94	2100	80	3200	120	310	210
JUL 1990 10...	100	160	<10	460	20	210	170
03117500* SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)							
OCT 1989 18...	130	500	20	550	60	340	280
SEP 1990 04...	130	120	30	700	70	270	260

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
03119900 CONOTTON C AT LEESVILLE OH (LAT 40 26 44N LONG 081 11 49W)							
OCT 1989							
16...	1430	9.6	525	8.0	16.5	--	124
03123000 SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)							
OCT 1989							
17...	1015	18	645	7.8	16.5	--	217
JUL 1990							
10...	0845	24	700	7.7	22.5	--	193
03127500* STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)							
OCT 1989							
16...	1310	71	930	7.8	15.5	--	113
JUL 1990							
09...	1800	93	1150	7.3	22.5	--	131
03129100 WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)							
OCT 1989							
16...	1045	3.5	510	7.4	15.0	--	159
AUG 1990							
17...	1430	8.6	415	7.6	22.5	--	95
03140000* MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)							
OCT 1989							
17...	1005	2.2	425	7.5	16.0	--	105
AUG 1990							
17...	1100	4.8	370	7.6	19.5	--	100
03148400 MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)							
OCT 1989							
17...	1400	68	1550	3.3	17.0	88	--
SEP 1990							
05...	1800	20	1800	3.2	22.5	137	--
03149500 SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)							
OCT 1989							
18...	0915	10	585	7.3	11.0	--	138
SEP 1990							
05...	1450	11	480	8.1	24.0	--	152
03150250 MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)							
OCT 1989							
16...	1115	34	1230	8.1	16.0	--	100
SEP 1990							
05...	1320	--	1100	7.8	22.5	--	175
03156549 CENTER B RUSH C NR JUNCTION CITY OH (LAT 39 43 24N LONG 082 20 36W)							
OCT 1989							
17...	1000	14	375	7.2	17.0	--	78
03156700 RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)							
OCT 1989							
16...	1115	63	555	7.3	15.5	--	91
SEP 1990							
04...	1425	33	825	7.6	24.0	--	68

SURFACE-WATER AND GROUND-WATER QUALITY IN ACTIVE COAL MINING AREAS OF OHIO

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
03119900 CONOTTON C AT LEESVILLE OH (LAT 40 26 44N LONG 081 11 49W)							
OCT 1989 16...	120	390	30	760	290	210	180
03123000 SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)							
OCT 1989 17...	71	1300	210	2300	520	370	350
JUL 1990 10...	59	1300	10	3100	20	420	340
03127500* STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)							
OCT 1989 16...	420	440	40	670	20	290	220
JUL 1990 09...	400	300	10	600	20	380	240
03129100 WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)							
OCT 1989 16...	87	410	50	2500	450	420	440
AUG 1990 17...	69	200	40	1600	40	300	310
03140000* MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)							
OCT 1989 17...	60	360	<10	1600	290	310	260
AUG 1990 17...	13	110	<10	1000	100	180	180
03148400 MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)							
OCT 1989 17...	820	7800	8100	4200	4500	9300	9000
SEP 1990 05...	890	9600	9700	5200	4200	12000	13000
03149500 SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)							
OCT 1989 18...	87	390	50	720	140	310	380
SEP 1990 05...	67	150	10	640	60	220	210
03150250 MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)							
OCT 1989 16...	500	130	30	270	30	60	30
SEP 1990 05...	470	820	10	1500	20	120	20
03156549 CENTER B RUSH C NR JUNCTION CITY OH (LAT 39 43 24N LONG 082 20 36W)							
OCT 1989 17...	50	490	20	1000	210	240	160
03156700 RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)							
OCT 1989 16...	150	20	30	590	10	1300	1300
SEP 1990 04...	350	160	50	470	20	2500	2500

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
03157000*	CLEAR C NR ROCKBRIDGE OH (LAT 39 35 18N LONG 082 34 43W)						
SEP 1990							
04...	1205	11	400	8.3	20.5	--	180
03158200	MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)						
OCT 1989							
16...	1430	41	809	4.6	15.5	36	1
SEP 1990							
05...	1030	14	1300	3.4	20.5	134	--
03160050	LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)						
DEC 1989							
04...	1130	45	1250	7.7	0.5	--	75
AUG 1990							
31...	2010	7.5	1600	7.7	23.5	--	88
03160105	CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)						
DEC 1989							
05...	0900	11	485	7.6	1.0	--	66
AUG 1990							
31...	1740	0.62	540	7.7	27.0	--	88
03201988	L RACCOON C NR VINTON,OH (LAT 38 57 11N LONG 082 21 56W)						
DEC 1989							
04...	1545	76	410	6.9	1.5	--	15
SEP 1990							
04...	1915	28	425	7.0	22.5	--	23
382715082242400	INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)						
DEC 1989							
05...	1115	40	360	7.8	2.5	--	65
AUG 1990							
31...	1445	3.8	520	7.9	23.0	--	94
383005082280600	SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)						
DEC 1989							
05...	1200	184	270	7.6	2.0	--	48
AUG 1990							
31...	1215	22	320	7.4	22.0	--	55
385826082201800	RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)						
DEC 1989							
04...	1400	191	326	7.2	1.5	--	18
SEP 1990							
04...	2000	41	430	7.0	23.0	--	25
390941082212200	ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)						
OCT 1989							
16...	1640	14	377	7.0	16.0	--	26
SEP 1990							
04...	1715	6.7	345	7.1	21.0	--	47
392342082072000	SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)						
OCT 1989							
16...	1330	39	821	6.6	15.5	--	27
SEP 1990							
05...	0845	14	1780	3.1	20.5	175	--

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
03157000*	CLEAR C NR ROCKBRIDGE OH (LAT 39 35 18N LONG 082 34 43W)						
SEP 1990 04...	26	120	30	330	40	30	40
03158200	MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)						
OCT 1989 16...	350	4300	2400	1500	420	2900	3100
SEP 1990 05...	590	15000	15000	3400	3200	4500	4600
03160050	LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)						
DEC 1989 04...	320	360	30	580	40	630	550
AUG 1990 31...	490	100	40	350	90	220	210
03160105	CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)						
DEC 1989 05...	170	320	20	470	150	3000	2800
AUG 1990 31...	150	160	20	750	40	850	800
03201988	L RACCOON C NR VINTON,OH (LAT 38 57 11N LONG 082 21 56W)						
DEC 1989 04...	170	1200	30	4000	2200	2700	2300
SEP 1990 04...	170	50	30	490	70	2200	2200
382715082242400	INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)						
DEC 1989 05...	97	80	<10	410	60	240	220
AUG 1990 31...	170	100	30	460	50	430	420
383005082280600	SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)						
DEC 1989 05...	71	120	<10	870	260	280	270
AUG 1990 31...	91	350	10	1200	80	430	400
385826082201800	RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)						
DEC 1989 04...	120	50	10	590	420	2000	1800
SEP 1990 04...	160	120	10	680	110	950	960
390941082212200	ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)						
OCT 1989 16...	140	30	30	450	170	560	630
SEP 1990 04...	100	50	20	860	160	430	430
392342082072000	SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)						
OCT 1989 16...	360	<10	30	24000	21000	1500	1300
SEP 1990 05...	780	1800	2000	44000	41000	3300	3400

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
393501082290000 UNNAMED TR TO HOCKING R NR ENTERPRISE OH (LAT 39 35 01N LONG 082 29 00W)							
OCT 1989							
16...	1415	2.7	197	7.1	17.0	--	42
393950082225900 TURKEY RN NR BREMEN OH (LAT 39 39 50N LONG 082 22 59W)							
OCT 1989							
16...	1615	2.5	438	7.1	18.5	--	60
394306082121900 RUSH C AT NEW LEXINGTON OH (LAT 39 43 06N LONG 082 12 19W)							
OCT 1989							
17...	1100	8.8	2320	2.7	18.0	669	--
394323082253100 LITTLE RUSH C NR BREMEN OH (LAT 39 43 23N LONG 082 25 31W)							
OCT 1989							
17...	0845	11	504	7.7	17.5	--	198
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1989							
18...	1100	42	900	7.0	13.0	--	111
SEP 1990							
05...	1915	13	975	8.1	24.0	--	114
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1989							
17...	1500	107	1310	5.8	16.5	21	15
SEP 1990							
05...	1650	39	1320	6.4	24.0	--	12
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1989							
16...	0900	32	1400	8.0	16.0	--	198
SEP 1990							
05...	1810	25	1600	8.0	22.5	--	195
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1989							
17...	0810	5.1	640	7.5	17.0	--	148
AUG 1990							
17...	2015	10	525	7.9	23.5	--	152
400130081194900 SALT FORK NR MIDDLEBOURNE OH (LAT 40 01 30N LONG 081 19 49W)							
OCT 1989							
16...	1050	3.8	880	7.6	16.0	--	131
400810081261000 SUGARTREE C NR BIRMINGHAM OH (LAT 40 08 10N LONG 081 26 10W)							
OCT 1989							
16...	1200	0.82	390	7.5	16.5	--	119
400912082014700 LITTLE WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1989							
17...	1230	9.7	1580	7.5	16.0	--	81
JUL 1990							
09...	1215	15	1180	7.8	23.5	--	77

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
393501082290000 UNNAMED TR TO HOCKING R NR ENTERPRISE OH (LAT 39 35 01N LONG 082 29 00W)							
OCT 1989 16...	29	270	10	300	110	150	140
393950082225900 TURKEY RN NR BREMEN OH (LAT 39 39 50N LONG 082 22 59W)							
OCT 1989 16...	41	270	<10	340	130	230	220
394306082121900 RUSH C AT NEW LEXINGTON OH (LAT 39 43 06N LONG 082 12 19W)							
OCT 1989 17...	1400	34000	34000	170000	220000	20000	21000
394323082253100 LITTLE RUSH C NR BREMEN OH (LAT 39 43 23N LONG 082 25 31W)							
OCT 1989 17...	42	220	10	240	20	20	20
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1989 18...	300	620	60	230	40	3100	3000
SEP 1990 05...	340	320	120	250	20	3000	3000
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1989 17...	630	4200	450	2700	260	8200	7300
SEP 1990 05...	590	630	100	280	40	7300	3000
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1989 16...	600	700	30	840	100	270	140
SEP 1990 05...	640	810	30	1400	20	250	130
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1989 17...	140	590	30	930	90	570	500
AUG 1990 17...	93	1400	40	2100	20	300	230
400130081194900 SALT FORK NR MIDDLEBOURNE OH (LAT 40 01 30N LONG 081 19 49W)							
OCT 1989 16...	320	760	20	910	30	310	240
400810081261000 SUGARTREE C NR BIRMINGHAM OH (LAT 40 08 10N LONG 081 26 10W)							
OCT 1989 16...	35	350	10	920	190	270	200
400912082014700 LITTLE WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1989 17...	870	40	20	310	100	770	650
JUL 1990 09...	570	140	<10	410	20	560	490

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
400920081432900 WHITE EYES C NR PLAINFIELD OH (LAT 40 09 20N LONG 081 43 29W)							
OCT 1989							
16...	1540	5.1	965	7.4	18.0	--	98
AUG 1990							
17...	1730	9.0	845	7.7	22.0	--	99
400932081265100 CLEAR F NR BIRMINGHAM OH (LAT 40 09 32N LONG 081 26 51W)							
OCT 1989							
16...	1235	1.2	360	7.9	17.0	--	116
401009081385400 BIRDS RN AT BIRDS RUN OH (LAT 40 10 09N LONG 081 38 54W)							
OCT 1989							
16...	1420	1.2	610	7.7	17.5	--	104
401300081433300 BACON RN NR PLAINFIELD OH (LAT 40 13 00N LONG 081 43 33W)							
OCT 1989							
16...	1455	2.3	1050	7.7	18.0	--	96
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1989							
16...	1200	1.4	550	7.7	16.0	--	101
JUL 1990							
09...	1530	4.7	465	7.5	24.5	--	59
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1989							
18...	1030	7.4	2010	8.2	12.5	--	214
SEP 1990							
05...	0815	12	2100	8.2	20.0	--	214
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1989							
17...	1530	21	1640	8.4	17.0	--	156
SEP 1990							
04...	1845	43	1450	8.8	23.0	--	139
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1989							
17...	1130	2.2	1180	7.6	15.0	--	102
JUL 1990							
09...	1400	2.0	940	7.9	24.5	--	102
403047081064700 N F MCGUIRE C NR CARROLLTON OH (LAT 40 30 47N LONG 081 06 47W)							
OCT 1989							
16...	1530	1.2	320	8.1	18.0	--	113
403302081095100 INDIAN F NR DELLROY OH (LAT 40 33 02N LONG 081 09 51W)							
OCT 1989							
17...	1340	2.9	565	7.5	16.0	--	138
403304081191600 UNAM TR CONOTTON C NR NW CUMBRLND OH (LAT 40 33 04N LONG 081 19 16W)							
OCT 1989							
17...	1240	1.0	855	7.6	16.5	--	87

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
400920081432900 WHITE EYES C NR PLAINFIELD OH (LAT 40 09 20N LONG 081 43 29W)							
OCT 1989 16...	390	360	20	1300	190	780	680
AUG 1990 17...	380	110	30	560	20	700	780
400932081265100 CLEAR F NR BIRMINGHAM OH (LAT 40 09 32N LONG 081 26 51W)							
OCT 1989 16...	39	320	<10	670	130	170	130
401009081385400 BIRDS RN AT BIRDS RUN OH (LAT 40 10 09N LONG 081 38 54W)							
OCT 1989 16...	54	230	20	860	450	190	160
401300081433300 BACON RN NR PLAINFIELD OH (LAT 40 13 00N LONG 081 43 33W)							
OCT 1989 16...	450	220	20	360	70	360	290
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1989 16...	120	280	70	600	360	380	380
JUL 1990 09...	95	810	30	2000	80	700	560
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1989 18...	1200	40	50	120	20	70	60
SEP 1990 05...	1200	290	90	230	60	110	80
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1989 17...	880	150	50	180	<10	100	70
SEP 1990 04...	630	1300	80	500	20	210	20
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1989 17...	570	250	20	320	70	260	180
JUL 1990 09...	400	130	<10	370	<10	310	10
403047081064700 N F MCGUIRE C NR CARROLLTON OH (LAT 40 30 47N LONG 081 06 47W)							
OCT 1989 16...	32	110	20	330	240	60	50
403302081095100 INDIAN F NR DELLROY OH (LAT 40 33 02N LONG 081 09 51W)							
OCT 1989 17...	45	180	20	860	330	420	400
403304081191600 UNAM TR CONOTTON C NR NW CUMBRLND OH (LAT 40 33 04N LONG 081 19 16W)							
OCT 1989 17...	430	300	40	950	80	1800	1900

SURFACE-WATER QUALITY DATA--CONTINUED

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	ACIDITY (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1989							
17...	1130	36	495	7.6	16.0	--	90
JUL 1990							
11...	1015	65	560	7.4	21.0	--	74
403550081213400 HUFF RN AT MINERAL CITY OH (LAT 40 35 50N LONG 081 21 34W)							
OCT 1989							
18...	0930	2.6	1850	4.0	11.5	63	--
403823081213700 NIMISHILLEN CR AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1989							
17...	1500	167	700	7.9	18.0	--	136
SEP 1990							
04...	1230	140	1200	8.3	20.0	--	196
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1989							
17...	1400	18	430	7.6	15.5	--	109
JUL 1990							
09...	1045	26	345	7.8	24.5	--	91

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1989							
17...	130	540	30	2200	250	920	990
JUL 1990							
11...	160	500	40	2400	60	1500	1500
403550081213400 HUFF RN AT MINERAL CITY OH (LAT 40 35 50N LONG 081 21 34W)							
OCT 1989							
18...	980	1300	1200	10000	9000	21000	24000
403823081213700 NIMISHILLEN CR AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1989							
17...	110	680	90	1200	290	220	140
SEP 1990							
04...	160	170	30	550	60	120	90
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1989							
17...	21	270	10	680	310	170	140
JUL 1990							
09...	20	130	10	680	120	120	100

SURFACE-WATER AND GROUND-WATER QUALITY IN ACTIVE COAL MINING AREAS OF OHIO

GROUND-WATER QUALITY DATA

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	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)
400721082003200 MU-49 DRESDEN CORP DRESDEN OH (LAT 40 07 21N LONG 082 00 32W)									
AUG 1990 22...	1520	--	975	7.4	15.0	--	400	--	120
400736082060700 MU-51 M STERLING OH (LAT 40 07 36N LONG 082 06 07W)									
AUG 1990 22...	1820	22.16	430	7.7	12.0	0.4	230	--	63
400815082011000 MU-50 R BICE OH (LAT 40 08 15N LONG 082 01 10W)									
AUG 1990 22...	1700	32.46	300	7.9	15.0	3.4	140	--	43
400917081564800 MU-43 M TALBOT AT ADAMS MILLS OH (LAT 40 09 17N LONG 081 56 48W)									
AUG 1990 22...	1330	18.72	615	7.5	13.0	2.0	290	--	83
401816081532400 CS-153 L NORRIS NR COSHOCTON OH (LAT 40 18 16N LONG 081 53 24W)									
AUG 1990 21...	1630	14.21	635	7.4	14.0	2.2	310	--	88
401830081553900 CS-154 D LEWIS NR COSHOCTON OH (LAT 40 18 30N LONG 081 55 39W)									
AUG 1990 21...	1815	28.61	460	7.7	15.0	4.5	220	--	64
401943082003600 CS-155 T CULLISON NR WARSAW OH (LAT 40 19 43N LONG 082 00 36W)									
AUG 1990 21...	1945	--	640	7.4	13.0	5.0	300	--	83
402007081572100 CS-156 LW RANDLES NR WARSAW OH (LAT 40 20 07N LONG 081 57 21W)									
AUG 1990 22...	1015	26.87	910	7.2	13.0	3.2	390	--	110

GROUND-WATER QUALITY DATA--Continued

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
400721082003200 MU-49 DRESDEN CORP DRESDEN OH (LAT 40 07 21N LONG 082 00 32W)								
AUG 1990 22...	24	53	5.5	261	88	110	12	572
400736082060700 MU-51 M STERLING OH (LAT 40 07 36N LONG 082 06 07W)								
AUG 1990 22...	17	4.4	1.0	186	30	9.6	11	230
400815082011000 MU-50 R BICE OH (LAT 40 08 15N LONG 082 01 10W)								
AUG 1990 22...	8.1	4.7	0.60	118	17	8.8	8.9	158
400917081564800 MU-43 M TALBOT AT ADAMS MILLS OH (LAT 40 09 17N LONG 081 56 48W)								
AUG 1990 22...	19	16	2.7	185	92	23	9.8	367
401816081532400 CS-153 L NORRIS NR COSHOCTON OH (LAT 40 18 16N LONG 081 53 24W)								
AUG 1990 21...	21	17	2.1	292	59	38	9.4	398
401830081553900 CS-154 D LEWIS NR COSHOCTON OH (LAT 40 18 30N LONG 081 55 39W)								
AUG 1990 21...	14	3.5	1.8	163	30	13	8.1	262
401943082003600 CS-155 T CULLISON NR WARSAW OH (LAT 40 19 43N LONG 082 00 36W)								
AUG 1990 21...	22	18	6.1	248	35	29	12	382
402007081572100 CS-156 LW RANDLES NR WARSAW OH (LAT 40 20 07N LONG 081 57 21W)								
AUG 1990 22...	29	36	2.2	330	41	64	12	540

GROUND-WATER QUALITY DATA--Continued

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
400721082003200 MU-49 DRESDEN CORP DRESDEN OH (LAT 40 07 21N LONG 082 00 32W)								
AUG 1990 22...	570	<10	<10	280	170	400	420	0.8
400736082060700 MU-51 M STERLING OH (LAT 40 07 36N LONG 082 06 07W)								
AUG 1990 22...	249	<10	<10	2100	660	790	830	1.3
400815082011000 MU-50 R BICE OH (LAT 40 08 15N LONG 082 01 10W)								
AUG 1990 22...	163	30	<10	1100	380	550	560	3.1
400917081564800 MU-43 M TALBOT AT ADAMS MILLS OH (LAT 40 09 17N LONG 081 56 48W)								
AUG 1990 22...	357	<10	<10	300	150	10	11	0.6
401816081532400 CS-153 L NORRIS NR COSHOCTON OH (LAT 40 18 16N LONG 081 53 24W)								
AUG 1990 21...	410	<10	<10	270	30	<10	7	0.9
401830081553900 CS-154 D LEWIS NR COSHOCTON OH (LAT 40 18 30N LONG 081 55 39W)								
AUG 1990 21...	232	<10	<10	<10	5	<10	<1	0.7
401943082003600 CS-155 T CULLISON NR WARSAW OH (LAT 40 19 43N LONG 082 00 36W)								
AUG 1990 21...	354	<10	<10	40	<3	<10	<1	0.8
402007081572100 CS-156 LW RANDLES NR WARSAW OH (LAT 40 20 07N LONG 081 57 21W)								
AUG 1990 22...	492	<10	<10	120	15	<10	1	0.8

GROUND-WATER RECORDS--SOUTHERN FRANKLIN COUNTY

The following tables contain ground water-level measurements and chemical analyses from a network of wells and two surface-water sites in southern Franklin County. The data were collected as part of a cooperative study with the City of Columbus. The objective of the study is to present estimates of ground-water traveltimes and flow paths under transient flow to determine the zone of contribution to the City of Columbus' South Well Field.

394957083002900. SCIOTO RIVER AT ROUTE 665 AT SHADEVILLE.
LOCATION.--Lat 39°49'57", long 83°00'29", Hydrologic Unit 05060001, north side of Rt. 665 bridge over the Scioto River, 0.1 mi west of Shadeville.
PERIOD OF RECORD.--Aug. 1987 intermittantly to current year.
REMARKS.--This site is used for chemical-quality sampling only as part of a cooperative study with the City of Columbus.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./ 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
MAR 28...	850	8.6	9.5	7.0	<0.5	>8000	>8000	3900	<0.1	96
AUG 31...	725	8.0	25.0	7.4	<0.5	>8000	6600	320	<0.1	85

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR 28...	29	39	4.0	222	0	182	160	64	0.4	1.5
AUG 31...	24	25	4.6	200	0	164	110	37	0.2	7.1

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
MAR 28...	580	4.30	<0.01	0.30	0.64	46	<0.5	<1.0	<3	<10
AUG 31...	455	2.50	0.05	0.60	0.27	53	<0.5	<1.0	<3	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAR 28...	11	<10	15	4	20	1800	<6	13	4.5
AUG 31...	9	<10	15	7	<10	2000	<6	12	5.9

395000083593400. BIG WALNUT CREEK NEAR FR-126 NEAR SHADEVILLE.
LOCATION.--Lat 39°50'00", long 82°59'34", Hydrologic Unit 05060001, 0.15 mi north of Rt. 665 bridge over Big Walnut Creek, 0.5 mi east-northeast of Shadeville.
PERIOD OF RECORD.--June 1984 intermittantly to current year.
REMARKS.--This site is used for chemical-quality sampling only as part of a cooperative study with the City of Columbus. A "K" associated with bacteriological data indicates non-ideal colony counts.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
MAR 28...	700	8.3	8.0	9.2	<0.5	2900	360	K13	<0.1	77
AUG 31...	715	8.1	25.5	8.6	<0.5	327	K65	K120	<0.1	80

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR 28...	26	34	3.4	231	3.0	195	88	66	0.2	1.4
AUG 31...	25	30	3.8	265	0	217	72	51	0.1	6.0

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
MAR 28...	445	0.90	<0.01	<0.20	0.04	80	<0.5	<1.0	<3	<10
AUG 31...	415	0.40	0.02	0.40	0.03	100	<0.5	<1.0	<3	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAR 28...	44	<10	8	37	10	460	<6	<3	8.9
AUG 31...	22	<10	12	14	<10	530	<6	6	4.5

395115083010300. Local number, FR-101 TH40
LOCATION.--Lat 39°51'15", long 83°01'03", Hydrologic Unit 05060001.
Owner.--City of Columbus
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 80 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.19 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.61 ft below land-surface datum, June 26, 1990; lowest measured, 27.89 ft below land-surface datum, Apr. 16, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 16	27.89	JUN 26	15.61	SEP 05	18.36

395114083010500. Local number, FR-101 TH41.
LOCATION.--Lat 39°51'14", long 83°01'05", Hydrologic Unit 05060001.
Owner.--City of Columbus
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 82 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685.6 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.33 ft above land-surface datum
PERIOD OF RECORD.--Dec. 1989 to current year
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.82 ft below land-surface datum, June 26, 1990; lowest measured, 37.40 ft below land-surface datum, Dec. 20, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	35.80	APR 16	29.03	JUN 26	8.82	SEP 05	19.00

395116083010400. Local number, FR-101 TH42.
LOCATION.--Lat 39°51'16", long 83°01'04", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 81 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 687.3 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.10 ft above land-surface datum
PERIOD OF RECORD.--Dec. 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.8 ft below land-surface datum, Sept. 05, 1990; lowest measured, 26.63 ft below land-surface datum, Apr. 16, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	26.31	APR 16	26.63	JUN 26	24.2	SEP 05	20.89

395045083003100. Local number, FR-103, TH11.
LOCATION.--Lat 39°50'45", long 83°00'31", Hydrologic Unit 05060001, near Columbus.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 93 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 699 feet above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing 1.70 ft above land-surface datum.
PERIOD OF RECORD.--Aug. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.00 ft below land-surface datum, May 9, 1983; lowest measured, 74.70 ft below land-surface datum, Jan. 25, 1984.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	52.28	APR 16	40.37	JUN 26	36.63	SEP 05	44.58

395027082592500. Local number, FR-151
LOCATION.--Lat 39°50'27", long 82°59'25", Hydrologic Unit 05060001, near Shadeville.
Owner.---City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 60 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 720 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of plastic pipe, 3.00 ft above land-surface datum.
PERIOD OF RECORD.--July 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.00 ft below land-surface datum, Mar. 26, 1986; lowest measured, 33.23 ft below land-surface datum, Aug. 5, 1988.
REMARKS.--A "K" associated with bacteriological data indicates non-ideal colony counts.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	31.90	APR 16	27.91	SEP 05	28.67	MAR 28	29.57	JUN 25	28.23

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
MAR 28...	890	7.1	12.5	0.3	<0.5	<1	<1	27	0.3	130
AUG 30...	930	6.9	13.0	0.2	<0.5	K4	<1	<1	<0.1	150

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR 28...	42	4.7	1.5	434	0	356	140	19	0.2	13
AUG 30...	45	4.5	1.4	431	0	353	170	18	<0.1	13

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
MAR 28...	603	<0.10	<0.01	<0.20	<0.01	66	<0.5	1.0	<3	30
AUG 30...	642	<0.10	0.02	<0.20	<0.01	62	<0.5	<1.0	<3	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAR 28...	1500	<10	9	50	10	230	<6	20	0.9
AUG 30...	1800	<10	12	62	<10	250	<6	7	1.2

395134083010000. Local number FR-100.
LOCATION.--Lat 39°51'34", long 83°01'00", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 56.8 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of PVC 2.47 ft above land-surface datum.
PERIOD OF RECORD.--July 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.72 ft below land-surface datum, Mar. 31, 1980; lowest measured, 23.55 ft below land-surface datum, Dec. 20, 1984.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL
DEC 20	23.55	APR 16	19.74

395114083010201. Local number, FR-101 TH46.
LOCATION.--Lat 39°51'14", long 83°01'02", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 80 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 690 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.5 ft above land-surface datum
PERIOD OF RECORD.--May 1981 to current year
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.19 ft below land-surface datum, May 19, 1981; lowest measured, 37.04 ft below land-surface datum, Aug. 17, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	34.30	APR 16	29.27	JUN 26	16.25	SEP 05	18.18

395021083002900. Local number, FR-104 TH18
LOCATION.--Lat 39°50'21", long 83°00'29", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 76 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 691 feet above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.00 ft above land-surface datum.
PERIOD OF RECORD.--Sept. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.17 ft below land-surface datum, Mar. 26, 1984; lowest measured, 54.45 ft below land-surface datum, Dec. 23, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	54.45	APR 16	29.99	JUN 26	25.69	SEP 05	32.04

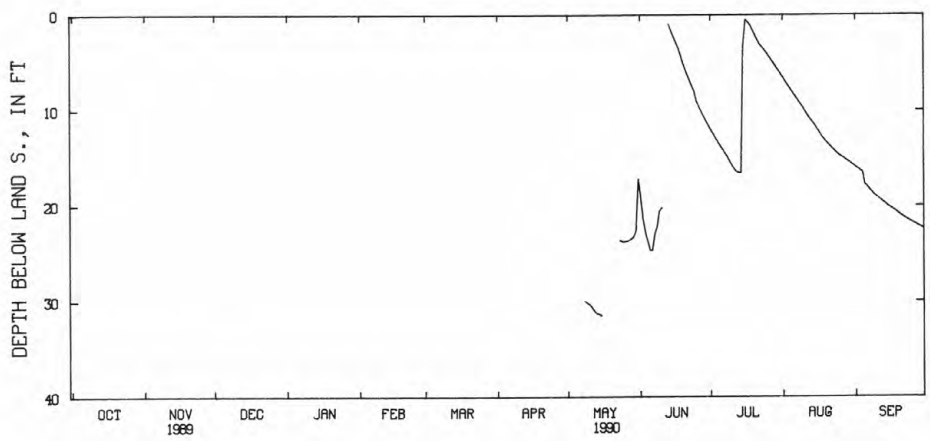
395020083003300. Local number, FR-104 TH20
LOCATION.--Lat 39°50'20", long 83°00'33", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 74 ft.
INSTRUMENTATION - Data logger -- 60 minute record.
DATUM.--Elevation of land-surface datum is 687.3 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.94 ft above land-surface datum
PERIOD OF RECORD.--June 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.95 ft below land-surface datum, June 13, 1990; lowest measured, 37.39 ft below land-surface datum, Aug. 23, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	19.01	11.98	6.58	15.92
2	---	---	---	---	---	---	---	---	21.38	12.42	6.96	16.11
3	---	---	---	---	---	---	---	---	22.67	12.85	7.35	16.29
4	---	---	---	---	---	---	---	---	23.70	13.26	7.72	16.48
5	---	---	---	---	---	---	---	---	24.62	13.65	8.09	17.77
6	---	---	---	---	---	---	---	---	24.62	14.03	8.45	18.00
7	---	---	---	---	---	---	---	---	22.99	14.40	8.82	18.28
8	---	---	---	---	---	---	---	29.96	22.15	14.76	9.17	18.56
9	---	---	---	---	---	---	---	30.14	20.58	15.20	9.51	18.85
10	---	---	---	---	---	---	---	30.29	---	15.69	9.90	19.07
11	---	---	---	---	---	---	---	30.61	---	16.07	10.32	19.27
12	---	---	---	---	---	---	---	30.99	---	16.41	10.71	19.46
13	---	---	---	---	---	---	---	31.25	.95	16.51	11.04	19.64
14	---	---	---	---	---	---	---	31.33	1.59	16.54	11.36	19.87
15	---	---	---	---	---	---	---	31.47	2.17	3.25	11.70	20.06
16	---	---	---	---	---	---	---	---	2.74	.51	12.09	20.23
17	---	---	---	---	---	---	---	---	3.31	.77	12.51	20.39
18	---	---	---	---	---	---	---	---	4.01	1.07	12.87	20.56
19	---	---	---	---	---	---	---	---	4.83	1.61	13.17	20.76
20	---	---	---	---	---	---	---	---	5.58	2.12	13.46	20.97
21	---	---	---	---	---	---	---	---	6.22	2.63	13.73	21.14
22	---	---	---	---	---	---	---	---	6.83	3.09	13.98	21.30
23	---	---	---	---	---	---	---	23.57	7.42	3.39	14.23	21.45
24	---	---	---	---	---	---	---	23.73	7.98	3.68	14.47	21.60
25	---	---	---	---	---	---	---	23.74	9.06	4.02	14.70	21.74
26	---	---	---	---	---	---	---	23.72	9.59	4.38	14.86	21.87
27	---	---	---	---	---	---	---	23.60	10.10	4.73	15.01	22.00
28	---	---	---	---	---	---	---	23.43	10.59	5.10	15.19	22.14
29	---	---	---	---	---	---	---	23.23	11.07	5.48	15.36	22.27
30	---	---	---	---	---	---	---	22.56	11.53	5.86	15.55	22.40
31	---	---	---	---	---	---	---	17.18	---	6.21	15.73	---
MEAN	---	---	---	---	---	---	---	---	---	8.10	11.61	19.70
MAX	---	---	---	---	---	---	---	---	---	16.54	15.73	22.40

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	45.66	APR 16	9.79	JUN 25	8.78	SEP 05	17.69



—— 395020083003300 FR-104 TH-20
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DATA LOGGER

395020083003300. Local number, FR-104 TH72
LOCATION.--Lat 39°50'20", long 83°00'34", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 100 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 682 ft above National Geodetic Vertical Datum of 1929. Measuring point: 6.17 ft above land-surface datum.
PERIOD OF RECORD.--Sept. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft below land-surface datum, Mar. 26, 1984; lowest measured, 55.37 ft below land-surface datum, Dec. 20, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	55.37	APR 16	23.75	JUN 26	20.06	SEP 05	26.28

395157083003500. Local number, FR-109
LOCATION.--Lat 39°51'57", long 83°00'35", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 92 ft., 2 in. PVC.
INSTRUMENTATION - Continuous recorder - 60 minute punch, operated by the USGS.
DATUM.--Elevation of land-surface datum is 702.2 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of instrument shelter, 30.8 ft above land-surface datum.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.47 ft above land-surface datum, Sept. 05, 1990; lowest measured, 30.56 ft below land-surface datum, Aug. 05, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM (READINGS ABOVE LAND SURFACE INDICATED BY "+")

	WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	5.61	APR 18	+3.21	SEP 05	+3.47

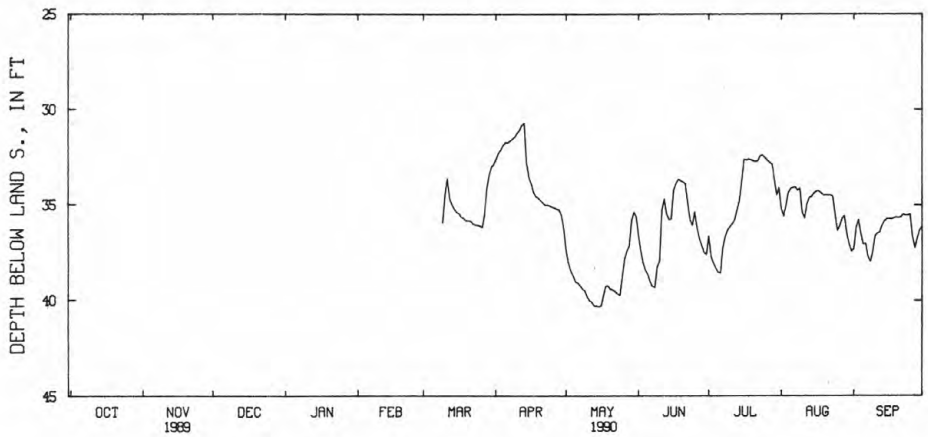
395039082585800. Local number, FR-115 TH67.
LOCATION.--Lat 39°50'39", long 82°58'58", Hydrologic Unit 05060001, near Hamilton Meadows.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 116 ft.
INSTRUMENTATION - Data logger -- 60 minute record.
DATUM.--Elevation of land-surface datum is 721 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of instrument shelter, 2.10 ft bove land-surface datum.
PERIOD OF RECORD.--Aug. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.21 ft below land-surface datum, May 3, 1984; lowest measured, 41.74 ft below land-surface datum, July 25, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	32.59	37.44	36.59	36.64	35.24	37.29
2	---	---	---	---	---	---	32.29	38.05	37.45	37.73	35.59	36.16
3	---	---	---	---	---	---	32.10	38.48	38.02	38.03	35.05	35.77
4	---	---	---	---	---	---	31.88	38.72	38.44	38.31	34.39	36.55
5	---	---	---	---	---	---	31.73	39.03	38.64	38.54	34.15	37.06
6	---	---	---	---	---	---	31.74	39.09	39.05	38.57	34.09	37.03
7	---	---	---	---	---	---	31.64	39.24	39.28	37.28	34.06	37.71
8	---	---	---	---	---	---	31.55	39.40	39.32	36.68	34.24	37.96
9	---	---	---	---	---	35.93	31.44	39.50	38.24	36.35	34.14	37.47
10	---	---	---	---	---	34.47	31.24	39.82	37.95	36.16	35.39	36.62
11	---	---	---	---	---	33.61	31.08	40.01	35.29	36.00	35.69	36.48
12	---	---	---	---	---	34.68	30.82	40.10	34.69	35.80	34.96	36.43
13	---	---	---	---	---	34.98	30.72	40.30	35.47	35.31	34.61	36.07
14	---	---	---	---	---	35.22	32.78	40.29	35.76	34.80	34.56	35.83
15	---	---	---	---	---	35.38	33.54	40.33	35.74	33.87	34.38	35.73
16	---	---	---	---	---	35.44	33.88	40.27	34.24	32.61	34.29	35.71
17	---	---	---	---	---	35.62	34.34	39.72	33.88	32.65	34.26	35.73
18	---	---	---	---	---	35.70	34.56	39.25	33.65	32.61	34.37	35.69
19	---	---	---	---	---	35.82	34.63	39.25	33.73	32.64	34.49	35.64
20	---	---	---	---	---	35.83	34.77	39.42	33.79	32.69	34.48	35.65
21	---	---	---	---	---	35.84	34.90	39.46	33.89	32.73	34.49	35.63
22	---	---	---	---	---	35.98	35.00	39.55	34.86	32.68	34.49	35.49
23	---	---	---	---	---	36.05	35.00	39.66	35.75	32.41	34.56	35.53
24	---	---	---	---	---	36.06	35.04	39.74	36.09	32.40	35.49	35.53
25	---	---	---	---	---	36.10	35.11	38.76	35.36	32.53	36.35	35.48
26	---	---	---	---	---	36.18	35.15	37.82	36.20	32.66	36.10	36.67
27	---	---	---	---	---	35.40	35.22	37.41	36.75	32.77	35.71	37.25
28	---	---	---	---	---	34.15	35.25	37.15	37.13	32.87	35.56	36.74
29	---	---	---	---	---	33.44	35.57	35.78	37.51	33.64	36.53	36.33
30	---	---	---	---	---	32.99	36.29	35.37	37.59	34.49	37.06	36.17
31	---	---	---	---	---	32.86	---	35.61	---	34.11	37.44	---
MEAN	---	---	---	---	---	---	33.26	38.66	36.00	34.52	34.86	36.12
MAX	---	---	---	---	---	---	35.63	40.28	39.18	38.42	37.26	37.82

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	41.02	APR 16	33.74	JUN 25	35.32	AUG 30	36.99



395039082585800 FR-115 TH 67
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DATA LOGGER

395016083010300. Local number, FR-116, M1.
LOCATION.--Lat 39°50'06", long 83°01'36", Hydrologic Unit 05060001.
Owner.--Jackson Township.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 62 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 740 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of plastic pipe 2.5 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.48 ft below land-surface datum, Mar. 26, 1984; lowest measured, 26.36 ft below land-surface datum, Aug. 15, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	24.17	APR 18	23.90	JUN 26	22.20	SEP 05	23.72

395016083010300. Local number, FR-117, M2.
LOCATION.--Lat 39°50'16", long 83°01'03", Hydrologic Unit 05060001.
Owner.--Jackson Township.
AQUIFER.--Clay, sand, and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 45 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 705 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of 2-inch steel pipe, 3.08 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.02 ft below land-surface datum, June 17, 1981; lowest measured, 20.06 ft below land-surface datum, Aug. 15, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	19.47	APR 18	16.82	JUN 26	15.22	SEP 05	17.37

395117083011600. Local number, FR-120, M6
LOCATION.--Lat 39°51'17", long 83°01'16", Hydrologic Unit 05060001, near Columbus.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 72 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of instrument shelter, 7.14 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.36 ft below land-surface datum, Mar. 21, 1984; lowest measured, 18.31 ft below land-surface datum, Apr. 18, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 18	18.31	JUN 27	8.18	SEP 05	11.04

395059083000900. Local number, FR-122, M8.
LOCATION.--Lat 39°50'59", long 82°00'09", Hydrologic Unit 05060002, near Shadeville.
Owner.--Franklin County.
AQUIFER.--Clay, sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 104 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 730 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of 3-inch aluminum casing, 2.90 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.15 ft below land-surface datum, May 19, 1981; lowest measured, 94.64 ft below land-surface datum, Mar. 2, 1982.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	42.02	APR 16	42.42	JUN 26	41.63	SEP 05	40.45

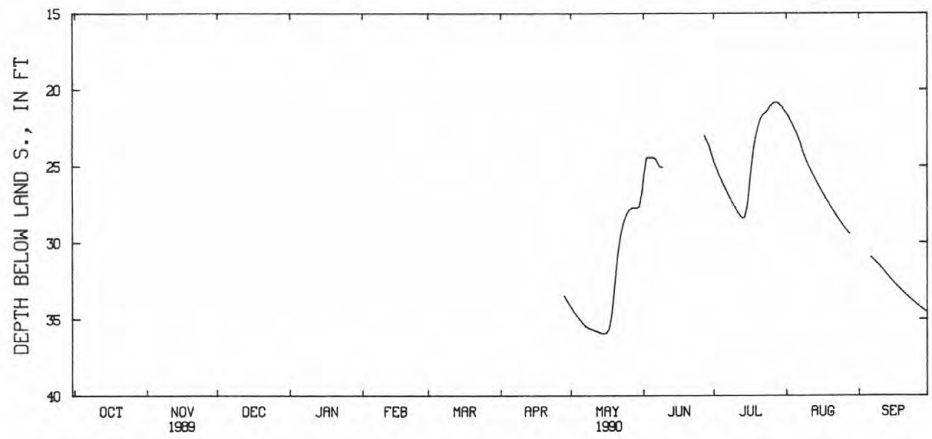
395058083002400. Local number, FR-119, M5
LOCATION.--Lat 39°50'58", long 83°00'24", Hydrologic Unit 05060001.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--drilled observation water well, diameter 2 in., depth 85 ft.
INSTRUMENTATION - Data logger -- 60 minute record.
DATUM.--Elevation of land-surface datum is 700 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of PVC casing, 2.48 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.10 ft below land-surface datum, June 17, 1981; lowest measured, 39.72 ft below land-surface datum, July 22, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	34.24	25.59	24.71	21.56	---
2	---	---	---	---	---	---	---	34.49	24.46	25.12	21.80	---
3	---	---	---	---	---	---	---	34.71	24.42	25.51	22.11	---
4	---	---	---	---	---	---	---	34.89	24.43	25.86	22.42	---
5	---	---	---	---	---	---	---	35.11	24.43	26.19	22.76	30.79
6	---	---	---	---	---	---	---	35.30	24.54	26.50	23.11	30.94
7	---	---	---	---	---	---	---	35.45	24.82	26.82	23.55	31.08
8	---	---	---	---	---	---	---	35.55	25.05	27.12	24.07	31.24
9	---	---	---	---	---	---	---	35.61	25.07	27.41	24.48	31.39
10	---	---	---	---	---	---	---	35.67	24.95	27.69	24.83	31.55
11	---	---	---	---	---	---	---	35.74	---	27.96	25.15	31.72
12	---	---	---	---	---	---	---	35.79	---	28.21	25.46	31.92
13	---	---	---	---	---	---	---	35.86	---	28.37	25.75	32.11
14	---	---	---	---	---	---	---	35.92	---	28.37	26.05	32.29
15	---	---	---	---	---	---	---	35.92	---	27.80	26.34	32.47
16	---	---	---	---	---	---	---	35.89	---	26.55	26.62	32.64
17	---	---	---	---	---	---	---	35.63	---	25.01	26.89	32.81
18	---	---	---	---	---	---	---	34.93	---	23.79	27.16	32.97
19	---	---	---	---	---	---	---	33.59	---	22.96	27.41	33.12
20	---	---	---	---	---	---	---	31.97	---	22.33	27.68	33.28
21	---	---	---	---	---	---	---	30.54	---	21.88	27.92	33.41
22	---	---	---	---	---	---	---	29.55	---	21.63	28.16	33.55
23	---	---	---	---	---	---	---	28.83	---	21.51	28.40	33.70
24	---	---	---	---	---	---	---	28.34	---	21.34	28.63	33.83
25	---	---	---	---	---	---	---	28.01	---	21.09	28.85	33.95
26	---	---	---	---	---	---	---	27.81	---	20.92	29.05	34.09
27	---	---	---	---	---	---	---	27.71	23.02	20.84	29.25	34.21
28	---	---	---	---	---	---	33.47	27.71	23.36	20.84	29.41	34.33
29	---	---	---	---	---	---	33.75	27.71	23.71	20.96	---	34.43
30	---	---	---	---	---	---	34.00	27.63	24.25	21.13	---	34.54
31	---	---	---	---	---	---	---	26.83	---	21.36	---	---
MEAN	---	---	---	---	---	---	---	32.49	---	24.26	---	---
MAX	---	---	---	---	---	---	---	35.92	---	28.32	---	---

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 16	26.44	JUN 26	22.46	SEP 05	30.72



395058083002400 FR-119
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DATA LOGGER

395123083003300. Local number, FR-121
LOCATION.--Lat 39°51'23", long 83°00'33", Hydrologic Unit 05060001.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 45 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 690 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of coupling, 2.6 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.01 ft below land-surface datum, Mar. 24, 1984; lowest measured, 30.53 ft below land-surface datum, Dec. 20, 1989.
REMARKS.--A "K" associated with bacteriological data indicates non-ideal colony counts.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	30.53	APR 16	23.29	JUN 26	11.92	SEP 05	19.07

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./ 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
APR 02...	1100	6.8	11.5	2.5	<0.5	59	<1	K18	0.4	170
AUG 31...	1300	7.0	14.0	1.3	<0.5	<1	<1	K16	0.2	210

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
APR 02...	52	7.9	2.0	513	0	420	210	39	0.3	14
AUG 31...	67	8.8	1.7	561	0	460	350	34	0.1	16

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
APR 02...	808	<0.10	0.04	<0.2	<0.01	40	<0.5	2.0	50	<10
AUG 31...	1000	0.30	0.06	0.2	<0.01	35	<0.5	2.0	5	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR 02...	9700	<10	14	230	10	300	<6	310	2.4
AUG 31...	11000	<10	20	290	<10	340	<6	220	2.2

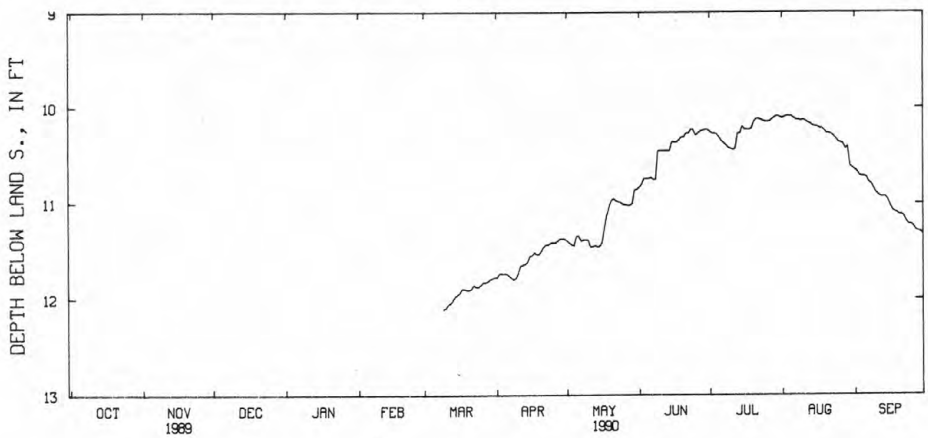
395131082592400. Local number, FR-123, M9.
LOCATION.--Lat 39°51'31", long 82°59'24", Hydrologic Unit 05060001, near Hamilton Meadows.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 36.5 ft.
INSTRUMENTATION - Data logger -- 60 minute record.
DATUM.--Elevation of land-surface datum is 710 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of shelter, 2.25 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.87 ft below land-surface datum, Apr. 01, 1980; lowest measured, 15.17 ft below land-surface datum, Aug. 17, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	11.77	11.39	10.83	10.25	10.11	10.65
2	---	---	---	---	---	---	11.73	11.41	10.80	10.27	10.10	10.67
3	---	---	---	---	---	---	11.73	11.43	10.74	10.27	10.09	10.71
4	---	---	---	---	---	---	11.73	11.44	10.74	10.28	10.09	10.72
5	---	---	---	---	---	---	11.73	11.34	10.74	10.31	10.09	10.72
6	---	---	---	---	---	---	11.75	11.34	10.73	10.35	10.11	10.73
7	---	---	---	---	---	---	11.77	11.39	10.75	10.37	10.13	10.78
8	---	---	---	---	---	---	11.79	11.38	10.75	10.39	10.13	10.80
9	---	---	---	---	---	12.10	11.78	11.38	10.45	10.42	10.14	10.84
10	---	---	---	---	---	12.09	11.73	11.38	10.45	10.43	10.13	10.89
11	---	---	---	---	---	12.05	11.65	11.45	10.45	10.44	10.14	10.91
12	---	---	---	---	---	12.04	11.64	11.45	10.45	10.43	10.16	10.93
13	---	---	---	---	---	12.01	11.63	11.44	10.45	10.27	10.17	10.93
14	---	---	---	---	---	11.97	11.61	11.45	10.45	10.27	10.19	10.93
15	---	---	---	---	---	11.95	11.55	11.45	10.36	10.20	10.20	10.96
16	---	---	---	---	---	11.93	11.54	11.41	10.36	10.23	10.20	11.02
17	---	---	---	---	---	11.89	11.51	11.27	10.36	10.23	10.22	11.07
18	---	---	---	---	---	11.89	11.53	11.13	10.34	10.23	10.22	11.09
19	---	---	---	---	---	11.90	11.53	11.05	10.31	10.22	10.24	11.10
20	---	---	---	---	---	11.90	11.49	10.97	10.31	10.15	10.27	11.12
21	---	---	---	---	---	11.89	11.45	10.95	10.27	10.12	10.27	11.12
22	---	---	---	---	---	11.85	11.43	10.97	10.27	10.12	10.28	11.14
23	---	---	---	---	---	11.87	11.43	10.98	10.23	10.13	10.30	11.19
24	---	---	---	---	---	11.87	11.41	10.99	10.23	10.14	10.33	11.22
25	---	---	---	---	---	11.85	11.41	11.01	10.29	10.15	10.36	11.22
26	---	---	---	---	---	11.82	11.41	11.01	10.27	10.15	10.37	11.24
27	---	---	---	---	---	11.82	11.39	11.02	10.25	10.14	10.38	11.28
28	---	---	---	---	---	11.81	11.37	11.02	10.24	10.12	10.43	11.29
29	---	---	---	---	---	11.79	11.37	11.00	10.23	10.10	10.41	11.30
30	---	---	---	---	---	11.78	11.37	10.86	10.23	10.09	10.61	11.32
31	---	---	---	---	---	11.77	---	10.85	---	10.10	10.63	---
MEAN	---	---	---	---	---	---	11.57	11.19	10.43	10.23	10.23	10.99
MAX	---	---	---	---	---	---	11.78	11.44	10.82	10.43	10.62	11.31

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	12.72	APR 16	11.53	JUN 25	10.28	AUG 30	10.57



——— 395131082592400 FR-123
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DATA LOGGER

395008082593100. Local number, FR-126 M13
LOCATION.--Lat 39°50'08", long 82°59'31", Hydrologic Unit 05060001, near Shadeville.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 122 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 703 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of PVC casing, 4.2 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.96 ft below land-surface datum, June 17, 1981; lowest measured, 21.25 ft below land-surface datum Aug. 17, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	19.58	APR 16	15.94	JUN 25	13.16	SEP 05	13.38

395046082573400. Local number, FR-130 M17
LOCATION.--Lat 39°50'46", long 82°57'34", Hydrologic Unit 05060001.
Owner.--Franklin County.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 48 ft. near Shadeville.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 740 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.6 ft above land-surface datum.
PERIOD OF RECORD.--Dec. 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.72 ft below land-surface datum, Apr. 17, 1979 and Apr. 02, 1980; lowest measured, 36.18 ft below land-surface datum, Oct. 6, 1977.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	36.99	APR 18	33.67	JUN 27	31.87

395126083014000. Local number, FR-131 M18.
LOCATION.--Lat 39°51'26", long 83°01'40", Hydrologic Unit 05060001, near Columbus.
Owner.--Franklin County.
AQUIFER.--Clay, sand, and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 53 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 727 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of plastic coupling, 2.4 ft above land-surface datum.
PERIOD OF RECORD.--Oct. 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.77 ft below land-surface datum, July 1, 1981; lowest measured, 49.08 ft below land-surface datum, Apr. 18, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	49.05	APR 18	49.08	JUN 26	45.85	SEP 05	45.58

395218083023900. Local number, FR-133.
LOCATION.--Lat 39°52'18", long 83°02'39", Hydrologic Unit 05060001, on White Road near Grove City, Ohio
Owner.--Franklin County.
AQUIFER.--Gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 82 ft, cased to 78 ft, finish: 4.0 ft of 0.80 in. well screen.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 765 feet above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.0 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.05 ft below land-surface datum, Apr. 1, 1981; lowest measured, 79.36 ft below land-surface datum, June 22, 1978.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	60.87	APR 18	59.93	JUN 26	58.80	SEP 05	59.08

395020083014400. Local number, FR-141
LOCATION.--Lat 39°50'20", long 83°01'44", Hydrologic Unit 05060001.
Owner.--John Lako.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 64 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 720 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.6 ft above land-surface datum.
PERIOD OF RECORD.--Sept. 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.13 ft below land-surface datum, June 26, 1990; lowest measured, 28.66 ft below land-surface datum, Sept. 02, 1987.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	27.96	APR 18	26.78	JUN 26	26.13	SEP 05	27.43

395108083010600. Local number FR-147.
LOCATION.--Lat 39°51'08", long 83°01'06", Hydrologic Unit 05060001, near Columbus.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 75 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.84 ft above land-surface datum.
PERIOD OF RECORD.--May 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.54 ft below land-surface datum, May 19, 1981; lowest measured, 32.14 ft below land-surface datum, Aug. 15, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	29.84	APR 16	25.09	JUN 26	13.46	SEP 05	16.36

395114083010200. Local number, FR-148
LOCATION.--Lat 39°51'14", long 83°01'02", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Devonian limestone.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in., depth 140 ft., 12 in. casing to 85 ft; 8 in. casing to 97.5.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.5 ft above land-surface datum.
PERIOD OF RECORD.--June 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.74 ft below land-surface datum, June 26,1990; lowest measured, 36.69 ft below land-surface datum, Aug. 23, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	33.69	APR 16	29.30	JUN 26	13.74	AUG 31	20.07

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
APR										
02...	1150	7.0	12.0	0.4	6.7	<1	<1	<1	0.7	180
AUG										
31...	1630	7.2	14.0	0.5	71	<1	<1	<1	0.2	190
31...	1630	7.2	14.0	0.5	71	<1	<1	<1	0.1	190

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
APR										
02...	85	43	6.5	390	0	320	560	67	1.4	7.5
AUG										
31...	87	47	5.6	384	0	315	620	69	1.1	8.1
31...	89	47	5.3	384	--	315	580	67	1.1	8.2

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
APR										
02...	1200	<0.10	0.87	1.1	0.03	23	<0.5	2.0	<3	<10
AUG										
31...	1200	<0.10	1.00	1.0	0.03	22	<0.5	<1.0	<3	<10
31...	1210	<0.10	0.97	1.1	0.01	23	<0.5	<1.0	<3	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR									
02...	330	<10	61	460	<10	9200	<6	33	3.0
AUG									
31...	290	<10	67	210	<10	10000	<6	38	0.5
31...	330	<10	65	220	<10	10000	<6	43	0.2

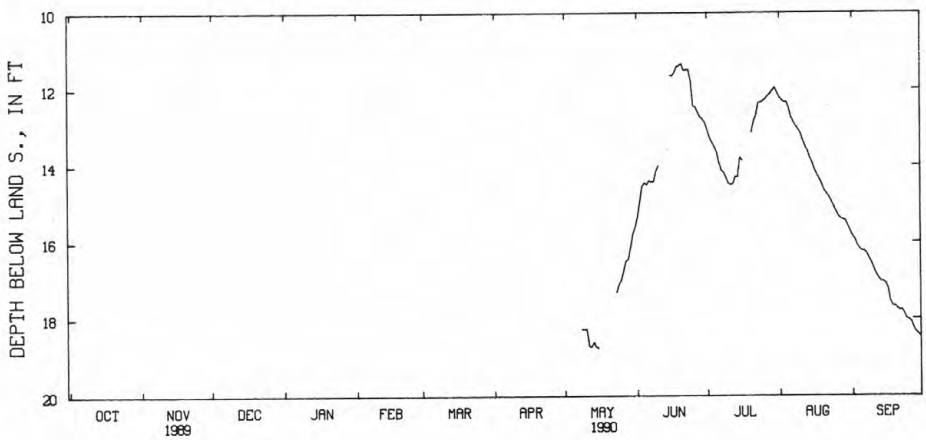
395024083003000. Local number, FR-149
LOCATION.--Lat 39°50'24", long 83°00'30", Hydrologic Unit 05060001, at Hartman Farms.
Owner.--City of Columbus.
AQUIFER.--Devonian limestone.
WELL CHARACTERISTICS.--Drilled observation water well, depth 144 ft.
INSTRUMENTATION - Data logger -- 60 minute record.
DATUM.--Elevation of land-surface datum is 685 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of shelter 2.83 ft above land-surface datum.
PERIOD OF RECORD.--June 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.33 ft below land-surface datum, June 20, 1990; lowest measured, 25.26 ft below land-surface datum, Aug. 23, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	15.34	13.06	12.22	15.84
2	---	---	---	---	---	---	---	---	14.95	13.26	12.29	15.92
3	---	---	---	---	---	---	---	---	14.54	13.39	12.34	16.07
4	---	---	---	---	---	---	---	---	14.44	13.50	12.34	16.17
5	---	---	---	---	---	---	---	---	14.50	13.64	12.50	16.23
6	---	---	---	---	---	---	---	---	14.39	13.92	12.74	16.24
7	---	---	---	---	---	---	---	---	14.42	14.11	12.87	16.29
8	---	---	---	---	---	---	---	18.26	14.41	14.18	12.97	16.43
9	---	---	---	---	---	---	---	18.27	14.14	14.30	13.06	16.53
10	---	---	---	---	---	---	---	18.26	---	14.47	13.16	16.69
11	---	---	---	---	---	---	---	18.70	---	14.50	13.35	16.84
12	---	---	---	---	---	---	---	18.72	---	14.48	13.50	16.94
13	---	---	---	---	---	---	---	18.60	12.46	14.29	13.62	17.02
14	---	---	---	---	---	---	---	18.72	12.10	14.29	13.80	17.03
15	---	---	---	---	---	---	---	18.75	11.63	13.79	13.94	17.08
16	---	---	---	---	---	---	---	---	11.65	13.87	14.11	17.20
17	---	---	---	---	---	---	---	---	11.57	---	14.25	17.54
18	---	---	---	---	---	---	---	---	11.41	---	14.36	17.67
19	---	---	---	---	---	---	---	---	11.38	---	14.49	17.67
20	---	---	---	---	---	---	---	---	11.33	13.12	14.66	17.74
21	---	---	---	---	---	---	---	---	11.51	12.85	14.74	17.78
22	---	---	---	---	---	---	---	---	11.49	12.69	14.82	17.77
23	---	---	---	---	---	---	---	17.30	11.49	12.36	14.94	17.86
24	---	---	---	---	---	---	---	17.09	11.77	12.35	15.07	18.00
25	---	---	---	---	---	---	---	16.98	12.44	12.31	15.20	18.03
26	---	---	---	---	---	---	---	16.74	12.47	12.26	15.32	18.08
27	---	---	---	---	---	---	---	16.49	12.60	12.18	15.39	18.24
28	---	---	---	---	---	---	---	16.45	12.73	12.13	15.42	18.35
29	---	---	---	---	---	---	---	16.12	12.79	12.04	15.44	18.41
30	---	---	---	---	---	---	---	15.78	12.88	11.96	15.57	18.47
31	---	---	---	---	---	---	---	15.60	---	12.09	15.72	---
MEAN	---	---	---	---	---	---	---	---	---	---	13.95	17.16
MAX	---	---	---	---	---	---	---	---	---	---	15.65	18.42

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	25.20	APR 16	14.43	JUN 25	12.36	SEP 05	16.21



395024083003000 FR-149 HARTMAN FARMS AT CW-104 NR COLUMBUS OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DATA LOGGER

394956083002700. Local number, FR-18
LOCATION.--Lat 39°49'56", long 83°00'27", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 74.75 ft, 6 in. casing.
INSTRUMENTATION - Continuous recorder.
DATUM.--Elevation of land-surface datum is 695 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 4.05 ft above land-surface datum.
PERIOD OF RECORD.--June 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.22 ft below land-surface datum, June 25, 1990; lowest measured, 26.61 ft below land-surface datum, July 25, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 16	18.60	JUN 25	14.22	SEP 05	18.52

395323083014000. Local number, FR-269
LOCATION.--Lat 39°53'23", long 83°01'40", Hydrologic Unit 05060001, at Ron's Trucking.
Owner.--Ron's Trucking.
AQUIFER.--Devonian limestone.
WELL CHARACTERISTICS.--Drilled commercial water well, depth 90 ft.; 75 ft of 6 in casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 740 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing .5 ft above land-surface datum.
PERIOD OF RECORD.--Aug. 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.04 ft below land-surface datum, Apr. 18, 1990; lowest measured, 70.67 ft below land-surface datum, Sept. 05, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	69.00	APR 18	67.04	JUN 27	68.05	SEP 05	70.67

395055082592400. Local number, FR-271
LOCATION.--Lat 39°50'55", long 82°59'24", Hydrologic Unit 05060001, at Parsons Ave WTP
Owner.--Franklin County
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 91.8 ft.; 76 ft of 2 in casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 710 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.46 ft above land-surface datum.
PERIOD OF RECORD.--Sept. 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.84 ft below land-surface datum, June 25, 1990; lowest measured, 18.50 ft below land-surface datum, Dec. 20, 1989.
REMARKS.--A "K" associated with bacteriological data indicates non-ideal colony counts.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	18.50	APR 18	16.60	JUN 25	15.84	SEP 05	15.82

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	HYDROGEN SULFIDE TOTAL (MG/L AS H2S)	COLIFORM, TOTAL, IMMED. MEM.FIL (COLS./100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DISSOLVED (MG/L AS CA)
APR										
03...	645	7.0	11.5	0.2	<0.5	<1	<1	<1	0.2	94
03...	645	7.0	11.5	0.2	<0.5	<1	<1	<1	0.1	93
AUG										
30...	1100	6.9	13.0	0.2	<0.5	<1	<1	K2	<0.1	150

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY, CARBONATE IT-FLD (MG/L - CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
APR										
03...	30	3.2	1.9	362	0	297	68	13	0.1	15
03...	29	3.2	2.0	362	0	297	68	11	0.1	15
AUG										
30...	47	14	1.7	414	0	339	200	52	<0.1	13

DATE	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
APR										
03...	408	<0.10	0.04	0.3	0.02	150	<0.5	4.0	<3	10
03...	396	<0.10	0.03	0.3	0.02	160	<0.5	4.0	<3	10
AUG										
30...	710	<0.10	0.04	<0.2	<0.01	55	<0.5	<1.0	<3	<10

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)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR									
03...	320	<10	8	57	20	160	<6	38	2.3
03...	240	<10	8	51	20	160	<6	37	2.4
AUG									
30...	3300	<10	14	84	<10	140	<6	9	1.7

395055082592401. Local number FR-272.
LOCATION.--Lat 39°50'55", long 82°59'24", Hydrologic Unit 05060001.
Owner.--City of Columbus.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 45.95; 2 in. PVC.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 710 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of PVC 2.5 ft above land-surface datum.
PERIOD OF RECORD.--Sept. 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.19 ft below land-surface datum, June 25, 1990; lowest measured, 17.45 ft below land-surface datum, Sept. 3, 1987.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 18	16.98	JUN 25	16.19	SEP 05	16.35

395224083000000. Local number, FR-273
LOCATION.--Lat 39°52'24", long 82°30'00", Hydrologic Unit 05060001, at County Water-Treatment Plant.
Owner.--Franklin County
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 91.5 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 700 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.15 ft above land-surface datum.
PERIOD OF RECORD.--May 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.5 ft below land-surface datum, June 27, 1990; lowest measured, 14.41 ft below land-surface datum, Sept. 05, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL
JUN 27	13.5	SEP 05	14.41

395224083000001. Local number, FR-274
LOCATION.--Lat 39°52'24", long 83°00'00", Hydrologic Unit 05060001, at County Water-Treatment Plant.
Owner.--Franklin County
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 25 ft.; 4 in. casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 700 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of PVC casing 2.44 ft above land-surface datum.
PERIOD OF RECORD.--May 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.96 ft below land-surface datum, June 27, 1990; lowest measured, 13.67 ft below land-surface datum, Sept. 05, 1990.
REMARKS.--A "K" associated with bacteriological data indicates non-ideal colony counts.

WATER13 LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL
JUN 27	12.96	SEP 05	13.67

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HYDRO-GEN SULFIDE TOTAL (MG/L AS H2S)	COLI-FORM, TOTAL, IMMED. MEM.FIL (COLS./ 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ACIDITY (MG/L AS H)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAY 24...	1100	7.1	13.5	0.4	<0.5	K1	<1	<1	<0.1	150
AUG 30...	1040	6.9	14.0	0.2	<0.5	K3	<1	26	0.5	140

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CAC03)	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)
MAY 24	31	48	2.0	401	0	329	110	130	0.2	14
AUG 30...	37	26	1.7	420	0	344	140	76	<0.1	14

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
MAY 24	598	0.30	0.19	<0.2	<0.01	41	<0.5	<1.0	<3	<10
AUG 30...	682	0.20	0.12	0.3	<0.01	40	<0.5	<1.0	<3	<10

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)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
MAY 24	2300	<10	16	71	10	200	<6	7	1.7
AUG 30...	2800	<10	15	74	<10	190	<6	10	1.8

394941083004400. Local number, FR-275.
LOCATION.--Lat 39°49'41", long 83°00'44", Hydrologic Unit 05060001, near Shadeville.
Owner.--Franklin County
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 35 ft.; 2 in. casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 680 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of steel protective casing, 5.00 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1990 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL
APR 18	13.12

395239083021400. Local number, FR-276
LOCATION.--Lat 39°52'39", long 83°02'14", Hydrologic Unit 05060001
Owner.-Stanley and Betty Wray.
AQUIFER.--Devonian limestone
WELL CHARACTERISTICS.--Drilled domestic water well, depth 155 ft.
INSTRUMENTATION.--Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 753 ft. above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.25 ft above land-surface datum.
PERIOD OF RECORD.--June 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.11 ft below land-surface datum, June 26, 1990; lowest measured, 72.25 ft below land-surface datum, Sept. 05, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL
JUN 26	72.11	SEP 05	72.25

394930083013100. Local number, FR-277
LOCATION.--Lat 39°49'30", long 83°01'31", Hydrologic unit 05060001
AQUIFER.--Sand and gravel of Quaternary Age
WELL CHARACTERISTICS.--Drilled domestic water well, depth 52 ft.
INSTRUMENTATION.--Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 710 ft. above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.5 ft above land-surface datum.
PERIOD OF RECORD.--Dec. 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.-- Highest water level measured, 16.84 ft below land-surface datum, June 21, 1990; lowest measured, 19.76 ft below land-surface datum, Dec. 19, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	19.76	APR 18	17.17	JUN 26	16.84	SEP 05	18.08

395115083022600. Local number, FR-278
LOCATION.--Lat 39°51'15", long 83°02'26", Hydrologic Unit 05060001
Owner.--Mr. Mark Boster
AQUIFER.--Quaternary sand and gravel-primary; Devonian limestone-secondary
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5 in, depth 114 ft, 10 ft screen.
INSTRUMENTATION.--Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 737 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing .95 ft above land-surface datum.
PERIOD OF RECORD.-- July 1990 to current year.
EXTREMES FOR PEIOD OF RECORD.--Highest water level measured, 30.03 ft below land-surface datum, June 27, 1990; lowest measured, 31.54 ft below land-surface datum, Sept. 05, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL
JUN 27	30.03	SEP 05	31.54

394932083022700. Local number, FR-279
LOCATION.--Lat 39°49'32", long 83°02'27", Hydrologic unit 05060001
Owner.--Mr. Gerald Boggs
AQUIFER.--Devonian limestone
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5 in, depth 145 ft, cased to 102 ft.
INSTRUMENTATION.--Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 737 ft. above National Geodetic Vertical datum of 1929. Measuring point: Top of casing 1.35 ft above land-surface datum.
PERIOD OF RECORD.-- Sept. 1990 to current year.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL
SEP 05	17.99

395118082573300. Local number, FR-3.
LOCATION.--Lat 39°51'18", long 82°57'33", Hydrologic Unit 05060001.
Owner.-R. Hann.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 60 ft.; 12 in. casing.
INSTRUMENTATION - Continuous recorder operated by the Ohio Department of Natural Resources, Division of Water.
DATUM.--Elevation of land-surface datum is 713.0 feet above National Geodetic Vertical Datum of 1929. Measuring point: Floor of shelter, 3.43 ft. above land-surface datum
PERIOD OF RECORD.--Oct. 1965 to current year
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.33 ft below land-surface datum, Mar. 30, 1984 and Nov 29, 1985; lowest measured, 16.48 feet below land-surface datum, Dec. 20, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 20	16.48	APR 18	12.10	JUN 27	12.18	SEP 05	13.25

394927082595800. Local number, FR-70.
LOCATION.--Lat 39°49'27", long 82°59'58", Hydrologic Unit 05060001.
Owner.-St. Joseph Cemetary.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 59 ft.; 4 in. casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 705 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of concrete base .4 ft above land-surface datum.
PERIOD OF RECORD.--Apr. 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.67 ft below land-surface datum, Oct. 16, 1979; lowest measured, 22.40 ft below land-surface datum, Dec. 28, 1977.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 18	18.18	JUN 25	16.17	SEP 05	16.66

395217083002300. Local number FR-72.
LOCATION.--Lat 39°52'17", long 83°00'23", Hydrologic Unit 05060001.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, depth 34.6 ft, 3 in. casing.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 712 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing inside pit 3.5 ft below land-surface datum.
PERIOD OF RECORD.--May 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.01 ft below land-surface datum, June 27, 1990; lowest measured, 29.81 ft below land-surface datum, Sept. 9, 1975.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 18	24.07	JUN 27	23.01	SEP 05	26.13

395027082585600. Local number TH-83 M15
LOCATION.--Lat 39°50'27", long 82°58'56", Hydrologic Unit 05060001
Owner.--J.P. Sand and Gravel
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, 8 in. diameter, 64 feet deep.
INSTRUMENTATION.--Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 705 feet above national Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.68 ft above land-surface datum
PERIOD OF RECORD.--Oct. 1977 to present
EXTREMES FOR PERIOD OF RECORD.--highest water level measured, 11.71 ft below land-surface datum, June 17, 1981; lowest measured, 26.19 ft below land-surface datum, Sept. 05, 1990

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
APR 18	22.32	JUN 27	25.50	SEP 05	26.19

395037082581900. Local number, FR-36
LOCATION.--Lat 39°50'37", long 82°58'19", Hydrologic Unit 05060001.
Owner.--J.P. Sand and Gravel
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 31 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 720 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.3 ft above land-surface datum
PERIOD OF RECORD.--Oct. 1974 to present year
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.03 ft below land-surface datum, Oct. 17, 1979; lowest measured, 16.95 ft below land-surface datum, Sept. 05, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	16.38	APR 18	16.20	JUN 27	16.00	SEP 05	16.95

395351083013700. Local number, FR-244
LOCATION.--Lat 39°53'35" long 83°01'37", Hydrologic Unit 05060001.
Owner.--Model Landfill
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 75 ft., cased to 51.4 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 700 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.63 ft above land-surface datum
PERIOD OF RECORD.--Aug. 1979 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.89 ft below land-surface datum, Oct. 18. 1979; lowest measured, 70.03 ft below land-surface datum, Dec. 19, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	70.03	APR 18	68.79	JUN 27	68.24	SEP 05	67.88

395315083020002. Local number, FR-213
LOCATION.--Lat 39°53'15", long 83°02'00", Hydrologic Unit 05060001.
Owner.--Tom Cannon Co.
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 5 in., depth 97 ft., cased to 97 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 730 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.80 ft above land-surface datum
PERIOD OF RECORD.--June 1982 to present
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.38 ft below land-surface datum, June 08, 1982; lowest measured, 80.75 ft below land-surface datum, Apr. 18, 1990.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	80.61	APR 18	80.75	JUN 25	80.15

395206083014501. Local number, FR-209
LOCATION.--Lat 39°2'06", long 83°01'45", Hydrologic Unit 05060001.
Owner.--Mr. Martin Davis
AQUIFER.--Sand and gravel of Quaternary Age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4 in.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 700 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.72 ft above land-surface datum
PERIOD OF RECORD.--June 1979 to present
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.51 ft below land-surface datum, May 23, 1984; lowest measured, 16.13 ft below land-surface datum, Nov. 16, 1982

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	15.86	APR 18	13.96	JUN 26	12.76	SEP 05	14.51

395314083021900. Local number, FR-202
LOCATION.--Lat 39°53'14", long 83°02'19", Hydrologic Unit 05060001.
Owner.--Mr. Daniel Himes
AQUIFER.--Devonian limestone
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4 in., depth 220 ft., cased to 175 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 752 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.17 ft above land-surface datum
PERIOD OF RECORD.--June 1979 to present
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.17 ft below land-surface datum, June 25, 1979; lowest measured, 96.50 ft below land-surface datum, July 19, 1984.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	91.27	APR 18	88.81	JUN 27	90.14	SEP 05	88.45

395331083013900. Local number, FR-246
LOCATION.--Lat 39°53'31", long 83°01'39", Hydrologic Unit 05060001.
Owner.--Model Landfill
AQUIFER.--Devonian limestone.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 142 ft., cased to 89 ft.
INSTRUMENTATION - Periodic measurement with steel tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 720 feet above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.63 ft above land-surface datum
PERIOD OF RECORD.--Oct. 1979 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.40 ft below land-surface datum, Oct. 18, 1979; lowest measured, 122.83 ft below land-surface datum, Dec. 19, 1989.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM

	WATER LEVEL		WATER LEVEL		WATER LEVEL		WATER LEVEL
DEC 19	122.83	APR 18	121.66	JUN 27	120.44	SEP 05	121.20

The following tables list the results of chemical analysis of samples collected from eight sites throughout Ohio, established to monitor the ground water quality in areas near state highways where road deicing is practiced. These samples were collected from each well as it was developed after drilling. In future reports, each well will be sampled monthly at several levels within the well. These data will be presented to the Ohio Department of Transportation.

ASHTABULA COUNTY--SITE #1 (SR 84)

DATE	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	CALCIUM DISSOLVED (MG/L AS CA)	SODIUM, DISSOLVED (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	BROMIDE DISSOLVED (MG/L AS BR)
415305080414300 AB-132 NR KINGSVILLE OH (LAT 41 53 05N LONG 080 41 43W)									
SEP 1990 05...	570	553	7.4	7.6	85	5.1	5.3	360	<0.010
415307080414200 AB-133 NR KINGSVILLE OH (LAT 41 53 07N LONG 080 41 42W)									
SEP 1990 05...	2100	2110	7.7	7.6	81	320	490	1150	0.090
415308080414300 AB-135 NR KINGSVILLE OH (LAT 41 53 08N LONG 080 41 43W)									
SEP 1990 05...	1070	1050	7.7	7.7	100	64	190	692	0.060
415309080414300 AB-136 NR KINGSVILLE OH (LAT 41 53 09N LONG 080 41 43W)									
SEP 1990 05...	965	938	7.8	7.7	69	96	180	529	0.040
415310080414400 AB-137 NR KINGSVILLE OH (LAT 41 53 10N LONG 080 41 44W)									
SEP 1990 05...	850	839	7.8	7.7	91	44	110	494	0.040

LUCAS COUNTY--SITE #2 (SR 2)

DATE	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	CALCIUM DISSOLVED (MG/L AS CA)	SODIUM, DISSOLVED (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	BROMIDE DISSOLVED (MG/L AS BR)
413553083480900 LU-19 NR HOLLAND OH (LAT 41 35 53N LONG 083 48 09W)									
AUG 1990 30...	675	660	8.2	7.3	110	16	66	466	0.020
413553083480600 LU-18 NR HOLLAND OH (LAT 41 35 53N LONG 083 48 06W)									
AUG 1990 30...	970	959	7.5	7.3	140	38	130	705	0.080
413551083481200 LU-20 NR HOLLAND OH (LAT 41 35 51N LONG 083 48 12W)									
AUG 1990 30...	457	439	8.0	8.0	60	15	25	272	0.020
413549083481500 LU-21 NR HOLLAND OH (LAT 41 35 49N LONG 083 48 15W)									
AUG 1990 30...	330	322	8.1	8.0	47	3.7	21	198	0.020
413547083481300 LU-22 NR HOLLAND OH (LAT 41 35 47N LONG 083 48 13W)									
AUG 1990 30...	720	704	8.3	8.1	43	88	110	395	0.020
413548083480400 LU-17 NR HOLLAND OH (LAT 41 35 48N LONG 083 48 04W)									
AUG 1990 30...	630	616	7.6	7.6	82	32	71	395	0.010
413547083481200 LU-25 NR HOLLAND OH (LAT 41 35 47N LONG 083 48 12W)									
AUG 1990 30...	520	565	8.2	7.9	45	58	83	323	0.030
413547083481100 LU-27 NR HOLLAND OH (LAT 41 35 47N LONG 083 48 11W)									
AUG 1990 30...	825	793	8.1	8.0	61	74	65	498	0.040
413546083480900 LU-28 NR HOLLAND OH (LAT 41 35 46N LONG 083 48 09W)									
AUG 1990 30...	630	617	8.2	8.0	56	50	89	376	0.030

ASHLAND COUNTY--SITE #3 (SR 3)

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)	SODIUM, DIS-SOLVED (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BROMIDE DIS-SOLVED (MG/L AS BR)
403635082152700 AS-43 NR LOUDONVILLE OH (LAT 40 36 35N LONG 082 15 27W)									
AUG 1990 28...	740	753	7.2	7.4	98	24	21	445	0.030
403635082152500 AS-44 NR LOUDONVILLE OH (LAT 40 36 35N LONG 082 15 25W)									
AUG 1990 28...	920	914	7.7	7.4	79	81	100	539	0.050
403635082152600 AS-49 NR LOUDONVILLE OH (LAT 40 36 35N LONG 082 15 26W)									
AUG 1990 28...	1030	1020	7.7	7.2	120	60	77	638	0.040
403635082152200 AS-47 NR LOUDONVILLE OH (LAT 40 36 35N LONG 082 15 22W)									
AUG 1990 28...	860	939	7.7	7.7	100	39	54	475	0.060
403635082152100 AS-48 NR LOUDONVILLE OH (LAT 40 36 35N LONG 082 15 21W)									
AUG 1990 28...	685	684	7.7	7.2	85	28	44	391	0.050
403633082152400 AS-10 NR LOUDONVILLE OH (LAT 40 36 33N LONG 082 15 24W)									
AUG 1990 28...	670	514	7.7	7.5	88	19	37	411	0.080
403631082152100 AS-9 NR LOUDONVILLE OH (LAT 40 36 31N LONG 082 15 21W)									
AUG 1990 28...	475	910	7.7	7.3	79	79	100	493	0.050

RICHLAND COUNTY--SITE #4 (SR 97)

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)	SODIUM, DIS-SOLVED (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BROMIDE DIS-SOLVED (MG/L AS BR)
403925082325600 R-14 NR LEXINGTON OH (LAT 40 39 25N LONG 082 32 56W)									
AUG 1990 28...	250	237	7.6	8.1	31	2.4	6.2	173	0.020
403923082325400 R-21 NR LEXINGTON OH (LAT 40 39 23N LONG 082 32 54W)									
AUG 1990 28...	200	203	7.3	7.6	26	2.0	3.3	126	0.020
403923082325600 R-15 NR LEXINGTON OH (LAT 40 39 23N LONG 082 32 56W)									
AUG 1990 28...	660	647	7.1	7.3	85	20	24	375	0.030
403922082325700 R-11 NR LEXINGTON OH (LAT 40 39 22N LONG 082 32 57W)									
AUG 1990 28...	660	668	7.4	7.8	52	61	94	368	0.030
403923082325800 R-12 NR LEXINGTON OH (LAT 40 39 23N LONG 082 32 58W)									
AUG 1990 28...	420	447	7.6	7.8	54	14	33	279	0.040
403923082325900 R-17 NR LEXINGTON OH (LAT 40 39 23N LONG 082 32 59W)									
AUG 1990 28...	450	468	7.5	7.6	57	9.9	42	289	0.040
403922082325900 R-19 NR LEXINGTON OH (LAT 40 39 22N LONG 082 32 59W)									
AUG 1990 28...	490	395	7.3	7.6	53	5.0	8.6	224	0.020
403922082330000 R-20 NR LEXINGTON OH (LAT 40 39 22N LONG 082 33 00W)									
AUG 1990 28...	400	378	7.6	7.7	69	6.1	17	319	0.040

PORTAGE COUNTY--SITE #5 (SR 14)

DATE	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	CALCIUM DISSOLVED (MG/L AS CA)	SODIUM, DISSOLVED (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	BROMIDE DISSOLVED (MG/L AS BR)
411137081172100 PO-114 NR RAVENNA OH (LAT 41 11 37N LONG 081 17 21W)									
SEP 1990 04...	590	581	7.4	7.5	95	15	6.7	353	0.010
411138081172400 PO-115 NR RAVENNA OH (LAT 41 11 38N LONG 081 17 24W)									
SEP 1990 04...	1260	1240	7.6	7.6	56	190	240	654	0.050
411137081172400 PO-117 NR RAVENNA OH (LAT 41 11 37N LONG 081 17 24W)									
SEP 1990 04...	1920	1940	7.6	7.6	99	280	440	1090	0.10
411136081172500 PO-119 NR RAVENNA OH (LAT 41 11 36N LONG 081 17 25W)									
SEP 1990 04...	655	658	7.5	7.3	100	18	19	415	<0.010
411136081172600 PO-120 NR RAVENNA OH (LAT 41 11 36N LONG 081 17 26W)									
SEP 1990 04...	450	440	7.8	7.7	67	9.0	9.2	269	<0.010

PICKAWAY COUNTY--SITE #6 (SR 104)

DATE	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	CALCIUM DISSOLVED (MG/L AS CA)	SODIUM, DISSOLVED (MG/L AS NA)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	BROMIDE DISSOLVED (MG/L AS BR)
393541083001200 PK-53 NR CIRCLEVILLE OH (LAT 39 35 41N LONG 083 00 12W)									
AUG 1990 29...	745	735	7.7	7.6	110	3.5	15	461	0.040
393541083001000 PK-47 NR CIRCLEVILLE OH (LAT 39 35 41N LONG 083 00 10W)									
AUG 1990 29...	710	702	7.7	7.5	97	2.9	14	429	0.040
393542083000900 PK-45 NR CIRCLEVILLE OH (LAT 39 35 42N LONG 083 00 09W)									
AUG 1990 29...	625	640	7.7	7.5	88	1.7	10	412	0.020
393541083000900 PK-49 NR CIRCLEVILLE OH (LAT 39 35 41N LONG 083 00 09W)									
AUG 1990 29...	630	640	7.7	7.5	78	4.3	15	377	0.050
393542083000700 PK-51 NR CIRCLEVILLE OH (LAT 39 35 42N LONG 083 00 07W)									
AUG 1990 29...	680	667	7.7	7.6	90	6.0	15	391	0.060
393542083000500 PK-52 NR CIRCLEVILLE OH (LAT 39 35 42N LONG 083 00 05W)									
AUG 1990 29...	660	669	7.7	7.5	89	2.7	14	432	0.030
393541083000700 PK-44 NR CIRCLEVILLE OH (LAT 39 35 41N LONG 083 00 07W)									
AUG 1990 29...	640	649	7.7	7.3	88	2.7	12	413	0.020

CHAMPAIGN COUNTY--SITE #7 (SR 29)

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)	SODIUM, DIS-SOLVED (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BROMIDE DIS-SOLVED (MG/L AS BR)
400952083480800 CH-40 NR URBANA OH (LAT 40 09 52N LONG 083 48 08W)									
SEP 1990 27...	805	765	7.8	7.7	100	6.2	34	462	0.070
400948083480200 CH-41 NR URBANA OH (LAT 40 09 48N LONG 083 48 02W)									
SEP 1990 28...	880	843	7.6	7.6	110	16	41	527	0.030
400948083480100 CH-43 NR URBANA OH (LAT 40 09 48N LONG 083 48 01W)									
OCT 1990 01...	950	871	8.0	7.6	110	26	51	716	0.050
400948083480000 CH-45 NR URBANA OH (LAT 40 09 48N LONG 083 48 00W)									
OCT 1990 02...	950	935	7.5	7.7	120	20	51	575	0.040
400948083475800 CH-46 NR URBANA OH (LAT 40 09 48N LONG 083 47 58W)									
OCT 1990 04...	1020	996	7.5	7.6	120	23	63	607	0.040

CLARK COUNTY--SITE #8 (SR 4)

DATE	SPE-CIFIC CON-DUCT-ANCE (US/CM)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	CALCIUM DIS-SOLVED (MG/L AS CA)	SODIUM, DIS-SOLVED (MG/L AS NA)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BROMIDE DIS-SOLVED (MG/L AS BR)
395901083440600 CL-135 NR SPRINGFIELD OH (LAT 39 59 01N LONG 083 44 06W)									
AUG 1990 27...	860	859	7.1	7.3	120	5.3	11	524	0.030
395901083440700 CL-136 NR SPRINGFIELD OH (LAT 39 59 01N LONG 083 44 07W)									
AUG 1990 27...	805	802	7.3	7.4	100	6.4	11	467	0.040
395859083440600 CL-137 NR SPRINGFIELD OH (LAT 39 58 59N LONG 083 44 06W)									
AUG 1990 27...	890	894	7.2	7.3	120	13	23	541	0.040
395859083440800 CL-139 NR SPRINGFIELD OH (LAT 39 58 59N LONG 083 44 08W)									
AUG 1990 27...	930	928	7.3	7.4	110	26	40	516	0.040
395859083440200 CL-141 NR SPRINGFIELD OH (LAT 39 58 59N LONG 083 44 02W)									
AUG 1990 27...	870	885	7.3	7.3	110	15	27	461	0.040
395859083440400 CL-142 NR SPRINGFIELD OH (LAT 39 58 59N LONG 083 44 04W)									
AUG 1990 27...	895	903	7.3	7.4	110	25	42	485	0.040
395859083440300 CL-143 NR SPRINGFIELD OH (LAT 39 58 59N LONG 083 44 03W)									
AUG 1990 27...	905	907	7.3	7.3	120	15	35	603	0.040
395858083440100 CL-133 NR SPRINGFIELD OH (LAT 39 58 58N LONG 083 44 01W)									
AUG 1990 27...	810	812	7.3	7.3	110	12	25	508	0.030
395854083440500 CL-132 NR SPRINGFIELD OH (LAT 39 58 54N LONG 083 44 05W)									
AUG 1990 27...	780	801	7.3	7.3	110	8.5	21	486	0.030

Evaluation of Bridge-Scour Data at Selected Sites in Ohio

The following tables list bridge-scour measurement sites and instantaneous discharge measurements collected at some of these sites. The data were collected as part of a cooperative study with the Ohio Department of Transportation. The objectives of this study are (1) to collect reliable and sufficient data during flood events to determine whether local scour, constriction scour, and general scour, are occurring at the sites; (2) to compare and evaluate published local scour-prediction equations with observed data; and (3) to compare local scour data collected using geophysical techniques with local scour data defined by physical measurements.

Bridge Scour Measurement Sites

Site Number	Name	Drainage Area (mi^2)
404715081312200	Tuscarawas River at Massillon, Ohio	513
403515081312401	Sugar Creek at Strasburg, Ohio	311
401933081304100	Tuscarawas River near Port Washington, Ohio	2,400
402941081591200	Killbuck Creek at Killbuck, Ohio	462
393549082324700	Clear Creek near Rockbridge, Ohio	91.8
392731082142400	Hocking River at Nelsonville, Ohio	576
402902083112800	Scioto River near Prospect, Ohio	528
394609082544200	Walnut Creek near Ashville, Ohio	216
392031082582700	Scioto River at Chillicothe,Ohio	3,849
391520082461200	Salt Creek near Londonderry, Ohio	286
392424084060400	Little Miami River at Ft. Ancient, Ohio	675
392115084074600	Todd Fork at Morrow, Ohio	262
400627083475701	Mad River near Urbana, Ohio	162
400150084111300	Great Miami River at Troy, Ohio	927
392340084341700	Great Miami at Hamilton, Ohio	3,630
404037084155200	Auglaize River near Wapakoneta, Ohio	200
404257084081500	Ottawa River at Lima, Ohio	130
411536084331400	Maumee River near Sherwood, Ohio	2,276
410120083063501	Honey Creek at Melmore, Ohio	149
414308081134101	Grand River near Painesville, Ohio	685

Location of Bridge-Scour Measurement Sites

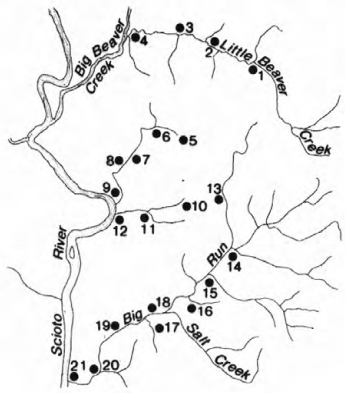
Instantaneous Discharge Measurements at Bridge-Scour Sites

Site number	Name	Date	Discharge (ft^3/s)
402941081591200	Killbuck Creek at Killbuck, Ohio	05-17-90 07-23-90	1,500 1,890
402902083112800	Scioto River near Prospect, Ohio	05-14-90 05-18-90	1,810 3,060
392424084060400	Little Miami River at Ft. Ancient, Ohio	05-16-90	4,590
392115084074600	Todd Fork at Morrow, Ohio	05-16-90 05-17-90	5,370 11,700
392340084341700	Great Miami at Hamilton, Ohio	05-16-90	24,300
404257084081500	Ottawa River at Lima, Ohio	08-22-90	1,060
410120083063501	Honey Creek at Melmore, Ohio	02-02-90	1,190

GAIN/LOSS STUDY OF TRIBUTARIES TO SCIOTO RIVER NEAR PIKETON

Seepage Run

Base flow discharges were measured on September 6, 1990 on four creeks near the Piketon Atomic Energy Plant to evaluate the gain/loss in these creeks. The following table lists the measurements. Location of the measuring sites is shown on the accompanying map.



Map Number	USGS Station number	Name	Discharge in ft^3/s
1	390137082594200	Little Beaver Creek	2.8
2	03237041		3.0
3	390159083004700		3.5
4	390157083013200		3.5
5	390040083004300	North Unnamed Tributary	0.04
6	390044083010800		.40
7	390029083012500		.34
8	390008083014800		.17
9	385946083014500		.06
10	385946083004100	South Unnamed Tributary	0
11	385941083012000		.05
12	385937083014700		0
13	390001082595800	Big Run	0.74
14	385909082595300		.84
15	385852083001000		.77
16	385835083004000		1.10
17	385821083010000		.88
18	03237060		.92
19	385807083014300		1.10
20	385735083020200		1.00
21	385729083023000		1.00

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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