Water Resources Data Ohio Water Year 1989

Volume 2. St. Lawrence River Basin Statewide Project Data

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OH-89-2
Prepared in cooperation with the State of Ohio
and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

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1989

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Water Resources Data
Ohio
Water Year 1989

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-89-2
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

1990

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 networks in 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:

A.E. Arnett	C.A. Hawkins	J.W. Roberts
K.J. Breen	L.M. Hicks	A.C. Sedam
C.J. Childress	A.L. Jones	R.A. Sheets
A.W. Coen III	M.K. Katzenbach	J.M. Sherwood
W.L. Cunningham	G.F. Koltun	D.J. Shifflet
J.T. de Roche	D.F. MacFadden	B.M. Sroka
C.M. Eberle	J.A. McClure	R.V. Swisshelm
R.P. Frehs	D.N. Myers	C.C. Vince
S.R. Frum	V.E. Nichols	S.A. Vivian
S.W. Hatch	C.N. Owens	J.J. Welday

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.

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. USGS/WRD/HD-90-254	2.	3. Recipient's Accession No.

4. Title and Subtitle
Water Resources Data--Ohio, 1989
Volume 2. St. Lawrence River Basin

5. Report Date
March 1990

6.

7. Author(s)
H. L. Shindel, J. H. Klingler, J. P. Mangus, and L. E. Trimble

8. Performing Organization Rept. No.
USGS-WDR-OH-89-2

9. Performing Organization Name and Address
U.S. Geological Survey, Water Resources Division
975 West Third Avenue
Columbus, Ohio 43212-3192

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
U.S. Geological Survey, Water Resources Division
975 West Third Avenue
Columbus, Ohio 43212-3192

13. Type of Report & Period Covered
Annual--10/1/88
to 9/30/89

14.

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 1989 water year for Ohio consist 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 141 gaging stations, stage and contents at lakes and reservoirs; water quality at 36 gaging stations, 28 wells, and 59 partial-record sites; and water levels at 352 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.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
No restriction on distribution. This report may be purchased from: National Technical Information Service, Springfield, VA 22161	UNCLASSIFIED	238
	20. Security Class (This Page) UNCLASSIFIED	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

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ILLUSTRATIONS

(Letter after station name designates type of data: (c) chemical, (d) discharge, (e) contents and (or) elevation, (HBM) hydrologic bench mark, (M) water-quality monitor, (m) microbiological, (NASQAN) National stream-quality accounting network, (r) radiochemical, (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	TEMP	1969-79
		COND	1969-80
		DO	1969-79
		PH	1969-79

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

DISCONTINUED STATIONS--Continued

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

VOLUME 2: ST. LAWRENCE RIVER BASIN
STATEWIDE PROJECT DATA

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources in 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 the interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data--Ohio."

This report (in two volumes) includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 141 streamflow-gaging stations, 55 miscellaneous sites; (2) stage and content records for 7 streams, lakes, and reservoirs; (3) water-quality data for 36 streamflow-gaging stations, 28 wells, and 59 partial-record sites; and (4) water levels for 352 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 8.

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 may be consulted in the libraries of the principal cities of the United States, and may 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 Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report OH-89-2." 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 records since 1898. Organizations that assist in collecting data in this report are: Ohio Department of Natural Resources, J. J. Sommer, Director; Ohio Environmental Protection Agency, R. L. Shank, Director; Ohio Department of Transportation, B. B. Hurst, Director; 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, J. L. Kennard, Commissioner; Seneca County Soil and Water District, N. Daniel, Board Chairman; University of Toledo, R. Gallagher; City of Fremont, W. Curtis, City Engineer; Lucas County, E. J. Ciecka, Administrator; F. G. Schutte, Sanitary Engineer; Sandusky County, K. W. Kerik, Health Commissioner; 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; G. W. Westerbeck, Office of Environmental Management, U.S. Air Force, Air Force Logistics Command; Toledo Metropolitan Area Council of Governments, K. Erickson, Director of Regional Planning; and Warren Dick, Ohio State University, Ohio Agricultural Research and Development Center. Funds or services were provided by the U.S. Army Corps of Engineers in collecting records for 72 hydrologic-data stations in this report. The Miami Conservancy District, U.S. Army Corps of Engineers, and Ohio Department Natural Resources aided in collecting records.

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 with 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 with 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 area of greater precipitation (up to 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 reaches 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 sample a wide variety of conditions. The drainage areas range from 12 to 7,420 square miles, and cover a wide diversity of land uses, topographic conditions, and other physical conditions. Streamflow ranges from natural to highly regulated.

At the beginning of the 1989 water year, streamflow was normal[1] throughout the State, having recovered from widespread drought conditions during the summer of 1988. Streamflow remained normal in October except in southwestern Ohio, where it was deficient, and in northwestern Ohio, where it was excessive. Streamflow increased throughout the State in November because of above-average precipitation, and remained normal to excessive through February for much of the State. In March, below-average precipitation caused streamflow to fall into the deficient range in northern Ohio. Streamflow remained normal elsewhere. Serious flooding occurred (damages estimated to exceed $20 million) in late May in parts of western and northeastern Ohio; above-average precipitation prevailed throughout much of Ohio through June, and streamflow was either excessive or normal statewide for the remainder of the year.

Water Quality

Surface-water quality conditions and concerns differ throughout Ohio according to land use, geology, soil, and topography. Northwestern Ohio has flat, glaciated plains with heavy soils. Land use is predominantly rural and agricultural, and water quality concerns center on issues related to agricultural practices. Southwestern Ohio has unglaciated, irregular plains. Land-use and water-quality concerns are similar to those in the northwestern part of the State. In the unglaciated, western Allegheny Plateau of southeastern Ohio, the landscape is characterized by hilly terrain dissected by steep, narrow valleys. Land is predominantly forested, but some cropland and pasture also are present. Mining and timber are the principal industries. Water-quality problems generally center on excessive acid and sediment loading from past coal-mining activities. Land use in the lake plains of northeastern Ohio is primarily urban and industrial, with some rural areas in woodlands, pasture, and orchard crops. In this area of the State, water-quality concerns center on problems such as municipal and industrial wastes and urban nonpoint sources of pollution.

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[1] Normal is defined as flow between the 25th and 75th percentiles as measured during the base period water year 1951 through 1980

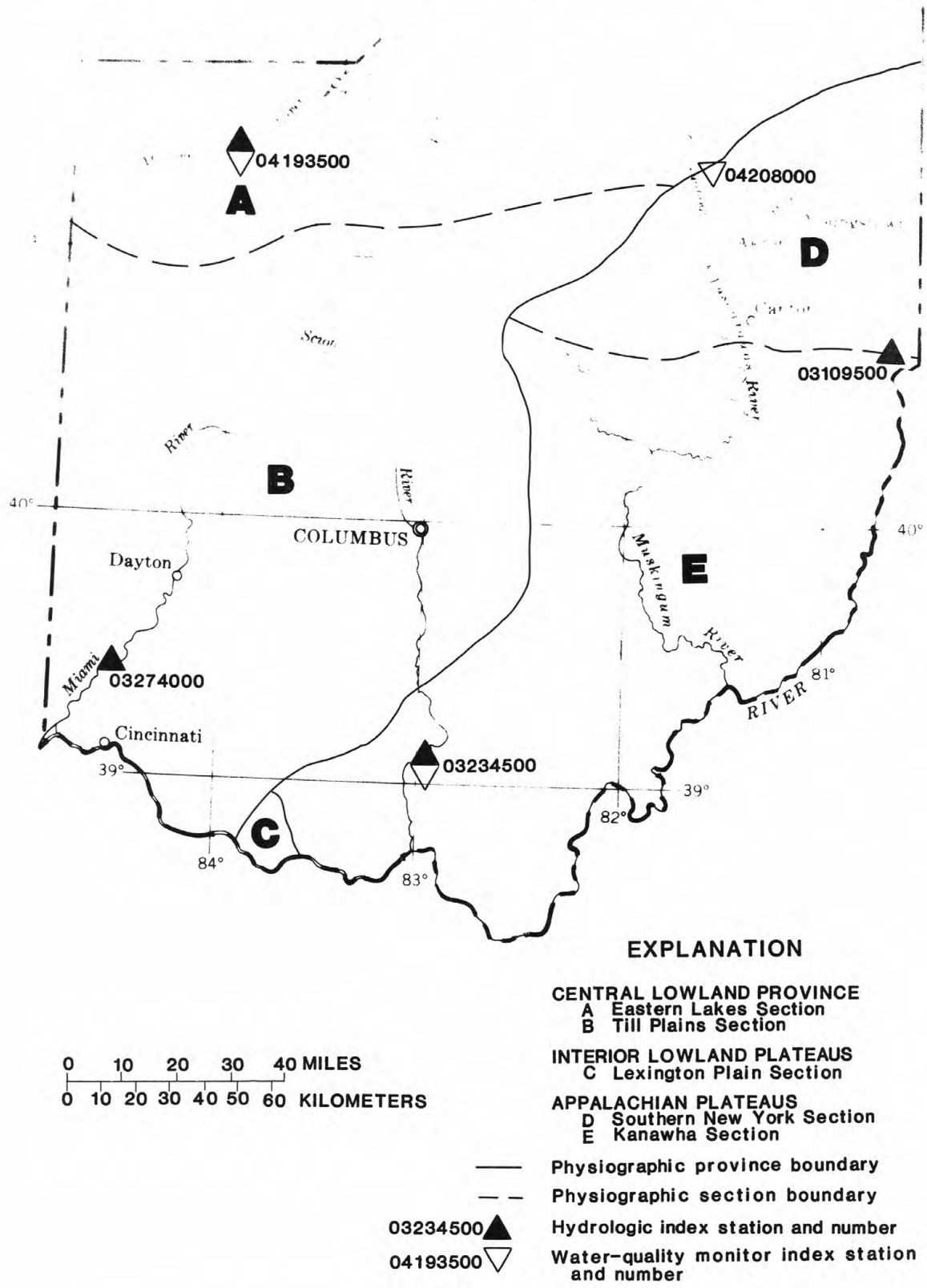

Figure 1.--Physiographic divisions and location of Hydrologic Index Stations.

On a short-term basis, water-quality data 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, which are located in nine major river basins, and one Hydrologic Benchmark station, which 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. At three of these stations (fig. 1), water-quality monitors continuously measure temperature, dissolved-oxygen concentrations, pH, and specific conductance. Comparisons are shown in figure 2.

Ground Water

Ground water serves the needs of 42 percent of Ohio's population. An estimated 740 million gallons per day (Mgal/d) of ground water 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. 3) underlie glacial till, are locally under artesian pressure, and are highly productive. Extensive kame-terrace deposits of water-bearing gravel and sand are important 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.

The principal source of water supply for much of the unglaciated upland area of southeastern Ohio is from bedrock aquifers composed of shaly sandstone and thin limestone aquifers. 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 in fractured coal beds. Several sandstone aquifers in northeastern Ohio are of regional extent and are important 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. 3) that yields only small amounts of water to wells. Silurian-age limestone and dolomite and Devonian limestone comprise the carbonate aquifer system (fig. 3) 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 have only very small ground-water yields.

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. Figure 4 shows sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated sand-and-gravel aquifer. The observation-well network also includes some bedrock wells in areas where consolidated aquifers are important water supplies, such as the carbonate-rock region of northwestern Ohio and various sandstone units of eastern Ohio. Figure 5 shows sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer. 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 1989 water year were below normal[2] throughout the State because of drought conditions during the summer of 1988. Water levels stabilized or continued to decline in October, and some record lows were established during this time. Generally, water levels stabilized during the months of November and December, rose in places in response to heavy precipitation during November, but remained below normal for the period. Water levels tended to increase during January, February, and March, but remained below normal statewide for the most part. Noticeable increases to normal or above normal levels occurred in April and May in response to above-average precipitation. Seasonal declines prevailed throughout the remainder of the water year, but ground-water levels generally remained above or near normal.

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[1] 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.

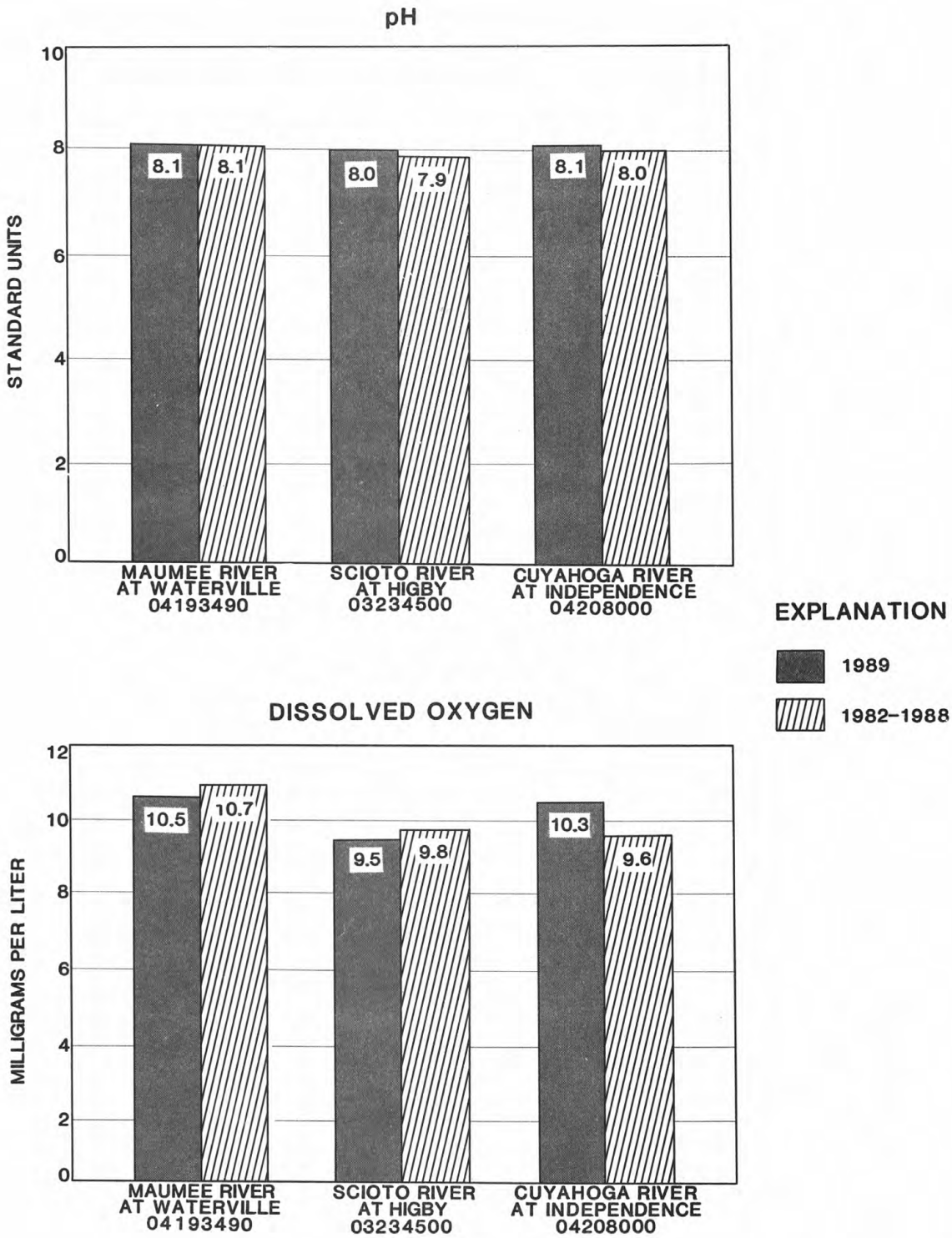

Figure 2.—Comparison of 1989 mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982–88 for three water-quality-monitor index stations in Ohio.

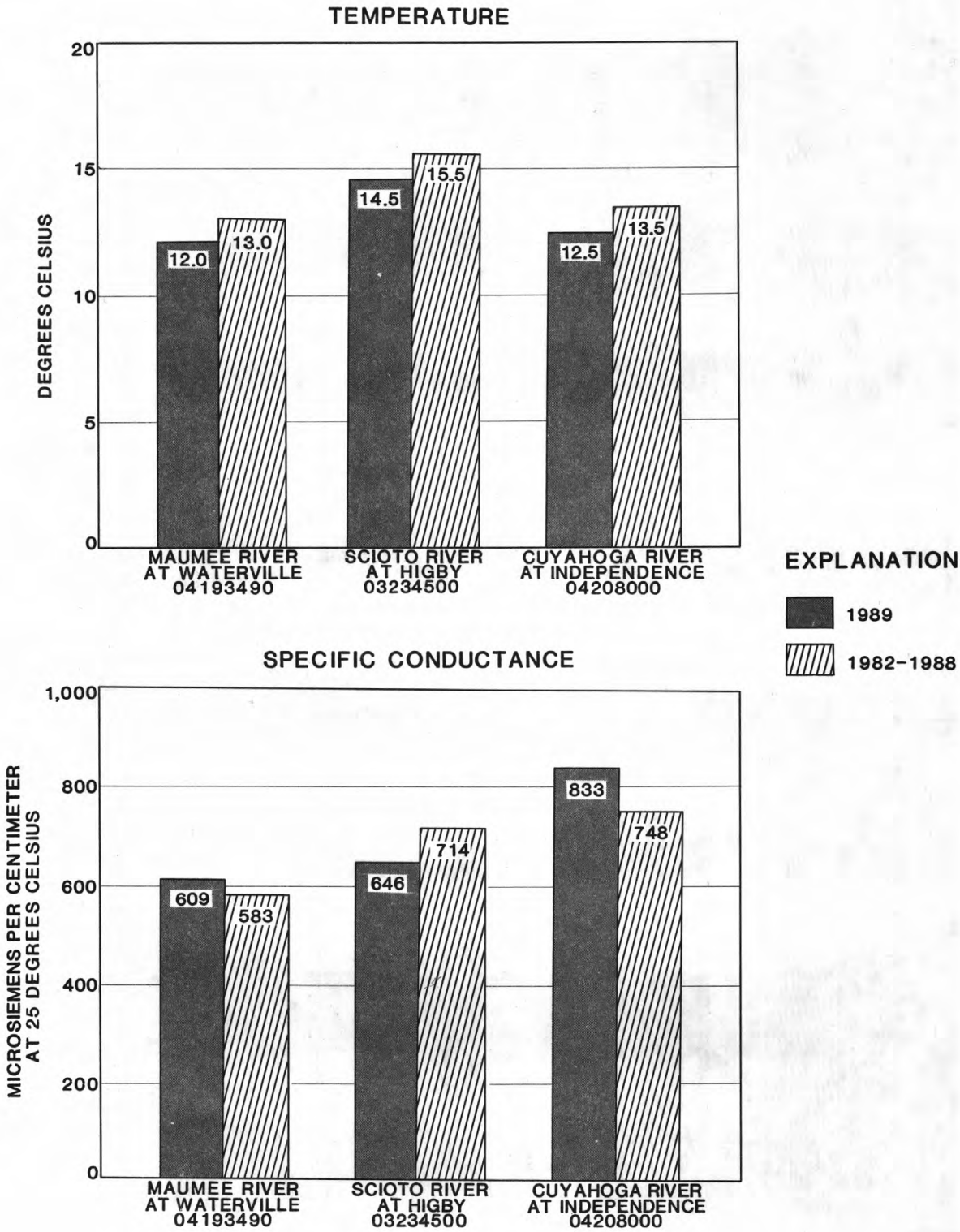

Figure 2.--Comparison of 1989 mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982-88 for three water-quality-monitor index stations in Ohio--Continued.

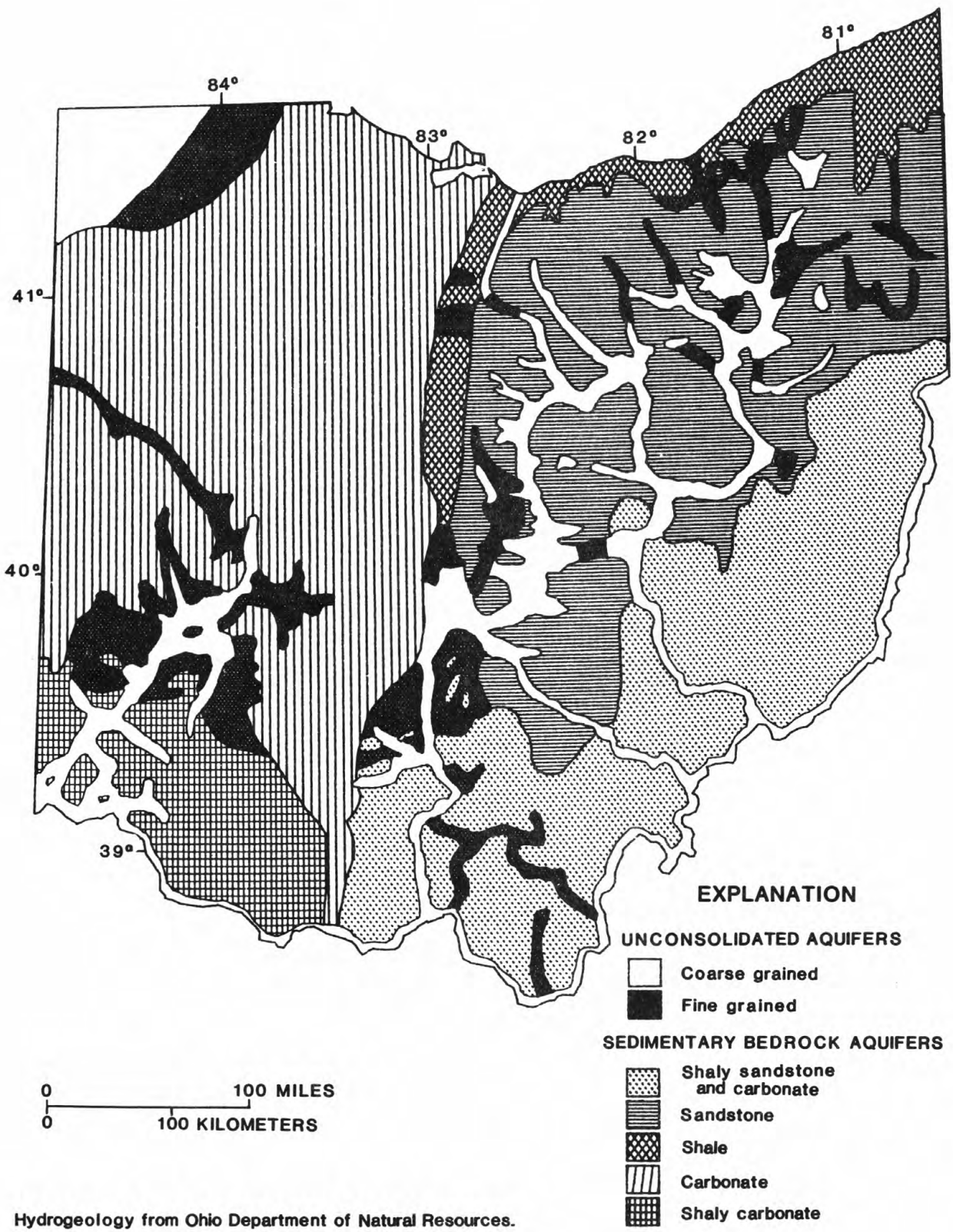

Figure 3.—Geographic distribution of principal aquifers in Ohio.

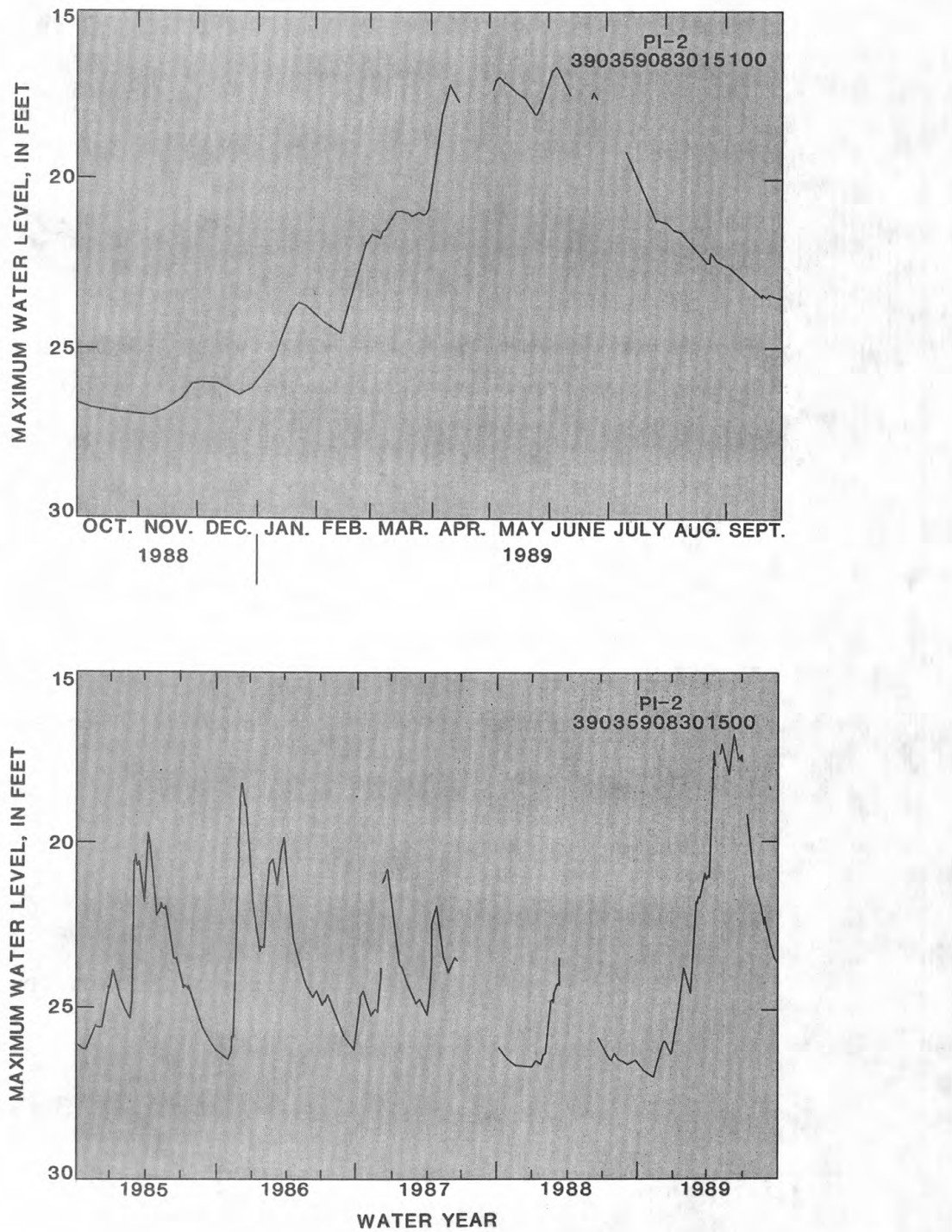

Figure 4.--Sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated aquifer.

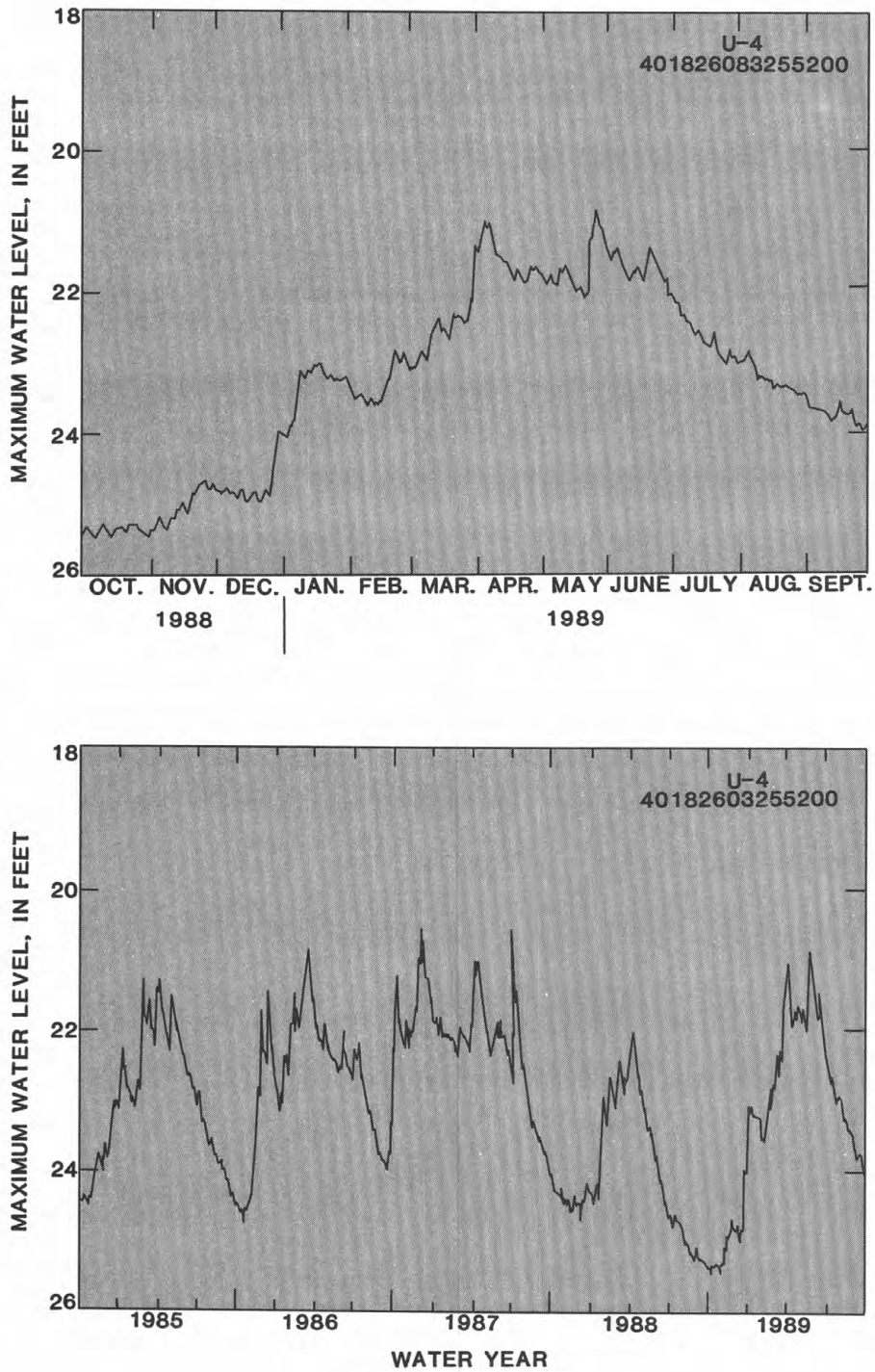

Figure 5.--Sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer.

SPECIAL NETWORKS AND PROGRAM

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country 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 6.)

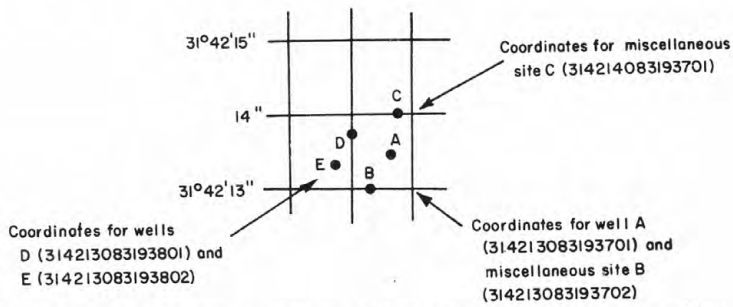


Figure 6.——System for numbering wells and miscellaneous sites (latitude and longitude)

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 8.

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, comsumption, 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 8.

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

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptable range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organisms may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

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 8. 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 $35^{\circ}C$. 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 $35^{\circ}C + 1.0^{\circ}C$ 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 $44.5^{\circ}C + 0.2^{\circ}C$ 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 $35^{\circ}C + 1.0^{\circ}C$ 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 $500^{\circ}C$ 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 $105^{\circ}C$ 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, ug/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, ug/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, ug/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 difine 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.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

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

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

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

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.

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

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

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

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

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

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

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

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

3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.

3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

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

3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

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

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

3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

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

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

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

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

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

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

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS-TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

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

5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

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

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

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

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

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. 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.

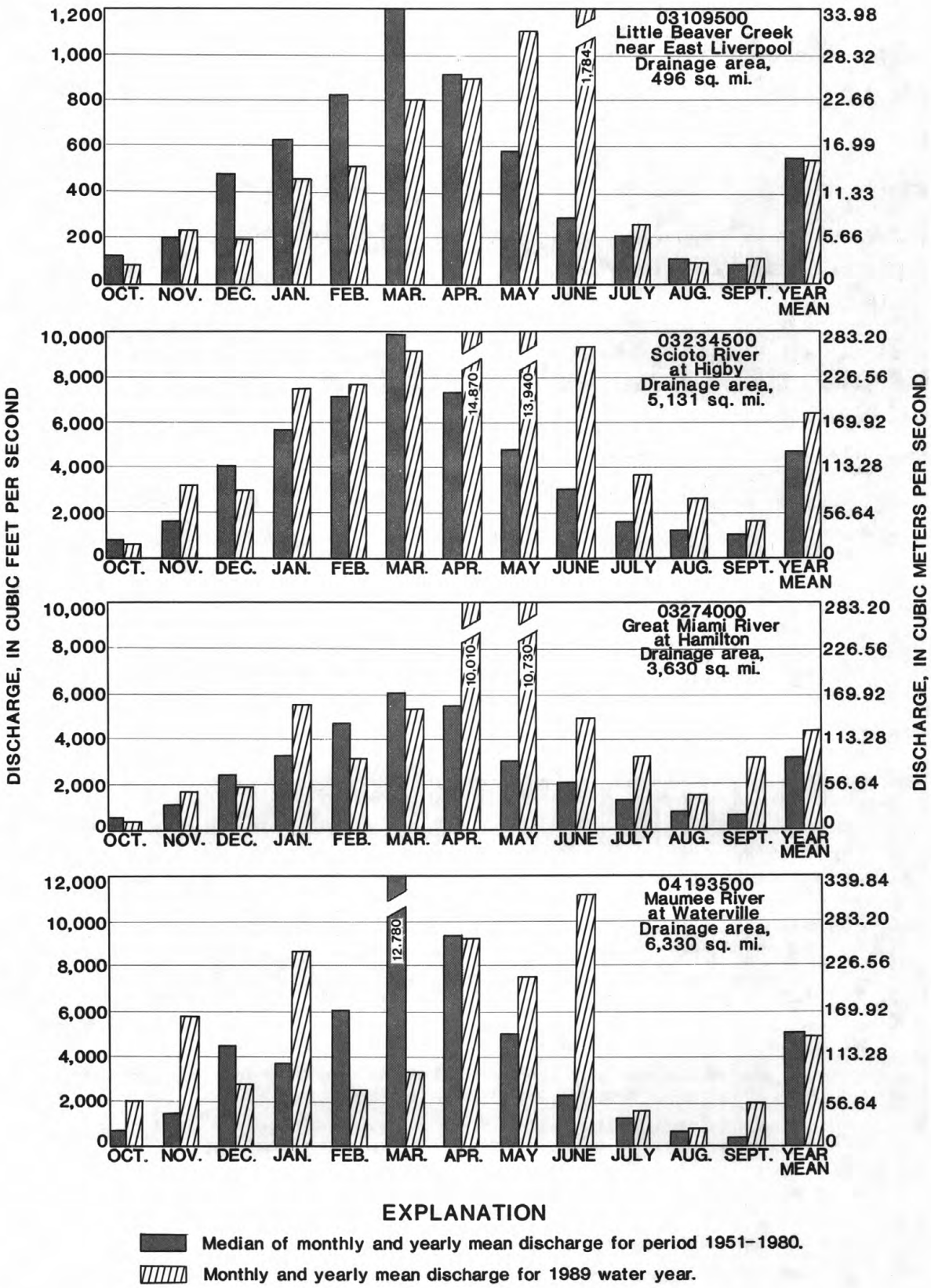


Figure 7.--Runoff during 1989 water year compared with median runoff for period 1951-1980 for four representative gaging stations.

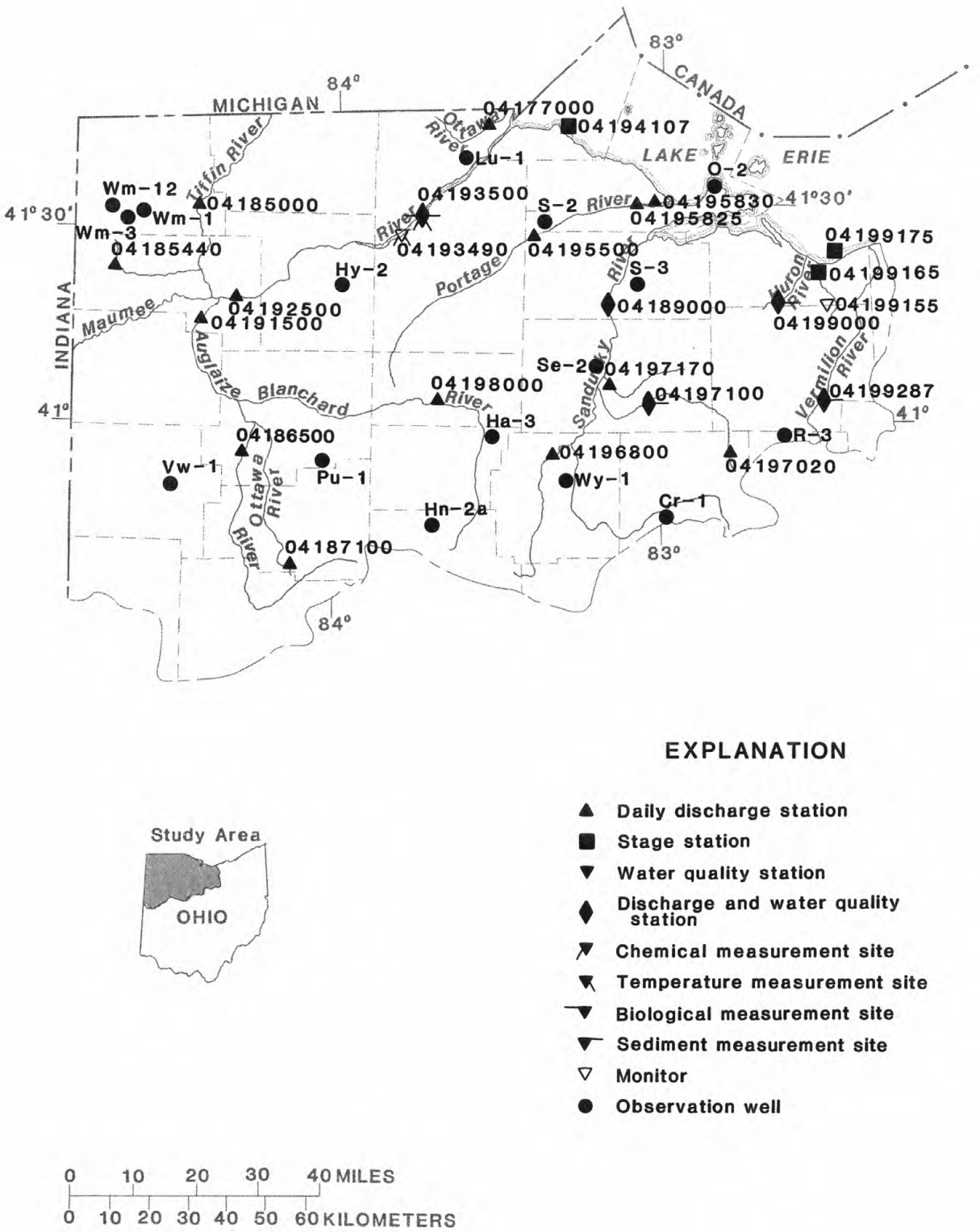
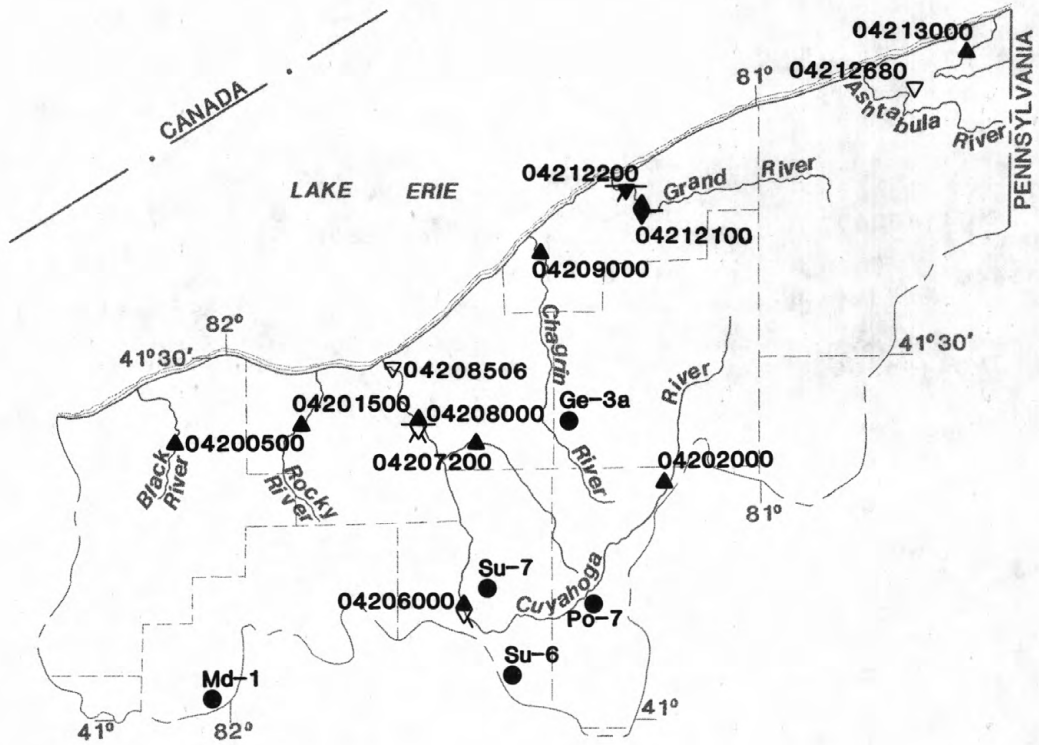


Figure 8a.--Location of data-collection stations



EXPLANATION

- ▲ Daily discharge station
- ▼ Water quality station
- ◆ Discharge and water quality station
- Chemical measurement site
- Temperature measurement site
- Biological measurement site
- Sediment measurement site
- ▽ Monitor
- ● Observation well

0 10 20 30 MILES
0 10 20 30 40 KILOMETERS

Figure 8b.—Location of data-collection stations.

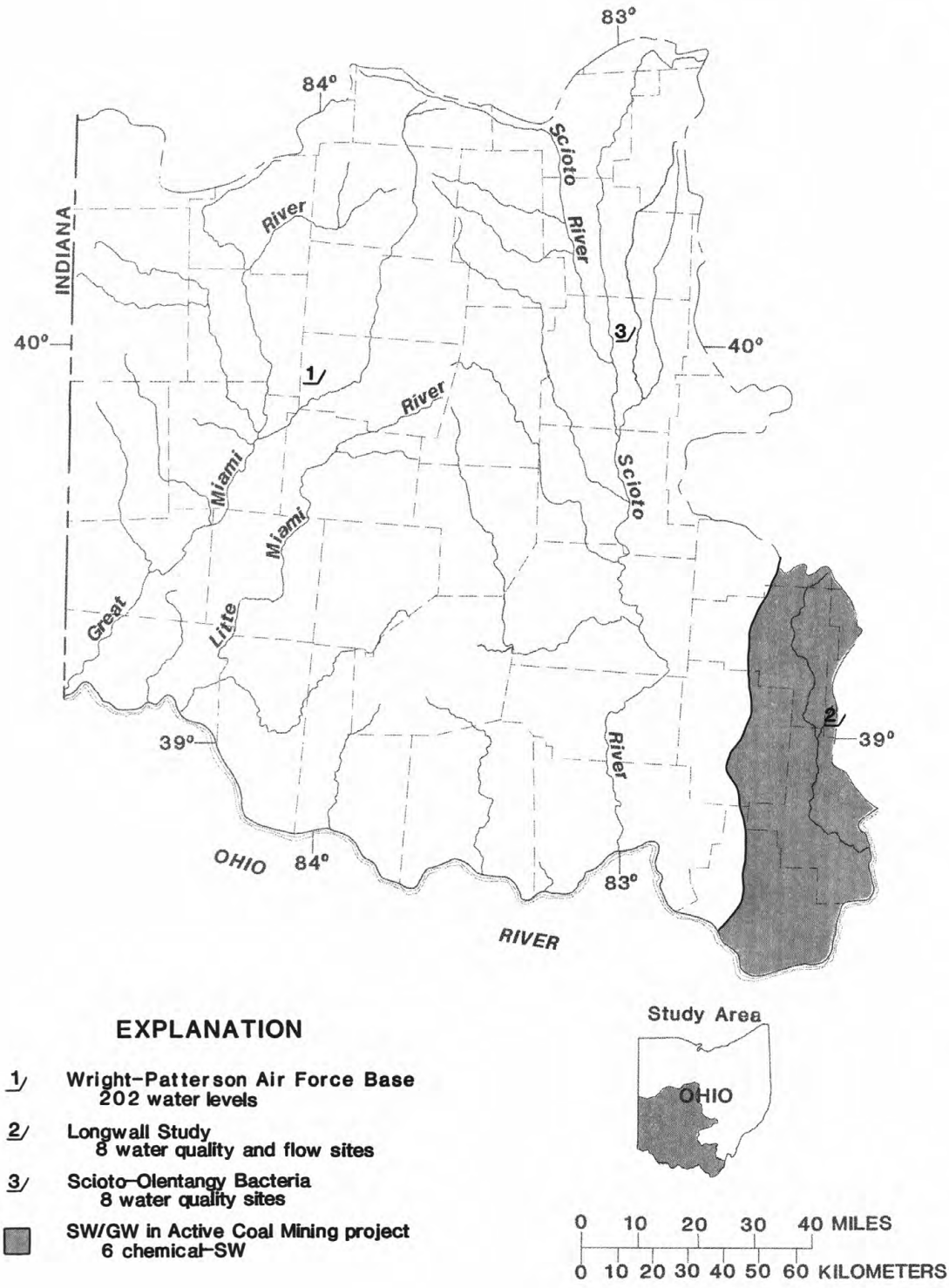


Figure 8c.--Location of data-collection stations for projects, Ohio River basin.

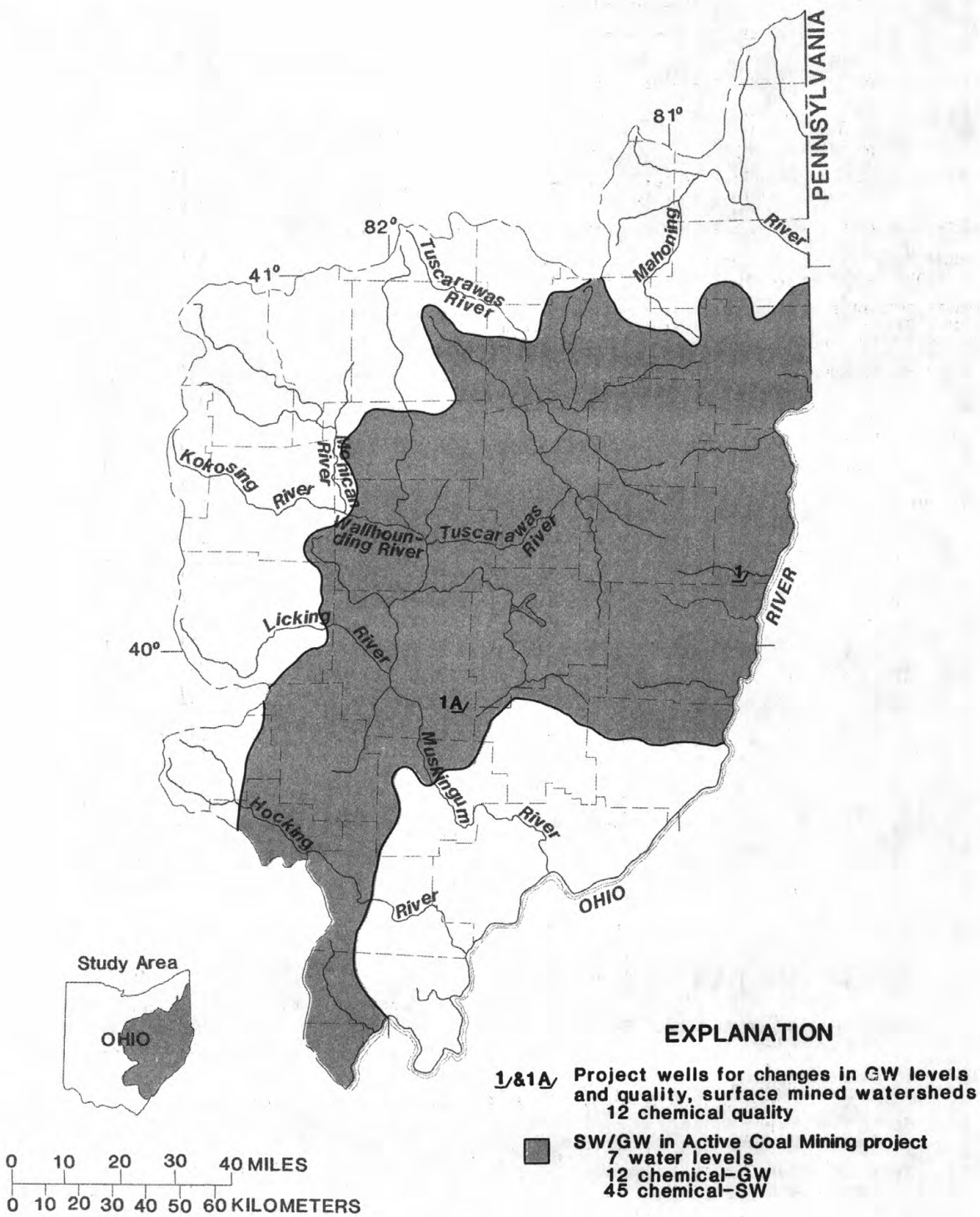


Figure 8d.--Location of data-collection stations for projects, Ohio River Basin.

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. 13-22, Jan. 3-6, 11-18, 23-25, Feb. 5-14, 18-19, Feb. 26-Mar. 4. Records fair except estimated daily discharges which are poor. Water-quality data collected at this site 1977.

AVERAGE DISCHARGE.--16 years (1946-48, 1977-89) 127 ft³/s, 11.50 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)
June 4	0300	*1,780	*10.95	June 20	0030	1,400	9.84

Minimum daily discharge, 7.6 ft³/s Oct. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	25	54	86	160	18	56	44	1310	32	58	89
2	12	25	47	63	102	17	52	40	1380	188	49	38
3	20	24	41	48	71	16	314	39	1170	691	42	30
4	13	51	39	41	52	16	788	39	1720	215	36	25
5	11	196	37	37	39	32	532	45	1600	103	41	23
6	15	457	34	46	31	48	286	52	701	68	34	24
7	17	446	35	69	25	33	189	61	309	54	29	57
8	18	288	33	371	21	23	153	41	190	45	26	32
9	22	198	30	347	18	20	204	38	129	40	24	49
10	20	283	28	162	16	20	189	37	94	34	22	59
11	34	578	26	86	15	21	126	33	66	29	20	41
12	35	300	24	68	16	22	115	34	71	25	19	30
13	34	261	23	54	17	25	109	60	83	23	18	24
14	35	358	22	47	21	25	91	49	83	21	17	46
15	38	195	21	44	35	30	125	57	127	19	17	37
16	50	132	20	42	36	35	124	51	118	17	18	73
17	80	98	19	41	33	34	129	40	75	17	15	82
18	448	72	19	44	25	108	215	37	64	16	14	65
19	299	58	19	46	21	181	297	35	384	19	13	42
20	119	141	18	50	28	117	209	50	1260	570	45	31
21	64	495	19	46	42	96	136	36	770	365	57	26
22	49	443	21	43	41	79	98	34	537	305	24	22
23	54	194	66	39	40	74	77	33	253	158	20	19
24	51	121	102	37	32	72	65	30	142	82	19	16
25	56	88	126	36	25	69	92	76	164	90	16	15
26	57	74	101	110	22	62	83	135	108	574	14	14
27	43	83	96	323	20	97	72	185	67	250	14	13
28	35	78	439	168	19	128	62	89	54	350	23	13
29	29	68	525	171	---	82	56	58	42	180	24	13
30	29	57	192	397	---	71	51	63	37	100	18	11
31	27	---	146	268	---	65	---	742	---	73	14	---
TOTAL	1821.6	5887	2422	3430	1023	1736	5095	2363	13108	4753	800	1059
MEAN	58.8	196	78.1	111	36.5	56.0	170	76.2	437	153	25.8	35.3
MAX	448	578	525	397	160	181	788	742	1720	691	58	89
MIN	7.6	24	18	36	15	16	51	30	37	16	13	11
CFSM	.39	1.31	.52	.74	.24	.37	1.13	.51	2.91	1.02	.17	.24
IN.	.45	1.46	.60	.85	.25	.43	1.26	.59	3.25	1.18	.20	.26

CAL YR 1988 TOTAL 28144.9 MEAN 76.9 MAX 861 MIN 1.9 CFSM .51 IN. 6.98
WTR YR 1989 TOTAL 43497.6 MEAN 119 MAX 1720 MIN 7.6 CFSM .79 IN. 10.79

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. 13-22, Jan. 3-6, 15-17, Feb. 5-20, 25-28, Mar. 1-4, 9-13. Records good except those for estimated discharges, which are fair. Small diversion 12.5 mi upstream from gage for municipal supply of Archbold. Diversion averaged 2.00 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.--56 years, 326 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)
June 4	0900	*5,380	*16.19	No other peak greater than base discharge.			

Minimum daily discharge, 29 ft³/s Aug. 27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	205	479	713	946	73	563	242	3160	120	109	60
2	51	204	395	459	865	69	472	210	4720	109	96	121
3	85	201	346	300	716	68	835	193	4700	116	81	155
4	98	206	307	235	466	78	1210	179	5280	104	71	120
5	91	320	273	205	290	184	1450	176	4730	96	76	84
6	78	762	256	240	155	379	1580	172	3630	90	109	65
7	68	999	241	328	120	261	1490	160	2830	78	95	91
8	65	1080	225	894	100	236	1240	153	2280	71	69	120
9	65	1050	209	940	88	195	912	152	1770	67	57	142
10	64	1160	193	1040	80	180	652	148	1250	68	50	464
11	61	1310	157	1160	71	170	510	141	766	64	49	403
12	59	1370	139	1180	65	175	431	131	507	61	44	201
13	57	1440	125	1020	72	195	383	139	427	71	40	121
14	56	1360	120	720	115	219	343	157	381	67	40	149
15	56	1220	115	380	160	244	321	170	369	60	36	323
16	59	997	110	310	170	388	308	184	388	56	34	306
17	70	713	110	280	155	401	292	164	349	52	33	324
18	735	552	105	264	145	591	307	145	308	49	34	302
19	1080	483	105	253	135	760	412	135	283	52	33	224
20	1130	488	105	287	145	830	466	171	325	94	33	159
21	926	1010	100	277	175	797	398	195	676	113	44	123
22	532	1220	100	232	222	648	326	185	901	222	42	104
23	377	1370	229	247	205	511	285	162	820	411	40	90
24	391	1300	575	208	129	432	255	139	537	395	38	77
25	434	986	733	183	100	394	286	142	345	261	35	70
26	373	636	713	415	90	384	319	315	255	187	34	64
27	312	580	598	718	84	377	336	394	202	297	29	59
28	284	730	1110	693	78	372	338	297	175	271	30	53
29	256	730	1270	604	---	396	334	213	154	173	45	47
30	233	605	1260	809	---	501	283	175	136	135	52	46
31	215	---	1200	928	---	577	---	1410	---	123	46	---
TOTAL	8400	25287	12003	16522	6142	11085	17337	6949	42654	4133	1624	4667
MEAN	271	843	387	533	219	358	578	224	1422	133	52.4	156
MAX	1130	1440	1270	1180	946	830	1580	1410	5280	411	109	464
MIN	39	201	100	183	65	68	255	131	136	49	29	46

CAL YR 1988 TOTAL 114246.5 MEAN 312 MAX 2140 MIN 2.5
WTR YR 1989 TOTAL 156803 MEAN 430 MAX 5280 MIN 29

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: Nov. 1-4, Feb. 5-12, 25-28, Mar. 1, 11-13, June 3-21, Aug. 12-Sept. 19. Records good except for periods of estimated daily discharges which are poor.

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)
Oct. 18	0415	*434	*4.86	Jan. 8	0230	261	4.09
Nov. 10	0845	129	3.35	Apr. 3	0600	235	3.96
Nov. 20	1845	145	3.41				

Minimum daily discharge, 0.00 ft³/s many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.07	1.3	1.6	3.3	.44	1.1	.53	3.9	.12	.04	.01
2	.01	.13	.98	1.3	2.1	.43	1.6	.50	10	.11	.02	.02
3	.18	.17	.81	.95	1.4	.44	86	.45	15	.12	.01	.07
4	.03	.14	.63	.70	1.0	1.7	25	.39	9.0	.12	.01	.05
5	.01	14	.59	.68	.79	6.6	9.5	.42	6.0	.10	.02	.03
6	.01	7.0	.51	9.9	.66	2.1	4.7	.40	4.0	.09	.01	.02
7	.01	7.1	.46	41	.56	.92	2.7	.38	2.5	.07	.0	.01
8	.01	6.2	.38	89	.49	.62	2.1	.32	2.0	.05	.0	.01
9	.01	2.3	.33	7.9	.45	.58	1.6	.42	3.5	3.5	.02	.01
10	.00	46	.30	4.6	.44	.61	1.2	.52	7.0	7.0	.03	.01
11	.00	9.9	.23	2.9	.43	.66	1.0	.32	12	.23	.02	.01
12	.00	4.2	.19	8.3	.42	.73	.89	.28	17	.40	.02	.01
13	.00	16	.23	3.6	.58	.84	.78	1.2	25	.19	.01	.01
14	.00	4.6	.23	1.9	1.6	1.6	.71	.97	12	.11	.01	.01
15	.00	2.1	.20	1.5	1.7	6.8	.65	5.9	6.0	.07	.01	.02
16	.04	3.6	.15	1.3	1.4	2.3	.57	19	3.5	.05	.01	.10
17	.70	2.0	.15	1.3	1.0	1.9	.63	4.0	1.8	.04	.01	.08
18	110	.82	.14	1.5	.80	42	1.0	1.6	1.2	.03	.01	.06
19	4.9	.57	.15	2.7	.74	6.8	.86	1.8	.78	.16	.01	.05
20	1.5	47	.21	3.4	.75	5.6	.68	7.6	.50	.17	.01	.40
21	.60	28	.21	1.4	11	6.4	.59	2.4	.35	.14	.01	.30
22	.40	7.6	.16	1.1	4.3	3.9	.52	1.2	.29	.10	.01	.25
23	1.3	4.1	17	.88	1.9	2.8	.48	.81	.24	.08	.02	.17
24	1.8	2.4	8.7	.85	.99	2.4	.43	.59	.22	.07	.02	.15
25	.38	1.7	7.9	4.0	.74	2.1	.54	.73	.19	.06	.03	.13
26	.14	2.6	2.0	65	.62	1.7	.53	7.4	.17	.05	.02	.12
27	.07	19	13	12	.55	1.5	.45	1.6	.17	.07	.02	.09
28	.04	4.8	47	6.2	.48	1.4	1.3	.77	.20	.08	.02	.09
29	.02	2.5	13	15	---	2.1	1.2	.57	.15	.05	.02	.09
30	.02	1.8	4.9	9.7	---	1.8	.71	.54	.13	.13	.01	.08
31	.03	---	2.4	4.8	---	1.5	---	1.2	---	.12	.01	---
TOTAL	122.22	248.40	124.44	306.96	41.19	111.27	150.02	64.81	144.79	13.68	0.47	2.46
MEAN	3.94	8.28	4.01	9.90	1.47	3.59	5.00	2.09	4.83	.44	.015	.082
MAX	110	47	47	89	11	42	86	19	25	7.0	.04	.40
MIN	.00	.07	.14	.68	.42	.43	.43	.28	.13	.03	.00	.01
CFSM	.93	1.96	.95	2.34	.35	.85	1.18	.49	1.14	.10	.00	.02
IN.	1.07	2.18	1.09	2.70	.36	.98	1.32	.57	1.27	.12	.00	.02

CAL YR 1988 TOTAL 1511.90 MEAN 4.13 MAX 110 MIN .00 CFSM .98 IN. 13.30
WTR YR 1989 TOTAL 1330.71 MEAN 3.65 MAX 110 MIN .00 CFSM .86 IN. 11.70

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. 29-31, Jan. 1-6, Feb. 5-14, Mar. 2-5, 9-19. Records good except for estimated discharges, which are fair. 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 5,008 mil gal, equivalent to a mean withdrawal of 21.2 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.--63 years, 283 ft³/s, 11.57 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.

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)
Jan. 9	0800	2,780	10.87	May 28	0200	*4,530	*13.79
Apr. 5	1000	3,950	13.06				

Minimum daily discharge, 1.1 ft³/s Oct. 11, 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.4	58	150	183	86	1380	217	236	51	153	47
2	1.9	3.3	49	96	161	78	908	143	201	59	126	65
3	2.5	3.5	44	70	138	76	1280	109	273	56	90	234
4	3.1	4.3	40	56	108	73	3000	91	1320	55	72	149
5	2.8	15	36	48	88	86	3840	104	1380	109	147	82
6	3.0	31	44	300	70	206	2530	127	670	86	172	56
7	2.2	24	31	1340	60	268	1110	137	387	63	262	46
8	1.9	23	25	2430	51	165	851	118	241	53	203	40
9	1.7	32	23	2760	46	115	630	104	179	45	116	37
10	1.4	71	21	2700	43	92	530	116	150	41	76	48
11	1.1	124	20	2440	41	80	402	156	139	44	61	47
12	1.1	335	19	732	40	63	326	159	124	232	54	52
13	4.6	170	31	467	39	68	282	143	282	253	50	49
14	7.4	110	32	395	47	65	217	159	212	117	45	45
15	7.1	107	27	253	103	63	180	235	139	58	41	96
16	7.0	94	22	196	162	60	164	176	103	42	40	372
17	7.2	94	24	157	190	59	143	167	80	48	39	186
18	20	72	23	137	179	65	150	149	87	42	41	98
19	15	61	23	137	171	73	165	125	77	38	39	71
20	7.2	89	29	159	134	90	231	104	70	41	38	52
21	8.9	335	31	138	168	202	213	119	66	46	38	51
22	9.3	622	28	95	494	522	179	108	102	51	52	44
23	8.8	296	28	78	480	335	163	100	803	57	69	39
24	7.1	156	33	62	432	232	141	95	404	86	99	34
25	6.7	102	29	52	359	200	141	175	173	109	99	32
26	4.2	82	26	157	204	170	166	1680	113	85	61	30
27	4.1	92	27	804	146	148	152	3830	89	123	71	27
28	5.2	91	161	581	106	243	145	4120	83	159	57	25
29	4.9	111	860	350	---	234	270	1560	82	170	58	24
30	4.3	84	560	271	---	274	298	550	63	181	47	23
31	4.2	---	260	216	---	1190	---	350	---	178	40	---
TOTAL	168.6	3437.5	2664	17827	4443	5681	20187	15526	8328	2778	2556	2201
MEAN	5.44	115	85.9	575	159	183	673	501	278	89.6	82.5	73.4
MAX	20	622	860	2760	494	1190	3840	4120	1380	253	262	372
MIN	1.1	3.3	19	48	39	59	141	91	63	38	38	23
CFSM	.02	.35	.26	1.73	.48	.55	2.03	1.51	.84	.27	.25	.22
IN.	.02	.39	.30	2.00	.50	.64	2.26	1.74	.93	.31	.29	.25

CAL YR 1988 TOTAL 41517.9 MEAN 113 MAX 1790 MIN 1.1 CFSM .34 IN. 4.65
WTR YR 1989 TOTAL 85797.1 MEAN 235 MAX 4120 MIN 1.1 CFSM .71 IN. 9.61

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: June 1-9, Dec. 9-24, 1988, Jan. 12-18, 22, 24, Feb. 6-12, 24-28, amd March 1-3, 1989. Records good except those prior to Nov. 1 which are fair, and those periods of estimated record which are poor. 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, 7,240 ft³/s May 26, 1989; 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)
Jan. 8	0830	1,580	12.99	May 26	0930	*7,240	*14.76
Apr. 4	0930	5,110	14.25				

Minimum daily discharge, 0.18 ft³/s June 12, 1988.

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	24
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	58	4.5	3.8
19	---	---	---	---	---	---	---	---	5.8	64	5.4	3.5
20	---	---	---	---	---	---	---	---	8.9	46	3.3	7.8
21	---	---	---	---	---	---	---	---	9.4	17	2.1	4.6
22	---	---	---	---	---	---	---	---	5.4	26	3.0	4.1
23	---	---	---	---	---	---	---	---	5.9	27	18	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	36	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	414.0	229.7	182.1
MEAN	---	---	---	---	---	---	---	---	7.44	13.4	7.41	6.07
MAX	---	---	---	---	---	---	---	---	21	64	36	24
MIN	---	---	---	---	---	---	---	---	.18	5.4	2.1	3.5

04187100 OTTAWA RIVER AT LIMA, OH--Continued

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	300	33	39	17	17	41
2	5.3	4.4	6.1	17	17	7.4	110	31	55	14	16	14
3	8.1	4.7	5.6	14	17	10	878	30	136	19	18	12
4	7.5	11	5.9	14	21	21	3450	30	132	20	27	12
5	7.1	49	5.7	12	23	45	899	35	119	20	17	11
6	6.4	15	4.8	92	17	63	356	37	66	20	13	11
7	7.0	8.5	7.7	288	14	33	265	37	25	22	9.6	11
8	6.7	7.7	9.4	1130	12	31	191	30	14	19	8.6	9.6
9	4.9	9.6	7.4	319	11	30	179	25	20	17	13	16
10	6.1	36	6.3	27	11	25	123	25	30	14	11	18
11	5.6	6.6	5.8	16	12	29	80	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	153	32	37	8.2	52
15	2.5	7.6	4.3	8.0	32	43	55	133	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	79	3.6	27	15	28	20	43	25	34	14	11
21	5.1	33	3.6	16	54	83	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	60	19	22	9.0	9.1
24	7.3	12	7.0	10	22	25	28	143	18	17	30	9.4
25	1.0	9.6	10	17	14	26	51	244	17	19	13	10
26	.50	8.4	11	104	11	18	51	4360	15	18	12	9.4
27	3.0	16	12	79	9.0	13	31	1640	14	49	11	10
28	3.4	13	316	28	8.0	25	22	430	18	32	11	10
29	3.5	9.1	94	23	---	31	45	179	19	21	9.8	8.4
30	4.2	7.8	40	18	---	312	43	89	21	24	8.8	8.1
31	4.9	---	29	24	---	396	---	45	---	16	8.4	---
TOTAL	173.10	435.62	641.9	2391.5	528.0	1523.8	7581	8219	1160	679	377.6	433.0
MEAN	5.58	14.5	20.7	77.1	18.9	49.2	253	265	38.7	21.9	12.2	14.4
MAX	19	79	316	1130	54	396	3450	4360	136	49	30	52
MIN	.50	.72	3.6	7.2	8.0	7.4	20	15	14	10	6.5	8.1

WTR YR 1989 TOTAL 24143.52 MEAN 66.1 MAX 4360 MIN .50

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: Feb. 4-9, March 11-17. 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.--61 years, 252 ft³/s, 9.89 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)
Apr. 4	1930	3,410	9.03	May 26	1700	*4,080	*10.04

Minimum daily discharge, 7.5 ft³/s Oct. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	10	16	97	145	79	1020	88	242	217	196	40
2	11	10	16	42	107	40	712	99	184	135	110	25
3	11	9.8	14	36	93	33	1400	93	369	100	71	22
4	11	17	14	30	76	33	3060	89	1130	123	64	23
5	10	92	16	24	68	60	2770	102	624	87	202	23
6	10	42	15	209	60	85	1700	134	367	76	230	24
7	12	34	17	524	55	73	820	204	242	68	104	34
8	11	44	17	2320	50	61	643	200	181	62	62	26
9	9.5	32	16	1450	48	51	505	197	141	60	50	22
10	9.5	134	15	420	47	37	419	228	119	54	42	40
11	10	71	15	176	48	31	327	220	99	48	37	28
12	9.5	41	17	161	49	29	275	169	109	178	33	24
13	8.9	45	16	220	54	28	246	207	165	335	31	21
14	9.9	34	16	133	77	27	215	492	301	172	31	58
15	9.2	25	17	87	123	27	203	443	206	102	39	53
16	8.8	26	15	61	158	30	184	354	448	71	61	66
17	13	28	14	52	83	36	148	330	713	59	36	61
18	51	21	15	56	60	90	107	236	411	50	33	48
19	18	18	16	63	52	57	94	185	225	50	29	45
20	13	73	16	77	42	54	94	177	155	162	38	39
21	11	146	17	55	159	88	143	180	134	145	35	33
22	11	158	16	43	445	223	142	218	126	170	37	29
23	14	59	22	38	325	206	135	258	96	92	34	25
24	16	27	19	34	186	206	112	828	93	57	28	21
25	9.6	21	18	32	171	174	83	830	84	63	30	22
26	7.8	17	20	305	172	150	132	3470	68	108	27	21
27	7.8	21	22	540	133	131	125	3600	69	118	29	18
28	8.2	21	292	256	105	132	107	3540	181	250	28	18
29	7.5	18	438	142	---	96	133	1580	843	179	27	17
30	8.4	16	246	126	---	471	110	460	823	203	25	16
31	11	---	166	174	---	1100	---	349	---	256	22	---
TOTAL	370.6	1310.8	1589	7983	3191	3938	16164	19560	8948	3850	1821	942
MEAN	12.0	43.7	51.3	258	114	127	539	631	298	124	58.7	31.4
MAX	51	158	438	2320	445	1100	3060	3600	1130	335	230	66
MIN	7.5	9.8	14	24	42	27	83	88	68	48	22	16
CFSM	.03	.13	.15	.74	.33	.37	1.56	1.82	.86	.36	.17	.09
IN.	.04	.14	.17	.86	.34	.42	1.74	2.10	.96	.41	.20	.10

CAL YR 1988 TOTAL 36088.4 MEAN 98.6 MAX 1400 MIN 7.5 CFSM .28 IN. 3.88
WTR YR 1989 TOTAL 69667.4 MEAN 191 MAX 3600 MIN 7.5 CFSM .55 IN. 7.49

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.--Estimated daily discharges: Oct. 1-18, Feb. 9-13, 17, 19-20, 23-28, March 1-6, 13-18. Records good except those for periods of estimated record which are 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.--74 years, 1,733 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, 22,500 ft³/s May 28 gage height 17.67; minimum daily, 14 ft³/s Oct. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	164	323	2160	1660	360	6530	1560	2880	1060	796	440
2	75	21	605	1490	1440	310	6150	1120	2000	839	702	603
3	350	22	44	1020	1260	270	8880	866	3320	488	522	575
4	120	313	270	315	604	250	17100	610	8170	387	357	602
5	75	182	610	531	556	245	20900	951	9470	360	347	405
6	300	101	229	595	1220	330	18400	747	6580	348	461	321
7	75	816	43	5180	391	575	11400	937	4860	353	458	177
8	75	924	42	16100	52	721	7170	699	2830	240	725	281
9	75	809	324	13300	48	929	4920	898	1550	302	494	158
10	310	936	174	8960	44	803	3540	989	993	168	263	431
11	290	1050	36	5690	45	693	2500	1290	590	235	480	1000
12	190	1250	35	3440	46	265	2200	1230	737	721	236	1100
13	115	1310	150	2840	49	270	1540	1200	1070	1700	296	1100
14	74	1140	278	2560	53	270	1370	1410	1840	874	419	1100
15	47	1170	44	2170	439	300	1100	1610	1640	937	387	811
16	29	302	45	1650	677	350	1120	2550	1150	463	337	1070
17	24	750	45	1240	640	430	996	1970	1030	373	181	934
18	24	575	45	1080	599	640	996	1380	1110	320	140	655
19	25	42	350	1230	570	990	884	1310	1180	127	173	373
20	26	831	192	1490	650	1160	849	1170	734	438	223	419
21	220	2960	38	1360	746	1430	930	1110	850	846	59	285
22	210	3260	196	863	1240	1820	709	1100	564	2320	285	241
23	19	2490	242	889	1610	2090	762	984	2270	2510	173	182
24	182	1750	370	680	1350	1870	624	898	2570	1230	210	181
25	176	1170	221	788	920	1170	726	1470	1260	684	273	180
26	20	519	498	1600	750	1180	944	12900	831	354	316	81
27	21	761	599	6020	600	1300	1710	20900	472	1100	154	74
28	364	832	683	6100	460	1190	1670	21700	490	1650	374	287
29	15	897	3200	4270	---	1930	2190	15100	445	1530	151	197
30	14	633	3670	3070	---	1980	2080	8300	375	1010	1370	79
31	354	---	2820	2170	---	3180	---	5480	---	865	1070	---
TOTAL	3969	27980	16421	100851	18719	29301	130890	114439	63861	24832	12432	14342
MEAN	128	933	530	3253	669	945	4363	3692	2129	801	401	478
MAX	364	3260	3670	16100	1660	3180	20900	21700	9470	2510	1370	1100
MIN	14	21	35	315	44	245	624	610	375	127	59	74

CAL YR 1988 TOTAL 364920 MEAN 997 MAX 9130 MIN 10
WTR YR 1989 TOTAL 558037 MEAN 1529 MAX 21700 MIN 14

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: Feb. 9-14, 18-20, Feb. 25-March 2, March 11-13. 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.--57 years, 4,234 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)
Jan. 8	1100	29,200	6.45	May 28	1200	31,300	6.69
Apr. 5	0900	33,200	6.90	June 5	1000	*36,700	*7.29

Minimum daily discharge, 222 ft³/s Oct. 15

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	274	793	3560	7100	6460	1300	8750	4940	12800	1730	1780	906
2	235	544	3330	5610	5570	1200	9250	4120	16000	1560	1460	955
3	352	495	2330	3920	4570	1160	15900	3250	20000	1240	1450	1610
4	464	669	2270	2690	3450	1080	28100	2860	32700	1090	867	1820
5	427	1300	2390	2160	2930	1250	33000	2740	35600	1010	899	1530
6	444	2890	1820	2850	2890	1990	29500	2560	30600	934	916	1550
7	359	4450	1370	8670	1470	2200	22400	2850	25800	871	931	1250
8	323	5150	1320	26800	865	2100	17000	2230	19700	799	1140	1140
9	318	5050	1360	26600	800	2500	13900	2210	13400	703	976	1370
10	392	6460	1330	20800	750	1910	11100	2200	9740	671	720	2000
11	518	8770	891	15000	750	1700	8050	2550	7030	663	800	4710
12	894	8900	646	11800	760	1550	6050	2690	5560	843	823	4710
13	870	8260	740	11100	860	1650	4650	2650	4500	2400	792	2870
14	422	8150	1020	9930	1000	1850	3780	3150	5020	1890	875	2110
15	222	7340	836	8220	1350	2110	3140	3450	4150	1780	809	2970
16	237	5520	651	6180	1850	2520	2990	4480	3410	1160	672	4490
17	272	4950	680	4750	1940	2820	2810	4400	3130	968	466	4640
18	7620	5110	528	3850	1650	5940	2620	3370	2810	870	464	3910
19	10000	4210	714	3780	1400	8080	2550	2930	2980	685	508	3000
20	6660	5010	955	4030	1700	6150	2450	2810	3370	726	527	2490
21	4570	11900	952	3860	2210	6100	2420	4120	3020	1430	368	2070
22	3430	13100	798	3120	3110	6030	2210	3840	2340	3100	486	1600
23	2210	10600	1340	2820	3830	5830	2180	3290	3720	3260	508	1280
24	2220	8210	2120	2430	3330	5330	2110	2730	4710	2430	479	1120
25	1990	6620	3530	2380	2300	4300	1990	3100	3260	1750	501	795
26	1500	5210	3720	6320	1800	3780	2410	15100	2680	1660	597	652
27	1290	5160	3800	14300	1600	3760	5560	28700	2250	2270	561	542
28	1210	5380	6270	13700	1450	3510	6440	30900	1670	2830	678	684
29	1010	5070	12100	10600	---	3920	6660	24100	1600	2690	614	616
30	786	4290	11200	8770	---	4280	6120	15400	1090	2170	865	433
31	807	---	8820	7320	---	5210	---	13000	---	2090	649	---
TOTAL	52326	169561	83391	261460	62645	103110	266090	206720	284640	48273	24181	59823
MEAN	1688	5652	2690	8434	2237	3326	8870	6668	9488	1557	780	1994
MAX	10000	13100	12100	26800	6460	8080	33000	30900	35600	3260	1780	4710
MIN	222	495	528	2160	750	1080	1990	2200	1090	663	368	433

CAL YR 1988 TOTAL 1054262 MEAN 2880 MAX 23200 MIN 60
WTR YR 1989 TOTAL 1622220 MEAN 4444 MAX 35600 MIN 222

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 1987; minimum, 0.3 mg/L Nov. 10, 1965.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 886 microsiemens Feb. 24; minimum, 322 microsiemens, June 5.
PH: Maximum, 9.2 units Aug. 16; minimum, 7.3 units on several days.
WATER TEMPERATURES: Maximum, 30.0°C July 7, 11; minimum, 0.0°C on many days during winter.
DISSOLVED OXYGEN: Maximum , 16.1 mg/L, March 13, 14; minimum, 5.6 mg/L July 23, 24.

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	626	606	620	586	562	574	606	600	603	666	620	646
2	626	620	623	606	586	599	624	606	619	626	600	614
3	626	600	611	620	606	616	626	604	621	616	600	605
4	636	606	623	622	600	615	626	600	608	646	600	621
5	638	616	629	664	600	632	638	602	624	660	640	652
6	646	638	642	686	640	664	640	602	621	682	656	667
7	646	640	643	706	680	691	646	616	630	680	580	653
8	646	640	643	742	700	712	646	640	643	564	482	532
9	664	642	654	740	660	684	662	642	653	486	440	451
10	664	640	658	686	656	676	664	644	655	458	440	448
11	676	646	667	686	680	682	684	640	663	444	418	438
12	684	656	676	702	622	678	698	680	688	466	440	452
13	706	680	692	660	620	639	702	696	698	486	464	479
14	726	706	719	676	646	662	704	682	697	486	480	483
15	724	720	723	660	604	631	718	700	706	526	484	509
16	726	720	724	644	604	617	726	720	723	542	524	531
17	726	686	721	636	602	621	744	720	733	564	520	546
18	702	584	651	646	618	640	746	720	735	584	560	572
19	684	526	620	642	616	626	746	740	744	606	578	593
20	524	360	400	624	560	600	746	706	729	606	600	602
21	458	376	429	576	540	561	736	696	719	640	600	620
22	466	440	458	556	520	538	744	720	737	660	620	637
23	496	444	461	584	546	568	744	718	731	666	642	661
24	544	496	517	564	560	562	762	720	743	666	640	660
25	544	520	531	564	560	562	766	760	764	678	642	662
26	538	524	532	586	562	571	778	760	766	666	636	652
27	536	520	525	596	576	584	766	744	762	646	562	622
28	536	520	524	596	580	585	742	660	688	598	520	558
29	546	520	537	606	586	599	664	606	637	580	544	567
30	566	546	561	606	596	602	664	600	619	586	576	583
31	566	560	563	---	---	---	686	644	674	586	560	581
MONTH	726	360	599	742	520	620	778	600	685	682	418	577
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	582	576	578	766	720	744	686	642	671	596	526	562
2	586	576	582	776	758	763	686	640	670	566	526	552
3	604	576	598	756	722	738	684	560	609	584	560	574
4	626	600	607	738	696	722	564	442	477	606	560	587
5	638	604	616	706	680	693	446	422	433	606	598	602
6	638	620	626	720	682	703	440	402	419	606	576	600
7	646	620	637	744	720	727	464	438	448	626	600	609
8	656	640	644	740	720	730	486	440	466	638	600	623
9	676	644	660	726	706	721	506	480	494	642	622	632
10	700	658	684	724	698	711	526	516	521	646	638	641
11	686	680	682	726	720	723	546	526	538	646	640	643
12	686	680	684	744	720	729	566	544	559	662	642	655
13	722	680	699	758	724	744	584	560	566	666	642	656
14	726	702	719	762	726	748	606	576	599	682	658	666
15	706	700	703	758	724	741	624	600	612	686	678	683
16	736	706	720	766	724	757	638	620	629	706	686	701
17	744	738	740	766	720	745	646	636	640	720	698	714
18	760	740	745	724	696	707	658	638	645	706	680	694
19	780	760	770	706	666	689	660	640	645	706	682	693
20	784	760	768	696	560	615	676	640	654	706	682	698
21	784	760	776	606	560	591	682	658	676	706	676	689
22	844	766	805	620	596	605	686	656	674	680	640	663
23	876	840	856	626	604	620	680	640	669	666	646	659
24	886	858	879	640	600	620	686	656	675	666	640	660
25	864	764	810	666	640	648	686	642	670	662	640	648
26	780	760	765	682	656	671	682	640	664	638	480	544
27	780	760	769	686	658	681	686	640	664	524	360	446
28	762	726	745	642	602	621	678	646	665	406	358	382
29	---	---	---	638	600	614	698	644	684	362	336	347
30	---	---	---	676	640	653	658	566	602	398	360	377
31	---	---	---	680	644	659	---	---	---	424	360	395
MONTH	886	576	710	776	560	691	698	402	598	720	336	600

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	446	406	432	586	560	573	578	560	566	566	556	561
2	456	440	444	606	580	597	584	560	574	564	558	561
3	444	362	407	616	604	607	586	560	578	566	558	562
4	384	360	367	618	600	609	586	566	583	582	560	575
5	362	322	336	606	580	591	586	564	576	606	564	592
6	366	338	355	586	578	582	580	560	570	624	576	605
7	366	360	362	580	566	574	576	560	566	606	582	601
8	386	360	368	578	520	563	566	538	561	638	600	618
9	424	386	407	582	556	569	566	560	563	680	622	657
10	442	402	429	598	564	582	582	560	575	706	656	689
11	456	440	445	606	600	602	586	562	579	718	646	692
12	478	440	456	622	600	609	582	526	570	662	578	635
13	506	478	484	626	600	617	578	520	559	586	560	575
14	526	480	512	666	626	647	558	484	528	562	540	551
15	544	520	529	682	656	669	526	480	515	542	520	525
16	586	520	555	686	662	678	506	440	487	540	520	525
17	622	586	603	676	618	646	498	476	483	560	480	524
18	646	606	637	658	600	629	496	456	481	540	482	517
19	646	636	642	626	602	615	486	478	482	526	480	496
20	642	600	627	618	600	607	520	484	498	536	520	524
21	626	600	610	644	604	624	542	520	531	546	520	530
22	626	600	614	686	640	663	540	524	531	578	546	563
23	626	580	616	700	640	679	542	522	535	578	560	575
24	584	520	545	640	602	616	542	520	535	566	542	556
25	618	524	582	624	560	598	542	520	528	544	542	542
26	622	560	592	604	560	577	540	520	525	544	542	544
27	640	600	618	662	604	636	546	522	535	556	542	544
28	642	600	623	658	564	627	560	536	546	556	526	541
29	604	560	577	578	520	541	566	526	550	562	536	558
30	566	560	563	540	520	531	566	560	564	566	560	564
31	---	---	---	556	520	537	566	538	561	---	---	---
MONTH	646	322	511	700	520	606	586	440	543	718	480	570
YEAR	886	322	609									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.7	8.5	8.6	---	---	---	7.8	7.7	7.8	7.8	7.8	7.8
2	8.5	8.4	8.5	---	---	---	7.9	7.8	7.8	7.8	7.8	7.8
3	8.7	8.3	8.5	---	---	---	7.9	7.8	7.8	7.8	7.8	7.8
4	8.9	8.5	8.7	---	---	---	7.9	7.8	7.9	7.8	7.8	7.8
5	8.9	8.5	8.7	---	---	---	7.9	7.8	7.9	7.9	7.8	7.8
6	8.8	8.5	8.7	---	---	---	7.9	7.8	7.9	7.8	7.7	7.8
7	9.0	8.6	8.8	---	---	---	7.9	7.7	7.8	7.8	7.7	7.7
8	8.9	8.7	8.8	---	---	---	7.9	7.8	7.9	7.7	7.5	7.6
9	8.9	8.7	8.7	7.5	7.5	7.5	8.0	7.8	7.9	7.6	7.5	7.6
10	8.8	8.7	8.8	7.5	7.4	7.5	8.0	8.0	8.0	7.7	7.6	7.6
11	9.0	8.7	8.8	7.5	7.4	7.5	8.0	7.9	8.0	7.7	7.6	7.6
12	9.0	8.7	8.8	7.5	7.5	7.5	8.0	8.0	8.0	7.7	7.7	7.7
13	8.9	8.7	8.8	7.5	7.5	7.5	8.2	8.0	8.0	7.7	7.7	7.7
14	8.8	8.7	8.8	7.5	7.5	7.5	8.1	8.0	8.0	7.7	7.7	7.7
15	8.9	8.7	8.8	7.6	7.4	7.5	8.0	8.0	8.0	7.8	7.7	7.8
16	8.8	8.7	8.8	7.6	7.5	7.5	8.1	8.0	8.1	7.8	7.8	7.8
17	8.8	8.6	8.7	7.6	7.5	7.5	8.1	7.9	8.0	7.9	7.7	7.8
18	8.6	7.7	8.0	7.7	7.5	7.6	8.1	7.9	8.0	7.9	7.9	7.9
19	7.7	7.3	7.5	7.7	7.6	7.7	8.1	8.0	8.0	8.0	7.9	8.0
20	7.4	7.3	7.4	7.7	7.4	7.6	8.6	8.0	8.1	8.0	8.0	8.0
21	7.4	7.3	7.3	7.4	7.4	7.4	8.1	8.1	8.1	8.0	8.0	8.0
22	7.4	7.3	7.3	7.5	7.4	7.5	8.1	8.1	8.1	8.0	8.0	8.0
23	7.5	7.3	7.4	7.6	7.4	7.5	8.2	8.1	8.1	8.1	8.0	8.0
24	7.7	7.5	7.6	7.6	7.4	7.6	8.1	8.1	8.1	8.1	8.0	8.0
25	7.7	7.5	7.7	7.6	7.6	7.6	8.1	7.9	8.1	8.0	7.9	8.0
26	7.7	7.5	7.7	7.6	7.6	7.6	8.1	8.1	8.1	8.0	7.8	7.9
27	---	---	---	7.7	7.6	7.7	8.1	8.0	8.1	7.8	7.7	7.8
28	---	---	---	7.7	7.7	7.7	8.0	7.8	7.9	7.8	7.7	7.7
29	---	---	---	7.9	7.8	7.8	7.8	7.7	7.8	7.7	7.7	7.7
30	---	---	---	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7
31	---	---	---	---	---	---	7.8	7.7	7.8	7.8	7.7	7.8
MONTH	9.0	7.3	8.3	7.9	7.4	7.6	8.6	7.7	8.0	8.1	7.5	7.8

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.8	7.8	8.0	7.8	7.9	8.0	7.9	8.0	7.8	7.6	7.8
2	7.8	7.8	7.8	8.0	7.9	8.0	8.0	7.8	7.9	7.9	7.8	7.8
3	7.9	7.8	7.9	8.1	7.8	8.0	7.9	7.6	7.7	7.9	7.8	7.8
4	7.9	7.8	7.9	8.1	7.9	8.0	7.6	7.4	7.5	8.0	7.8	7.9
5	7.8	7.8	7.8	8.1	7.9	8.0	7.5	7.4	7.5	8.0	7.8	7.9
6	7.9	7.8	7.8	8.1	7.8	8.0	7.5	7.4	7.5	8.0	7.8	7.9
7	8.0	7.8	7.8	8.3	7.9	8.2	7.6	7.4	7.5	8.2	7.9	8.0
8	7.9	7.7	7.8	8.3	8.1	8.2	7.7	7.6	7.6	8.2	8.0	8.1
9	7.9	7.8	7.8	8.4	8.2	8.3	7.8	7.6	7.7	8.2	8.1	8.2
10	7.9	7.8	7.8	8.4	8.2	8.3	7.8	7.8	7.8	8.5	8.2	8.4
11	7.8	7.8	7.8	8.4	8.3	8.4	7.9	7.8	7.8	8.6	8.2	8.4
12	7.8	7.8	7.8	8.5	8.2	8.4	7.9	7.8	7.9	8.6	8.4	8.5
13	7.8	7.8	7.8	8.5	8.2	8.4	8.0	7.8	7.9	8.6	8.3	8.5
14	7.8	7.8	7.8	8.5	8.3	8.4	8.0	7.9	8.0	8.5	8.4	8.4
15	7.9	7.8	7.8	8.5	8.2	8.3	8.0	7.9	8.0	8.4	8.2	8.3
16	7.9	7.8	7.8	8.5	8.2	8.3	8.1	8.0	8.0	8.4	8.2	8.3
17	7.9	7.8	7.9	8.4	8.2	8.3	8.1	8.0	8.0	8.4	8.0	8.2
18	7.9	7.8	7.9	8.3	8.0	8.1	8.0	7.9	8.0	8.5	8.2	8.3
19	7.9	7.8	7.9	8.0	7.9	8.0	8.2	7.9	8.0	8.4	8.1	8.3
20	7.9	7.8	7.8	8.0	7.8	7.9	8.3	8.0	8.2	8.2	8.0	8.2
21	7.9	7.9	7.9	8.0	7.8	8.0	8.4	8.2	8.3	8.2	8.0	8.1
22	8.0	7.8	7.9	8.0	7.9	8.0	8.5	8.2	8.3	8.2	7.9	8.1
23	8.0	7.8	7.9	8.0	7.9	8.0	8.6	8.3	8.5	8.3	8.1	8.2
24	8.0	7.8	7.9	8.0	7.9	8.0	8.7	8.4	8.6	8.4	8.1	8.2
25	8.0	7.8	7.9	8.1	8.0	8.0	8.6	8.4	8.5	8.3	8.0	8.2
26	8.0	7.9	7.9	8.1	7.9	8.0	8.5	8.3	8.4	8.0	7.5	7.6
27	8.0	7.9	8.0	8.1	7.9	8.0	8.5	8.2	8.4	7.5	7.3	7.5
28	8.0	7.8	7.9	7.8	7.6	7.7	8.4	8.2	8.3	7.5	7.4	7.5
29	---	---	---	7.8	7.6	7.7	8.5	8.2	8.3	7.5	7.5	7.5
30	---	---	---	7.9	7.8	7.9	8.2	7.8	7.9	7.5	7.5	7.5
31	---	---	---	7.9	7.8	7.8	---	---	---	7.6	7.3	7.4
MONTH	8.0	7.7	7.8	8.5	7.6	8.1	8.7	7.4	8.0	8.6	7.3	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.4	7.3	7.4	8.2	8.0	8.1	8.4	8.0	8.2	8.9	8.3	8.7
2	7.6	7.4	7.5	8.2	8.1	8.2	8.5	8.2	8.4	9.0	8.6	8.8
3	7.6	7.4	7.5	8.2	8.0	8.1	8.7	8.4	8.5	9.0	8.6	8.8
4	7.5	7.4	7.4	8.2	8.0	8.1	8.8	8.3	8.5	9.0	8.6	8.8
5	7.5	7.4	7.4	8.3	8.1	8.2	8.9	8.5	8.7	8.9	8.6	8.8
6	7.6	7.4	7.5	8.4	8.1	8.2	8.8	8.4	8.6	8.9	8.6	8.8
7	7.6	7.5	7.6	8.5	8.1	8.3	8.9	8.4	8.6	8.9	8.6	8.7
8	7.6	7.6	7.6	8.8	8.2	8.4	8.8	8.4	8.6	8.9	8.4	8.6
9	7.6	7.6	7.6	8.8	8.4	8.6	8.7	8.4	8.5	8.8	8.4	8.6
10	7.8	7.6	7.7	8.7	8.5	8.6	8.7	8.4	8.5	8.8	8.4	8.6
11	7.8	7.7	7.8	8.6	8.3	8.5	9.1	8.4	8.6	8.6	8.2	8.4
12	7.8	7.8	7.8	8.5	8.2	8.3	8.8	8.6	8.7	8.4	8.1	8.3
13	7.9	7.8	7.8	8.3	8.1	8.2	9.0	8.6	8.7	8.3	8.0	8.2
14	7.9	7.8	7.8	8.2	8.1	8.2	9.0	8.4	8.7	8.0	8.0	8.0
15	7.9	7.8	7.8	8.4	8.1	8.2	8.9	8.4	8.6	8.2	7.9	8.0
16	8.0	7.8	7.9	8.7	8.2	8.4	9.2	8.4	8.8	8.1	8.0	8.0
17	8.1	8.0	8.1	8.7	8.4	8.6	9.1	8.3	8.7	8.0	7.9	8.0
18	8.2	8.0	8.1	8.8	8.4	8.6	9.1	8.4	8.7	8.0	7.8	7.9
19	8.2	8.0	8.1	8.7	8.4	8.5	9.1	8.4	8.8	8.0	7.8	7.9
20	8.2	8.0	8.1	8.7	8.4	8.6	8.7	8.4	8.6	8.0	7.9	7.9
21	8.0	8.0	8.0	8.6	8.2	8.4	9.0	8.5	8.7	8.1	7.9	8.0
22	8.2	8.0	8.1	8.5	8.0	8.2	8.8	8.5	8.7	8.1	8.0	8.1
23	8.1	8.0	8.1	8.2	8.0	8.1	8.9	8.5	8.6	8.2	8.0	8.1
24	8.0	7.8	7.9	8.2	8.0	8.2	8.8	8.4	8.6	8.3	8.1	8.2
25	8.1	7.8	7.9	8.2	8.0	8.1	9.1	8.6	8.8	8.3	8.1	8.2
26	8.0	7.8	7.9	8.3	8.0	8.1	9.1	8.6	8.8	8.3	8.2	8.2
27	8.1	7.8	8.0	8.5	8.2	8.3	8.9	8.4	8.7	8.5	8.2	8.3
28	8.2	8.0	8.1	8.3	8.0	8.1	9.0	8.4	8.7	8.6	8.2	8.4
29	8.1	8.0	8.1	8.3	7.9	8.1	8.8	8.4	8.6	8.5	8.4	8.5
30	8.1	8.0	8.0	8.2	8.0	8.1	9.0	8.6	8.8	8.7	8.4	8.5
31	---	---	---	8.3	8.0	8.2	9.0	8.4	8.7	---	---	---
MONTH	8.2	7.3	7.8	8.8	7.9	8.3	9.2	8.0	8.6	9.0	7.8	8.3
YEAR	9.2	7.3	8.1									

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

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

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	19.0	18.0	18.5	25.5	23.5	24.5	26.0	24.0	25.0	25.5	24.5	25.0
2	20.0	18.0	19.0	26.0	24.5	25.5	26.5	25.0	25.5	24.5	23.0	24.0
3	20.0	18.0	19.0	26.5	25.0	25.5	27.0	25.0	26.0	24.0	23.0	23.5
4	19.0	17.5	18.0	26.0	24.5	25.0	27.5	26.0	26.5	23.5	21.5	23.0
5	18.5	18.0	18.0	27.0	25.5	26.0	28.5	26.0	27.5	24.0	22.5	23.0
6	19.5	18.0	19.0	28.5	26.0	26.5	28.5	26.5	27.5	24.5	23.0	24.0
7	21.0	19.0	20.0	30.0	27.0	28.5	26.5	24.0	25.0	25.0	24.0	24.5
8	21.5	20.0	21.0	28.5	27.0	28.0	25.0	22.5	23.5	26.5	24.0	25.0
9	22.0	21.0	21.5	28.0	26.5	27.5	24.5	23.0	24.0	26.5	25.0	26.0
10	21.0	20.0	20.5	29.0	27.0	28.0	25.5	23.5	24.5	26.0	24.0	25.0
11	22.5	19.5	21.0	30.0	28.0	29.0	27.5	24.0	25.0	24.5	23.0	24.0
12	21.5	20.0	20.5	28.5	25.5	27.5	25.5	24.0	25.0	25.0	23.0	24.0
13	21.5	20.0	20.5	26.0	24.0	25.0	26.0	24.5	25.0	24.0	21.5	22.5
14	21.0	19.5	20.5	26.0	24.0	25.0	26.0	24.0	25.0	21.0	19.0	20.0
15	21.0	19.5	20.5	26.0	25.0	25.5	26.0	25.0	25.5	20.0	18.0	19.0
16	20.5	19.0	20.0	26.0	24.0	25.0	26.5	24.5	25.0	19.5	18.0	18.5
17	20.5	19.0	20.0	27.5	25.0	26.0	25.5	24.0	24.5	19.0	17.0	18.0
18	21.0	19.0	20.0	27.5	25.0	26.5	25.0	23.0	24.0	19.0	17.0	18.5
19	22.0	20.0	21.5	26.5	25.0	25.5	24.0	23.0	23.5	19.5	17.0	18.5
20	22.5	20.5	21.5	24.5	23.0	24.0	23.5	22.5	23.0	20.5	18.5	19.5
21	23.0	21.0	22.0	25.5	23.0	23.5	25.0	22.0	23.5	20.0	19.0	19.5
22	23.5	21.5	22.5	27.0	24.5	25.5	24.5	24.0	24.5	20.5	20.0	20.5
23	25.0	22.0	23.5	27.5	25.0	26.5	25.0	24.0	24.0	20.0	17.0	18.0
24	25.5	23.0	24.5	27.5	26.0	26.5	24.0	23.0	23.5	16.5	15.0	16.0
25	27.0	23.5	25.0	28.0	26.5	27.0	24.5	22.0	23.0	16.5	15.0	16.0
26	27.5	25.5	26.5	28.0	26.5	27.0	25.0	22.0	23.0	16.5	15.0	16.0
27	27.0	26.0	26.5	28.0	27.0	27.5	25.5	23.0	24.0	17.0	15.0	16.0
28	26.5	24.5	26.0	27.5	25.5	26.5	26.0	24.0	25.0	16.5	15.0	15.5
29	26.0	23.0	24.5	26.5	24.0	25.5	25.0	24.0	25.0	16.5	15.0	15.5
30	24.5	22.5	23.5	26.0	23.0	24.5	26.0	24.0	25.0	17.0	16.0	16.5
31	---	---	---	25.0	22.0	23.5	25.5	24.0	25.0	---	---	---
MONTH	27.5	17.5	21.5	30.0	22.0	26.0	28.5	22.0	24.5	26.5	15.0	20.5
YEAR	30.0	.0	12.0									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	9.0	11.1	10.8	10.4	10.6	11.5	11.2	11.4	13.2	13.2	13.2
2	9.4	7.8	8.5	10.9	10.4	10.7	12.1	11.4	11.8	13.3	13.0	13.2
3	11.6	7.2	8.7	10.8	10.4	10.5	12.0	11.8	11.9	13.5	13.2	13.3
4	14.0	8.8	10.6	10.8	10.0	10.4	12.2	11.6	11.9	13.4	13.2	13.3
5	11.8	9.2	10.4	10.4	9.2	9.7	12.3	12.0	12.1	13.4	13.2	13.3
6	12.4	9.4	10.3	10.1	9.2	9.5	12.2	12.0	12.0	13.2	12.4	12.9
7	14.6	10.0	12.1	10.3	10.0	10.2	12.1	11.6	11.8	12.6	12.0	12.4
8	13.0	11.0	12.0	10.2	10.0	10.1	12.2	11.6	11.9	12.1	11.6	11.9
9	12.6	10.6	11.4	10.2	10.0	10.1	12.5	12.0	12.2	12.2	11.8	12.1
10	11.6	10.2	11.0	10.1	9.8	9.9	12.6	12.2	12.4	12.6	12.2	12.4
11	12.9	10.0	11.4	10.3	10.0	10.1	12.9	12.4	12.6	12.9	12.6	12.7
12	13.3	10.9	12.1	10.2	10.0	10.2	13.0	12.8	12.9	13.1	12.8	13.0
13	13.1	11.4	12.2	10.1	10.0	10.0	12.8	12.2	12.6	13.0	12.8	13.0
14	12.3	11.6	12.0	10.4	10.0	10.1	13.1	12.2	12.6	13.2	13.0	13.0
15	13.0	11.1	11.9	10.3	10.0	10.2	13.1	12.8	12.9	13.1	13.0	13.0
16	11.6	10.7	11.3	10.1	9.8	9.9	13.6	13.2	13.4	13.1	13.0	13.0
17	11.2	10.0	10.6	10.7	10.0	10.3	14.0	13.6	13.8	13.3	12.8	13.1
18	9.9	8.0	8.7	10.7	10.4	10.6	14.0	13.6	13.8	13.2	12.8	13.0
19	8.7	7.6	8.1	10.5	10.0	10.4	14.1	13.6	13.8	13.0	12.8	12.9
20	7.8	7.6	7.8	10.2	9.8	10.0	13.6	13.0	13.4	12.9	12.4	12.7
21	8.0	7.7	7.9	10.2	9.8	10.0	13.1	12.6	12.8	13.2	12.8	12.9
22	8.5	7.8	8.2	10.5	10.2	10.3	13.8	13.0	13.4	13.3	13.0	13.1
23	9.1	8.4	8.6	10.8	10.4	10.6	14.2	13.0	13.5	13.3	12.8	13.0
24	9.8	8.8	9.4	10.9	10.6	10.8	13.6	12.6	13.1	13.2	12.8	13.0
25	10.2	9.6	9.9	11.0	10.8	10.9	13.8	13.2	13.5	13.0	12.8	12.9
26	10.4	10.0	10.2	10.8	10.4	10.6	14.1	13.4	13.7	12.8	12.1	12.5
27	10.6	10.2	10.4	10.6	10.4	10.4	13.7	13.2	13.5	12.4	12.0	12.2
28	10.6	10.4	10.5	11.1	10.6	10.8	13.3	12.6	12.8	12.5	12.0	12.2
29	10.8	10.2	10.4	11.4	11.0	11.2	13.0	12.6	12.8	12.1	12.0	12.0
30	10.8	10.4	10.6	11.2	11.2	11.2	13.5	12.9	13.2	12.0	11.8	11.9
31	10.8	10.4	10.6	---	---	---	13.4	12.9	13.2	11.9	11.6	11.8
MONTH	14.6	7.2	10.3	11.4	9.2	10.3	14.2	11.2	12.8	13.5	11.6	12.7

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	11.7	11.6	11.6	14.3	13.2	13.6	11.3	10.7	11.0	9.6	8.6	9.1
2	12.1	11.6	11.9	14.0	13.5	13.7	10.9	10.5	10.7	9.6	9.0	9.3
3	12.6	12.0	12.3	14.4	12.8	13.6	11.0	10.7	10.8	10.0	9.3	9.6
4	12.9	12.4	12.5	14.6	12.8	13.4	10.8	9.9	10.2	10.6	9.4	9.9
5	13.0	12.4	12.6	14.5	12.7	13.3	9.9	9.5	9.7	10.0	9.4	9.6
6	13.3	11.9	12.9	13.7	12.7	13.2	9.9	9.5	9.7	10.2	9.2	9.6
7	13.4	13.0	13.2	15.5	13.5	14.6	10.4	9.7	10.0	11.4	9.9	10.5
8	13.5	13.0	13.3	15.3	13.7	14.4	10.5	10.1	10.3	11.5	10.1	10.7
9	14.0	13.2	13.5	14.7	14.1	14.4	10.9	10.3	10.6	11.2	10.2	10.6
10	14.2	13.0	13.7	15.3	13.7	14.3	11.4	10.9	11.2	13.2	10.4	11.7
11	13.8	12.8	13.1	15.7	14.0	14.8	11.9	11.1	11.3	13.2	10.5	11.7
12	13.2	12.6	13.0	15.7	13.5	14.4	11.4	10.9	11.1	13.1	10.5	11.6
13	13.1	12.7	12.9	16.1	13.5	14.7	12.0	10.9	11.2	12.2	10.2	11.1
14	13.0	12.5	12.7	16.1	13.7	14.5	11.7	10.7	11.1	12.0	10.2	11.0
15	13.0	12.7	12.8	14.9	12.1	13.0	11.1	10.3	10.5	11.5	9.8	10.6
16	13.3	12.7	13.0	15.3	11.7	13.3	11.3	10.2	10.5	12.0	9.6	10.5
17	13.9	12.9	13.4	14.7	12.1	13.2	10.7	9.9	10.2	11.9	9.0	10.4
18	13.9	13.5	13.7	12.5	11.5	12.1	10.4	9.9	10.1	13.2	9.4	11.2
19	14.2	13.2	13.5	13.1	11.9	12.2	12.5	9.9	10.8	12.0	9.0	10.2
20	13.6	13.0	13.3	12.1	11.6	11.8	13.1	10.7	11.7	10.7	8.6	9.4
21	13.4	13.0	13.2	13.2	11.9	12.3	13.3	10.9	11.7	10.8	8.4	9.4
22	13.9	13.0	13.3	13.1	11.9	12.3	13.3	10.7	11.8	11.1	8.0	9.4
23	14.9	13.3	14.0	13.1	11.9	12.4	14.3	10.9	12.3	9.9	8.2	9.0
24	14.7	13.5	14.0	12.8	11.7	12.2	15.9	11.1	13.2	11.6	8.4	9.7
25	13.9	13.1	13.6	12.7	11.3	12.0	15.1	11.5	13.1	11.2	8.4	9.4
26	13.5	12.9	13.2	12.5	10.9	11.5	15.6	11.3	13.2	8.4	7.4	7.7
27	13.9	13.1	13.3	11.7	10.1	11.1	14.2	10.3	12.0	7.3	7.0	7.1
28	13.8	13.2	13.5	10.3	9.7	10.1	11.8	9.8	10.7	7.1	6.8	6.9
29	---	---	---	10.3	9.7	9.9	12.6	9.4	10.8	7.6	7.0	7.2
30	---	---	---	10.7	10.1	10.4	10.3	8.6	9.4	7.8	7.6	7.7
31	---	---	---	10.9	10.3	10.5	---	---	---	8.1	7.4	7.7
MONTH	14.9	11.6	13.1	16.1	9.7	12.8	15.9	8.6	11.0	13.2	6.8	9.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.4	7.6	7.3	6.3	6.8	8.0	6.2	6.9	11.6	6.6	9.2
2	7.6	7.0	7.5	7.3	6.3	6.9	9.1	6.4	7.8	11.0	6.6	8.6
3	7.3	6.7	7.0	7.3	6.3	6.7	10.8	7.0	8.7	10.8	6.4	9.3
4	7.0	6.3	6.7	7.0	6.3	6.6	10.6	6.4	8.0	11.7	7.1	9.6
5	6.8	6.6	6.7	7.6	6.1	6.8	11.2	7.2	9.0	10.4	7.6	9.2
6	6.8	6.6	6.7	8.6	6.2	7.1	11.2	6.5	8.8	10.8	7.3	9.4
7	6.9	6.8	6.8	9.3	6.0	7.6	12.6	6.8	9.1	11.3	6.8	9.0
8	6.9	6.6	6.8	12.4	6.4	8.9	11.8	7.4	9.4	11.8	6.4	9.0
9	6.9	6.6	6.7	11.0	7.2	9.3	10.8	7.2	9.0	11.1	6.8	9.2
10	7.6	7.0	7.4	10.4	7.6	8.9	10.7	7.2	8.8	10.0	6.0	8.1
11	7.7	7.4	7.5	9.2	6.3	8.0	12.9	7.2	9.5	8.8	6.5	7.6
12	7.6	7.4	7.4	8.6	5.8	6.7	12.8	7.0	9.9	8.3	6.0	7.1
13	7.9	7.6	7.7	7.6	6.2	6.7	12.6	6.7	10.2	6.9	6.2	6.6
14	8.0	7.8	7.8	7.5	6.0	6.7	12.8	7.2	10.8	7.3	6.4	6.8
15	7.9	7.6	7.7	7.7	6.0	6.8	12.8	8.6	11.1	8.3	6.8	7.4
16	8.2	7.4	7.9	10.8	6.6	7.9	13.4	9.0	11.6	7.6	7.0	7.2
17	8.8	7.9	8.2	13.4	8.0	10.5	12.9	9.6	11.7	7.6	7.2	7.3
18	9.2	7.7	8.4	14.2	8.2	11.4	13.7	9.0	11.7	---	---	---
19	8.9	7.7	8.3	12.4	7.0	9.0	13.2	7.2	10.4	---	---	---
20	8.5	7.6	8.0	8.4	6.0	7.5	9.6	7.2	8.5	---	---	---
21	8.2	7.4	7.7	9.6	7.1	7.8	12.4	7.2	9.9	---	---	---
22	8.5	7.4	7.8	8.4	6.0	7.0	11.4	8.8	10.1	---	---	---
23	8.4	7.2	7.7	7.4	5.6	6.4	10.6	6.6	7.9	---	---	---
24	7.5	6.5	7.0	7.2	5.6	6.3	9.4	6.0	7.9	---	---	---
25	7.8	6.3	6.9	7.2	5.8	6.3	12.6	8.1	9.8	---	---	---
26	7.1	6.1	6.4	7.7	6.0	6.7	12.7	8.1	10.3	---	---	---
27	6.9	5.9	6.4	8.4	6.2	7.0	12.4	7.8	10.2	---	---	---
28	7.4	6.2	6.7	7.2	6.1	6.7	11.8	7.8	9.9	---	---	---
29	7.5	6.6	7.0	8.0	6.2	7.0	9.2	6.6	8.1	---	---	---
30	7.4	6.6	6.8	7.2	6.0	6.5	11.7	7.2	9.6	---	---	---
31	---	---	---	7.4	6.2	6.7	12.0	8.0	10.5	---	---	---
MONTH	9.2	5.9	7.3	14.2	5.6	7.5	13.7	6.0	9.5	11.8	6.0	8.3
YEAR	16.1	5.6	10.5									

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: Feb. 10-14, 19-21, Feb. 27-March 6, March 11, 12, 14, 15. Records good except for estimated daily discharges which are fair. Satellite telemeter at station.

AVERAGE DISCHARGE.--64 years (1921-35, 1939-89), 4,927 ft³/s, 10.57 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, 45,700 ft³/s June 4 gage height, 10.63 ft; minimum daily, 320 ft³/s, Oct. 16.

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	429	1070	3820	6750	6660	1400	7170	5390	17800	1360	2080	1230
2	410	910	3220	5780	5820	1200	8710	4560	19600	1890	1760	1020
3	325	711	2960	4550	4940	1100	14100	3900	21100	1760	1590	1380
4	488	753	2230	3720	4150	980	29700	3200	42700	1460	1170	1730
5	600	1700	2270	3220	3170	890	37300	3020	41200	1270	999	1830
6	462	4700	2310	2720	3040	860	33400	2770	35100	1210	1050	1630
7	532	5200	1800	4900	2810	2770	25100	3210	28700	1130	926	1740
8	458	5780	1590	26100	1740	2820	18400	3080	22300	982	943	1400
9	410	5780	1570	30100	1200	2780	14400	2570	15300	919	1160	1440
10	561	6440	1650	22500	1000	2120	11300	2600	10400	951	889	1650
11	403	8520	1720	16200	950	2000	8770	2970	7680	631	678	3370
12	549	8740	1270	11900	1000	1800	6430	3160	5890	820	870	4750
13	1140	7940	1060	10600	1100	1680	5220	3040	5060	1480	854	3560
14	1130	8180	1050	9750	1300	1800	4100	3590	5590	2230	853	2430
15	475	7240	1390	8340	1480	2000	3660	4000	5290	1760	940	2460
16	320	6330	1140	6680	1980	2120	3140	4480	4270	1660	792	3790
17	407	4920	923	5110	2020	2480	3100	5160	3430	1210	653	4970
18	7530	4620	919	4210	2290	4790	3170	4190	2960	1070	511	4400
19	10800	4680	848	3830	2000	8950	3370	3380	3040	952	532	3510
20	7980	4270	1030	4200	1800	7010	3000	3270	4670	920	633	2750
21	5240	11400	1220	4190	2100	6500	2730	4080	4100	1150	670	2310
22	4040	13500	1010	3570	2800	6190	2650	4420	3360	2680	396	1890
23	2690	11100	1450	2970	3590	6000	2400	3800	4340	3180	499	1600
24	2480	8390	2000	2720	4410	5570	2410	3320	5070	2990	529	1260
25	2350	6720	3220	2520	3660	5070	2400	3420	4480	2230	508	1060
26	1890	5620	3450	4650	2800	3740	2640	13000	3290	2120	575	835
27	1540	4890	3730	13500	2000	4100	3640	32700	2700	2200	678	663
28	1550	5470	6050	14700	1600	5270	6300	35000	2250	3090	637	644
29	1220	4780	11000	11300	---	5060	6510	29600	1680	2900	973	729
30	1060	4620	11000	9750	---	5140	6610	18200	1650	2380	699	607
31	925	---	8730	7950	---	5230	---	17700	---	2260	866	---
TOTAL	60394	174974	87630	268980	73410	109420	281830	236780	335000	52845	26913	62638
MEAN	1948	5832	2827	8677	2622	3530	9394	7638	11170	1705	868	2088
MAX	10800	13500	11000	30100	6660	8950	37300	35000	42700	3180	2080	4970
MIN	320	711	848	2520	950	860	2400	2570	1650	631	396	607
CFSM	.31	.92	.45	1.37	.41	.56	1.48	1.21	1.76	.27	.14	.33
IN.	.35	1.03	.51	1.58	.43	.64	1.66	1.39	1.97	.31	.16	.37

CAL YR 1988 TOTAL 1084216 MEAN 2962 MAX 22900 MIN 17 CFSM .47 IN. 6.37
WTR YR 1989 TOTAL 1770814 MEAN 4852 MAX 42700 MIN 320 CFSM .77 IN. 10.41

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 September 1988.
NITROGEN, NITRITE + NITRATE: October 1987 to September 1988.
NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1988.
PHOSPHORUS: October 1987 to September 1988.
SUSPENDED SEDIMENT DISCHARGE: April 1950 to September 1984. October 1987 to September 1988.

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 110 mg/L July 31-Aug. 6, 1988; minimum daily mean, 19 mg/L April 9, 10, 1988.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,860 tons Dec. 16, 1987; minimum daily, 10.5 tons June 28, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 14.4 mg/L Dec. 16, 1987; minimum daily mean, <.100 mg/L on many days during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 900 tons Dec. 16, 1987; minimum daily, .01 ton on many days during 1988 water year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.8 mg/L Sept. 18, 1988; minimum daily mean, .81 mg/L March 22, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 177 tons Dec. 16, 1987; minimum daily, .25 ton June 28, 30, July 1, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .726 mg/L Dec. 16, 1987; minimum daily mean .072 mg/L Oct. 26, 1987.
TOTAL PHOSPHORUS LOADS: Maximum daily 46.1 tons Dec. 16, 1987; 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, 208,000 tons Feb. 12, 1959; minimum daily, 0.26 ton Sept. 18, 1955. water year.

EXTREMES FOR CURRENT YEAR.--Water quality data unavailable--will be published in 1990 WDR.

EXTREMES FOR 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 110 mg/L July 31-Aug. 6; minimum daily mean, 19 mg/L Apr. 9, 10.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,860 tons Dec. 16; minimum daily, 10.5 tons June 28.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 14.4 mg/L Dec. 16; minimum daily mean, <.100 mg/L on many days during year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 900 tons Dec. 16; minimum daily, .01 ton on many days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.8 mg/L Sept. 18; minimum daily mean, .81 mg/L March 22.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 177 tons Dec. 16; minimum daily, .25 ton June 28, 30, July 1.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .726 mg/L Dec. 16; minimum daily mean .072 mg/L Oct. 26.
TOTAL PHOSPHORUS LOADS: Maximum daily 46.1 tons Dec. 16; minimum daily, .040 ton July 16.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 522 mg/L Dec. 16; minimum daily mean, 3 mg/L Nov. 4.
SEDIMENT LOADS: Maximum daily, 34,100 tons Dec. 16; minimum daily, 2.3 tons June 28-July 1.

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE 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)
DEC											
20...	1000	1050	750	8.4	7.0	3.0	9.3	12.9	99	K8	K38
MAR											
10...	1015	2120	715	8.3	1.0	1.0	15	15.0	109	380	K10
JUN											
07...	0915	27900	350	8.1	19.0	21.0	300	7.3	85	2000	1800
AUG											
16...	1430	940	505	9.4	24.5	26.0	17	13.8	176	M	70

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	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)
DEC											
20...	360	0	99	26	24	3.5	215	24	216	100	41
MAR											
10...	330	160	87	26	30	3.3	198	5	170	100	51
JUN											
07...	160	60	48	10	5.7	4.3	127	0	102	29	12
AUG											
16...	190	77	43	19	23	4.8	95	19	110	76	37

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	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)
DEC											
20...	0.3	8.4	479	0.05	7.10	0.17	0.18	1.4	0.12	0.08	0.06
MAR											
10...	0.3	4.9	441	0.06	7.20	0.17	0.16	1.6	0.13	0.08	0.07
JUN											
07...	0.3	6.8	202	0.12	5.40	0.12	0.11	1.1	0.19	0.07	0.08
AUG											
16...	0.3	1.7	303	0.02	2.00	0.04	0.01	2.1	0.15	0.02	<0.01

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC											
20...	<10	1	56	<0.5	<1	1	<3	8	13	<5	10
MAR											
10...	<10	<1	46	<0.5	<1	1	<3	4	14	<5	12
JUN											
07...	50	1	29	<0.5	<1	<1	<3	12	71	<1	5
AUG											
16...	10	1	31	<0.5	<1	<1	<3	11	6	<1	7

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)
DEC										
20...	15	<0.1	<10	5	1	<1.0	760	<6	14	9
MAR										
10...	19	0.2	<10	5	1	<1.0	970	<6	45	10
JUN										
07...	3	<0.1	<10	1	<1	<1.0	270	<6	7	429
AUG										
16...	2	<0.1	<10	1	<1	<1.0	800	<6	12	53

K Based on colony count outside the acceptable range

M Presence of material verified but not quantified

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
Oct. 5	1500	<0.10	May 23	1415	0.20	July 29	1200	<0.10
Oct. 19	1200	0.60	May 31	1340	0.80	Aug. 1	1420	<0.10
Nov. 2	1505	<0.10	June 6	1420	0.30	Aug. 5	1200	<0.10
Nov. 16	1445	<0.10	June 10	1200	0.10	Aug. 12	1200	<0.10
Nov. 30	1510	0.30	June 13	1350	<0.10	Aug. 15	1430	<0.10
Dec. 14	1405	<0.10	June 20	1445	<0.10	Aug. 19	1200	<0.10
Jan. 11	1450	<0.10	June 27	1340	<0.10	Aug. 22	1340	<0.10
Feb. 22	1445	<0.10	July 5	1335	<0.10	Aug. 26	1200	0.40
Mar. 7	1445	<0.10	July 9	1200	<0.10	Aug. 29	1430	<0.10
Mar. 28	1440	122.	July 11	1410	<0.10	Sept. 5	1145	<0.10
Apr. 11	1450	0.20	July 14	1200	<0.10	Sept. 9	1200	<0.10
May 2	1430	0.50	July 18	1200	<0.10	Sept. 12	1330	<0.10
May 9	1400	0.70	July 22	1200	<0.10	Sept. 19	1445	<0.10
May 16	1400	0.30	July 25	1450	<0.10			

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	263	46	34.0	737	67	140	6280	48	813
2	369	46	47.4	654	72	134	5460	46	674
3	210	47	28.3	795	74	167	4230	46	529
4	182	47	25.4	576	76	127	5140	46	632
5	260	47	35.3	736	76	159	4740	42	542
6	320	47	43.6	389	75	86.6	3680	42	415
7	460	47	61.9	353	75	78.9	3170	43	368
8	488	47	66.1	533	76	119	3160	44	378
9	345	65	64.8	824	76	178	4310	44	513
10	264	75	57.3	783	75	167	5560	45	681
11	298	75	64.9	755	75	163	6460	45	787
12	331	75	71.7	1470	76	302	6420	44	756
13	380	74	81.5	1410	74	284	5810	44	695
14	361	75	78.0	954	74	198	5110	43	598
15	403	75	86.9	518	75	116	9240	35	840
16	359	75	77.5	398	75	91.2	23500	29	1860
17	403	74	85.2	548	74	119	22300	28	1680
18	300	74	65.1	588	74	129	15900	29	1270
19	212	74	48.3	278	74	64.7	11200	29	869
20	243	60	43.5	301	75	70.6	11100	28	838
21	419	53	65.7	457	75	103	16300	27	1200
22	255	54	41.9	343	74	78.2	16000	29	1270
23	241	57	42.0	393	73	88.2	12800	29	1000
24	290	58	50.8	315	73	71.1	9520	29	734
25	321	59	56.4	667	70	132	7880	30	637
26	307	59	54.3	3240	70	617	7370	31	610
27	693	59	117	4200	72	818	6760	31	566
28	1100	60	184	4620	67	836	6320	31	531
29	940	62	161	4260	52	602	6130	32	529
30	1290	63	221	5140	49	675	7690	33	685
31	741	65	135	---	---	---	7610	34	699
TOTAL	13048	---	2295.8	37235	---	6914.5	267150	---	24199
		JANUARY			FEBRUARY			MARCH	
1	5860	35	555	5230	28	387	4210	26	296
2	4330	36	426	8030	26	561	3650	27	270
3	3200	37	323	11700	31	994	3250	29	252
4	2700	39	282	9700	39	1010	2950	30	237
5	2250	40	241	7970	40	867	2700	31	229
6	2000	41	220	4790	39	508	2480	33	218
7	2150	41	238	3460	38	358	2810	32	244
8	2300	41	255	2880	37	289	2900	33	260
9	1950	42	223	2550	36	250	5420	33	479
10	1700	44	201	2300	36	224	10800	37	1100
11	1550	45	190	2100	36	204	11400	39	1190
12	1400	47	178	1950	37	197	9670	37	958
13	1250	46	156	1850	39	193	8900	35	841
14	1150	47	145	1750	40	188	8460	33	765
15	1050	48	135	1700	41	187	7340	33	656
16	950	49	125	2230	41	247	6020	35	565
17	889	49	117	2800	42	315	4680	36	460
18	2120	49	278	4480	42	507	3930	38	400
19	3360	49	445	5260	41	576	3240	38	333
20	3720	49	491	7300	37	718	3040	39	318
21	4550	48	592	10500	40	1120	3240	40	346
22	6410	46	795	13300	34	1240	2740	38	283
23	4890	43	567	17000	26	1190	2730	38	282
24	3650	41	401	19000	23	1190	3450	39	360
25	2900	38	301	17000	23	1050	14700	34	1330
26	2350	38	243	9100	24	590	19200	32	1650
27	1900	36	184	6500	25	433	16100	30	1310
28	1600	33	142	5600	24	368	11900	29	915
29	1420	34	129	5000	25	339	8920	29	691
30	1720	35	162	---	---	---	7080	30	567
31	2590	32	224	---	---	---	5450	30	442
TOTAL	79859	---	8964	193030	---	16300	203360	---	18247

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	4470	31	378	1170	37	118	564	50	91.4
2	4220	33	372	1300	39	136	419	51	72.1
3	4520	34	411	1060	41	119	437	52	76.5
4	9200	32	790	1230	43	141	370	54	69.2
5	17700	30	1450	1200	44	141	479	56	88.7
6	13500	27	972	1170	44	139	397	57	77.6
7	16500	25	1110	1180	45	142	402	59	80.7
8	22900	20	1260	1130	44	135	199	59	43.5
9	19900	19	1020	1390	44	166	135	59	30.4
10	16600	19	873	1300	45	158	219	60	46.2
11	12400	21	712	1030	45	126	224	61	47.3
12	9320	24	604	1520	45	184	292	61	58.8
13	7300	25	487	1480	46	183	263	64	54.2
14	5750	26	399	1130	46	141	201	65	42.7
15	4250	27	313	1250	47	158	214	64	44.0
16	3550	27	263	1250	51	174	215	65	42.9
17	2730	30	219	991	59	161	114	65	23.6
18	2620	29	204	817	59	134	176	67	34.8
19	2050	27	150	861	59	142	257	67	49.8
20	2170	29	170	716	60	122	256	68	48.7
21	1760	31	146	631	59	108	191	67	35.4
22	1770	30	142	654	59	114	130	66	23.9
23	2200	32	194	773	56	125	190	67	35.4
24	1490	33	134	2000	51	276	60	67	11.6
25	1520	33	137	1900	50	259	185	68	33.8
26	1610	34	148	1540	47	194	225	67	41.3
27	1560	35	149	1420	44	170	50	69	11.2
28	1380	35	132	1090	45	137	37	68	10.5
29	1430	36	137	780	47	110	25	69	10.6
30	1270	36	124	710	49	107	17	69	10.6
31	---	---	---	735	49	110	---	---	---
TOTAL	197640	---	13600	35408	---	4630	6943	---	1347.4
		JULY			AUGUST			SEPTEMBER	
1	40	69	10.7	645	110	192	531	75	107
2	70	68	16.0	1330	110	395	552	75	112
3	88	69	16.4	1120	110	333	808	73	159
4	91	69	17.0	726	110	216	931	70	177
5	88	71	16.8	575	110	171	1050	71	202
6	88	75	17.9	415	110	121	970	70	183
7	97	75	19.7	337	100	94.9	973	68	180
8	96	76	19.6	267	100	73.0	802	68	148
9	97	76	19.9	286	100	77.2	642	70	121
10	111	74	22.2	342	100	92.3	463	72	89.9
11	170	74	34.0	374	97	97.7	419	73	82.6
12	113	79	24.0	369	94	93.2	423	73	82.9
13	106	78	22.4	557	94	141	515	71	99.3
14	139	78	29.3	601	93	151	374	70	71.0
15	172	76	35.5	489	95	126	332	70	62.8
16	50	76	13.1	420	99	112	280	69	51.9
17	90	76	22.1	479	97	125	420	67	75.6
18	80	76	18.4	452	96	117	302	65	53.3
19	167	75	33.7	401	95	103	261	66	46.5
20	242	72	46.8	350	94	89.1	626	66	111
21	1100	72	214	354	93	89.2	546	66	96.7
22	889	74	178	455	94	116	578	65	102
23	845	75	171	725	95	185	879	66	156
24	971	78	204	803	93	201	606	65	107
25	1080	82	238	670	91	165	504	65	88.4
26	720	85	165	824	90	201	532	66	94.5
27	590	89	142	532	88	126	452	69	84.2
28	642	91	158	566	83	127	327	68	60.3
29	604	93	152	593	78	124	356	67	63.9
30	535	99	143	492	76	101	409	67	74.4
31	797	110	229	598	74	120	---	---	---
TOTAL	10968	---	2449.5	17147	---	4475.6	16863	---	3143.2
YEAR	1078680		106560.2						

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	263	.437	.32	737	.403	.84	6280	6.48	110
2	369	.329	.33	654	.542	1.0	5460	8.09	120
3	210	.297	.18	795	.625	1.4	4230	9.04	100
4	182	.231	.12	576	.457	.76	5140	9.12	130
5	260	.343	.26	736	.402	.84	4740	10.0	130
6	320	.502	.47	389	.471	.54	3680	10.1	100
7	460	.573	.76	353	.632	.67	3170	8.05	69
8	488	.789	1.1	533	.716	1.1	3160	8.74	75
9	345	.687	.68	824	.721	1.7	4310	9.46	110
10	264	.668	.51	783	.668	1.5	5560	9.52	140
11	298	.703	.61	755	.702	1.5	6460	8.98	160
12	331	.947	.91	1470	.776	3.1	6420	9.43	160
13	380	1.50	1.6	1410	1.13	4.3	5810	9.15	140
14	361	1.53	1.6	954	1.50	4.0	5110	10.1	140
15	403	1.43	1.7	518	1.53	2.4	9240	12.8	330
16	359	1.46	1.5	398	1.45	1.8	23500	14.4	900
17	403	1.36	1.6	548	1.36	2.2	22300	11.7	710
18	300	1.15	1.0	588	1.15	2.0	15900	12.3	530
19	212	.858	.56	278	.887	.78	11200	9.89	300
20	243	.929	.69	301	.798	.75	11100	9.55	290
21	419	.857	1.1	457	.728	1.0	16300	9.35	410
22	255	.730	.57	343	.630	.67	16000	8.37	360
23	241	.698	.51	393	.600	.72	12800	8.36	290
24	290	.625	.54	315	.600	.59	9520	8.51	220
25	321	.453	.44	667	.441	.66	7880	8.64	180
26	307	.286	.26	3240	1.30	12	7370	8.46	170
27	693	.266	.54	4200	2.78	32	6760	8.27	150
28	1100	.302	.92	4620	3.98	49	6320	7.63	130
29	940	.367	.96	4260	5.15	59	6130	7.47	120
30	1290	.400	1.4	5140	5.82	80	7690	7.45	150
31	741	.400	.84	---	---	---	7610	7.42	150
TOTAL	13048	---	24.58	37235	---	268.82	267150	---	7074
		JANUARY			FEBRUARY			MARCH	
1	5860	7.39	120	5230	6.08	88	4210	6.06	69
2	4330	7.36	86	8030	7.25	160	3650	5.79	57
3	3200	7.34	63	11700	7.63	240	3250	5.63	49
4	2700	7.33	53	9700	7.36	190	2950	5.53	44
5	2250	7.98	48	7970	6.58	140	2700	5.43	40
6	2000	8.29	45	4790	6.44	83	2480	5.33	36
7	2150	8.04	47	3460	6.63	62	2810	5.18	39
8	2300	8.23	51	2880	7.18	55	2900	5.49	43
9	1950	8.07	42	2550	8.73	60	5420	6.14	91
10	1700	8.26	38	2300	8.72	54	10800	6.48	190
11	1550	8.05	34	2100	8.44	48	11400	7.00	210
12	1400	9.15	35	1950	8.83	46	9670	7.91	210
13	1250	8.76	30	1850	8.59	43	8900	9.37	230
14	1150	8.86	27	1750	7.91	37	8460	10.9	250
15	1050	8.44	24	1700	7.29	33	7340	7.04	140
16	950	7.84	20	2230	7.10	43	6020	6.76	110
17	889	7.28	17	2800	7.10	54	4680	6.32	80
18	2120	6.90	39	4480	6.97	84	3930	8.06	85
19	3360	6.50	59	5260	7.03	100	3240	5.45	48
20	3720	5.83	58	7300	6.96	140	3040	6.90	57
21	4550	5.23	64	10500	6.70	190	3240	5.18	45
22	6410	4.45	78	13300	6.81	240	2740	6.27	46
23	4890	3.71	49	17000	6.46	300	2730	6.61	49
24	3650	3.64	36	19000	6.13	310	3450	7.16	70
25	2900	3.97	31	17000	6.07	280	14700	9.98	400
26	2350	3.83	24	9100	6.03	150	19200	9.75	510
27	1900	3.50	18	6500	5.93	100	16100	9.81	430
28	1600	3.50	15	5600	5.84	88	11900	9.86	320
29	1420	3.56	14	5000	6.12	83	8920	9.20	220
30	1720	3.68	17	---	---	---	7080	8.81	170
31	2590	4.27	30	---	---	---	5450	8.24	120
TOTAL	79859	---	1312	193030	---	3501	203360	---	4458

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	4470	7.72	93	1170	2.38	7.5	564	1.79	3.3
2	4220	7.38	84	1300	1.99	7.0	419	1.46	2.1
3	4520	7.05	86	1060	1.60	4.6	437	.975	1.5
4	9200	7.57	190	1230	1.37	4.5	370	.508	.65
5	17700	6.81	330	1200	1.23	4.0	479	.120	.18
6	13500	6.59	240	1170	1.07	3.4	397	<.100	.07
7	16500	6.90	310	1180	.931	3.0	402	<.100	.07
8	22900	6.87	430	1130	.763	2.3	199	<.100	.04
9	19900	6.44	350	1390	.682	2.6	135	<.100	.03
10	16600	6.17	280	1300	.730	2.6	219	<.100	.04
11	12400	6.58	220	1030	.563	1.6	224	<.100	.04
12	9320	6.20	160	1520	.431	1.8	292	<.100	.05
13	7300	5.77	110	1480	.331	1.3	263	<.100	.04
14	5750	5.90	91	1130	.232	.71	201	<.100	.03
15	4250	5.72	66	1250	.200	.68	214	<.100	.05
16	3550	5.47	53	1250	.165	.55	215	<.100	.03
17	2730	5.52	41	991	.100	.27	114	<.100	.02
18	2620	5.26	37	817	.100	.23	176	<.100	.03
19	2050	5.10	28	861	.100	.24	257	<.100	.04
20	2170	5.19	30	716	.100	.20	256	<.100	.04
21	1760	4.94	24	631	.100	.18	191	<.100	.03
22	1770	4.39	21	654	.102	.19	130	<.100	.02
23	2200	4.59	27	773	.176	.40	190	<.100	.03
24	1490	4.24	17	2000	.133	.70	60	<.100	.01
25	1520	4.09	17	1900	.599	2.8	185	<.100	.02
26	1610	4.01	17	1540	2.48	10	225	<.100	.03
27	1560	3.61	15	1420	5.21	20	50	<.100	.01
28	1380	3.22	12	1090	6.58	20	37	<.100	.01
29	1430	2.95	11	780	4.99	12	25	<.100	.01
30	1270	2.68	9.2	710	3.58	7.7	17	<.100	.01
31	---	---	---	735	2.68	6.0	---	---	---
TOTAL	197640	---	3399.2	35408	---	129.05	6943	---	8.53
		JULY			AUGUST			SEPTEMBER	
1	40	<.100	.01	645	<.100	.09	531	.105	.16
2	70	<.100	.01	1330	<.100	.18	552	<.100	.07
3	88	<.100	.01	1120	<.100	.15	808	<.100	.14
4	91	<.100	.01	726	.130	.25	931	.192	.50
5	88	<.100	.01	575	.131	.20	1050	.269	.76
6	88	<.100	.01	415	.186	.21	970	.311	.82
7	97	<.100	.01	337	.447	.40	973	.373	.98
8	96	<.100	.01	267	1.04	.73	802	.260	.57
9	97	<.100	.01	286	.827	.61	642	<.100	.11
10	111	<.100	.01	342	.597	.55	463	<.100	.06
11	170	<.100	.04	374	.463	.47	419	<.100	.06
12	113	<.100	.03	369	.400	.40	423	<.100	.11
13	106	<.100	.01	557	.400	.60	515	<.100	.12
14	139	<.100	.02	601	.400	.65	374	<.100	.08
15	172	<.100	.02	489	.401	.53	332	<.100	.06
16	50	<.100	.01	420	.462	.53	280	<.100	.04
17	90	<.100	.01	479	.433	.56	420	<.100	.06
18	80	<.100	.01	452	.398	.49	302	<.100	.04
19	167	<.100	.02	401	.333	.36	261	.164	.12
20	242	<.100	.03	350	.300	.28	626	.321	.57
21	1100	<.100	.15	354	.300	.29	546	.464	.68
22	889	<.100	.12	455	.267	.32	578	.498	.78
23	845	<.100	.11	725	.262	.53	879	.433	1.0
24	971	<.100	.13	803	.298	.65	606	.393	.65
25	1080	<.100	.15	670	.232	.41	504	.175	.24
26	720	<.100	.10	824	.201	.45	532	.237	.34
27	590	<.100	.08	532	.266	.38	452	.260	.32
28	642	<.100	.09	566	.533	.83	327	.262	.23
29	604	<.100	.08	593	.549	.89	356	.298	.29
30	535	<.100	.07	492	.398	.53	409	.231	.25
31	797	<.100	.11	598	.326	.52	---	---	---
TOTAL	10968	---	1.49	17147	---	14.04	16863	---	10.21
YEAR	1078680		20184.80						

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	263	1.8	1.33	737	2.1	4.40	6280	1.6	27.2
2	369	2.2	2.25	654	2.1	3.93	5460	1.6	23.6
3	210	2.2	1.32	795	1.8	3.98	4230	1.6	18.3
4	182	2.1	1.13	576	1.9	3.11	5140	1.7	23.1
5	260	2.0	1.49	736	1.8	3.80	4740	1.5	19.2
6	320	2.0	1.85	389	1.8	2.06	3680	1.4	14.0
7	460	1.9	2.47	353	1.7	1.75	3170	1.5	12.5
8	488	1.7	2.32	533	1.6	2.46	3160	1.3	11.1
9	345	1.5	1.52	824	1.5	3.54	4310	1.4	15.9
10	264	1.4	1.10	783	1.4	3.21	5560	1.3	19.2
11	298	1.5	1.27	755	1.5	3.19	6460	1.5	25.6
12	331	1.4	1.36	1470	1.4	5.71	6420	1.2	20.2
13	380	1.5	1.61	1410	1.4	5.38	5810	1.2	19.3
14	361	1.6	1.63	954	1.5	3.91	5110	1.2	16.8
15	403	1.6	1.85	518	1.6	2.43	9240	2.4	67.4
16	359	1.6	1.66	398	1.7	2.07	23500	2.8	177
17	403	1.7	2.03	548	1.7	2.83	22300	2.7	163
18	300	1.9	1.63	588	1.9	3.22	15900	2.1	90.6
19	212	1.7	1.12	278	1.8	1.54	11200	1.9	57.3
20	243	1.4	1.04	301	1.7	1.59	11100	1.9	55.4
21	419	1.3	1.62	457	1.6	2.26	16300	1.8	78.9
22	255	1.4	1.10	343	1.7	1.77	16000	1.6	67.9
23	241	1.6	1.15	393	1.7	2.04	12800	1.5	52.2
24	290	1.6	1.40	315	1.5	1.50	9520	1.5	38.9
25	321	1.7	1.60	667	1.4	2.69	7880	1.5	31.6
26	307	1.7	1.52	3240	1.5	12.9	7370	1.2	23.7
27	693	1.6	3.22	4200	1.6	17.7	6760	1.2	21.3
28	1100	1.7	5.31	4620	1.5	19.3	6320	1.2	20.4
29	940	1.9	5.06	4260	1.8	20.3	6130	1.2	19.1
30	1290	2.0	6.89	5140	1.7	22.9	7690	1.1	23.1
31	741	1.9	4.03	---	---	---	7610	1.1	21.9
TOTAL	13048	---	64.88	37235	---	167.47	267150	---	1275.7
		JANUARY			FEBRUARY			MARCH	
1	5860	1.0	16.3	5230	1.4	20.1	4210	1.1	12.5
2	4330	.99	11.5	8030	1.2	26.8	3650	.96	9.49
3	3200	.95	8.19	11700	1.4	44.3	3250	.97	8.50
4	2700	.92	6.67	9700	1.6	41.0	2950	1.0	7.96
5	2250	1.0	6.28	7970	1.6	34.3	2700	1.0	7.27
6	2000	1.0	5.58	4790	1.4	18.7	2480	.93	6.23
7	2150	1.1	6.20	3460	1.3	11.8	2810	.90	6.83
8	2300	1.1	6.82	2880	1.3	9.94	2900	.90	7.05
9	1950	1.0	5.44	2550	1.3	8.95	5420	.97	14.2
10	1700	1.1	4.90	2300	1.3	8.07	10800	.93	27.2
11	1550	1.2	4.85	2100	1.3	7.38	11400	.95	29.1
12	1400	1.1	4.13	1950	1.4	7.17	9670	1.0	26.7
13	1250	1.0	3.37	1850	1.2	5.97	8900	1.1	27.3
14	1150	1.0	3.11	1750	1.2	5.83	8460	1.3	28.7
15	1050	1.1	3.02	1700	1.2	5.73	7340	1.2	24.4
16	950	.96	2.47	2230	1.2	6.98	6020	1.2	18.9
17	889	.98	2.35	2800	1.0	7.80	4680	1.1	13.9
18	2120	1.2	6.96	4480	1.1	12.9	3930	1.1	11.7
19	3360	1.3	11.5	5260	1.2	16.6	3240	1.1	9.55
20	3720	1.4	14.4	7300	1.3	25.2	3040	.82	6.71
21	4550	1.5	18.6	10500	1.4	40.7	3240	.85	7.40
22	6410	1.8	31.4	13300	1.4	50.6	2740	.81	6.03
23	4890	1.9	24.6	17000	1.6	72.9	2730	.82	6.04
24	3650	1.8	17.7	19000	1.7	89.7	3450	1.1	10.4
25	2900	1.8	13.8	17000	1.7	77.8	14700	1.6	63.4
26	2350	2.1	13.5	9100	1.6	39.9	19200	1.8	95.7
27	1900	2.0	10.4	6500	1.4	24.4	16100	1.9	82.9
28	1600	1.8	7.71	5600	1.2	18.6	11900	2.0	63.1
29	1420	1.7	6.52	5000	1.1	15.1	8920	1.8	43.1
30	1720	1.6	7.51	---	---	---	7080	1.5	28.6
31	2590	1.5	10.3	---	---	---	5450	1.4	20.6
TOTAL	79859	---	296.08	193030	---	755.22	203360	---	731.46

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	4470	1.4	16.8	1170	1.5	4.77	564	2.1	3.76
2	4220	1.0	11.9	1300	1.8	6.19	419	1.8	2.58
3	4520	.98	12.0	1060	1.9	5.56	437	1.8	2.61
4	9200	1.5	38.9	1230	1.7	5.65	370	2.0	2.56
5	17700	2.1	102	1200	1.7	5.39	479	2.1	3.34
6	13500	2.3	82.8	1170	1.8	5.55	397	1.8	2.53
7	16500	1.8	82.8	1180	1.7	5.32	402	1.6	2.16
8	22900	2.4	149	1130	1.7	5.11	199	1.9	1.32
9	19900	2.4	127	1390	1.8	6.66	135	1.9	.94
10	16600	2.1	95.2	1300	1.7	5.86	219	1.5	1.13
11	12400	1.8	61.9	1030	1.5	4.28	224	1.4	1.11
12	9320	1.5	37.5	1520	1.4	5.88	292	1.6	1.50
13	7300	1.3	26.2	1480	1.5	5.89	263	1.5	1.29
14	5750	1.2	19.1	1130	1.6	4.78	201	1.5	1.01
15	4250	1.1	13.0	1250	1.6	5.42	214	1.5	1.06
16	3550	1.1	10.6	1250	1.6	5.29	215	1.6	1.03
17	2730	1.2	9.07	991	1.4	3.74	114	1.5	.55
18	2620	1.1	7.61	817	1.4	3.09	176	1.5	.78
19	2050	.97	5.37	861	1.3	3.20	257	1.4	1.02
20	2170	1.1	6.25	716	1.2	2.52	256	1.6	1.16
21	1760	1.0	4.92	631	1.1	2.08	191	1.6	.85
22	1770	1.1	5.09	654	1.0	2.00	130	1.5	.55
23	2200	1.1	6.55	773	1.2	2.63	190	1.5	.79
24	1490	1.2	4.67	2000	1.3	7.05	60	1.5	.26
25	1520	1.0	4.14	1900	1.5	7.52	185	1.4	.67
26	1610	.97	4.22	1540	1.5	6.25	225	1.5	.88
27	1560	1.1	4.50	1420	1.5	5.77	50	1.7	.27
28	1380	1.2	4.36	1090	1.6	4.99	37	1.6	.25
29	1430	1.3	5.14	780	1.8	4.28	25	1.7	.26
30	1270	1.3	4.60	710	2.0	4.39	17	1.6	.25
31	---	---	---	735	2.1	4.68	---	---	---
TOTAL	197640	---	963.19	35408	---	151.79	6943	---	38.47
		JULY			AUGUST			SEPTEMBER	
1	40	1.6	.25	645	1.4	2.51	531	2.1	2.92
2	70	1.6	.38	1330	1.5	5.58	552	2.0	2.94
3	88	1.7	.40	1120	1.5	4.69	808	1.7	3.61
4	91	1.4	.35	726	2.4	4.77	931	1.8	4.67
5	88	1.4	.32	575	2.8	4.27	1050	1.7	4.90
6	88	1.5	.36	415	2.3	2.58	970	1.5	4.06
7	97	1.8	.47	337	1.9	1.75	973	1.5	4.01
8	96	1.6	.42	267	1.6	1.16	802	1.7	3.72
9	97	1.7	.45	286	1.4	1.10	642	2.0	3.55
10	111	1.9	.56	342	1.3	1.23	463	2.1	2.61
11	170	1.8	.82	374	1.3	1.31	419	2.0	2.25
12	113	1.6	.48	369	1.2	1.22	423	2.1	2.43
13	106	1.6	.45	557	1.1	1.71	515	2.0	2.79
14	139	1.6	.60	601	1.1	1.79	374	1.8	1.78
15	172	1.7	.80	489	1.4	1.78	332	2.0	1.84
16	50	1.7	.30	420	1.5	1.74	280	1.9	1.47
17	90	1.8	.53	479	1.5	1.94	420	2.6	3.00
18	80	1.9	.45	452	1.4	1.75	302	2.8	2.27
19	167	1.8	.81	401	1.3	1.45	261	2.1	1.45
20	242	1.7	1.09	350	1.4	1.29	626	1.9	3.22
21	1100	1.6	4.75	354	1.4	1.34	546	2.0	2.89
22	889	1.5	3.54	455	1.5	1.86	578	2.0	3.12
23	845	1.5	3.36	725	1.8	3.61	879	1.9	4.44
24	971	1.7	4.44	803	1.9	4.12	606	1.9	3.05
25	1080	1.7	4.86	670	1.8	3.31	504	1.9	2.58
26	720	1.5	2.87	824	1.9	4.28	532	1.6	2.24
27	590	1.4	2.22	532	1.8	2.60	452	1.7	2.04
28	642	1.3	2.21	566	1.8	2.69	327	2.0	1.78
29	604	1.6	2.54	593	1.6	2.64	356	2.2	2.08
30	535	1.8	2.64	492	1.7	2.22	409	2.1	2.36
31	797	1.6	3.51	598	1.7	2.81	---	---	---
TOTAL	10968	---	47.23	17147	---	77.10	16863	---	86.07
YEAR	1078680		4653.18						

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	263	.200	.15	737	.167	.35	6280	.219	3.72
2	369	.199	.20	654	.177	.33	5460	.217	3.19
3	210	.179	.11	795	.171	.38	4230	.214	2.44
4	182	.183	.099	576	.196	.33	5140	.223	3.09
5	260	.173	.13	736	.189	.39	4740	.201	2.59
6	320	.156	.14	389	.172	.20	3680	.169	1.68
7	460	.156	.21	353	.142	.15	3170	.155	1.33
8	488	.139	.19	533	.137	.21	3160	.168	1.43
9	345	.130	.13	824	.131	.31	4310	.196	2.30
10	264	.130	.10	783	.130	.29	5560	.189	2.84
11	298	.130	.11	755	.130	.28	6460	.190	3.32
12	331	.137	.13	1470	.130	.52	6420	.213	3.70
13	380	.177	.19	1410	.144	.55	5810	.213	3.34
14	361	.197	.20	954	.177	.47	5110	.203	2.80
15	403	.199	.23	518	.197	.30	9240	.527	15.6
16	359	.165	.17	398	.183	.22	23500	.726	46.1
17	403	.157	.18	548	.157	.26	22300	.656	39.7
18	300	.159	.14	588	.160	.28	15900	.521	22.5
19	212	.140	.091	278	.146	.13	11200	.430	13.0
20	243	.123	.090	301	.133	.12	11100	.405	12.1
21	419	.106	.13	457	.123	.17	16300	.387	17.0
22	255	.086	.068	343	.114	.12	16000	.377	16.3
23	241	.093	.069	393	.129	.15	12800	.380	13.2
24	290	.093	.081	315	.100	.098	9520	.365	9.43
25	321	.083	.080	667	.101	.19	7880	.250	5.32
26	307	.072	.067	3240	.127	1.13	7370	.243	4.83
27	693	.090	.18	4200	.162	1.84	6760	.229	4.19
28	1100	.107	.33	4620	.175	2.18	6320	.219	3.74
29	940	.124	.32	4260	.214	2.47	6130	.209	3.46
30	1290	.146	.51	5140	.248	3.43	7690	.198	4.12
31	741	.171	.36	---	---	---	7610	.188	3.87
TOTAL	13048	---	5.185	37235	---	17.848	267150	---	272.23
		JANUARY			FEBRUARY			MARCH	
1	5860	.179	2.83	5230	.324	4.65	4210	.212	2.41
2	4330	.169	1.97	8030	.322	6.97	3650	.186	1.83
3	3200	.161	1.39	11700	.311	9.81	3250	.180	1.58
4	2700	.153	1.11	9700	.354	9.25	2950	.166	1.32
5	2250	.163	.99	7970	.301	6.54	2700	.153	1.12
6	2000	.163	.88	4790	.243	3.14	2480	.157	1.04
7	2150	.153	.89	3460	.209	1.96	2810	.149	1.13
8	2300	.150	.93	2880	.184	1.43	2900	.141	1.10
9	1950	.150	.79	2550	.187	1.29	5420	.166	2.47
10	1700	.143	.66	2300	.197	1.22	10800	.173	5.06
11	1550	.140	.59	2100	.193	1.09	11400	.175	5.37
12	1400	.140	.53	1950	.190	.999	9670	.180	4.69
13	1250	.133	.45	1850	.183	.91	8900	.180	4.32
14	1150	.130	.40	1750	.173	.82	8460	.180	4.10
15	1050	.130	.37	1700	.170	.78	7340	.167	3.31
16	950	.137	.35	2230	.170	1.02	6020	.159	2.59
17	889	.141	.34	2800	.163	1.23	4680	.150	1.90
18	2120	.172	.99	4480	.167	2.02	3930	.157	1.66
19	3360	.150	1.37	5260	.171	2.43	3240	.153	1.34
20	3720	.179	1.80	7300	.223	4.48	3040	.136	1.12
21	4550	.180	2.20	10500	.264	7.49	3240	.128	1.12
22	6410	.198	3.41	13300	.294	10.5	2740	.120	.88
23	4890	.263	3.45	17000	.389	18.2	2730	.177	1.31
24	3650	.297	2.92	19000	.399	20.4	3450	.238	2.40
25	2900	.278	2.18	17000	.409	18.8	14700	.381	15.2
26	2350	.243	1.54	9100	.386	9.48	19200	.397	20.6
27	1900	.226	1.16	6500	.289	5.07	16100	.407	17.7
28	1600	.214	.93	5600	.243	3.67	11900	.414	13.3
29	1420	.222	.85	5000	.234	3.16	8920	.340	8.25
30	1720	.237	1.10	---	---	---	7080	.253	4.87
31	2590	.237	1.66	---	---	---	5450	.222	3.28
TOTAL	79859	---	41.03	193030	---	158.809	203360	---	138.37

STREAMS TRIBUTARY TO LAKE ERIE

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	4470	.199	2.41	1170	.134	.42	564	.211	.39
2	4220	.176	2.01	1300	.131	.46	419	.254	.36
3	4520	.172	2.10	1060	.122	.35	437	.286	.42
4	9200	.308	8.58	1230	.117	.39	370	.276	.35
5	17700	.603	28.5	1200	.116	.38	479	.250	.40
6	13500	.678	25.0	1170	.120	.38	397	.202	.28
7	16500	.527	23.6	1180	.107	.34	402	.144	.20
8	22900	.651	40.3	1130	.114	.35	199	.199	.14
9	19900	.599	32.2	1390	.145	.54	135	.223	.11
10	16600	.533	24.0	1300	.127	.44	219	.193	.15
11	12400	.452	15.3	1030	.114	.32	224	.187	.14
12	9320	.348	8.80	1520	.123	.50	292	.196	.19
13	7300	.284	5.63	1480	.136	.55	263	.204	.17
14	5750	.249	3.87	1130	.134	.41	201	.222	.14
15	4250	.226	2.59	1250	.136	.46	214	.214	.15
16	3550	.207	1.99	1250	.137	.46	215	.252	.17
17	2730	.238	1.76	991	.143	.39	114	.233	.084
18	2620	.177	1.26	817	.144	.33	176	.220	.11
19	2050	.126	.70	861	.152	.37	257	.227	.17
20	2170	.119	.70	716	.139	.29	256	.251	.18
21	1760	.116	.55	631	.103	.19	191	.263	.14
22	1770	.099	.47	654	.103	.20	130	.290	.11
23	2200	.090	.54	773	.133	.30	190	.331	.17
24	1490	.096	.39	2000	.188	1.03	60	.311	.053
25	1520	.099	.41	1900	.210	1.08	185	.322	.16
26	1610	.117	.51	1540	.223	.93	225	.319	.20
27	1560	.127	.53	1420	.223	.86	50	.269	.044
28	1380	.123	.46	1090	.214	.65	37	.279	.043
29	1430	.120	.46	780	.216	.50	25	.277	.043
30	1270	.120	.41	710	.201	.43	17	.289	.045
31	---	---	---	735	.215	.49	---	---	---
TOTAL	197640	---	236.03	35408	---	14.79	6943	---	5.312
		JULY			AUGUST			SEPTEMBER	
1	40	.293	.046	645	.311	.54	531	.381	.54
2	70	.263	.062	1330	.324	1.17	552	.356	.53
3	88	.231	.055	1120	.306	.93	808	.321	.70
4	91	.252	.062	726	.440	.86	931	.397	1.00
5	88	.248	.059	575	.498	.77	1050	.317	.90
6	88	.200	.048	415	.440	.49	970	.274	.72
7	97	.190	.050	337	.389	.35	973	.254	.67
8	96	.184	.048	267	.344	.25	802	.260	.56
9	97	.187	.049	286	.317	.24	642	.266	.46
10	111	.223	.067	342	.296	.27	463	.255	.32
11	170	.252	.12	374	.270	.27	419	.269	.30
12	113	.184	.056	369	.260	.26	423	.280	.32
13	106	.195	.056	557	.261	.39	515	.221	.31
14	139	.204	.076	601	.285	.47	374	.191	.19
15	172	.213	.098	489	.250	.33	332	.228	.20
16	50	.233	.040	420	.150	.17	280	.239	.18
17	90	.227	.065	479	.133	.17	420	.339	.39
18	80	.244	.059	452	.130	.16	302	.375	.31
19	167	.267	.12	401	.130	.14	261	.279	.20
20	242	.286	.19	350	.124	.12	626	.231	.39
21	1100	.314	.94	354	.127	.12	546	.252	.37
22	889	.358	.85	455	.177	.22	578	.270	.42
23	845	.373	.85	725	.323	.65	879	.283	.67
24	971	.363	.95	803	.352	.76	606	.315	.51
25	1080	.339	.99	670	.289	.51	504	.303	.41
26	720	.311	.61	824	.260	.58	532	.249	.36
27	590	.284	.45	532	.273	.39	452	.208	.25
28	642	.264	.46	566	.266	.41	327	.243	.21
29	604	.272	.44	593	.245	.39	356	.243	.23
30	535	.284	.41	492	.235	.31	409	.233	.26
31	797	.297	.64	598	.301	.49	---	---	---
TOTAL	10968	---	9.016	17147	---	13.18	16863	---	12.88
YEAR	1078680		924.570						

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	263	24	18	737	14	30	6280	61	1040
2	369	26	27	654	13	25	5460	42	617
3	210	16	11	795	5	12	4230	36	417
4	182	17	9.9	576	3	5.1	5140	58	807
5	260	24	18	736	16	35	4740	37	476
6	320	23	21	389	19	23	3680	19	196
7	460	24	32	353	18	19	3170	8	74
8	488	19	27	533	20	33	3160	40	343
9	345	17	18	824	24	56	4310	58	699
10	264	19	15	783	22	50	5560	113	1700
11	298	17	15	755	21	45	6460	123	2150
12	331	22	21	1470	29	116	6420	122	2110
13	380	16	17	1410	29	111	5810	80	1260
14	361	10	10	954	26	69	5110	62	864
15	403	25	29	518	24	37	9240	68	2080
16	359	17	17	398	21	26	23500	522	34100
17	403	19	23	548	21	35	22300	319	19500
18	300	19	17	588	21	38	15900	216	9340
19	212	14	9.1	278	16	14	11200	154	4720
20	243	13	9.4	301	16	15	11100	109	3340
21	419	17	22	457	17	24	16300	151	6640
22	255	11	9.7	343	19	20	16000	70	3030
23	241	9	7.0	393	20	25	12800	62	2150
24	290	13	12	315	22	22	9520	54	1400
25	321	14	14	667	29	64	7880	56	1200
26	307	3	3.1	3240	79	714	7370	49	976
27	693	11	23	4200	109	1240	6760	53	972
28	1100	14	44	4620	125	1560	6320	59	1000
29	940	15	38	4260	85	980	6130	57	940
30	1290	27	95	5140	106	1470	7690	54	1120
31	741	23	49	---	---	---	7610	51	1040
TOTAL	13048	---	681.2	37235	---	6913.1	267150	---	106301
		JANUARY			FEBRUARY			MARCH	
1	5860	48	763	5230	117	1710	4210	40	456
2	4330	46	529	8030	166	3600	3650	32	317
3	3200	43	372	11700	162	5100	3250	31	275
4	2700	41	297	9700	144	3770	2950	32	252
5	2250	39	234	7970	126	2730	2700	32	232
6	2000	37	197	4790	111	1440	2480	31	207
7	2150	35	201	3460	98	914	2810	30	227
8	2300	33	203	2880	86	670	2900	32	248
9	1950	32	169	2550	76	521	5420	60	906
10	1700	36	165	2300	67	414	10800	91	2700
11	1550	31	131	2100	59	332	11400	158	4850
12	1400	33	125	1950	52	271	9670	178	4650
13	1250	15	51	1850	45	226	8900	167	4020
14	1150	13	42	1750	40	188	8460	156	3560
15	1050	14	39	1700	37	171	7340	145	2870
16	950	9	23	2230	49	294	6020	134	2190
17	889	10	24	2800	65	495	4680	126	1590
18	2120	17	109	4480	72	869	3930	123	1310
19	3360	27	265	5260	68	976	3240	117	1020
20	3720	22	224	7300	85	1700	3040	88	718
21	4550	19	260	10500	84	2370	3240	63	552
22	6410	21	372	13300	54	1950	2740	45	339
23	4890	23	313	17000	57	2660	2730	34	249
24	3650	14	140	19000	58	3000	3450	44	489
25	2900	33	258	17000	55	2540	14700	291	12400
26	2350	23	145	9100	52	1280	19200	327	17000
27	1900	31	160	6500	49	865	16100	228	9970
28	1600	30	131	5600	47	704	11900	159	5140
29	1420	26	98	5000	44	593	8920	111	2690
30	1720	27	127	---	---	---	7080	77	1490
31	2590	50	359	---	---	---	5450	54	796
TOTAL	79859	---	6526	193030	---	42353	203360	---	83713

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	4470	38	456	1170	25	79	564	20	36
2	4220	28	316	1300	24	83	419	12	17
3	4520	30	367	1060	20	58	437	8	11
4	9200	62	1780	1230	19	62	370	18	23
5	17700	88	4250	1200	20	65	479	15	24
6	13500	43	1580	1170	13	41	397	16	22
7	16500	43	1950	1180	12	38	402	16	22
8	22900	51	3140	1130	12	36	199	17	12
9	19900	48	2560	1390	11	40	135	22	11
10	16600	42	1910	1300	12	43	219	21	16
11	12400	38	1270	1030	10	29	224	20	15
12	9320	33	838	1520	10	42	292	7	7.4
13	7300	29	581	1480	14	54	263	15	13
14	5750	26	403	1130	30	92	201	15	9.8
15	4250	21	242	1250	33	110	214	15	10
16	3550	14	130	1250	20	69	215	15	9.9
17	2730	15	112	991	26	70	114	15	5.4
18	2620	11	78	817	19	42	176	15	7.8
19	2050	11	63	861	24	58	257	15	11
20	2170	10	61	716	19	39	256	15	11
21	1760	11	52	631	27	49	191	15	7.9
22	1770	11	52	654	25	48	130	15	5.4
23	2200	44	290	773	26	59	190	15	7.9
24	1490	43	174	2000	41	226	60	15	2.6
25	1520	36	147	1900	46	235	185	15	7.5
26	1610	33	146	1540	42	174	225	15	9.2
27	1560	31	132	1420	35	136	50	15	2.4
28	1380	30	110	1090	20	62	37	15	2.3
29	1430	28	107	780	20	46	25	15	2.3
30	1270	26	90	710	21	45	17	15	2.3
31	---	---	---	735	20	44	---	---	---
TOTAL	197640	---	23387	35408	---	2274	6943	---	344.1
		JULY			AUGUST			SEPTEMBER	
1	40	15	2.3	645	24	42	531	15	22
2	70	15	3.5	1330	29	104	552	16	25
3	88	15	3.6	1120	27	81	808	20	43
4	91	15	3.7	726	23	46	931	23	59
5	88	15	3.6	575	21	32	1050	24	69
6	88	15	3.6	415	18	20	970	24	62
7	97	15	3.9	337	16	15	973	23	60
8	96	15	3.9	267	15	11	802	22	48
9	97	15	3.9	286	16	12	642	21	37
10	111	15	4.5	342	17	15	463	21	26
11	170	15	6.9	374	17	18	419	20	22
12	113	15	4.6	369	18	18	423	19	22
13	106	15	4.3	557	19	28	515	18	26
14	139	15	5.6	601	20	32	374	18	18
15	172	15	7.0	489	19	26	332	17	15
16	50	15	2.6	420	19	21	280	17	13
17	90	15	4.3	479	18	23	420	16	18
18	80	15	3.6	452	17	21	302	16	13
19	167	17	7.7	401	17	18	261	16	11
20	242	21	14	350	16	15	626	22	37
21	1100	25	75	354	15	15	546	19	28
22	889	23	56	455	17	21	578	17	27
23	845	23	52	725	22	45	879	24	57
24	971	24	64	803	23	50	606	23	38
25	1080	24	71	670	22	41	504	22	29
26	720	23	45	824	22	50	532	20	29
27	590	23	37	532	16	23	452	19	23
28	642	23	40	566	15	23	327	18	16
29	604	23	38	593	15	24	356	17	16
30	535	23	34	492	15	20	409	16	17
31	797	24	53	598	15	24	---	---	---
TOTAL	10968	---	662.1	17147	---	934	16863	---	926
YEAR	1078680		274952.3						

STREAMS TRIBUTARY TO LAKE ERIE

04194107 LAKE ERIE AT RENO BEACH, OH

LOCATION.-- Lat 41°40'29", long 83°17'32", Lucas County, Hydrologic Unit 04100010, on right bank at mouth of Reno side cut (Coulee Canal) which is Cedar Creek drainage.

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

GAGE.--Water-stage recorder. Datum of gage is 560.00 ft International Great Lakes Datum.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded gage height, 16.02 ft Mar. 4, 1985; minimum recorded gage height 7.70 ft Dec. 2, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 13.88 ft July 20, minimum recorded gage height, 7.72 ft Jan. 8.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.63	10.55	11.17	11.40	10.11	11.30	---	---	12.33	12.13	11.28
2	---	10.77	9.61	10.06	11.70	11.18	11.50	---	---	12.35	11.75	11.87
3	---	11.20	10.06	10.99	11.39	12.47	11.69	---	---	12.30	11.85	11.98
4	---	11.21	10.37	11.03	11.25	11.51	11.76	---	---	12.35	11.56	11.93
5	---	10.78	10.54	11.17	11.23	11.42	11.40	---	---	12.38	12.01	11.57
6	---	9.84	10.41	11.36	10.02	12.72	11.66	---	---	12.33	12.02	11.85
7	---	10.45	10.70	11.27	10.10	12.05	11.75	---	---	12.25	12.10	11.76
8	---	10.89	10.91	8.84	9.12	11.33	11.96	---	---	12.28	12.07	11.62
9	---	11.41	10.36	10.23	10.01	11.11	11.12	---	---	12.16	12.02	11.53
10	---	10.52	10.67	10.77	10.00	11.15	11.04	---	---	11.82	11.86	11.48
11	---	11.03	10.80	11.48	10.40	11.15	11.70	---	---	12.23	12.01	11.68
12	---	11.64	10.93	10.81	10.71	11.16	11.40	---	---	12.43	11.88	11.60
13	---	10.44	10.33	10.73	11.06	11.21	11.62	---	---	12.23	11.82	11.94
14	---	10.95	10.69	11.01	11.11	11.16	11.72	---	---	12.19	11.76	12.32
15	---	11.70	10.27	10.61	11.13	10.19	11.79	---	---	12.29	11.62	11.92
16	---	10.36	10.50	10.52	11.09	10.71	11.83	---	---	12.12	11.74	11.84
17	---	9.08	10.56	10.42	11.16	11.57	11.80	---	---	12.03	12.14	11.34
18	---	10.96	10.28	10.80	11.22	11.20	11.91	---	---	12.11	12.13	11.80
19	---	11.30	10.73	10.74	11.02	11.15	11.77	---	---	12.20	11.72	11.71
20	11.45	11.12	10.41	10.56	11.16	11.36	11.81	---	---	12.83	11.34	11.60
21	11.31	10.75	10.72	10.98	11.17	11.13	11.90	---	---	12.48	11.38	11.68
22	10.92	11.15	11.37	10.70	11.12	11.33	12.00	---	---	12.26	11.59	11.55
23	11.06	11.24	10.22	10.98	11.41	11.53	11.99	---	---	12.19	11.69	11.05
24	9.12	11.18	10.85	11.11	11.23	11.40	11.92	---	---	12.20	11.96	11.64
25	9.92	11.14	10.06	11.94	11.13	11.30	---	---	---	12.21	12.22	11.52
26	10.48	11.24	10.86	10.89	10.79	11.49	---	---	---	12.11	11.99	11.20
27	11.09	10.40	11.10	10.50	10.89	11.27	---	---	---	11.94	11.83	11.61
28	9.55	9.74	10.15	10.85	10.98	11.11	---	---	---	12.43	11.78	11.29
29	10.63	10.67	10.49	11.02	---	11.49	---	---	---	12.47	11.53	10.96
30	11.03	10.08	10.74	10.88	---	11.59	---	---	12.40	12.41	11.38	11.60
31	11.08	---	10.85	10.73	---	11.24	---	---	---	12.34	11.78	---
MEAN	---	10.80	10.55	10.81	10.89	11.32	---	---	---	12.27	11.83	11.62
MAX	---	11.70	11.37	11.94	11.70	12.72	---	---	---	12.83	12.22	12.32
MIN	---	9.08	9.61	8.84	9.12	10.11	---	---	---	11.82	11.34	10.96

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. 6-26, Jan. 4-6, Feb. 10-21, 25-28, Mar. 1-7. 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).--57 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)
Apr. 5	1200	*5,500	*10.19	June 4	2130	3,550	8.38
May 27	2200	5,180	9.92				

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

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	33	94	269	374	75	1430	176	2360	58	387	50
2	17	31	81	176	279	66	839	150	1370	52	216	88
3	17	31	72	108	205	61	1760	143	878	49	135	70
4	20	34	66	80	146	59	4430	133	2950	55	97	40
5	18	323	60	100	141	60	5350	131	2700	46	85	28
6	18	1040	54	125	150	66	3050	159	1210	44	89	25
7	18	736	48	824	157	76	1420	199	662	45	70	27
8	17	493	44	2850	160	126	964	339	409	43	56	28
9	17	366	42	2420	118	100	722	364	296	37	44	29
10	16	414	39	1030	97	68	576	312	216	34	36	160
11	15	535	38	499	90	76	448	392	157	32	40	222
12	14	367	37	346	85	74	379	335	133	32	49	117
13	16	350	36	423	82	74	332	325	263	32	35	77
14	16	423	35	392	79	72	287	617	623	31	32	61
15	17	306	35	316	76	78	264	546	927	30	31	89
16	17	239	35	261	74	87	249	390	790	29	31	141
17	18	234	34	201	73	87	221	349	587	27	30	312
18	105	194	34	185	71	157	457	275	367	24	29	266
19	384	151	34	196	70	500	527	232	318	22	25	154
20	304	295	35	248	78	417	442	219	701	1190	30	100
21	145	1010	37	232	100	358	343	256	497	2660	38	70
22	100	772	38	159	226	395	276	260	316	1050	46	56
23	82	467	40	176	250	358	225	230	378	449	41	46
24	88	300	42	154	180	283	192	521	246	220	35	38
25	103	217	44	127	160	240	184	665	162	128	31	31
26	88	173	47	209	125	205	322	2910	122	1360	26	27
27	66	152	64	1800	100	175	319	4720	102	1200	21	22
28	55	137	370	1040	84	1090	245	3420	90	1290	26	17
29	46	116	911	609	---	1530	231	1040	82	1040	33	16
30	40	102	574	557	---	1020	216	554	67	492	37	15
31	36	---	407	471	---	2020	---	1720	---	476	25	---
TOTAL	1932	10041	3527	16583	3830	10053	26700	22082	19979	12277	1906	2422
MEAN	62.3	335	114	535	137	324	890	712	666	396	61.5	80.7
MAX	384	1040	911	2850	374	2020	5350	4720	2950	2660	387	312
MIN	14	31	34	80	70	59	184	131	67	22	21	15
CFSM	.15	.78	.27	1.25	.32	.76	2.08	1.66	1.56	.93	.14	.19
IN.	.17	.87	.31	1.44	.33	.87	2.32	1.92	1.74	1.07	.17	.21

CAL YR 1988 TOTAL 59203.3 MEAN 162 MAX 2050 MIN 6.5 CFSM .38 IN. 5.15 (+) 6.1 MEAN ≠ 156 CFSM ≠ .36 IN ≠ 4.95
WTR YR 1989 TOTAL 131332 MEAN 360 MAX 5350 MIN 14 CFSM .84 IN. 11.41 (+) 6.0 MEAN ≠ 354 CFSM ≠ .83 IN ≠11.23

(+)	6.4	5.8	5.5	5.7	6.0	5.7	6.1	6.2	5.8	6.3	6.4	6.4
MEAN ≠	55.9	329	108	529	131	318	884	706	660	390	55.1	74.3
CFSM ≠	.13	.77	.25	1.24	.31	.74	2.07	1.65	1.54	.91	.13	.17
IN ≠	.15	.86	.29	1.42	.32	.86	2.30	1.90	1.72	1.05	.15	.19

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

04195825 LACARPE CREEK NEAR OAK HARBOR, OH

LOCATION.--Lat 41°31'15", long 83°12'11", Ottawa County, Hydrologic Unit 04100010, 30 ft downstream of Lickert Harder Road, 2.3 mi upstream of outlet bypass to Portage River and 2.8 mi west of Oak Harbor.

DRAINAGE AREA.--2.95 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 590 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 21-23, 26, 27. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 87 ft³/s May 31, 1989, gage height, 8.14 ft, minimum daily discharge, no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3.0 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	0530	58	6.80	June 4	0100	59	6.84
May 26	0815	63	7.07	July 21	0930	30	5.34
May 31	1045	*87	*8.14				

Minimum daily discharge, no flow many days.

REVISIONS.--Revised figures of discharge for water years 1988, superseding those published in the report for 1988 are given below.

EXTREMES FOR 1988 WATER YEAR.--Peak discharges greater than base discharge of 30 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 15	1130	*52	*6.51	Mar. 25	1315	31	5.56
Feb. 19	2400	Ice Jam	*6.51				

Minimum daily discharge, no flow many days.

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	---	---	4.0	4.5	6.0	2.2	.55	.00	.00	.00	.00	.00
2	---	---	7.6	2.3	4.9	1.8	.48	.00	.00	.00	.00	.00
3	---	---	3.9	1.2	2.3	1.4	1.7	.00	.00	.00	.00	.00
4	---	---	7.6	.54	1.6	1.1	7.6	.00	.00	.00	.00	.00
5	---	---	5.9	.27	1.0	.88	2.6	.00	.00	.00	.00	.00
6	---	---	3.3	.15	.70	1.0	1.7	.00	.00	.00	.00	.00
7	---	---	2.0	.07	.25	1.1	5.2	.00	.00	.00	.00	.00
8	---	---	8.6	.03	.15	1.9	3.7	.00	.00	.00	.00	.00
9	---	---	17	.02	.10	4.2	1.8	.00	.00	.00	.00	.00
10	---	---	9.2	.00	.10	3.0	1.1	.00	.00	.00	.00	.00
11	---	---	5.1	.00	.10	2.1	.77	.00	.00	.00	.00	.00
12	---	---	7.7	.00	.10	1.9	.51	.00	.00	.00	.00	.00
13	---	.00	4.0	.00	.10	1.9	.35	.00	.00	.00	.00	.00
14	---	.00	2.2	.00	.10	1.5	.25	.00	.00	.00	.00	.00
15	---	.00	31	.00	4.0	.95	.13	.00	.00	.00	.00	.00
16	---	.00	17	.00	16	.60	.03	.00	.00	.00	.00	.00
17	---	.00	6.9	.49	8.0	.48	.00	.00	.00	.00	.00	.00
18	---	.00	3.7	1.2	3.0	.52	.00	.00	.00	.00	.00	.00
19	---	.00	2.6	.88	9.0	.55	.00	.00	.00	.00	.00	.00
20	---	.00	18	3.4	35	.52	.00	.00	.00	.00	.00	.00
21	---	.00	8.8	2.0	18	.34	.00	.00	.00	.00	.00	.00
22	---	.00	4.6	.85	8.5	.31	.00	.00	.00	.00	.00	.00
23	---	.00	2.7	.42	13	.57	.00	.00	.00	.00	.00	.00
24	---	.00	2.2	.32	9.0	16	.00	.00	.00	.00	.00	.00
25	---	3.2	4.3	.21	6.0	22	.00	.00	.00	.00	.00	.00
26	---	6.8	3.8	.41	4.3	9.8	.00	.00	.00	.00	.00	.00
27	---	2.4	2.4	.20	3.5	3.7	.00	.00	.00	.00	.00	.00
28	---	1.2	2.9	.03	3.3	1.8	.00	.00	.00	.00	.00	.00
29	---	5.7	6.5	.05	2.8	1.3	.00	.00	.00	.00	.00	.00
30	---	4.1	3.9	1.1	---	.93	.00	.00	.00	.00	.00	.00
31	---	---	3.4	1.7	---	.59	---	.00	---	.00	.00	---
TOTAL	---	---	212.8	22.34	160.90	86.94	28.47	0.00	0.00	0.00	0.00	0.00
MEAN	---	---	6.86	.72	5.55	2.80	.95	.00	.00	.00	.00	.00
MAX	---	---	31	4.5	35	22	7.6	.00	.00	.00	.00	.00
MIN	---	---	2.0	.00	.10	.31	.00	.00	.00	.00	.00	.00
CFSM	---	---	2.33	.24	1.88	.95	.32	.00	.00	.00	.00	.00
IN.	---	---	2.68	.28	2.03	1.10	.36	.00	.00	.00	.00	.00

04195825 LACARPE CREEK NEAR OAK HARBOR, OH--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.34	.43	.00	6.7	.75	66	.00	.32	.92
2	.00	.00	.00	.18	.20	.00	5.4	.60	47	.02	.19	1.7
3	.00	.00	.00	.06	.07	.00	25	.55	36	.05	.10	1.4
4	.00	.00	.00	.0	.00	.00	40	.42	51	.05	.02	.73
5	.00	3.6	.00	.00	.00	.00	21	.47	30	.05	.00	.30
6	.00	8.3	.00	.42	.00	.00	12	.53	15	.01	.00	.09
7	.00	5.6	.00	3.4	.00	.00	8.5	3.3	6.1	.00	.00	.04
8	.00	3.7	.00	7.9	.00	.00	6.4	7.0	2.5	.00	.00	.01
9	.00	2.5	.00	2.2	.00	.00	5.9	3.6	1.3	.00	.00	.00
10	.00	5.2	.00	.81	.00	.00	4.7	2.0	.78	.00	.00	.02
11	.00	4.2	.00	.39	.00	.00	3.8	1.2	.39	.00	.00	.07
12	.00	2.2	.00	.34	.00	.00	3.3	1.0	.48	.00	.00	.20
13	.00	4.9	.00	.43	.00	.00	3.1	7.0	1.5	.00	.00	.27
14	.00	4.1	.00	.27	.00	.00	2.8	14	1.5	.00	.00	.30
15	.00	2.1	.00	.24	.00	.00	3.1	7.5	1.7	.00	.00	.59
16	.00	1.5	.00	.11	.00	.00	3.3	3.8	20	.00	.00	2.3
17	.00	1.0	.00	.01	.00	.00	3.5	2.1	19	.00	.00	9.2
18	5.3	.59	.00	.0	.00	2.0	11	1.4	7.1	.00	.00	7.6
19	3.8	.35	.00	.11	.00	.80	11	1.1	2.7	.00	.00	4.0
20	1.5	4.1	.00	.29	.00	.43	7.8	1.6	19	3.3	.00	1.7
21	.73	8.3	.00	.19	.00	.45	5.9	2.1	14	27	.00	.85
22	.35	4.0	.00	.07	.00	.32	4.4	1.3	4.9	19	.00	.54
23	.16	2.2	.00	.01	.00	.23	3.4	1.7	1.9	9.2	.00	.37
24	.30	1.3	.00	.00	.00	.20	2.7	5.2	.97	3.2	.00	.23
25	.44	.81	.00	.00	.00	.18	3.3	5.6	.61	1.1	.00	.14
26	.25	.55	.00	.76	.00	.11	4.5	53	.43	.71	.00	.06
27	.04	.44	.00	1.3	.00	.58	3.3	41	.35	.58	.00	.00
28	.00	.27	4.7	.60	.00	20	2.3	23	.27	1.0	.00	.00
29	.00	.09	2.8	.83	---	10	1.8	9.6	.12	1.0	.00	.00
30	.00	.00	1.2	1.0	---	11	1.2	4.7	.01	.68	.00	.00
31	.00	---	.66	.63	---	11	---	78	---	.47	.00	---
TOTAL	12.87	71.90	9.36	22.89	0.70	57.30	221.1	285.12	352.61	67.42	0.63	33.63
MEAN	.42	2.40	.30	.74	.025	1.85	7.37	9.20	11.8	2.17	.020	1.12
MAX	5.3	8.3	4.7	7.9	.43	20	40	78	66	27	.32	9.2
MIN	.00	.00	.00	.00	.00	.00	1.2	.42	.01	.00	.00	.00
CFSM	.14	.81	.10	.25	.01	.63	2.50	3.12	3.98	.74	.01	.38
IN.	.16	.91	.12	.29	.01	.72	2.79	3.60	4.45	.85	.01	.42

CAL YR 1988 TOTAL 400.62 MEAN 1.09 MAX 35 MIN .00 CFSM .37 IN. 5.05
WTR YR 1989 TOTAL 1135.53 MEAN 3.11 MAX 78 MIN .00 CFSM 1.05 IN. 14.32

04195830 BAYOU DITCH NEAR OAK HARBOR, OH

LOCATION.--Lat 41°30'48", long 83°11'01", Ottawa County, Hydrologic Unit 04100010, on right bank, 30 ft upstream of Salem-Harris Road, 1.5 mi upstream of outlet bypass to Portage River, and 1.8 mi west of Oak Harbor.

DRAINAGE AREA.--2.82 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 590 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Feb. 14, 15, 21, 22, Apr. 2-4, 23-30, May 1-9. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 75 ft³/s May 31, 1989, gage height, 6.26 ft, no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20.0 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	unknown	45	unknown	May 31	0600	*75	*6.26
May 26	0600	57	5.22	June 3	2130	25	3.21

Minimum daily discharge, no flow many days.

REVISIONS.--Revised figures of discharge for water year 1988, superseding those published in the report for 1988 are given below.

EXTREMES FOR 1988 WATER YEAR.--Peak discharges greater than base discharge of 20 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	0100	ice jam	*5.08	Mar. 25	1530	*21	3.98

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	---	---	---	2.3	5.3	1.6	.64	.00	.00	.00	.00	.00
2	---	---	---	1.5	4.0	1.4	.60	.00	.00	.00	.00	.00
3	---	---	---	.90	2.5	1.2	1.5	.00	.00	.00	.00	.00
4	---	---	---	.60	1.7	1.0	3.7	.00	.00	.00	.00	.00
5	---	---	---	.30	1.1	.90	3.0	.00	.00	.00	.00	.00
6	---	---	---	.15	.74	.96	2.0	.00	.00	.00	.00	.00
7	---	---	---	.07	.43	1.1	3.5	.00	.00	.00	.00	.00
8	---	---	---	.02	.33	2.0	3.0	.00	.00	.00	.00	.00
9	---	---	---	.00	.19	3.2	2.0	.00	.00	.00	.00	.00
10	---	---	---	.00	.10	2.7	1.4	.00	.00	.00	.00	.00
11	---	---	---	.00	.10	2.2	.90	.00	.00	.00	.00	.00
12	---	---	---	.00	.10	2.0	.70	.00	.00	.00	.00	.00
13	---	---	---	.00	.10	1.8	.50	.00	.00	.00	.00	.00
14	---	---	---	.00	.70	1.5	.40	.00	.00	.00	.00	.00
15	---	---	---	.00	3.0	1.0	.25	.00	.00	.00	.00	.00
16	---	---	---	.02	11	.80	.15	.64	.00	.00	.00	.00
17	---	---	---	.04	8.0	.52	.12	.52	.00	.00	.00	.00
18	---	---	3.2	.09	3.0	.43	.14	.07	.00	.00	.00	.00
19	---	---	2.9	.24	6.0	.56	.09	.02	.00	.00	.00	.00
20	---	---	10	.60	20	.45	.05	.02	.00	.00	.00	.00
21	---	---	4.6	3.1	14	.39	.02	.02	.00	.00	.00	.00
22	---	---	3.2	2.5	9.0	.35	.01	.02	.00	.00	.00	.00
23	---	---	3.0	1.7	5.4	.50	.00	.01	.00	.00	.00	.00
24	---	---	2.6	1.1	4.0	7.3	.00	.00	.00	.00	.00	.00
25	---	---	2.4	.56	3.2	14	.00	.00	.00	.00	.00	.00
26	---	---	2.4	.38	2.8	7.7	.00	.00	.00	.00	.00	.00
27	---	---	2.3	.20	2.3	3.4	.00	.00	.00	.00	.00	.00
28	---	---	2.5	.13	2.1	2.5	.00	.00	.00	.00	.00	.00
29	---	---	3.6	.10	1.9	1.5	.00	.00	.00	.00	.00	.00
30	---	---	3.1	.09	---	1.1	.00	.00	.00	.00	.00	.00
31	---	---	2.5	.50	---	3.0	---	.00	---	.00	.00	---
TOTAL	---	---	---	17.19	113.09	69.06	24.67	1.32	0.00	0.00	0.00	0.00
MEAN	---	---	---	.55	3.90	2.23	.82	.043	.00	.00	.00	.00
MAX	---	---	---	3.1	20	14	3.7	.64	.00	.00	.00	.00
MIN	---	---	---	.00	.10	.35	.00	.00	.00	.00	.00	.00
CFSM	---	---	---	.20	1.38	.79	.29	.02	.00	.00	.00	.00
IN.	---	---	---	.23	1.49	.91	.33	.02	.00	.00	.00	.00

04195830 BAYOU DITCH NEAR OAK HARBOR, OH--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.03	.08	.00	4.2	.94	24	.51	.01	.61
2	.00	.00	.00	.01	.01	.00	3.6	.85	11	.54	.01	.04
3	.00	.00	.00	.00	.00	.00	25	.78	9.5	.54	.00	.00
4	.00	.00	.00	.00	.00	.00	35	.85	12	.40	.00	.00
5	.00	3.1	.00	.00	.00	.00	14	1.0	5.2	.26	.00	.00
6	.00	5.2	.00	.66	.00	.00	7.9	1.3	3.6	.19	.00	.00
7	.00	2.2	.00	3.6	.00	.00	5.6	2.5	2.6	.17	.00	.00
8	.00	1.3	.00	9.8	.00	.00	4.4	9.0	2.1	.17	.00	.00
9	.00	.76	.00	1.3	.00	.00	4.0	8.0	1.9	.17	.00	.00
10	.00	3.0	.00	.26	.00	.00	3.4	7.0	1.4	.14	.00	.00
11	.00	1.9	.00	.04	.00	.00	3.1	6.3	1.2	.13	.00	.00
12	.00	.92	.00	.14	.00	.00	2.8	6.3	1.7	.11	.00	.00
13	.00	2.7	.00	.14	.00	.00	2.6	13	2.5	.10	.00	.00
14	.00	2.0	.00	.06	.00	.00	2.5	13	3.1	.09	.92	.00
15	.00	.94	.00	.05	.00	.00	2.7	9.9	3.7	.10	.45	.00
16	.00	.73	.00	.00	.00	.00	2.7	8.3	7.1	.11	.00	1.2
17	.00	.57	.00	.00	.00	.00	2.8	8.5	3.6	.09	.00	2.1
18	3.0	.15	.00	.00	.00	10	6.1	7.9	2.5	.09	.00	.62
19	1.7	.06	.00	.06	.00	6.1	5.6	7.8	2.3	.09	.00	.17
20	.45	4.5	.00	.13	.00	4.6	4.4	8.5	4.6	1.5	.00	.06
21	.04	6.7	.00	.02	.00	4.5	3.8	7.9	2.8	2.4	.00	.03
22	.00	2.0	.00	.02	.00	3.8	3.4	7.3	2.1	.73	.00	.01
23	.00	1.1	.00	.00	.00	3.2	3.1	9.1	1.7	.21	.00	.02
24	.07	.55	.00	.00	.00	2.9	3.0	10	1.5	.09	.00	.01
25	.06	.27	.00	.00	.00	2.7	3.4	10	1.3	.07	.00	.01
26	.00	.14	.00	1.2	.00	2.3	4.1	41	1.2	.09	.00	.00
27	.00	.11	.00	.96	.00	2.6	3.5	20	1.1	.05	.00	.00
28	.00	.02	5.0	.27	.00	12	2.1	12	.97	.10	.00	.00
29	.00	.00	1.6	.59	---	5.2	1.8	7.2	.59	.03	.00	.00
30	.00	.00	.53	.62	---	6.9	1.3	2.9	.43	.02	.00	.00
31	.00	---	.13	.24	---	6.3	---	50	---	.01	.00	---
TOTAL	5.32	40.92	7.26	20.20	0.09	73.10	171.9	299.12	119.29	9.30	1.39	4.88
MEAN	.17	1.36	.23	.65	.003	2.36	5.73	9.65	3.98	.30	.045	.16
MAX	3.0	6.7	5.0	9.8	.08	12	35	50	24	2.4	.92	2.1
MIN	.00	.00	.00	.00	.00	.00	1.3	.78	.43	.01	.00	.00
CFSM	.06	.48	.08	.23	.00	.84	2.03	3.42	1.41	.11	.02	.06
IN.	.07	.54	.10	.27	.00	.96	2.27	3.95	1.57	.12	.02	.06

CAL YR 1988 TOTAL 278.83 MEAN .76 MAX 20 MIN .00 CFSM .27 IN. 3.68
WTR YR 1989 TOTAL 752.77 MEAN 2.06 MAX 50 MIN .00 CFSM .73 IN. 9.93

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. 10-26, Feb. 8-19, 24-28, Mar. 1-5. Records good except estimated daily discharges, which are fair. 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 154.0 m gal, equivalent to a mean annual withdrawal of 0.65 ft³/s; short term releases totaled 42.4 m gal, equivalent to a mean annual release of 0.18 ft³/s. Water-quality data collected at this site 1968 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--25 years, 177 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)
May 28	0030	*4,050	*8.05

No other peak greater than base discharge.

Minimum daily discharge, 0.09 ft³/s Oct. 14-16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	19	7.5	158	56	32	1050	105	196	299	132	3.4
2	.31	13	7.0	118	46	28	902	82	145	141	76	3.7
3	.41	7.8	7.1	106	44	26	797	65	210	85	44	3.2
4	.38	5.5	7.1	61	37	25	1340	57	370	61	30	2.2
5	.34	9.6	6.1	28	32	40	1630	54	852	48	167	1.3
6	.27	10	4.7	36	24	211	1650	66	793	38	59	3.1
7	.27	6.9	4.3	173	26	247	870	86	340	31	28	3.5
8	.27	5.3	4.1	921	16	139	504	90	203	26	19	2.6
9	.23	4.7	3.3	1060	10	115	372	80	127	22	12	1.5
10	.18	24	2.1	682	7.6	75	353	108	82	18	8.8	2.7
11	.19	36	1.4	218	6.6	60	264	227	65	65	7.5	1.5
12	.19	45	1.1	141	6.0	81	196	214	50	132	5.8	1.4
13	.12	38	.90	131	5.8	101	153	181	75	37	4.5	1.0
14	.09	38	.75	142	6.8	95	122	208	75	20	3.7	2.2
15	.09	31	.61	114	8.4	85	108	256	78	15	3.5	5.4
16	.09	23	.55	92	10	88	100	198	78	15	3.7	9.8
17	.15	17	.48	85	14	76	82	156	127	12	3.0	17
18	1.1	15	.44	81	18	56	71	138	153	8.9	1.6	21
19	.72	12	.40	89	27	57	66	101	86	7.9	1.2	14
20	.73	23	.46	103	49	67	80	80	58	22	1.8	11
21	.59	52	.54	95	94	173	98	72	48	59	1.7	7.9
22	.89	72	.64	73	334	405	80	111	45	73	1.4	7.8
23	.89	79	.80	51	454	245	68	156	44	60	1.3	6.6
24	1.0	51	1.1	47	190	142	57	527	35	37	2.3	3.8
25	2.5	31	1.8	42	115	106	51	1030	27	20	2.6	2.1
26	10	22	2.5	48	84	86	76	1740	23	45	7.8	1.4
27	8.5	17	5.2	104	58	69	163	3100	125	65	17	1.2
28	7.0	13	69	129	40	62	130	3330	1020	262	10	1.2
29	27	11	231	108	---	71	105	1810	1410	180	6.3	.86
30	29	8.8	423	78	---	242	119	600	1190	262	3.9	.30
31	27	---	263	64	---	792	---	291	---	245	2.1	---
TOTAL	120.67	740.6	1058.97	5378	1819.2	4097	11657	15319	8130	2411.8	668.5	144.66
MEAN	3.89	24.7	34.2	173	65.0	132	389	494	271	77.8	21.6	4.82
MAX	29	79	423	1060	454	792	1650	3330	1410	299	167	21
MIN	.09	4.7	.40	28	5.8	25	51	54	23	7.9	1.2	.30

CAL YR 1988 TOTAL 26975.85 MEAN 73.7 MAX 1380 MIN .01
WTR YR 1989 TOTAL 51545.40 MEAN 141 MAX 3330 MIN .09

04197020 HONEY CREEK NEAR NEW WASHINGTON, OH

LOCATION.--Lat 40°57'37", long 82°47'19", in SE 1/4, sec. 7, T.22 N., R.20 W., Crawford County, Hydrologic Unit 04100011, on left bank 250 ft downstream from State Route 103 bridge and 3.4 mi east of New Washington.

DRAINAGE AREA.--17 mi².

PERIOD OF RECORD.--June 1979 to current year (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 940.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 11-21, Jan. 3-5 and Feb. 6-13. Records are fair.

AVERAGE DISCHARGE.--10 years, 16.0 ft³/s, 12.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,810 ft³/s June 13, 1981, gage height, 20.13 ft, from rating curve extended above 325 ft³/s on basis of step backwater analysis; minimum, no flow Oct. 17, 1981, July 26, 29-31, 1985, many days in 1988.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	0915	518	15.12	May 26	0645	*1,490	*19.28
May 23	1930	417	14.42	June 4	0100	380	14.14

Minimum daily discharge, .06 ft³/s Oct. 1, 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.38	3.9	8.8	7.5	4.9	55	4.7	20	4.8	1.8	.39
2	.06	.54	3.1	7.1	5.8	4.3	30	4.4	20	3.7	1.2	.61
3	.10	.62	1.9	5.0	5.2	3.5	101	4.0	66	3.0	.91	.31
4	.14	.80	1.5	3.3	4.6	3.5	272	3.7	164	2.6	5.6	.18
5	.17	1.5	1.4	2.7	4.3	21	92	3.9	49	2.2	9.0	.14
6	.17	1.9	1.4	16	4.0	20	51	5.9	27	1.9	4.7	.16
7	.13	1.8	1.4	62	3.6	13	39	13	16	1.7	2.2	.19
8	.14	1.9	1.4	119	3.3	7.7	28	11	11	2.3	1.2	.25
9	.17	2.4	1.4	35	3.0	5.9	27	8.0	8.4	1.7	.85	.17
10	.17	12	1.2	17	2.9	4.9	19	12	6.2	1.5	.61	.33
11	.17	12	.94	11	2.8	5.2	16	12	4.9	1.2	.39	.46
12	.17	5.0	.76	11	2.8	5.4	14	11	5.7	2.1	.32	.40
13	.17	7.4	.78	12	2.7	4.8	14	19	21	1.5	.39	.20
14	.17	9.4	.82	11	13	5.5	13	21	11	1.1	.39	.42
15	.17	5.5	.80	10	20	7.2	12	14	10	.67	.37	1.2
16	.17	3.9	.76	8.2	22	5.0	10	11	12	.62	.54	.73
17	.21	2.9	.74	7.4	13	4.4	9.2	8.1	8.5	.54	.53	1.2
18	.51	2.3	.72	7.0	14	9.9	9.4	6.6	6.2	.54	.37	.78
19	.41	1.7	.72	7.6	9.1	9.6	9.5	6.0	5.1	1.1	.39	.50
20	.28	12	.70	8.4	7.6	14	8.5	6.8	4.8	2.9	.56	.38
21	.27	36	.90	7.0	43	44	7.5	8.9	4.1	1.5	.97	.26
22	.32	13	1.4	6.5	38	20	6.8	6.8	3.6	1.1	.68	.21
23	.32	9.0	2.0	5.4	16	12	6.2	154	3.1	.70	.94	.27
24	.30	7.5	3.2	4.9	14	9.4	5.7	141	2.6	.48	3.0	.30
25	.32	6.5	3.3	4.4	9.4	7.5	6.0	80	2.4	.32	1.2	.27
26	.32	5.5	2.8	12	7.9	5.8	6.2	675	2.1	.39	.75	.24
27	.32	5.1	2.4	23	5.9	4.9	5.4	115	24	4.4	.43	.18
28	.32	4.5	54	14	5.4	4.5	5.2	61	45	10	.29	.13
29	.32	4.2	33	11	---	11	5.6	41	14	3.1	.27	.11
30	.32	3.9	22	10	---	74	5.5	27	7.0	2.0	.27	.11
31	.32	---	12	8.6	---	67	---	26	---	3.3	.20	---
TOTAL	7.19	181.14	163.34	476.3	290.8	419.8	889.7	1521.8	584.7	64.96	41.32	11.08
MEAN	.23	6.04	5.27	15.4	10.4	13.5	29.7	49.1	19.5	2.10	1.33	.37
MAX	.51	36	54	119	43	74	272	675	164	10	9.0	1.2
MIN	.06	.38	.70	2.7	2.7	3.5	5.2	3.7	2.1	.32	.20	.11
CFSM	.01	.36	.31	.90	.61	.80	1.74	2.89	1.15	.12	.08	.02
IN.	.02	.40	.36	1.04	.64	.92	1.95	3.33	1.28	.14	.09	.02

CAL YR 1988 TOTAL 2464.83 MEAN 6.73 MAX 116 MIN .00 CFSM .40 IN. 5.39
WTR YR 1989 TOTAL 4652.13 MEAN 12.7 MAX 675 MIN .06 CFSM .75 IN. 10.18

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. 11-22, Feb. 7-12 and Apr. 19-28. Records good except those for estimated daily discharges which are fair. Water-quality data collected at this site 1976 to 1977, 1988 to 1989.

AVERAGE DISCHARGE.--13 years, 129 ft³/s, 11.76 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)
May 27	0630	*2,110	*8.18	No other peaks greater than base discharge.			

Minimum daily discharge .12 ft³/s Oct. 1-11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	1.9	25	80	58	34	482	35	227	58	35	2.1
2	.12	1.9	22	57	48	31	341	29	221	42	26	2.5
3	.12	1.9	20	39	40	29	505	28	286	34	19	1.3
4	.12	2.0	19	60	30	26	1130	25	956	28	18	1.6
5	.12	4.3	17	42	27	47	1190	24	892	25	48	1.5
6	.12	5.0	15	44	24	102	689	28	449	20	71	1.2
7	.12	6.7	15	234	22	57	420	48	210	18	42	1.0
8	.12	11	9.1	826	20	84	276	66	128	13	25	.88
9	.12	8.4	8.0	778	19	50	209	61	91	12	16	.75
10	.12	16	6.9	380	19	37	174	66	69	11	11	1.0
11	.12	73	6.2	153	18	33	127	77	54	9.8	7.6	1.1
12	.13	66	5.2	98	18	33	99	75	52	9.5	5.5	.80
13	.13	39	5.6	104	19	32	89	108	162	9.1	4.0	.68
14	.13	40	6.0	86	30	33	82	139	225	10	3.3	1.5
15	.13	43	5.8	71	126	40	78	110	226	8.3	2.8	4.1
16	.13	30	5.6	63	196	49	79	79	303	6.6	2.7	4.5
17	.18	21	5.4	54	167	39	68	61	322	4.8	2.2	6.9
18	1.2	17	5.3	48	87	47	67	49	144	3.7	1.9	4.6
19	.44	13	5.2	47	66	69	66	41	81	3.9	1.8	2.9
20	.85	28	5.1	56	52	64	60	35	57	11	2.2	2.2
21	.91	156	5.0	53	125	109	54	36	45	39	2.3	1.7
22	1.1	186	6.8	40	322	192	48	39	37	58	2.0	1.3
23	1.1	96	9.6	39	223	117	44	183	34	29	2.2	.91
24	1.6	58	16	31	85	83	40	725	30	17	2.3	.79
25	1.5	42	26	28	85	70	41	737	23	11	1.8	.71
26	1.5	33	26	72	66	60	43	1690	19	9.1	2.8	.66
27	1.4	31	25	217	56	52	38	1980	24	49	3.7	.63
28	2.3	34	173	152	43	50	36	1180	208	156	2.6	.63
29	2.2	30	392	94	---	53	39	672	250	159	1.9	.65
30	1.9	27	287	80	---	142	38	398	101	71	1.5	.66
31	1.9	---	145	69	---	431	---	279	---	44	1.2	---
TOTAL	22.05	1122.1	1323.8	4195	2091	2295	6652	9103	5926	979.8	369.3	51.75
MEAN	.71	37.4	42.7	135	74.7	74.0	222	294	198	31.6	11.9	1.72
MAX	2.3	186	392	826	322	431	1190	1980	956	159	71	6.9
MIN	.12	1.9	5.0	28	18	26	36	24	19	3.7	1.2	.63
CFSM	.00	.25	.29	.91	.50	.50	1.49	1.97	1.33	.21	.08	.01
IN.	.01	.28	.33	1.05	.52	.57	1.66	2.27	1.48	.24	.09	.01

CAL YR 1988 TOTAL 18016.99 MEAN 49.2 MAX 900 MIN .07 CFSM .33 IN. 4.50
WTR YR 1989 TOTAL 34130.80 MEAN 93.5 MAX 1980 MIN .12 CFSM .63 IN. 8.52

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 1988.
NITROGEN, NITRITE + NITRATE: October 1987 to September 1988
NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1988.
PHOSPHORUS: October 1987 to September 1988.
SUSPENDED SEDIMENT DISCHARGE: October 1987 to September 1988.

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 64 mg/L Sept. 27, 1988; minimum daily mean, 15 mg/L Feb. 20, June 21, 1988.
DISSOLVED CHLORIDE LOADS: Maximum daily, 57.4 tons Feb. 2, 1988; minimum daily, .01 tons on several days during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 10.4 mg/L Feb. 3, 1988; minimum daily mean, .414 mg/L Nov. 4, 1987.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 20.0 tons Feb. 2, 1988; minimum daily, .00 ton on many days during 1988 water year.
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 7.8 tons March 10, 1988; minimum daily, .000 ton on several days during 1988 water year.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .802 mg/L March 26, 1988; minimum daily mean <.010 mg/L Nov. 13, 14, 15, 1987.
TOTAL PHOSPHORUS LOADS: Maximum daily 1.74 tons March 26, 1988; minimum daily, .000 ton on many days during 1988 water year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 359 mg/L March 26, 1988; minimum daily mean, 2 mg/L Oct. 25, 28, Nov. 1, Dec. 1, 3, 1987.
SEDIMENT LOADS: Maximum daily, 792 tons March 26, 1988; minimum daily, .00 ton on several days during 1988 water year.

EXTREMES FOR CURRENT YEAR.--Water quality data unavailable--will be published in 1990 WDR.

EXTREMES FOR 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 64 mg/L Sept. 27; minimum daily mean, 15 mg/L Feb. 20, June 21.
DISSOLVED CHLORIDE LOADS: Maximum daily, 57.4 tons Feb. 2; minimum daily, .01 ton on several days during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 10.4 mg/L Feb. 3; minimum daily mean, .414 mg/L Nov. 4.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 20.0 tons Feb. 2; minimum daily, .00 ton on many days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 5.4 mg/L March 9, 10; minimum daily mean, .43 mg/L Jan. 4.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 7.8 tons March 10; minimum daily, .000 ton on several days during year.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .802 mg/L March 26; minimum daily mean <.010 mg/L Nov. 13, 14, 15.
TOTAL PHOSPHORUS LOADS: Maximum daily 1.74 tons March 26; minimum daily, .000 ton on many days during year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 359 mg/L March 26; minimum daily mean, 2 mg/L Oct. 25, 28, Nov. 1, Dec. 1, 3.
SEDIMENT LOADS: Maximum daily, 792 tons March 26; minimum daily, .00 ton Sept. 22-30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
Oct. 5	0930	<0.10	June 6	0915	<0.10	Aug. 2	1200	6.00
Oct. 19	1200	<0.10	June 10	1200	<0.10	Aug. 2	2000	7.00
Nov. 2	0925	0.20	June 13	0905	<0.10	Aug. 3	1200	4.10
Nov. 30	0925	0.30	June 20	0920	<0.10	Aug. 5	1200	1.20
Dec. 14	1530	0.70	June 27	0910	<0.10	Aug. 9	0925	<0.10
Jan. 11	0920	<0.10	July 5	0900	<0.10	Aug. 12	1200	<0.10
Jan. 25	0925	0.40	July 9	1200	<0.10	Aug. 15	0915	<0.10
Feb. 8	0940	<0.10	July 11	0900	<0.10	Aug. 19	1200	<0.10
Feb. 22	0930	<0.10	July 15	1200	<0.10	Aug. 22	0905	4.60
Mar. 7	0930	<0.10	July 18	0900	<0.10	Aug. 28	1200	0.60
Mar. 28	0915	102.	July 22	1200	<0.10	Aug. 29	0915	0.60
Apr. 11	0935	<0.10	July 25	0900	<0.10	Sept. 2	1200	0.30
May 2	0930	0.70	July 29	1200	<0.10	Sept. 9	1200	0.60
May 9	0905	0.40	Aug. 1	0900	<0.10	Sept. 12	1010	<0.10
May 16	0900	0.80	Aug. 1	1200	.90	Sept. 19	0915	<0.10
May 23	0900	1.70	Aug. 1	2000	2.90			
May 31	0900	0.20	Aug. 2	0400	3.60			

04197100 HONEY CREEK AT MELMORE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1.7	27	.36	5.9	45	1.74	9.1	39	1.35
2	1.6	27	.35	4.7	43	1.48	11	40	1.44
3	1.5	25	.32	3.4	43	1.30	13	43	1.79
4	1.5	27	.38	2.6	39	1.05	18	48	2.52
5	1.7	34	.50	2.2	37	.95	20	42	2.33
6	1.5	27	.38	1.7	38	.92	21	43	2.47
7	1.8	26	.44	1.7	36	.87	20	49	2.59
8	1.9	27	.48	1.7	37	.87	19	49	2.44
9	1.5	29	.46	2.6	37	.99	32	47	3.98
10	1.1	27	.38	2.6	33	.90	39	45	4.85
11	1.3	28	.46	2.3	34	.89	34	46	4.20
12	1.8	28	.52	2.2	35	.89	34	46	4.24
13	1.7	28	.54	2.5	38	1.03	49	44	5.77
14	1.9	26	.54	2.6	38	1.03	41	44	4.81
15	2.1	27	.60	2.3	36	.95	57	41	6.22
16	2.1	30	.68	2.3	35	.91	202	36	19.5
17	1.7	30	.62	2.3	34	.88	162	35	15.2
18	1.6	31	.64	2.1	33	.82	69	38	7.06
19	1.5	32	.66	1.7	31	.74	47	39	4.92
20	1.2	33	.65	1.5	30	.69	101	36	9.54
21	1.1	33	.63	1.5	29	.66	233	35	22.0
22	1.0	32	.63	1.2	30	.63	139	38	14.1
23	1.5	32	.71	1.1	32	.65	75	39	7.87
24	1.7	31	.72	1.1	33	.66	54	39	5.61
25	2.6	30	.83	2.4	36	.91	47	38	4.78
26	2.6	30	.81	4.3	33	1.01	49	37	4.93
27	3.8	34	1.09	4.9	33	1.00	49	37	4.94
28	4.6	29	.98	6.7	35	1.17	47	38	4.86
29	4.2	29	.97	7.1	41	1.38	70	38	7.19
30	7.8	31	1.34	7.3	43	1.34	84	38	8.72
31	7.1	37	1.55	---	---	---	62	38	6.40
TOTAL	70.7	---	20.22	88.5	---	29.31	1907.1	---	198.62
		JANUARY			FEBRUARY			MARCH	
1	41	39	4.25	487	23	30.8	55	28	4.13
2	62	39	6.46	750	28	57.4	53	28	4.00
3	42	39	4.42	603	31	50.5	59	27	4.30
4	18	40	1.92	286	31	24.1	60	27	4.37
5	12	43	1.41	141	32	12.3	49	28	3.76
6	9.0	44	1.08	56	35	5.35	51	30	4.07
7	7.6	45	.92	41	35	3.87	72	32	6.12
8	6.6	46	.81	29	34	2.67	247	30	20.2
9	6.2	44	.74	24	34	2.20	506	26	34.9
10	6.0	45	.73	21	33	1.88	540	26	38.5
11	7.2	50	.96	20	33	1.77	319	28	24.0
12	7.8	48	1.00	19	31	1.62	181	29	14.1
13	6.8	46	.85	19	33	1.67	189	29	15.0
14	6.3	47	.80	20	33	1.80	147	32	12.6
15	6.1	47	.78	22	39	2.33	102	32	8.90
16	5.8	44	.69	90	32	7.84	81	32	7.08
17	6.2	45	.75	170	31	14.2	71	32	6.24
18	7.2	40	.77	282	30	22.6	76	32	6.66
19	21	37	2.09	568	27	41.0	90	32	7.88
20	60	30	4.80	900	15	38.7	83	32	7.31
21	117	27	8.45	450	19	23.1	73	32	6.37
22	94	25	6.31	220	24	14.3	70	32	6.13
23	42	28	3.13	170	20	9.29	91	35	8.66
24	13	30	1.05	120	20	6.52	129	34	12.0
25	8.2	31	.69	90	22	5.43	378	28	22.2
26	7.8	33	.69	78	26	5.55	775	20	42.0
27	7.8	32	.68	62	27	4.50	412	26	28.5
28	7.9	32	.69	66	26	4.71	196	29	15.4
29	10	36	.97	58	28	4.31	124	29	9.96
30	33	41	3.55	---	---	---	96	29	7.71
31	119	27	8.39	---	---	---	76	29	6.11
TOTAL	804.5	---	70.83	5862	---	402.31	5451	---	399.16

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	64	28	4.99	15	27	1.28	2.1	35	.28
2	58	29	4.66	13	30	1.26	2.1	26	.22
3	121	29	9.37	12	30	1.18	2.7	25	.25
4	531	21	30.3	12	31	1.15	2.5	24	.23
5	436	20	24.0	11	30	1.06	1.9	23	.18
6	210	23	13.0	11	30	1.04	1.7	28	.21
7	180	23	11.3	11	30	1.04	1.6	27	.19
8	290	22	17.8	11	30	1.01	1.2	23	.14
9	216	24	14.3	10	28	.94	.71	24	.11
10	130	26	9.35	11	28	.98	.94	23	.12
11	95	27	7.29	12	28	1.07	1.2	24	.14
12	76	28	6.01	14	30	1.23	1.3	24	.16
13	63	29	5.08	12	29	1.08	1.3	38	.24
14	53	28	4.21	10	28	.91	1.3	29	.18
15	45	27	3.48	8.7	31	.87	1.1	25	.14
16	39	27	3.00	9.3	34	1.03	1.2	25	.15
17	35	27	2.71	8.5	31	.87	1.1	24	.15
18	33	27	2.59	11	37	1.21	1.1	26	.16
19	31	27	2.41	10	36	1.15	.86	25	.14
20	28	27	2.22	8.8	35	.99	.73	19	.10
21	26	27	2.10	7.4	33	.82	.73	15	.07
22	23	28	1.96	7.0	32	.77	.64	21	.09
23	21	27	1.84	6.5	32	.69	.18	17	.03
24	19	27	1.72	5.4	29	.56	.14	17	.02
25	17	27	1.53	3.9	30	.45	.15	21	.03
26	16	26	1.48	3.9	30	.44	.18	17	.03
27	15	27	1.40	3.5	31	.40	.19	19	.04
28	15	27	1.46	3.0	35	.39	.19	23	.04
29	16	27	1.48	2.7	34	.34	.29	17	.05
30	18	28	1.50	2.5	29	.27	.30	18	.05
31	---	---	---	2.3	29	.25	---	---	---
TOTAL	2920	---	194.54	269.4	---	26.73	31.63	---	3.94
		JULY			AUGUST			SEPTEMBER	
1	.29	25	.07	25	39	2.84	4.6	27	.29
2	.27	18	.05	16	27	1.20	3.0	29	.20
3	.35	17	.05	8.1	26	.52	3.9	35	.32
4	.23	21	.04	4.6	25	.25	3.7	28	.25
5	.17	18	.02	2.7	24	.13	2.5	26	.16
6	.09	18	.01	2.0	23	.09	5.7	24	.35
7	.09	19	.01	1.5	21	.05	7.1	37	.66
8	.09	16	.01	.70	22	.02	4.4	30	.35
9	.09	16	.01	.34	22	.01	2.6	28	.19
10	.12	18	.01	.19	20	.01	1.6	32	.13
11	.33	18	.05	.18	21	.01	.71	46	.09
12	.36	17	.05	.69	21	.04	.57	49	.09
13	.25	20	.04	.85	20	.02	.48	47	.08
14	.24	20	.04	.26	18	.01	.31	60	.06
15	.23	19	.04	.20	18	.01	.24	58	.05
16	.19	27	.04	.19	18	.01	.37	38	.05
17	.17	18	.03	.60	18	.03	.69	36	.10
18	.53	20	.06	2.5	22	.10	.59	49	.12
19	1.1	21	.12	4.4	24	.22	.51	47	.10
20	.66	19	.08	6.3	22	.37	.41	35	.07
21	.83	21	.10	20	32	1.71	.23	34	.04
22	.51	19	.07	9.2	33	.74	.18	37	.04
23	.44	16	.06	6.4	33	.46	.15	31	.02
24	.25	21	.04	4.7	24	.24	.12	29	.02
25	.37	35	.07	3.5	22	.15	.11	32	.02
26	.76	24	.10	3.0	19	.11	.09	41	.01
27	.37	20	.05	2.3	20	.08	.09	64	.02
28	.46	22	.06	5.6	30	.41	.07	53	.01
29	1.5	28	.17	6.1	21	.29	.07	71	.01
30	1.0	33	.16	7.0	21	.34	.08	49	.01
31	1.8	27	.18	6.1	32	.46	---	---	---
TOTAL	14.14	---	1.89	151.20	---	10.93	45.17	---	3.91
YEAR	17614.75		1362.08						

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1.7	1.70	.02	5.9	.910	.04	9.1	2.88	.10
2	1.6	1.62	.02	4.7	.891	.03	11	3.35	.12
3	1.5	1.70	.02	3.4	.537	.02	13	4.38	.18
4	1.5	1.74	.02	2.6	.414	.01	18	5.89	.31
5	1.7	1.58	.02	2.2	.418	.01	20	5.25	.29
6	1.5	1.70	.02	1.7	.567	.01	21	4.24	.25
7	1.8	1.76	.03	1.7	.600	.01	20	4.13	.22
8	1.9	1.63	.03	1.7	.613	.01	19	4.33	.22
9	1.5	1.59	.03	2.6	.603	.02	32	4.58	.39
10	1.1	1.54	.02	2.6	.821	.02	39	4.74	.51
11	1.3	1.71	.03	2.3	1.58	.04	34	4.55	.41
12	1.8	1.38	.03	2.2	1.87	.05	34	4.54	.42
13	1.7	1.12	.02	2.5	.748	.02	49	5.11	.68
14	1.9	.992	.02	2.6	.612	.02	41	7.16	.78
15	2.1	.837	.02	2.3	.625	.02	57	8.45	1.3
16	2.1	.895	.02	2.3	.639	.02	202	8.43	4.6
17	1.7	.974	.02	2.3	.652	.02	162	9.90	4.3
18	1.6	.900	.02	2.1	.666	.02	69	9.73	1.8
19	1.5	.910	.02	1.7	.681	.02	47	9.23	1.2
20	1.2	.924	.02	1.5	.696	.02	101	8.64	2.3
21	1.1	.985	.02	1.5	.764	.02	233	8.88	5.6
22	1.0	1.00	.02	1.2	.800	.02	139	9.61	3.6
23	1.5	1.00	.02	1.1	.800	.02	75	9.33	1.9
24	1.7	1.02	.02	1.1	.812	.02	54	8.88	1.3
25	2.6	1.09	.03	2.4	.887	.02	47	7.84	1.0
26	2.6	.842	.02	4.3	.934	.03	49	7.09	.94
27	3.8	1.90	.06	4.9	1.18	.04	49	7.06	.93
28	4.6	.850	.03	6.7	1.49	.05	47	6.98	.89
29	4.2	.515	.02	7.1	2.47	.08	70	7.25	1.4
30	7.8	.423	.02	7.3	2.92	.09	84	7.12	1.6
31	7.1	.525	.02	---	---	---	62	6.99	1.2
TOTAL	70.7	---	0.73	88.5	---	0.82	1907.1	---	40.74
		JANUARY			FEBRUARY			MARCH	
1	41	6.87	.76	487	7.39	10	55	5.57	.82
2	62	6.74	1.1	750	9.88	20	53	5.12	.74
3	42	6.62	.75	603	10.4	17	59	4.80	.76
4	18	6.54	.32	286	9.77	7.6	60	4.52	.73
5	12	6.70	.22	141	8.98	3.4	49	4.45	.59
6	9.0	6.84	.17	56	8.69	1.3	51	4.66	.64
7	7.6	6.66	.14	41	8.50	.94	72	4.89	.96
8	6.6	6.72	.12	29	8.72	.68	247	5.96	4.0
9	6.2	6.44	.11	24	8.05	.52	506	7.45	10
10	6.0	6.33	.10	21	7.48	.42	540	9.40	14
11	7.2	6.63	.13	20	6.91	.37	319	8.71	7.6
12	7.8	6.49	.14	19	6.42	.33	181	7.71	3.8
13	6.8	6.21	.11	19	6.10	.31	189	7.07	3.6
14	6.3	6.55	.11	20	5.82	.31	147	5.16	2.1
15	6.1	6.58	.11	22	5.72	.34	102	4.80	1.3
16	5.8	5.92	.09	90	5.84	1.4	81	4.71	1.0
17	6.2	5.26	.09	170	6.15	2.8	71	4.64	.91
18	7.2	4.54	.09	282	6.28	4.8	76	4.92	1.0
19	21	4.53	.26	568	6.80	10	90	5.32	1.3
20	60	3.91	.64	900	6.83	17	83	5.37	1.2
21	117	4.37	1.4	450	7.17	8.7	73	5.33	1.1
22	94	4.32	1.1	220	8.43	5.0	70	5.43	1.0
23	42	4.30	.49	170	6.68	3.1	91	5.77	1.4
24	13	4.34	.15	120	6.35	2.1	129	6.04	2.1
25	8.2	4.56	.10	90	6.69	1.6	378	5.51	5.5
26	7.8	4.64	.10	78	6.95	1.5	775	6.35	13
27	7.8	4.85	.10	62	6.87	1.2	412	6.91	7.8
28	7.9	4.80	.10	66	6.50	1.2	196	7.24	3.9
29	10	4.72	.13	58	5.88	.92	124	7.17	2.5
30	33	4.70	.42	---	---	---	96	6.58	1.8
31	119	4.56	1.5	---	---	---	76	5.89	1.2
TOTAL	804.5	---	11.15	5862	---	124.84	5451	---	98.35

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	64	5.25	.93	15	2.22	.10	2.1	1.22	.01
2	58	4.90	.79	13	2.53	.11	2.1	1.20	.01
3	121	4.60	1.5	12	3.07	.12	2.7	1.17	.01
4	531	5.12	7.5	12	2.09	.08	2.5	1.06	.01
5	436	6.07	7.3	11	1.65	.06	1.9	1.15	.01
6	210	6.03	3.5	11	1.55	.05	1.7	1.26	.01
7	180	5.36	2.6	11	1.19	.04	1.6	1.21	.01
8	290	4.94	3.9	11	.843	.03	1.2	1.21	.01
9	216	5.48	3.3	10	.890	.03	.71	1.31	.01
10	130	5.97	2.2	11	1.12	.04	.94	1.47	.01
11	95	5.99	1.6	12	1.39	.05	1.2	1.49	.01
12	76	5.59	1.2	14	1.14	.05	1.3	1.41	.01
13	63	5.01	.89	12	1.11	.04	1.3	1.32	.01
14	53	4.51	.68	10	1.28	.04	1.3	1.21	.01
15	45	4.12	.53	8.7	1.97	.06	1.1	1.21	.01
16	39	3.90	.43	9.3	1.86	.06	1.2	1.30	.01
17	35	3.69	.37	8.5	1.56	.04	1.1	1.39	.01
18	33	3.33	.32	11	1.66	.05	1.1	1.40	.01
19	31	3.01	.27	10	1.67	.05	.86	1.38	.01
20	28	2.85	.23	8.8	2.02	.06	.73	1.36	.01
21	26	2.95	.23	7.4	2.04	.05	.73	1.30	.01
22	23	2.80	.20	7.0	2.30	.05	.64	1.22	.01
23	21	2.66	.18	6.5	2.67	.06	.18	1.29	.00
24	19	2.82	.18	5.4	2.13	.04	.14	1.32	.00
25	17	2.48	.14	3.9	1.84	.03	.15	1.45	.00
26	16	2.24	.13	3.9	1.79	.03	.18	1.32	.00
27	15	2.30	.12	3.5	1.71	.02	.19	1.51	.00
28	15	2.39	.13	3.0	1.69	.02	.19	1.71	.00
29	16	2.37	.13	2.7	1.60	.02	.29	1.87	.01
30	18	2.22	.12	2.5	1.49	.01	.30	1.89	.01
31	---	---	---	2.3	1.38	.01	---	---	---
TOTAL	2920	---	41.60	269.4	---	1.50	31.63	---	0.24
		JULY			AUGUST			SEPTEMBER	
1	.29	1.82	.01	25	.851	.06	4.6	2.19	.02
2	.27	1.87	.01	16	4.04	.18	3.0	2.81	.02
3	.35	1.79	.01	8.1	3.38	.07	3.9	3.52	.03
4	.23	1.60	.00	4.6	2.79	.03	3.7	3.33	.03
5	.17	1.50	.00	2.7	2.31	.01	2.5	2.89	.02
6	.09	1.49	.00	2.0	1.89	.01	5.7	2.77	.04
7	.09	1.40	.00	1.5	1.47	.00	7.1	3.82	.07
8	.09	1.29	.00	.70	1.65	.00	4.4	2.09	.02
9	.09	1.16	.00	.34	1.74	.00	2.6	1.27	.01
10	.12	1.13	.00	.19	1.67	.00	1.6	1.12	.00
11	.33	1.28	.00	.18	1.50	.00	.71	1.19	.00
12	.36	1.46	.00	.69	1.35	.00	.57	1.46	.00
13	.25	1.40	.00	.85	1.43	.00	.48	1.99	.00
14	.24	1.30	.00	.26	1.18	.00	.31	1.94	.00
15	.23	1.21	.00	.20	.940	.00	.24	2.01	.00
16	.19	1.17	.00	.19	1.18	.00	.37	2.19	.00
17	.17	1.04	.00	.60	1.92	.00	.69	2.29	.01
18	.53	1.11	.00	2.5	7.01	.03	.59	2.30	.01
19	1.1	1.75	.01	4.4	1.85	.02	.51	2.17	.00
20	.66	1.73	.01	6.3	.914	.01	.41	2.10	.00
21	.83	1.68	.01	20	1.64	.08	.23	2.09	.00
22	.51	1.46	.01	9.2	3.38	.08	.18	2.01	.00
23	.44	1.30	.00	6.4	2.24	.03	.15	1.97	.00
24	.25	1.42	.00	4.7	2.17	.02	.12	1.78	.00
25	.37	1.23	.00	3.5	2.07	.01	.11	1.55	.00
26	.76	1.51	.01	3.0	1.81	.01	.09	1.69	.00
27	.37	1.07	.00	2.3	1.60	.01	.09	1.84	.00
28	.46	.958	.00	5.6	3.34	.05	.07	1.65	.00
29	1.5	.705	.00	6.1	1.99	.03	.07	1.65	.00
30	1.0	.545	.00	7.0	2.09	.03	.08	1.40	.00
31	1.8	.549	.00	6.1	2.17	.03	---	---	---
TOTAL	14.14	---	0.08	151.20	---	0.80	45.17	---	0.28
YEAR	17614.75		321.31						

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1.7	.70	.009	5.9	.78	.030	9.1	1.5	.051
2	1.6	.70	.009	4.7	.74	.026	11	5.6	.20
3	1.5	.70	.009	3.4	.69	.021	13	6.1	.25
4	1.5	.97	.014	2.6	.62	.017	18	1.3	.067
5	1.7	1.7	.026	2.2	.68	.017	20	1.1	.058
6	1.5	.70	.010	1.7	.69	.017	21	1.0	.058
7	1.8	.69	.012	1.7	.62	.015	20	.90	.048
8	1.9	.62	.011	1.7	.70	.017	19	.84	.042
9	1.5	.68	.011	2.6	.68	.018	32	.96	.083
10	1.1	.72	.010	2.6	.61	.016	39	1.1	.11
11	1.3	.84	.014	2.3	.67	.018	34	.98	.089
12	1.8	.72	.013	2.2	.62	.016	34	.96	.089
13	1.7	.76	.015	2.5	.68	.018	49	1.1	.15
14	1.9	.64	.013	2.6	.69	.019	41	1.0	.11
15	2.1	.68	.015	2.3	.67	.018	57	.89	.13
16	2.1	.70	.016	2.3	.66	.017	202	1.1	.61
17	1.7	.71	.015	2.3	.64	.017	162	.91	.41
18	1.6	.78	.016	2.1	.63	.016	69	.65	.12
19	1.5	.67	.014	1.7	.62	.015	47	.52	.067
20	1.2	.51	.010	1.5	.60	.014	101	.65	.20
21	1.1	.50	.010	1.5	.60	.013	233	1.4	.89
22	1.0	.51	.010	1.2	.53	.011	139	1.5	.57
23	1.5	.58	.013	1.1	.50	.010	75	1.1	.23
24	1.7	.61	.014	1.1	.52	.011	54	1.1	.16
25	2.6	.65	.018	2.4	.66	.017	47	.97	.12
26	2.6	.62	.017	4.3	.61	.019	49	.87	.12
27	3.8	1.1	.035	4.9	.60	.018	49	.77	.10
28	4.6	.78	.027	6.7	.62	.021	47	.80	.10
29	4.2	.77	.026	7.1	.82	.027	70	.95	.18
30	7.8	.71	.031	7.3	1.1	.035	84	.83	.19
31	7.1	.71	.030	---	---	---	62	.71	.12
TOTAL	70.7	---	0.493	88.5	---	0.544	1907.1	---	5.722
		JANUARY			FEBRUARY			MARCH	
1	41	.62	.068	487	2.1	2.74	55	.77	.11
2	62	.53	.089	750	1.7	3.42	53	.84	.12
3	42	.46	.053	603	1.4	2.31	59	1.1	.17
4	18	.43	.021	286	1.4	1.06	60	.67	.11
5	12	.57	.019	141	1.1	.43	49	.69	.092
6	9.0	.60	.015	56	1.0	.15	51	.70	.096
7	7.6	.60	.012	41	1.0	.11	72	2.3	.50
8	6.6	.59	.010	29	1.0	.078	247	4.4	2.98
9	6.2	.52	.009	24	.99	.064	506	5.4	7.43
10	6.0	.59	.010	21	.90	.051	540	5.4	7.80
11	7.2	.68	.013	20	.81	.044	319	4.4	3.82
12	7.8	.77	.016	19	.80	.041	181	3.7	1.79
13	6.8	.72	.013	19	.81	.042	189	2.9	1.50
14	6.3	.77	.013	20	.89	.048	147	.99	.40
15	6.1	.71	.012	22	.92	.055	102	.79	.22
16	5.8	.71	.011	90	1.1	.26	81	.77	.17
17	6.2	.79	.013	170	1.0	.47	71	.76	.15
18	7.2	.81	.016	282	1.1	.84	76	.75	.16
19	21	.97	.057	568	1.3	2.07	90	.74	.18
20	60	1.7	.29	900	2.0	4.86	83	.73	.17
21	117	2.3	.74	450	1.8	2.16	73	.72	.14
22	94	2.0	.53	220	1.6	.96	70	.70	.13
23	42	1.5	.17	170	1.5	.67	91	.70	.18
24	13	1.3	.046	120	1.2	.40	129	.89	.31
25	8.2	1.2	.027	90	1.1	.27	378	2.2	3.69
26	7.8	1.1	.023	78	1.0	.21	775	3.5	7.61
27	7.8	1.0	.021	62	.90	.15	412	1.8	2.13
28	7.9	.99	.021	66	.81	.15	196	1.2	.68
29	10	.94	.025	58	.69	.11	124	.93	.32
30	33	1.1	.10	---	---	---	96	.90	.24
31	119	1.5	.49	---	---	---	76	.87	.19
TOTAL	804.5	---	2.953	5862	---	24.223	5451	---	43.588

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	64	.73	.13	15	.79	.037	2.1	1.1	.009
2	58	.79	.13	13	.80	.034	2.1	1.2	.010
3	121	1.1	.42	12	1.2	.048	2.7	.93	.009
4	531	2.5	3.62	12	.95	.036	2.5	.81	.008
5	436	2.0	2.38	11	.90	.032	1.9	.89	.007
6	210	1.3	.76	11	.91	.032	1.7	1.0	.008
7	180	1.1	.56	11	1.0	.036	1.6	.92	.007
8	290	1.2	.95	11	1.2	.042	1.2	.89	.005
9	216	1.2	.74	10	1.3	.042	.71	.80	.004
10	130	.94	.35	11	1.1	.039	.94	.71	.004
11	95	.83	.22	12	1.0	.038	1.2	.73	.004
12	76	.80	.17	14	.99	.041	1.3	.94	.006
13	63	.80	.14	12	.90	.033	1.3	1.1	.007
14	53	.79	.12	10	.80	.026	1.3	1.0	.006
15	45	.70	.090	8.7	.85	.024	1.1	.92	.005
16	39	.61	.068	9.3	1.0	.031	1.2	.97	.006
17	35	.62	.062	8.5	.86	.024	1.1	.90	.006
18	33	.64	.062	11	.73	.024	1.1	.81	.005
19	31	.67	.060	10	.80	.025	.86	.78	.004
20	28	.61	.050	8.8	.89	.025	.73	.83	.004
21	26	.60	.047	7.4	.87	.022	.73	.90	.005
22	23	.60	.042	7.0	.76	.018	.64	.91	.004
23	21	.61	.042	6.5	.90	.020	.18	.93	.002
24	19	.69	.044	5.4	.90	.017	.14	.71	.001
25	17	.64	.037	3.9	.89	.013	.15	1.2	.002
26	16	.69	.039	3.9	.81	.012	.18	1.2	.002
27	15	.70	.036	3.5	.80	.010	.19	1.5	.003
28	15	.70	.038	3.0	.80	.009	.19	.95	.002
29	16	.70	.038	2.7	.81	.008	.29	.63	.002
30	18	.71	.038	2.5	.91	.009	.30	.59	.002
31	---	---	---	2.3	1.0	.009	---	---	---
TOTAL	2920	---	11.483	269.4	---	0.816	31.63	---	0.149
		JULY			AUGUST			SEPTEMBER	
1	.29	.51	.001	25	1.4	.098	4.6	.73	.008
2	.27	.51	.001	16	1.8	.080	3.0	.87	.006
3	.35	.59	.002	8.1	1.5	.031	3.9	.90	.008
4	.23	.62	.001	4.6	1.3	.013	3.7	.88	.008
5	.17	.75	.001	2.7	1.0	.006	2.5	.95	.006
6	.09	.68	.000	2.0	.97	.004	5.7	1.1	.016
7	.09	.53	.000	1.5	.84	.002	7.1	1.1	.019
8	.09	.61	.000	.70	.90	.001	4.4	.92	.011
9	.09	.82	.000	.34	.89	.000	2.6	.90	.006
10	.12	.84	.001	.19	.81	.000	1.6	.90	.004
11	.33	.85	.002	.18	.79	.000	.71	.90	.002
12	.36	.72	.002	.69	.72	.001	.57	1.4	.002
13	.25	.70	.001	.85	.77	.001	.48	1.5	.002
14	.24	.70	.001	.26	.73	.000	.31	1.6	.002
15	.23	.69	.001	.20	.73	.000	.24	1.1	.001
16	.19	.64	.001	.19	.70	.000	.37	1.5	.002
17	.17	.84	.001	.60	.71	.001	.69	1.0	.003
18	.53	.75	.002	2.5	.80	.004	.59	1.0	.002
19	1.1	.89	.005	4.4	.86	.008	.51	1.3	.003
20	.66	1.0	.004	6.3	.79	.014	.41	1.2	.002
21	.83	.93	.005	20	1.3	.070	.23	1.5	.002
22	.51	.83	.003	9.2	1.3	.030	.18	1.3	.001
23	.44	.80	.003	6.4	1.2	.017	.15	1.3	.001
24	.25	.80	.002	4.7	.93	.009	.12	1.2	.001
25	.37	.87	.002	3.5	.81	.006	.11	.85	.000
26	.76	.80	.003	3.0	.81	.005	.09	.92	.000
27	.37	.72	.002	2.3	.91	.004	.09	.90	.000
28	.46	.80	.002	5.6	1.3	.017	.07	.82	.000
29	1.5	.90	.005	6.1	.80	.011	.07	.97	.000
30	1.0	.96	.005	7.0	.80	.013	.08	1.7	.000
31	1.8	.84	.006	6.1	.79	.011	---	---	---
TOTAL	14.14	---	0.065	151.20	---	0.457	45.17	---	0.118
YEAR	17614.75		90.602						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1.7	.071	.001	5.9	.073	.003	9.1	.171	.006
2	1.6	.060	.001	4.7	.078	.003	11	.172	.006
3	1.5	.051	.001	3.4	.063	.002	13	.197	.008
4	1.5	.074	.001	2.6	.060	.002	18	.272	.014
5	1.7	.157	.002	2.2	.060	.002	20	.312	.017
6	1.5	.060	.001	1.7	.056	.001	21	.296	.017
7	1.8	.059	.001	1.7	.034	.001	20	.250	.013
8	1.9	.051	.001	1.7	.045	.001	19	.213	.011
9	1.5	.050	.001	2.6	.061	.002	32	.270	.023
10	1.1	.052	.001	2.6	.030	.001	39	.332	.036
11	1.3	.064	.001	2.3	.021	.001	34	.257	.023
12	1.8	.045	.001	2.2	.018	.000	34	.223	.021
13	1.7	.039	.001	2.5	<.010	.000	49	.217	.029
14	1.9	.032	.001	2.6	<.010	.000	41	.158	.018
15	2.1	.038	.001	2.3	<.010	.000	57	.252	.042
16	2.1	.040	.001	2.3	.012	.000	202	.376	.21
17	1.7	.040	.001	2.3	.016	.000	162	.295	.13
18	1.6	.041	.001	2.1	.021	.001	69	.219	.041
19	1.5	.036	.001	1.7	.027	.001	47	.172	.022
20	1.2	.021	.000	1.5	.036	.001	101	.205	.064
21	1.1	.021	.000	1.5	.033	.001	233	.414	.26
22	1.0	.028	.001	1.2	.036	.001	139	.264	.10
23	1.5	.033	.001	1.1	.032	.001	75	.162	.033
24	1.7	.064	.002	1.1	.034	.001	54	.149	.022
25	2.6	.076	.002	2.4	.067	.002	47	.123	.016
26	2.6	.043	.001	4.3	.052	.002	49	.110	.015
27	3.8	.208	.007	4.9	.041	.001	49	.099	.013
28	4.6	.089	.003	6.7	.045	.002	47	.087	.011
29	4.2	.051	.002	7.1	.091	.003	70	.216	.042
30	7.8	.041	.002	7.3	.165	.005	84	.359	.082
31	7.1	.043	.002	---	---	---	62	.276	.046
TOTAL	70.7	---	0.043	88.5	---	0.041	1907.1	---	1.391
		JANUARY			FEBRUARY			MARCH	
1	41	.209	.023	487	.456	.61	55	.079	.012
2	62	.158	.026	750	.415	.84	53	.080	.011
3	42	.119	.014	603	.294	.48	59	.080	.013
4	18	.093	.005	286	.229	.18	60	.080	.013
5	12	.090	.003	141	.171	.066	49	.080	.011
6	9.0	.090	.002	56	.132	.020	51	.080	.011
7	7.6	.091	.002	41	.108	.012	72	.094	.019
8	6.6	.097	.002	29	.083	.007	247	.158	.11
9	6.2	.092	.002	24	.080	.005	506	.220	.30
10	6.0	.099	.002	21	.080	.005	540	.201	.29
11	7.2	.095	.002	20	.080	.004	319	.150	.13
12	7.8	.100	.002	19	.080	.004	181	.114	.056
13	6.8	.110	.002	19	.080	.004	189	.107	.055
14	6.3	.119	.002	20	.084	.005	147	.092	.037
15	6.1	.122	.002	22	.121	.007	102	.087	.024
16	5.8	.133	.002	90	.174	.042	81	.085	.019
17	6.2	.116	.002	170	.196	.090	71	.082	.016
18	7.2	.129	.003	282	.194	.15	76	.080	.017
19	21	.162	.010	568	.252	.40	90	.077	.019
20	60	.383	.065	900	.432	1.05	83	.075	.017
21	117	.519	.16	450	.386	.47	73	.073	.015
22	94	.528	.14	220	.275	.16	70	.071	.014
23	42	.347	.040	170	.249	.11	91	.070	.018
24	13	.281	.010	120	.233	.076	129	.082	.029
25	8.2	.199	.004	90	.182	.044	378	.376	.75
26	7.8	.170	.004	78	.142	.030	775	.802	1.74
27	7.8	.150	.003	62	.120	.020	412	.357	.42
28	7.9	.131	.003	66	.100	.018	196	.185	.10
29	10	.126	.003	58	.078	.012	124	.123	.043
30	33	.161	.015	---	---	---	96	.110	.029
31	119	.238	.082	---	---	---	76	.099	.021
TOTAL	804.5	---	0.637	5862	---	4.921	5451	---	4.359

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	64	.082	.015	15	.032	.001	2.1	.171	.001
2	58	.080	.013	13	.033	.001	2.1	.193	.002
3	121	.150	.063	12	.030	.001	2.7	.143	.001
4	531	.529	.78	12	.030	.001	2.5	.161	.002
5	436	.403	.50	11	.031	.001	1.9	.171	.001
6	210	.218	.13	11	.040	.001	1.7	.180	.001
7	180	.168	.083	11	.051	.002	1.6	.135	.001
8	290	.175	.14	11	.067	.002	1.2	.117	.001
9	216	.157	.095	10	.084	.003	.71	.091	.000
10	130	.121	.044	11	.096	.003	.94	.073	.000
11	95	.092	.025	12	.082	.003	1.2	.082	.000
12	76	.080	.017	14	.079	.003	1.3	.106	.001
13	63	.071	.012	12	.068	.003	1.3	.129	.001
14	53	.065	.010	10	.052	.002	1.3	.129	.001
15	45	.058	.007	8.7	.073	.002	1.1	.115	.001
16	39	.042	.005	9.3	.105	.003	1.2	.122	.001
17	35	.040	.004	8.5	.052	.001	1.1	.097	.001
18	33	.039	.004	11	.059	.002	1.1	.103	.001
19	31	.030	.003	10	.061	.002	.86	.083	.000
20	28	.021	.002	8.8	.067	.002	.73	.099	.000
21	26	.020	.002	7.4	.062	.002	.73	.143	.001
22	23	.020	.001	7.0	.072	.002	.64	.144	.001
23	21	.020	.001	6.5	.092	.002	.18	.113	.000
24	19	.020	.001	5.4	.106	.002	.14	.106	.000
25	17	.027	.002	3.9	.099	.001	.15	.137	.000
26	16	.030	.002	3.9	.082	.001	.18	.151	.000
27	15	.030	.002	3.5	.083	.001	.19	.121	.000
28	15	.030	.002	3.0	.106	.001	.19	.102	.000
29	16	.030	.002	2.7	.112	.001	.29	.097	.000
30	18	.030	.002	2.5	.125	.001	.30	.084	.000
31	---	---	---	2.3	.137	.001	---	---	---
TOTAL	2920	---	1.969	269.4	---	0.054	31.63	---	0.019
		JULY			AUGUST			SEPTEMBER	
1	.29	.086	.000	25	.225	.017	4.6	.148	.002
2	.27	.075	.000	16	.326	.014	3.0	.152	.001
3	.35	.087	.000	8.1	.211	.004	3.9	.169	.002
4	.23	.088	.000	4.6	.143	.001	3.7	.134	.001
5	.17	.102	.000	2.7	.121	.001	2.5	.101	.001
6	.09	.091	.000	2.0	.110	.000	5.7	.107	.002
7	.09	.075	.000	1.5	.106	.000	7.1	.147	.003
8	.09	.083	.000	.70	.118	.000	4.4	.122	.001
9	.09	.073	.000	.34	.126	.000	2.6	.111	.001
10	.12	.089	.000	.19	.122	.000	1.6	.110	.000
11	.33	.100	.000	.18	.130	.000	.71	.114	.000
12	.36	.083	.000	.69	.141	.000	.57	.154	.000
13	.25	.081	.000	.85	.155	.000	.48	.125	.000
14	.24	.087	.000	.26	.146	.000	.31	.111	.000
15	.23	.081	.000	.20	.115	.000	.24	.117	.000
16	.19	.083	.000	.19	.106	.000	.37	.158	.000
17	.17	.104	.000	.60	.102	.000	.69	.103	.000
18	.53	.137	.000	2.5	.111	.000	.59	.088	.000
19	1.1	.160	.001	4.4	.123	.001	.51	.158	.000
20	.66	.130	.001	6.3	.109	.002	.41	.114	.000
21	.83	.107	.001	20	.139	.007	.23	.121	.000
22	.51	.107	.000	9.2	.144	.003	.18	.148	.000
23	.44	.122	.000	6.4	.224	.003	.15	.165	.000
24	.25	.110	.000	4.7	.130	.001	.12	.142	.000
25	.37	.099	.000	3.5	.093	.001	.11	.091	.000
26	.76	.088	.000	3.0	.089	.001	.09	.117	.000
27	.37	.073	.000	2.3	.086	.000	.09	.110	.000
28	.46	.083	.000	5.6	.260	.004	.07	.096	.000
29	1.5	.118	.001	6.1	.137	.002	.07	.132	.000
30	1.0	.139	.001	7.0	.162	.003	.08	.293	.000
31	1.8	.101	.001	6.1	.186	.003	---	---	---
TOTAL	14.14	---	0.006	151.20	---	0.068	45.17	---	0.014
YEAR	17614.75		13.545						

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1.7	5	.07	5.9	2	.09	9.1	2	.08
2	1.6	9	.12	4.7	4	.12	11	3	.10
3	1.5	7	.09	3.4	7	.20	13	2	.10
4	1.5	4	.06	2.6	10	.28	18	4	.19
5	1.7	5	.07	2.2	13	.32	20	3	.17
6	1.5	6	.09	1.7	11	.27	21	3	.17
7	1.8	6	.10	1.7	5	.12	20	3	.16
8	1.9	8	.15	1.7	7	.18	19	4	.18
9	1.5	5	.07	2.6	6	.17	32	12	1.1
10	1.1	3	.05	2.6	4	.11	39	11	1.2
11	1.3	3	.05	2.3	5	.13	34	8	.70
12	1.8	3	.07	2.2	8	.20	34	10	.90
13	1.7	7	.13	2.5	4	.11	49	16	2.1
14	1.9	8	.16	2.6	6	.17	41	12	1.3
15	2.1	3	.08	2.3	21	.55	57	27	5.1
16	2.1	4	.09	2.3	15	.40	202	91	50
17	1.7	4	.09	2.3	10	.26	162	54	25
18	1.6	6	.14	2.1	9	.22	69	29	5.4
19	1.5	6	.12	1.7	10	.24	47	26	3.3
20	1.2	5	.11	1.5	17	.38	101	45	16
21	1.1	4	.07	1.5	37	.83	233	76	48
22	1.0	3	.05	1.2	24	.51	139	45	18
23	1.5	4	.08	1.1	14	.29	75	27	5.5
24	1.7	6	.13	1.1	14	.28	54	17	2.5
25	2.6	2	.07	2.4	6	.14	47	13	1.6
26	2.6	3	.08	4.3	5	.16	49	9	1.2
27	3.8	3	.09	4.9	3	.10	49	9	1.2
28	4.6	2	.09	6.7	4	.13	47	10	1.3
29	4.2	4	.14	7.1	4	.13	70	14	2.6
30	7.8	6	.25	7.3	3	.09	84	16	3.6
31	7.1	6	.25	---	---	---	62	19	3.0
TOTAL	70.7	---	3.21	88.5	---	7.18	1907.1	---	201.75
		JANUARY			FEBRUARY			MARCH	
1	41	9	1.0	487	164	224	55	10	1.5
2	62	5	.76	750	150	304	53	9	1.3
3	42	3	.34	603	69	116	59	9	1.4
4	18	3	.15	286	36	29	60	8	1.4
5	12	3	.10	141	24	9.3	49	8	1.1
6	9.0	3	.07	56	16	2.4	51	8	1.1
7	7.6	3	.06	41	11	1.2	72	25	6.2
8	6.6	3	.05	29	7	.55	247	51	35
9	6.2	3	.05	24	5	.30	506	66	88
10	6.0	3	.05	21	3	.18	540	44	65
11	7.2	3	.06	20	3	.16	319	31	27
12	7.8	3	.06	19	3	.15	181	29	14
13	6.8	3	.06	19	3	.15	189	36	18
14	6.3	3	.05	20	3	.16	147	33	13
15	6.1	3	.05	22	3	.18	102	27	7.6
16	5.8	3	.05	90	4	.86	81	17	3.9
17	6.2	3	.05	170	10	4.7	71	10	2.0
18	7.2	4	.07	282	28	22	76	10	2.2
19	21	9	.52	568	84	133	90	14	3.4
20	60	24	4.3	900	172	418	83	12	2.7
21	117	50	16	450	121	147	73	10	2.0
22	94	32	8.4	220	80	47	70	12	2.3
23	42	17	2.0	170	62	29	91	19	4.9
24	13	10	.34	120	47	15	129	23	8.1
25	8.2	5	.12	90	35	8.5	378	269	553
26	7.8	4	.09	78	26	5.5	775	359	792
27	7.8	4	.09	62	20	3.3	412	123	146
28	7.9	4	.08	66	15	2.6	196	61	34
29	10	3	.09	58	12	1.9	124	39	13
30	33	6	.62	---	---	---	96	30	8.0
31	119	38	15	---	---	---	76	26	5.4
TOTAL	804.5	---	50.73	5862	---	1526.09	5451	---	1864.5

STREAMS TRIBUTARY TO LAKE ERIE

04197100 HONEY CREEK AT MELMORE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	64	22	4.0	15	8	.38	2.1	55	.44
2	58	18	3.0	13	11	.45	2.1	44	.36
3	121	78	47	12	17	.67	2.7	29	.29
4	531	346	494	12	28	1.1	2.5	33	.31
5	436	151	188	11	23	.80	1.9	30	.23
6	210	77	46	11	16	.57	1.7	51	.38
7	180	59	30	11	15	.51	1.6	52	.37
8	290	60	48	11	11	.38	1.2	51	.31
9	216	45	27	10	13	.43	.71	34	.15
10	130	33	12	11	11	.39	.94	48	.25
11	95	27	7.4	12	12	.45	1.2	46	.27
12	76	25	5.3	14	17	.69	1.3	53	.34
13	63	23	4.0	12	29	1.1	1.3	49	.31
14	53	22	3.4	10	44	1.4	1.3	50	.31
15	45	16	2.0	8.7	46	1.3	1.1	31	.17
16	39	10	1.1	9.3	49	1.5	1.2	29	.18
17	35	12	1.2	8.5	54	1.5	1.1	55	.34
18	33	14	1.4	11	53	1.8	1.1	57	.35
19	31	10	.88	10	37	1.2	.86	50	.27
20	28	8	.68	8.8	40	1.1	.73	30	.15
21	26	7	.57	7.4	36	.89	.73	29	.15
22	23	8	.56	7.0	46	1.1	.64	39	.18
23	21	8	.55	6.5	57	1.3	.18	40	.07
24	19	8	.53	5.4	62	1.2	.14	69	.10
25	17	7	.37	3.9	59	.90	.15	54	.09
26	16	9	.49	3.9	59	.87	.18	35	.07
27	15	10	.50	3.5	67	.85	.19	38	.07
28	15	5	.27	3.0	72	.80	.19	37	.07
29	16	8	.41	2.7	51	.51	.29	49	.14
30	18	6	.33	2.5	60	.57	.30	45	.13
31	---	---	---	2.3	56	.49	---	---	---
TOTAL	2920	---	930.94	269.4	---	27.20	31.63	---	6.85
		JULY			AUGUST			SEPTEMBER	
1	.29	47	.13	25	77	5.6	4.6	20	.21
2	.27	39	.11	16	51	2.3	3.0	25	.17
3	.35	58	.16	8.1	34	.71	3.9	26	.23
4	.23	69	.13	4.6	25	.26	3.7	19	.17
5	.17	67	.09	2.7	24	.13	2.5	15	.09
6	.09	59	.02	2.0	16	.06	5.7	13	.19
7	.09	63	.03	1.5	21	.05	7.1	13	.24
8	.09	62	.03	.70	24	.02	4.4	17	.19
9	.09	56	.03	.34	23	.01	2.6	16	.11
10	.12	63	.05	.19	22	.01	1.6	14	.06
11	.33	68	.18	.18	25	.01	.71	13	.02
12	.36	68	.19	.69	24	.04	.57	12	.02
13	.25	68	.14	.85	24	.03	.48	11	.02
14	.24	74	.15	.26	20	.01	.31	10	.01
15	.23	67	.13	.20	18	.01	.24	9	.01
16	.19	69	.11	.19	19	.01	.37	8	.01
17	.17	61	.09	.60	20	.03	.69	7	.02
18	.53	55	.16	2.5	29	.13	.59	7	.02
19	1.1	60	.34	4.4	38	.39	.51	6	.01
20	.66	63	.27	6.3	27	1.0	.41	5	.01
21	.83	56	.27	20	35	2.1	.23	5	.01
22	.51	59	.22	9.2	22	.49	.18	5	.00
23	.44	65	.22	6.4	25	.35	.15	4	.00
24	.25	66	.13	4.7	23	.23	.12	4	.00
25	.37	57	.12	3.5	27	.19	.11	3	.00
26	.76	58	.24	3.0	22	.12	.09	3	.00
27	.37	58	.14	2.3	13	.06	.09	3	.00
28	.46	58	.14	5.6	25	.38	.07	3	.00
29	1.5	60	.36	6.1	23	.36	.07	2	.00
30	1.0	66	.31	7.0	23	.39	.08	2	.00
31	1.8	58	.40	6.1	19	.28	---	---	---
TOTAL	14.14	---	5.09	151.20	---	15.76	45.17	---	1.82
YEAR	17614.75		4639.78						

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. 10-21, Jan. 2-5, Feb. 6-12, Feb. 26-Mar. 3, Apr. 5-May 22, May 26-31, Sept. 22-29. Records fair except those for estimated record, which are poor.

AVERAGE DISCHARGE.--6 years (1984-1989), 28.4 ft³/s, 11.15 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 870 ft³/s May 26, gage height 6.58 ft; minimum daily discharge, 0.91 ft³/s October 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	1.2	4.2	8.6	12	5.0	87	10	15	3.4	4.0	1.7
2	1.1	1.2	3.9	6.8	9.2	4.8	29	9.2	17	3.1	2.7	1.3
3	1.0	1.2	3.4	5.6	8.0	4.8	195	8.8	77	2.8	2.0	1.2
4	1.0	1.5	3.3	4.6	6.8	5.1	419	8.0	478	2.8	2.0	1.2
5	1.0	4.9	3.1	4.3	6.2	10	240	13	110	2.7	2.5	1.1
6	1.0	3.8	3.1	11	5.6	16	150	20	28	2.2	2.5	.93
7	.91	2.6	3.0	131	5.4	12	84	48	16	2.0	1.8	1.1
8	.96	2.6	2.9	454	5.0	9.6	62	38	12	2.0	1.5	1.0
9	1.0	2.3	2.7	78	4.8	5.6	52	31	9.3	1.9	1.5	1.4
10	1.1	6.8	2.6	27	4.6	5.3	40	41	7.8	1.8	1.5	2.6
11	1.1	18	2.4	12	4.5	5.3	35	46	6.8	1.8	1.4	1.5
12	1.2	16	2.3	11	4.4	5.6	31	42	7.4	1.8	1.4	1.2
13	1.1	8.5	2.2	15	4.8	5.9	28	64	12	1.8	1.4	1.1
14	1.1	10	2.2	12	6.8	5.7	26	80	15	1.7	1.4	3.1
15	1.2	11	2.4	10	21	7.3	24	58	113	1.7	1.4	3.3
16	1.3	6.0	2.3	9.3	26	8.7	22	42	62	1.7	1.4	4.7
17	1.9	4.5	2.2	8.2	19	7.2	20	32	19	1.7	1.4	3.0
18	3.7	3.6	2.2	7.6	15	9.9	19	24	11	1.5	1.4	2.4
19	1.8	2.7	2.2	8.7	8.2	20	18	18	8.0	1.7	1.4	1.8
20	1.5	20	2.2	11	7.3	12	17	14	6.5	2.1	1.7	1.5
21	1.3	130	2.4	9.0	49	20	15	11	5.3	23	1.4	1.4
22	1.3	49	2.9	7.2	86	27	14	8.0	4.7	9.0	1.4	1.4
23	1.5	16	4.3	6.4	23	15	13	114	4.3	4.0	1.4	1.3
24	1.4	9.6	5.9	5.9	26	10	12	279	3.8	2.6	1.4	1.3
25	1.3	6.9	7.1	6.0	8.2	9.1	12	67	3.3	1.9	1.2	1.3
26	1.2	6.0	6.8	63	7.2	7.9	13	640	3.1	1.7	1.2	1.3
27	1.2	5.3	6.4	121	6.2	7.6	12	400	4.2	11	1.3	1.2
28	1.3	5.7	135	28	5.4	8.6	11	200	14	28	1.3	1.2
29	1.2	5.3	137	17	---	12	11	100	6.4	15	1.3	1.2
30	1.1	4.6	57	16	---	35	11	56	4.2	6.5	1.3	1.2
31	1.1	---	14	14	---	103	---	28	---	5.6	1.2	---
TOTAL	39.80	366.8	433.6	1129.2	395.6	421.0	1722	2550.0	1084.1	150.5	50.7	49.93
MEAN	1.28	12.2	14.0	36.4	14.1	13.6	57.4	82.3	36.1	4.85	1.64	1.66
MAX	3.7	130	137	454	86	103	419	640	478	28	4.0	4.7
MIN	.91	1.2	2.2	4.3	4.4	4.8	11	8.0	3.1	1.5	1.2	.93
CFSM	.04	.35	.40	1.05	.41	.39	1.66	2.38	1.04	.14	.05	.05
IN.	.04	.39	.47	1.21	.43	.45	1.85	2.74	1.17	.16	.05	.05

CAL YR 1988 TOTAL 4421.38 MEAN 12.1 MAX 318 MIN .32 CFSM .35 IN. 4.75
WTR YR 1989 TOTAL 8393.23 MEAN 23.0 MAX 640 MIN .91 CFSM .66 IN. 9.02

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. 8-27, 29-31, Jan. 4-6, Feb. 9-19, and Feb. 25-Mar. 3. Records good except for periods of estimated daily discharge which are poor.

AVERAGE DISCHARGE.--63 years (1923-35, 1938-89), 996 ft³/s, 10.82 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)
May 27	0930	*13,300	*7.07	No other peaks greater than base discharge.			

Minimum daily discharge, 6.7 ft³/s Oct. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	33	131	815	561	380	4370	393	1720	1590	857	63
2	25	42	119	548	471	350	3660	387	1330	724	526	79
3	25	45	118	3120	414	330	3780	362	1380	459	368	73
4	27	47	101	6100	358	321	7860	340	5200	377	282	68
5	24	71	96	2500	314	322	8510	344	5590	335	256	67
6	22	116	90	1400	812	467	6890	385	4380	298	398	68
7	20	147	84	1300	4440	904	5010	509	2510	255	404	63
8	15	165	80	5060	3520	845	2730	810	1430	221	272	60
9	10	158	80	5380	2000	618	1890	850	933	206	196	57
10	7.4	190	78	3420	1300	506	1540	772	685	193	150	71
11	6.7	358	76	1770	1000	425	1300	860	540	163	125	75
12	9.7	456	74	934	860	375	1010	940	466	161	108	68
13	14	387	72	787	780	377	851	1040	548	468	96	59
14	18	354	72	705	700	410	738	1390	956	289	87	56
15	18	317	70	641	610	424	673	1260	1440	196	75	100
16	21	268	70	571	580	431	642	1140	1560	148	74	130
17	20	212	70	494	540	424	585	821	1580	121	72	294
18	54	160	70	459	520	458	604	623	1050	109	68	304
19	58	135	68	444	500	517	620	520	763	103	65	235
20	44	136	68	473	499	511	572	480	574	114	68	161
21	36	624	68	474	525	590	512	449	469	256	85	118
22	38	895	68	429	1560	1210	481	404	494	335	76	97
23	47	618	68	383	1980	1460	433	542	569	302	76	87
24	46	491	68	339	1450	933	389	3760	413	279	74	77
25	43	355	68	315	600	680	376	4960	349	245	71	69
26	43	264	74	495	520	561	382	9500	302	194	66	64
27	39	217	100	1650	450	493	404	12900	264	236	73	57
28	40	188	472	1120	420	497	457	11300	1930	730	85	52
29	43	162	1600	1030	---	487	453	10700	3290	1470	91	47
30	31	141	1100	824	---	638	413	6420	2330	806	100	45
31	38	---	780	674	---	2420	---	2680	---	783	75	---
TOTAL	908.8	7752	6153	44654	28284	19364	58135	77841	45045	12166	5419	2864
MEAN	29.3	258	198	1440	1010	625	1938	2511	1501	392	175	95.5
MAX	58	895	1600	6100	4440	2420	8510	12900	5590	1590	857	304
MIN	6.7	33	68	315	314	321	376	340	264	103	65	45
CFSM	.02	.21	.16	1.15	.81	.50	1.55	2.01	1.20	.31	.14	.08
IN.	.03	.23	.18	1.33	.84	.58	1.73	2.31	1.34	.36	.16	.09

CAL YR 1988 TOTAL 170709.1 MEAN 466 MAX 7000 MIN 6.3 CFSM .37 IN. 5.08
WTR YR 1989 TOTAL 308585.8 MEAN 845 MAX 12900 MIN 6.7 CFSM .68 IN. 9.18

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 September 1988.
NITROGEN, NITRITE + NITRATE: February 1988 to September 1988.
NITROGEN, AMMONIA + ORGANIC: February 1988 to September 1988.
PHOSPHORUS: February 1988 to September 1988.
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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 99 mg/L Sept. 13, 1988; minimum daily mean, 22 mg/L Feb. 24, 1988.
DISSOLVED CHLORIDE LOADS: Maximum daily, 645 tons Feb. 20, 1988; minimum daily, 1.11 tons July 9, 15-18, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 10.3 mg/L Feb. 9, 1988; minimum daily mean, <.100 mg/L on many times during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 140 tons Feb. 2, 1988; minimum daily, .00 ton many days during 1988 water year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.6 mg/L Feb. 3, March 10, Apr. 5, 1988; minimum daily mean, .46 mg/L March 7, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 38.7 tons Feb. 3, 1988; minimum daily, .024 ton July 17, 18, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .565 mg/L Feb. 3, 1988; minimum daily mean <.010 mg/L May 17-22, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily 7.4 tons Feb. 3, 1988; minimum daily, .003 ton on several days during 1988 water year.
SEDIMENT CONCENTRATIONS: Maximum daily nean, 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 CURRENT YEAR.--Data unavailable for some water quality records--will be published in 1990 WDR.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,750 mg/L June 29; minimum daily mean, 1 mg/L Oct. 13, 21, 22, 25.
SEDIMENT LOADS: Maximum daily, 34,500 tons May 27; minimum daily, 0.04 ton Oct. 10, 11, 13.

EXTREMES FOR 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 99 mg/L Sept. 13; minimum daily mean, 22 mg/L Feb. 24.
DISSOLVED CHLORIDE LOADS: Maximum daily, 645 tons Feb. 20; minimum daily, 1.11 tons July 9, 15-18.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 10.3 mg/L Feb. 9; minimum daily mean, <.100 mg/L on many times during year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 140 tons Feb. 2; minimum daily, .00 ton many days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.6 mg/L Feb. 3, March 10, Apr. 5; minimum daily mean, .46 mg/L March 7.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 38.7 tons Feb. 3; minimum daily, .024 ton July 17, 18.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .565 mg/L Feb. 3; minimum daily mean <.010 mg/L May 17-22.
TOTAL PHOSPHORUS LOADS: Maximum daily 8.4 tons Feb. 3; minimum daily, .003 ton on several days during year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 519 mg/L Feb. 20; minimum daily mean, 2 mg/L May 27.
SEDIMENT LOADS: Maximum daily, 9,810 tons Feb. 20; minimum daily, 0.20 ton July 12.

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE 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)
DEC											
20...	1200	134	992	8.6	9.0	5.0	2.2	12.3	100	K13	50
MAR											
10...	1145	510	687	8.4	3.0	1.5	22	15.0	110	140	70
JUN											
07...	1215	2410	430	7.9	30.0	21.0	390	8.9	104	4300	1400
AUG											
16...	1100	81	580	8.8	30.0	23.5	16	10.6	130	M	3100

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	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)
DEC											
20...	430	240	110	37	40	4.5	193	22	190	210	71
MAR											
10...	310	200	82	25	24	2.9	117	7	107	120	47
JUN											
07...	200	80	57	14	6.8	3.9	149	0	121	47	18
AUG											
16...	210	97	50	21	27	5.0	117	12	117	100	44

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)
DEC											
20...	0.4	0.24	637	0.03	4.90	0.04	0.05	1.2	0.02	0.02	<0.01
MAR											
10...	0.3	3.1	436	0.05	9.00	0.13	0.10	1.9	0.09	0.04	0.03
JUN											
07...	0.3	9.0	258	0.09	7.40	0.06	0.04	1.2	0.16	0.07	0.09
AUG											
16...	0.3	0.49	341	<0.01	0.770	0.04	0.01	1.1	0.10	0.01	<0.01

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC											
20...	<10	<1	52	<0.5	<1	1	<3	4	9	<5	19
MAR											
10...	20	<1	41	<0.5	<1	2	<3	6	37	<5	11
JUN											
07...	90	1	34	<0.5	<1	<1	<3	8	97	2	6
AUG											
16...	<10	<1	38	<0.5	<1	<1	<3	9	13	<1	8

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)
DEC										
20...	4	<0.1	<10	4	<1	<1.0	4800	<6	14	41
MAR										
10...	9	<0.1	<10	7	1	<1.0	1500	<6	13	27
JUN										
07...	4	<0.1	<10	3	<1	<1.0	670	<6	4	454
AUG										
16...	3	<0.1	<10	3	<1	<1.0	2000	<6	8	51

K Based on colony count outside the acceptable range

M Presence of material verified but not quanitified

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
Feb. 8	1600	<0.10	June 20	1610	<0.10	Aug. 19	1200	<0.10
Feb. 22	1550	<0.10	June 27	1400	<0.10	Aug. 22	1450	<0.10
Mar. 7	1524	<0.10	July 5	1345	<0.10	Aug. 26	1200	<0.10
Mar. 28	1525	47.1	July 11	1545	<0.10	Aug. 29	1450	<0.10
Apr. 11	1635	<0.10	July 25	1600	<0.10	Sept. 2	1200	<0.10
May 2	1710	0.20	July 29	1200	<0.10	Sept. 5	1250	<0.10
May 9	1630	0.30	Aug. 1	1610	<0.10	Sept. 9	1200	<0.10
May 16	1530	0.40	Aug. 8	1530	<0.10	Sept. 12	1500	<0.10
May 23	1605	0.20	Aug. 12	1200	<0.10	Sept. 19	1650	<0.10
June 13	1530	<0.10	Aug. 15	1530	<0.10			

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	490	36	48.0
2	---	---	---	4930	32	431	450	38	45.7
3	---	---	---	5500	34	507	445	38	45.7
4	---	---	---	4400	33	394	465	41	51.0
5	---	---	---	2500	33	224	436	42	49.5
6	---	---	---	1300	36	127	408	45	49.0
7	---	---	---	740	39	77.1	439	46	54.1
8	---	---	---	570	40	61.7	822	41	91.1
9	---	---	---	500	46	61.6	2840	35	261
10	---	---	---	430	52	60.1	5120	26	365
11	---	---	---	400	48	51.9	4430	25	304
12	---	---	---	370	45	44.9	2990	28	229
13	---	---	---	355	44	42.5	1950	31	164
14	---	---	---	365	45	44.7	1670	35	158
15	---	---	---	520	50	70.1	1300	36	125
16	---	---	---	1150	54	167	925	37	91.2
17	---	---	---	1800	52	251	719	39	76.3
18	---	---	---	3000	48	389	628	41	70.0
19	---	---	---	4800	47	605	619	41	69.2
20	---	---	---	7000	34	645	651	42	73.2
21	---	---	---	3300	26	233	630	44	74.1
22	---	---	---	2050	26	144	583	44	69.9
23	---	---	---	1450	24	93.6	572	44	67.6
24	---	---	---	1100	22	64.7	649	48	84.0
25	---	---	---	900	25	60.7	1030	48	132
26	---	---	---	760	28	57.4	3330	37	328
27	---	---	---	640	30	51.3	2930	34	265
28	---	---	---	560	31	47.4	2050	36	199
29	---	---	---	520	34	47.0	1240	36	120
30	---	---	---	---	---	---	860	35	81.3
31	---	---	---	---	---	---	665	36	64.0
TOTAL	---	---	---	51910	---	5053.7	42336	---	3904.9
		APRIL			MAY			JUNE	
1	566	37	57.0	174	42	25.1	61	54	10.8
2	511	38	52.5	171	42	25.1	59	54	10.6
3	518	42	59.4	167	44	26.0	60	55	10.9
4	2080	38	198	163	44	25.5	55	56	9.93
5	3340	27	241	167	43	25.6	52	56	9.32
6	2270	27	168	181	43	26.5	52	57	9.42
7	1440	31	119	190	43	27.7	48	58	8.98
8	1850	31	154	205	44	29.3	44	58	8.44
9	2010	29	157	220	44	31.3	41	59	7.53
10	1610	30	131	244	44	34.5	39	57	6.90
11	1060	32	92.1	245	44	33.8	37	56	6.42
12	769	34	69.9	251	44	34.7	35	57	6.08
13	624	35	58.4	250	45	35.0	35	57	6.05
14	523	36	50.7	231	46	33.3	34	56	5.66
15	448	36	44.3	229	45	32.6	33	57	5.49
16	396	37	39.9	239	50	37.0	32	59	5.44
17	350	37	36.0	227	60	42.0	31	59	5.41
18	315	38	33.8	200	58	36.8	31	59	5.33
19	300	39	33.0	178	56	32.3	36	60	5.97
20	282	39	31.5	166	56	30.6	36	61	6.02
21	267	39	30.5	155	57	28.8	34	72	6.57
22	248	40	29.1	134	58	25.5	40	80	8.67
23	237	40	28.8	114	54	20.8	47	78	10.0
24	225	41	28.1	101	49	17.0	55	70	10.4
25	210	41	26.9	90	50	15.3	61	65	10.7
26	196	42	25.8	84	50	14.2	54	65	9.48
27	190	42	25.6	79	51	13.6	48	65	8.44
28	190	42	26.2	73	52	12.8	42	65	7.24
29	188	43	26.5	68	52	12.0	38	65	6.61
30	181	42	25.8	63	53	11.2	32	65	5.62
31	---	---	---	60	53	10.6	---	---	---
TOTAL	23394	---	2099.8	5119	---	806.5	1302	---	234.42

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	21	64	3.74	130	52	18.4	89	36	8.56
2	14	64	2.40	92	57	14.0	80	36	7.83
3	10	64	1.77	98	57	15.1	93	42	11.0
4	8.8	64	1.52	96	55	14.4	92	44	11.5
5	8.4	64	1.45	87	56	13.2	95	44	11.7
6	7.4	64	1.28	88	57	13.5	91	44	11.3
7	7.3	65	1.27	80	69	14.8	82	45	10.3
8	6.4	65	1.12	65	81	14.0	73	45	9.26
9	6.3	65	1.11	49	90	11.8	82	73	17.2
10	6.3	66	1.12	42	92	10.5	79	93	21.8
11	6.3	66	1.12	39	91	9.67	65	98	18.9
12	6.3	66	1.12	36	90	8.65	72	98	20.9
13	6.3	66	1.12	31	83	7.06	82	99	23.8
14	6.3	66	1.12	32	69	5.88	77	93	21.4
15	6.3	65	1.11	41	59	6.47	59	92	16.2
16	6.3	65	1.11	35	53	4.96	51	89	13.7
17	6.3	65	1.11	29	55	4.36	46	80	11.8
18	6.3	65	1.11	38	53	5.36	45	69	10.2
19	12	66	3.26	60	50	8.08	44	60	8.68
20	30	66	5.29	59	53	8.40	54	56	9.73
21	44	67	7.98	51	57	7.91	55	55	9.57
22	63	68	11.5	39	58	6.15	39	56	7.28
23	80	68	14.7	35	55	5.22	36	58	6.87
24	67	69	12.4	48	51	6.51	31	59	6.32
25	60	72	11.6	48	49	6.37	28	59	6.07
26	65	69	12.2	43	52	5.88	26	61	5.90
27	68	67	12.2	40	52	5.57	27	62	6.25
28	76	62	12.7	62	47	7.76	27	60	5.99
29	87	60	14.1	216	48	28.1	27	60	5.90
30	118	60	19.2	161	44	19.2	26	60	5.80
31	211	60	34.1	119	39	12.5	---	---	---
TOTAL	1127.3	---	196.93	2089	---	319.76	1773	---	341.71
PERIOD	129050.3		12957.72						

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	490	5.83	7.7
2	---	---	---	4930	7.56	100	450	5.60	6.8
3	---	---	---	5500	9.26	140	445	5.30	6.4
4	---	---	---	4400	9.53	110	465	5.13	6.4
5	---	---	---	2500	8.96	60	436	4.90	5.8
6	---	---	---	1300	9.18	32	408	4.80	5.3
7	---	---	---	740	9.13	18	439	4.88	5.8
8	---	---	---	570	9.26	14	822	5.46	12
9	---	---	---	500	10.3	14	2840	4.94	38
10	---	---	---	430	9.41	11	5120	5.68	79
11	---	---	---	400	8.92	9.6	4430	5.58	67
12	---	---	---	370	8.24	8.2	2990	5.37	43
13	---	---	---	355	7.56	7.3	1950	5.16	27
14	---	---	---	365	7.01	6.9	1670	4.97	22
15	---	---	---	520	6.80	9.5	1300	4.91	17
16	---	---	---	1150	6.73	21	925	5.24	13
17	---	---	---	1800	6.31	31	719	4.90	9.5
18	---	---	---	3000	6.10	49	628	4.47	7.6
19	---	---	---	4800	6.17	80	619	4.20	7.0
20	---	---	---	7000	6.67	130	651	5.58	9.8
21	---	---	---	3300	7.29	65	630	6.23	11
22	---	---	---	2050	7.41	41	583	5.74	9.0
23	---	---	---	1450	7.03	28	572	5.67	8.8
24	---	---	---	1100	6.76	20	649	5.92	10
25	---	---	---	900	6.80	17	1030	7.28	21
26	---	---	---	760	6.79	14	3330	7.68	68
27	---	---	---	640	6.54	11	2930	8.21	65
28	---	---	---	560	6.33	9.6	2050	7.73	43
29	---	---	---	520	6.07	8.5	1240	7.30	24
30	---	---	---	---	---	---	860	7.19	17
31	---	---	---	---	---	---	665	6.93	12
TOTAL	---	---	---	51910	---	1065.6	42336	---	684.9

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	566	6.46	9.9	174	.791	.47	61	<.100	.01
2	511	6.04	8.3	171	.500	.30	59	<.100	.01
3	518	5.84	8.2	167	.398	.24	60	<.100	.01
4	2080	5.88	33	163	.333	.19	55	<.100	.01
5	3340	5.69	51	167	.297	.18	52	<.100	.01
6	2270	6.26	38	181	.273	.17	52	<.100	.01
7	1440	5.79	22	190	.249	.16	48	<.100	.01
8	1850	5.95	30	205	.227	.15	44	<.100	.01
9	2010	6.08	33	220	.207	.15	41	<.100	.01
10	1610	6.21	27	244	.200	.16	39	<.100	.01
11	1060	6.35	18	245	.200	.15	37	<.100	.01
12	769	6.33	13	251	.200	.16	35	<.100	.01
13	624	6.03	10	250	.200	.16	35	<.100	.01
14	523	5.63	8.0	231	.200	.15	34	<.100	.01
15	448	5.23	6.4	229	.200	.14	33	<.100	.01
16	396	4.90	5.3	239	.165	.12	32	<.100	.00
17	350	4.53	4.4	227	.101	.07	31	<.100	.00
18	315	4.05	3.6	200	.160	.10	31	<.100	.00
19	300	3.40	2.9	178	.200	.12	36	<.100	.01
20	282	3.00	2.4	166	.200	.11	36	<.100	.00
21	267	2.70	2.1	155	.198	.10	34	<.100	.00
22	248	2.42	1.8	134	.129	.06	40	<.100	.01
23	237	2.17	1.6	114	<.100	.03	47	<.100	.01
24	225	1.95	1.4	101	<.100	.02	55	<.100	.01
25	210	1.75	1.1	90	<.100	.02	61	<.100	.01
26	196	1.57	.98	84	<.100	.01	54	<.100	.01
27	190	1.41	.86	79	<.100	.01	48	<.100	.01
28	190	1.27	.78	73	<.100	.01	42	<.100	.01
29	188	1.14	.71	68	<.100	.01	38	<.100	.01
30	181	1.03	.63	63	<.100	.01	32	<.100	.00
31	---	---	---	60	<.100	.01	---	---	---
TOTAL	23394	---	346.36	5119	---	3.74	1302	---	0.24
		JULY			AUGUST			SEPTEMBER	
1	21	<.100	.00	130	.481	.15	89	1.61	.38
2	14	<.100	.00	92	1.41	.35	80	1.60	.35
3	10	<.100	.00	98	.962	.25	93	1.36	.36
4	8.8	<.100	.00	96	.194	.05	92	1.09	.29
5	8.4	<.100	.00	87	<.100	.01	95	.830	.22
6	7.4	<.100	.00	88	<.100	.01	91	.592	.15
7	7.3	<.100	.00	80	<.100	.01	82	.433	.10
8	6.4	<.100	.00	65	.174	.03	73	.401	.08
9	6.3	<.100	.00	49	.500	.07	82	.462	.11
10	6.3	.115	.00	42	.500	.06	79	.431	.10
11	6.3	.134	.00	39	.500	.05	65	.334	.06
12	6.3	.124	.00	36	.498	.05	72	.414	.09
13	6.3	.107	.00	31	.433	.04	82	.561	.14
14	6.3	<.100	.00	32	.403	.03	77	.460	.11
15	6.3	<.100	.00	41	.453	.05	59	.259	.05
16	6.3	<.100	.00	35	.300	.03	51	.198	.03
17	6.3	<.100	.00	29	.301	.02	46	.129	.02
18	6.3	<.100	.00	38	.372	.04	45	<.100	.01
19	12	<.100	.00	60	1.14	.18	44	<.100	.01
20	30	<.100	.00	59	1.08	.17	54	<.100	.01
21	44	<.100	.01	51	.437	.06	55	<.100	.01
22	63	<.100	.01	39	.205	.02	39	<.100	.01
23	80	<.100	.01	35	<.100	.00	36	<.100	.01
24	67	<.100	.01	48	<.100	.01	31	<.100	.01
25	60	<.100	.01	48	.158	.02	28	<.100	.01
26	65	<.100	.01	43	.129	.01	26	<.100	.01
27	68	<.100	.01	40	<.100	.01	27	<.100	.01
28	76	<.100	.01	62	.132	.03	27	<.100	.00
29	87	<.100	.01	216	.333	.20	27	<.100	.01
30	118	<.100	.02	161	.694	.30	26	.136	.01
31	211	<.100	.03	119	1.12	.35	---	---	---
TOTAL	1127.3	---	0.14	2089	---	2.66	1773	---	2.76
PERIOD	129050.3		2106.40						

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	490	.80	1.06
2	---	---	---	4930	2.0	28.2	450	.73	.89
3	---	---	---	5500	2.6	38.7	445	.63	.76
4	---	---	---	-4400	1.8	22.1	465	.60	.75
5	---	---	---	2500	1.5	10.3	436	.53	.63
6	---	---	---	1300	1.0	3.62	408	.50	.55
7	---	---	---	740	1.1	2.12	439	.46	.55
8	---	---	---	570	1.2	1.77	822	.76	1.66
9	---	---	---	500	1.1	1.49	2840	1.2	10.1
10	---	---	---	430	1.2	1.35	5120	2.6	35.6
11	---	---	---	400	1.1	1.15	4430	2.1	25.7
12	---	---	---	370	1.0	1.00	2990	1.5	12.3
13	---	---	---	355	.93	.89	1950	1.1	5.88
14	---	---	---	365	.83	.82	1670	1.0	4.62
15	---	---	---	520	.80	1.12	1300	.93	3.29
16	---	---	---	1150	.74	2.28	925	.84	2.11
17	---	---	---	1800	.76	3.71	719	.80	1.55
18	---	---	---	3000	.74	5.99	628	.73	1.25
19	---	---	---	4800	1.0	13.3	619	.69	1.16
20	---	---	---	7000	1.7	31.8	651	.49	.87
21	---	---	---	3300	2.0	17.6	630	.51	.87
22	---	---	---	2050	2.0	11.2	583	.54	.84
23	---	---	---	1450	1.9	7.32	572	.63	.97
24	---	---	---	1100	1.7	5.05	649	.77	1.35
25	---	---	---	900	1.4	3.31	1030	1.1	3.01
26	---	---	---	760	1.1	2.26	3330	1.9	17.6
27	---	---	---	640	1.0	1.73	2930	2.3	18.2
28	---	---	---	560	1.0	1.51	2050	1.5	8.65
29	---	---	---	520	.84	1.17	1240	1.6	5.21
30	---	---	---	---	---	---	860	1.3	3.11
31	---	---	---	---	---	---	665	1.2	2.15
TOTAL	---	---	---	51910	---	222.86	42336	---	173.24
		APRIL			MAY			JUNE	
1	566	1.1	1.72	174	1.0	.60	61	.88	.18
2	511	.83	1.14	171	1.0	.59	59	.91	.18
3	518	.70	.99	167	1.0	.59	60	.93	.18
4	2080	1.3	8.38	163	1.0	.58	55	.95	.17
5	3340	2.6	23.0	167	1.1	.63	52	.98	.16
6	2270	2.0	12.6	181	.99	.61	52	1.0	.17
7	1440	1.3	5.21	190	.89	.57	48	1.0	.16
8	1850	1.7	8.80	205	.80	.54	44	1.1	.15
9	2010	2.3	12.7	220	.72	.52	41	1.1	.14
10	1610	1.8	7.86	244	.63	.50	39	1.0	.13
11	1060	1.2	3.37	245	.60	.46	37	1.0	.12
12	769	1.1	2.20	251	.53	.42	35	1.1	.12
13	624	.90	1.52	250	.56	.44	35	1.2	.12
14	523	.86	1.22	231	.53	.39	34	1.1	.11
15	448	.77	.94	229	.50	.36	33	1.3	.12
16	396	.70	.76	239	.50	.37	32	1.1	.10
17	350	.77	.74	227	.50	.35	31	.97	.089
18	315	.88	.78	200	.50	.32	31	.97	.088
19	300	.92	.77	178	.50	.29	36	1.3	.13
20	282	.93	.75	166	.56	.31	36	1.3	.13
21	267	.95	.73	155	.53	.27	34	1.6	.15
22	248	.97	.71	134	.57	.25	40	1.5	.16
23	237	.98	.70	114	.73	.28	47	1.4	.18
24	225	1.0	.69	101	.71	.25	55	1.3	.19
25	210	1.0	.67	90	.73	.22	61	1.3	.21
26	196	1.0	.64	84	.75	.21	54	1.2	.18
27	190	1.1	.64	79	.77	.21	48	1.2	.16
28	190	1.1	.66	73	.79	.20	42	1.3	.14
29	188	1.1	.68	68	.81	.19	38	1.3	.13
30	181	1.0	.63	63	.84	.18	32	1.4	.12
31	---	---	---	60	.86	.17	---	---	---
TOTAL	23394	---	102.20	5119	---	11.87	1302	---	4.367

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	21	1.4	.081	130	1.6	.56	89	1.0	.25
2	14	1.4	.054	92	1.6	.38	80	1.2	.27
3	10	1.5	.041	98	1.7	.45	93	1.2	.32
4	8.8	1.5	.037	96	1.6	.41	92	1.1	.28
5	8.4	1.6	.036	87	1.6	.38	95	1.1	.29
6	7.4	1.6	.032	88	1.3	.32	91	1.1	.28
7	7.3	1.6	.032	80	1.3	.27	82	1.2	.27
8	6.4	1.6	.028	65	1.1	.20	73	1.2	.25
9	6.3	1.6	.027	49	.90	.12	82	1.1	.26
10	6.3	1.6	.027	42	.84	.095	79	1.0	.24
11	6.3	1.6	.027	39	.99	.10	65	.93	.18
12	6.3	1.6	.027	36	1.1	.11	72	.93	.20
13	6.3	1.5	.026	31	1.1	.093	82	.93	.22
14	6.3	1.5	.026	32	1.1	.095	77	.82	.19
15	6.3	1.5	.025	41	.97	.11	59	.44	.079
16	6.3	1.5	.025	35	.60	.056	51	.64	.098
17	6.3	1.4	.024	29	.53	.043	46	.83	.12
18	6.3	1.4	.024	38	.56	.058	45	.80	.12
19	12	1.4	.070	60	.53	.087	44	.88	.13
20	30	1.4	.11	59	.50	.080	54	.83	.14
21	44	1.4	.17	51	.56	.078	55	.80	.14
22	63	1.5	.25	39	.79	.082	39	.74	.095
23	80	1.5	.32	35	1.2	.11	36	.76	.091
24	67	1.5	.27	48	1.1	.15	31	.74	.079
25	60	1.4	.23	48	1.0	.13	28	.76	.078
26	65	1.2	.21	43	1.1	.12	26	.72	.070
27	68	1.1	.21	40	1.1	.12	27	.76	.076
28	76	1.2	.24	62	1.0	.17	27	.67	.067
29	87	1.2	.28	216	1.2	.72	27	.72	.072
30	118	1.3	.43	161	1.1	.48	26	.73	.071
31	211	1.9	1.07	119	.95	.31	---	---	---
TOTAL	1127.3	---	4.459	2089	---	6.487	1773	---	5.026
PERIOD	129050.3		530.509						

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	2010	---	---	490	.116	.15
2	---	---	---	4930	.501	6.83	450	.107	.13
3	---	---	---	5500	.565	8.40	445	.087	.10
4	---	---	---	4400	.438	5.24	465	.080	.10
5	---	---	---	2500	.328	2.21	436	.073	.087
6	---	---	---	1300	.236	.83	408	.070	.077
7	---	---	---	740	.187	.37	439	.059	.070
8	---	---	---	570	.147	.23	822	.092	.20
9	---	---	---	500	.129	.17	2840	.177	1.55
10	---	---	---	430	.140	.16	5120	.484	6.73
11	---	---	---	400	.127	.14	4430	.355	4.30
12	---	---	---	370	.107	.11	2990	.208	1.72
13	---	---	---	355	.093	.090	1950	.128	.68
14	---	---	---	365	.090	.089	1670	.112	.51
15	---	---	---	520	.083	.12	1300	.103	.36
16	---	---	---	1150	.080	.25	925	.093	.23
17	---	---	---	1800	.087	.42	719	.077	.15
18	---	---	---	3000	.098	.79	628	.070	.12
19	---	---	---	4800	.173	2.24	619	.056	.094
20	---	---	---	7000	.346	6.54	651	.050	.088
21	---	---	---	3300	.413	3.68	630	.047	.080
22	---	---	---	2050	.401	2.22	583	.046	.073
23	---	---	---	1450	.401	1.57	572	.050	.078
24	---	---	---	1100	.347	1.03	649	.057	.10
25	---	---	---	900	.256	.62	1030	.115	.34
26	---	---	---	760	.197	.40	3330	.365	3.44
27	---	---	---	640	.160	.28	2930	.452	3.59
28	---	---	---	560	.143	.22	2050	.291	1.65
29	---	---	---	520	.120	.17	1240	.193	.65
30	---	---	---	---	---	---	860	.160	.37
31	---	---	---	---	---	---	665	.130	.23
TOTAL	---	---	---	51910	---	45.419	42336	---	28.047

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	566	.113	.17	174	.070	.042	61	.064	.013
2	511	.104	.14	171	.071	.042	59	.067	.013
3	518	.107	.15	167	.060	.035	60	.071	.014
4	2080	.243	1.67	163	.054	.031	55	.075	.013
5	3340	.495	4.46	167	.058	.034	52	.079	.013
6	2270	.396	2.49	181	.058	.035	52	.084	.014
7	1440	.254	.99	190	.055	.035	48	.088	.014
8	1850	.252	1.28	205	.053	.035	44	.093	.014
9	2010	.316	1.71	220	.051	.036	41	.098	.013
10	1610	.239	1.05	244	.043	.034	39	.087	.010
11	1060	.178	.51	245	.033	.026	37	.084	.010
12	769	.140	.29	251	.030	.024	35	.091	.010
13	624	.117	.20	250	.030	.024	35	.098	.010
14	523	.103	.15	231	.030	.022	34	.107	.011
15	448	.086	.11	229	.023	.017	33	.140	.013
16	396	.073	.080	239	.024	.018	32	.113	.010
17	350	.070	.068	227	<.010	.006	31	.103	.009
18	315	.070	.062	200	<.010	.003	31	.094	.008
19	300	.070	.059	178	<.010	.003	36	.096	.010
20	282	.070	.057	166	<.010	.003	36	.110	.011
21	267	.070	.054	155	<.010	.003	34	.137	.013
22	248	.070	.051	134	<.010	.002	40	.146	.016
23	237	.070	.050	114	.030	.011	47	.123	.016
24	225	.070	.048	101	.041	.014	55	.098	.014
25	210	.070	.046	90	.044	.013	61	.143	.023
26	196	.070	.043	84	.046	.013	54	.124	.018
27	190	.070	.043	79	.049	.013	48	.103	.013
28	190	.070	.043	73	.051	.013	42	.107	.012
29	188	.070	.043	68	.054	.013	38	.111	.011
30	181	.070	.043	63	.057	.012	32	.115	.010
31	---	---	---	60	.060	.012	---	---	---
TOTAL	23394	---	16.160	5119	---	0.624	1302	---	0.379
		JULY			AUGUST			SEPTEMBER	
1	21	.120	.007	130	.155	.055	89	.094	.022
2	14	.124	.005	92	.137	.034	80	.097	.021
3	10	.129	.004	98	.172	.046	93	.119	.031
4	8.8	.134	.003	96	.197	.051	92	.110	.029
5	8.4	.140	.003	87	.160	.038	95	.097	.026
6	7.4	.148	.003	88	.144	.034	91	.090	.023
7	7.3	.157	.003	80	.153	.033	82	.083	.019
8	6.4	.166	.003	65	.124	.022	73	.080	.017
9	6.3	.176	.003	49	.077	.010	82	.080	.019
10	6.3	.187	.003	42	.087	.010	79	.067	.016
11	6.3	.197	.003	39	.097	.010	65	.060	.012
12	6.3	.196	.003	36	.113	.011	72	.052	.011
13	6.3	.192	.003	31	.120	.010	82	.050	.012
14	6.3	.187	.003	32	.140	.012	77	.056	.013
15	6.3	.183	.003	41	.162	.018	59	.060	.011
16	6.3	.179	.003	35	.114	.011	51	.060	.009
17	6.3	.175	.003	29	.123	.010	46	.061	.009
18	6.3	.171	.003	38	.123	.012	45	.090	.013
19	12	.170	.008	60	.113	.018	44	.089	.013
20	30	.190	.015	59	.110	.017	54	.096	.017
21	44	.226	.027	51	.117	.016	55	.087	.015
22	63	.269	.046	39	.118	.013	39	.080	.010
23	80	.290	.063	35	.106	.010	36	.086	.010
24	67	.266	.048	48	.103	.013	31	.083	.009
25	60	.214	.034	48	.093	.012	28	.073	.008
26	65	.126	.022	43	.090	.010	26	.070	.007
27	68	.117	.021	40	.090	.010	27	.070	.007
28	76	.117	.024	62	.093	.016	27	.063	.006
29	87	.127	.030	216	.356	.21	27	.060	.006
30	118	.162	.052	161	.426	.19	26	.060	.006
31	211	.198	.11	119	.150	.049	---	---	---
TOTAL	1127.3	---	0.561	2089	---	1.011	1773	---	0.427
PERIOD	129050.3		92.628						

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	30	13	1.0	72	10	1.9	90	36	8.7
2	27	14	1.0	66	14	2.5	95	38	9.7
3	33	12	1.1	60	12	1.9	101	37	10
4	34	11	1.0	56	12	1.8	130	43	15
5	31	10	.83	53	10	1.4	151	44	18
6	31	13	1.1	50	10	1.4	142	46	18
7	34	14	1.3	46	9	1.1	125	41	14
8	37	10	1.0	45	11	1.4	121	42	14
9	37	11	1.1	50	10	1.3	144	44	17
10	39	11	1.2	51	9	1.2	165	47	21
11	48	12	1.6	49	8	1.1	178	48	23
12	43	12	1.4	48	6	.78	180	47	23
13	43	10	1.2	48	8	1.0	195	49	26
14	43	10	1.2	60	7	1.1	201	50	27
15	40	11	1.2	60	6	.97	326	70	62
16	40	12	1.3	54	8	1.2	851	150	345
17	41	13	1.4	54	10	1.5	747	95	192
18	40	12	1.3	43	17	2.0	647	84	147
19	37	9	.89	43	6	.69	419	72	81
20	35	10	.94	50	6	.80	436	73	86
21	35	7	.66	48	6	.78	797	107	230
22	35	7	.66	48	6	.78	719	98	190
23	35	7	.66	49	12	1.6	611	66	109
24	38	8	.81	52	43	6.0	473	65	83
25	42	8	.92	74	35	7.0	386	69	72
26	46	11	1.4	80	36	7.8	348	68	64
27	51	10	1.4	87	39	9.1	337	64	58
28	62	10	1.7	89	38	9.1	339	63	58
29	58	10	1.6	91	36	8.8	514	79	110
30	59	8	1.3	90	36	8.7	678	98	179
31	66	10	1.8	---	---	---	676	98	179
TOTAL	1270	---	35.97	1766	---	86.70	11322	---	2489.4
		JANUARY			FEBRUARY			MARCH	
1	585	89	141	2010	77	507	490	17	22
2	3400	327	3000	4930	293	4070	450	19	23
3	3590	330	3200	5500	289	4290	445	10	12
4	2100	212	1200	4400	165	1960	465	10	13
5	1300	148	519	2500	252	1700	436	8	9.4
6	920	113	281	1300	148	519	408	6	6.6
7	680	98	180	740	100	200	439	6	7.1
8	540	82	120	570	84	129	822	19	42
9	440	74	88	500	81	109	2840	79	750
10	380	68	70	430	72	84	5120	244	3380
11	440	74	88	400	70	76	4430	187	2240
12	510	80	110	370	65	65	2990	110	889
13	480	77	100	355	62	59	1950	65	342
14	440	74	88	365	65	64	1670	42	190
15	400	70	76	520	79	111	1300	34	120
16	380	68	70	1150	135	419	925	22	55
17	365	65	64	1800	189	919	719	16	31
18	355	62	59	3000	296	2400	628	12	20
19	400	70	76	4800	415	5380	619	10	17
20	700	100	189	7000	519	9810	651	10	18
21	1200	142	460	3300	315	2810	630	8	14
22	1400	153	578	2050	186	1030	583	8	13
23	590	88	140	1450	216	846	572	14	22
24	410	72	80	1100	123	365	649	14	25
25	305	61	50	900	55	134	1030	65	181
26	250	54	36	760	50	103	3330	279	2600
27	245	55	36	640	42	73	2930	202	1600
28	240	54	35	560	42	64	2050	133	738
29	240	54	35	520	23	32	1240	84	281
30	450	74	90	---	---	---	860	64	149
31	1100	131	389	---	---	---	665	47	84
TOTAL	24835	---	11648	53920	---	38328	42336	---	13894.1

STREAMS TRIBUTARY TO LAKE ERIE

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	566	45	69	174	6	2.8	61	9	1.5
2	511	40	55	171	19	8.7	59	10	1.6
3	518	35	49	167	6	2.7	60	12	1.9
4	2080	173	1220	163	7	3.1	55	27	4.0
5	3340	333	3000	167	8	3.6	52	13	1.8
6	2270	182	1120	181	6	2.9	52	6	.84
7	1440	109	423	190	5	2.6	48	14	1.8
8	1850	74	370	205	4	2.2	44	18	2.2
9	2010	83	450	220	5	3.0	41	14	1.5
10	1610	76	331	244	16	11	39	14	1.5
11	1060	56	160	245	20	13	37	15	1.5
12	769	48	100	251	23	16	35	18	1.7
13	624	35	59	250	24	16	35	14	1.3
14	523	31	44	231	16	10	34	18	1.7
15	448	20	24	229	4	2.5	33	8	.71
16	396	16	17	239	6	3.9	32	12	1.0
17	350	18	17	227	3	1.8	31	14	1.2
18	315	27	23	200	3	1.6	31	14	1.2
19	300	23	19	178	15	7.2	36	12	1.2
20	282	16	12	166	8	3.6	36	8	.79
21	267	13	9.4	155	2	.84	34	12	1.1
22	248	14	9.4	134	16	5.8	40	22	2.4
23	237	17	11	114	18	5.5	47	10	1.3
24	225	17	10	101	6	1.6	55	10	1.5
25	210	20	11	90	10	2.4	61	12	2.0
26	196	13	6.9	84	5	1.1	54	10	1.5
27	190	17	8.7	79	2	.43	48	11	1.4
28	190	14	7.2	73	3	.59	42	10	1.1
29	188	11	5.6	68	3	.55	38	11	1.1
30	181	8	3.9	63	11	1.9	32	12	1.0
31	---	---	---	60	3	.49	---	---	---
TOTAL	23394	---	7645.1	5119	---	139.40	1302	---	45.34
		JULY			AUGUST			SEPTEMBER	
1	21	12	.69	130	31	11	89	16	3.8
2	14	11	.41	92	20	5.0	80	20	4.3
3	10	16	.44	98	24	6.4	93	16	4.0
4	8.8	14	.33	96	12	3.1	92	14	3.5
5	8.4	24	.54	87	14	3.3	95	13	3.3
6	7.4	22	.44	88	22	5.2	91	13	3.2
7	7.3	17	.34	80	22	4.7	82	13	2.9
8	6.4	25	.43	65	10	1.7	73	12	2.4
9	6.3	25	.43	49	9	1.2	82	12	2.7
10	6.3	28	.48	42	13	1.5	79	12	2.6
11	6.3	24	.41	39	17	1.8	65	12	2.1
12	6.3	12	.20	36	10	.97	72	11	2.1
13	6.3	26	.44	31	12	1.0	82	11	2.4
14	6.3	36	.61	32	13	1.1	77	11	2.3
15	6.3	40	.68	41	36	3.9	59	11	1.7
16	6.3	30	.51	35	22	2.1	51	11	1.5
17	6.3	16	.27	29	28	2.2	46	10	1.2
18	6.3	28	.48	38	38	3.9	45	10	1.2
19	12	22	.69	60	44	7.1	44	10	1.2
20	30	16	1.3	59	18	2.8	54	10	1.5
21	44	42	5.0	51	24	3.3	55	10	1.5
22	63	74	13	39	20	2.1	39	9	.96
23	80	70	15	35	14	1.3	36	9	.88
24	67	70	13	48	20	2.6	31	9	.76
25	60	65	10	48	26	3.4	28	9	.68
26	65	60	11	43	16	1.8	26	9	.63
27	68	50	9.2	40	13	1.4	27	8	.58
28	76	40	8.2	62	29	4.9	27	8	.58
29	87	30	7.0	216	85	50	27	8	.57
30	118	26	8.3	161	50	22	26	8	.56
31	211	72	41	119	13	4.2	---	---	---
TOTAL	1127.3	---	150.82	2089	---	166.97	1773	---	57.60
YEAR	170270.5		74687.40						

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

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						

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.

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: Oct. 12, Dec. 11-22, 29-Jan. 7, 10, and Feb. 5-Mar. 7. Records poor prio to Apr. 7, fair thereafter. 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.--33 years, (1951-81, 1988-89) 296 ft³/s, 10.84 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)
Apr. 4	1530	4,990	14.88	June 4	0800	7,470	17.29
May 26	1500	*9,480	*18.95				

Minimum daily discharge, 8.0 ft³/s Oct. 12.

REVISIONS.--Revised daily discharges, in cubic feet per second, for Mar. 26-28, 1988 are given below. These figures supercede those published in report for 1988.

Mar. 26....2590 Mar. 27....1170 Mar. 28....450

	TOTAL	MEAN	MAX	MIN	(ft³/s)mi²	IN
March 1988	12797	413	2590	168	1.11	1.28
Wtr Yr 1988	62176.2	170	2590	4.1	.46	6.23

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	18	60	210	215	100	1100	137	397	113	72	45
2	9.6	19	52	190	173	94	627	134	462	88	57	40
3	8.8	18	48	180	150	88	1640	133	713	73	47	37
4	15	20	45	170	123	84	3830	134	5560	65	52	35
5	19	38	44	350	110	100	2360	152	1260	59	63	34
6	19	85	39	700	98	150	907	215	601	53	83	33
7	17	94	36	1200	88	300	610	297	380	46	61	40
8	11	79	35	3070	80	568	478	301	237	44	52	48
9	9.3	79	31	866	74	339	452	247	210	44	45	33
10	9.0	316	28	300	68	129	411	276	222	41	43	36
11	8.5	628	26	238	64	122	350	437	158	40	42	34
12	8.0	243	25	194	60	116	314	474	143	37	41	37
13	8.8	207	24	207	58	115	320	692	418	34	39	35
14	11	276	23	184	66	110	318	761	689	34	39	67
15	10	154	26	188	90	139	306	473	1420	32	40	83
16	11	90	38	165	450	146	310	336	1760	30	38	60
17	11	63	35	145	620	124	283	268	659	29	36	45
18	32	50	32	143	1000	217	430	225	372	29	33	38
19	22	40	28	141	500	276	398	196	254	32	32	35
20	22	239	39	163	350	211	334	200	171	76	36	32
21	21	1330	44	135	320	251	281	228	138	196	39	31
22	20	480	41	134	800	319	244	232	116	106	38	28
23	20	244	76	128	350	237	216	639	105	55	39	27
24	21	177	144	105	260	194	193	2900	92	40	41	26
25	20	133	131	84	210	169	204	1090	79	34	36	21
26	19	107	100	482	180	146	230	6850	71	34	33	20
27	20	96	97	845	150	133	220	4880	256	592	32	19
28	23	85	1050	407	120	143	179	970	1080	1020	31	17
29	22	75	450	301	---	255	160	555	397	293	31	16
30	23	65	320	288	---	778	148	364	171	126	31	15
31	17	---	250	255	---	1370	---	519	---	87	31	---
TOTAL	497.3	5548	3417	12168	6827	7523	17853	25315	18591	3582	1333	1067
MEAN	16.0	185	110	393	244	243	595	817	620	116	43.0	35.6
MAX	32	1330	1050	3070	1000	1370	3830	6850	5560	1020	83	83
MIN	8.0	18	23	84	58	84	148	133	71	29	31	15
CFSM	.04	.50	.30	1.06	.66	.65	1.60	2.20	1.67	.31	.12	.10
IN.	.05	.56	.34	1.22	.68	.75	1.79	2.54	1.86	.36	.13	.11

CAL YR 1988 TOTAL 60918.5 MEAN 166 MAX 2590 MIN 4.1 CFSM .45 IN. 6.11
WTR YR 1989 TOTAL 103721.3 MEAN 284 MAX 6850 MIN 8.0 CFSM .77 IN. 10.40

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 September 1988.
NITROGEN, NITRITE + NITRATE: February 1988 to September 1988.
NITROGEN, AMMONIA + ORGANIC: February 1988 to September 1988.
PHOSPHORUS: February 1988 to September 1988.
SUSPENDED SEDIMENT DISCHARGE: October 1987 to September 1988.

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.

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, 78.0 mg/L July 7, 1988; minimum daily mean, 16 mg/L Aug. 19, 20, 1988.
DISSOLVED CHLORIDE LOADS: Maximum daily, 210 tons March 26, 1988; minimum daily, .65 tons July 10, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 7.45 mg/L March 10, 1988; minimum daily mean, .40 mg/L July 24, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 47.0 tons March 26, 1988; minimum daily, .04 ton June 3, July 3, 15, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 4.5 mg/L July 31, 1988; minimum daily mean, .59 mg/L March 20, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 22.4 tons March 26, 1988; minimum daily, .017 ton June 30, 1988.
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 5.52 tons March 26, 1988; minimum daily, .003 ton April 21, 22, 1988.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,030 mg/L Aug. 19, 1988; minimum daily mean, 1 mg/L Nov. 10, 1987.
SEDIMENT LOADS: Maximum daily, 4,450 tons March 26, 1988; minimum daily, .09 ton June 29, July 1, 2, 1988.

EXTREMES FOR CURRENT YEAR.--Water quality data unavailable--will be published in 1990 WDR.

EXTREMES FOR 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 78.0 mg/L July 7; minimum daily mean, 16 mg/L Aug. 19, 20.
DISSOLVED CHLORIDE LOADS: Maximum daily, 210 tons March 26; minimum daily, .65 ton July 10.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 7.45 mg/L March 10; minimum daily mean, .40 mg/L July 24.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 47.0 tons March 26; minimum daily, .04 ton June 3, July 3, 15.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 4.5 mg/L July 31; minimum daily mean, .59 mg/L March 20.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 22.4 tons March 26; minimum daily, .017 ton June 30.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean 2.33 mg/L July 23; minimum daily mean .011 mg/L April 21.
TOTAL PHOSPHORUS LOADS: Maximum daily 5.52 tons March 26; minimum daily, .003 ton April 21, 22.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,030 mg/L Aug. 19; minimum daily mean, 1 mg/L Nov. 10.
SEDIMENT LOADS: Maximum daily, 4,450 tons March 26; minimum daily, .09 ton June 29, July 1, 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
May 25	0530	0.10	July 10	0700	<0.10	Aug. 1	0330	0.60
May 30	1730	0.20	July 11	0500	<0.10	Aug. 2	0130	0.70
June 2	1130	<0.10	July 24	2300	0.50	Aug. 6	1130	<0.10
June 11	1530	0.20	July 25	2100	0.90	Aug. 13	1930	0.30
June 21	0100	<0.10	July 26	1900	1.00	Aug. 16	1330	0.40
June 27	1100	<0.10	July 27	1700	0.70	Aug. 17	1130	0.40
July 4	1900	<0.10	July 30	1100	0.30	Aug. 18	0930	0.30
July 9	0900	<0.10	July 31	0530	0.60	Sept.15	0915	<0.10

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	170	37	17.0
2	---	---	---	---	---	---	168	37	16.8
3	---	---	---	---	---	---	181	36	17.6
4	---	---	---	---	---	---	191	40	20.6
5	---	---	---	---	---	---	210	65	36.9
6	---	---	---	---	---	---	207	49	27.4
7	---	---	---	---	---	---	252	40	27.2
8	---	---	---	---	---	---	521	33	46.4
9	---	---	---	---	---	---	715	31	59.8
10	---	---	---	---	---	---	737	31	61.7
11	---	---	---	---	---	---	476	33	42.4
12	---	---	---	---	---	---	311	35	29.4
13	---	---	---	---	---	---	310	36	30.1
14	---	---	---	---	---	---	271	36	26.3
15	---	---	---	---	---	---	218	43	25.3
16	---	---	---	---	---	---	194	52	27.2
17	---	---	---	---	---	---	182	49	24.1
18	---	---	---	---	---	---	202	52	28.4
19	---	---	---	---	---	---	227	46	28.2
20	---	---	---	---	---	---	224	63	38.1
21	---	---	---	---	---	---	191	75	38.7
22	---	---	---	---	---	---	187	51	25.7
23	---	---	---	---	---	---	210	46	26.1
24	---	---	---	---	---	---	271	49	35.9
25	---	---	---	350	29	27.4	1020	48	132
26	---	---	---	250	34	23.0	2590	30	210
27	---	---	---	180	34	16.5	1170	33	104
28	---	---	---	175	35	16.5	450	36	44
29	---	---	---	170	37	17.0	309	37	30.9
30	---	---	---	---	---	---	236	37	23.6
31	---	---	---	---	---	---	196	38	20.2
TOTAL	---	---	---	1125	---	100.4	12797	---	1322.0
		APRIL			MAY			JUNE	
1	173	40	18.8	70	41	7.85	41	46	5.12
2	172	39	18.1	63	42	7.15	33	46	4.15
3	687	34	56.5	59	44	6.95	17	47	2.13
4	2360	26	164	56	44	6.71	17	49	2.22
5	769	32	65.8	57	44	6.85	17	48	2.18
6	419	35	39.3	61	44	7.26	17	47	2.14
7	594	34	52.9	60	45	7.25	21	50	2.82
8	1260	26	88.5	57	43	6.64	20	51	2.74
9	635	29	50.0	60	42	6.79	19	49	2.52
10	516	34	46.8	74	43	8.69	18	52	2.54
11	320	35	29.8	70	42	8.52	20	48	2.59
12	207	39	21.7	65	41	7.09	17	47	2.09
13	164	43	19.2	61	42	6.89	16	51	2.21
14	138	44	16.4	55	43	6.46	17	54	2.41
15	124	44	14.8	52	43	5.98	15	55	2.18
16	111	44	13.2	63	41	7.01	14	52	1.98
17	101	43	11.6	61	43	7.16	14	53	1.97
18	101	43	11.6	66	43	7.63	13	53	1.93
19	98	41	10.9	66	43	7.72	12	50	1.70
20	91	40	9.95	61	43	7.14	13	48	1.64
21	91	42	10.2	61	43	7.06	11	56	1.68
22	91	41	10.1	61	41	6.64	8.5	62	1.44
23	89	41	9.89	62	41	6.90	8.3	58	1.30
24	83	40	9.04	59	44	6.98	8.3	58	1.30
25	77	40	8.34	54	46	6.71	8.6	62	1.44
26	70	44	8.32	49	45	6.03	8.1	63	1.36
27	67	43	7.83	48	47	6.07	8.3	59	1.34
28	77	44	9.10	46	49	6.00	6.1	58	.96
29	77	45	9.44	45	47	5.70	4.7	59	.75
30	76	43	8.73	43	46	5.39	5.2	65	.91
31	---	---	---	44	46	5.40	---	---	---
TOTAL	9838	---	850.84	1809	---	212.62	448.1	---	61.74

04199000 HURON RIVER AT MILAN, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	5.6	67	1.00	187	22	10.9	23	35	2.19
2	5.5	58	.86	86	30	6.93	18	38	1.81
3	5.1	54	.75	48	35	4.44	27	38	2.72
4	5.2	60	.84	35	35	3.27	88	32	7.60
5	4.9	69	.92	29	35	2.75	93	32	8.09
6	4.7	73	.92	26	38	2.60	93	35	8.75
7	4.4	78	.92	28	39	2.95	61	43	6.97
8	4.7	74	.95	21	42	2.39	41	46	5.17
9	4.1	74	.81	17	43	1.99	43	43	4.97
10	4.7	53	.65	13	46	1.61	26	43	2.99
11	11	58	1.57	13	51	1.80	21	45	2.50
12	8.0	64	1.39	45	36	4.06	20	46	2.55
13	8.4	61	1.37	22	28	1.68	21	48	2.68
14	5.9	60	.96	11	32	.92	21	49	2.77
15	5.7	62	.96	9.0	27	.66	20	53	2.87
16	5.2	63	.88	46	23	2.77	17	54	2.46
17	4.9	69	.91	19	25	1.29	14	49	1.89
18	5.8	67	1.02	17	35	1.61	14	44	1.65
19	10	55	1.54	612	16	20.3	13	46	1.68
20	14	54	2.02	232	16	9.77	14	50	1.89
21	18	46	2.17	74	24	4.75	13	53	1.82
22	16	48	2.13	42	30	3.37	13	57	1.92
23	18	53	2.50	28	34	2.53	13	53	1.91
24	45	21	2.53	67	30	5.48	12	50	1.62
25	34	29	2.72	33	28	2.52	12	50	1.59
26	130	19	5.84	20	30	1.63	11	50	1.50
27	54	29	4.23	12	31	.96	10	61	1.69
28	34	32	3.00	221	33	16.9	9.7	62	1.62
29	23	34	2.15	274	19	13.7	9.5	56	1.43
30	28	34	2.40	75	21	4.23	9.1	52	1.26
31	379	20	18.3	36	31	3.00	---	---	---
TOTAL	906.8	---	69.21	2398.0	---	143.76	800.3	---	90.56
PERIOD	30122.2		2851.13						

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	170	3.71	1.7
2	---	---	---	---	---	---	168	3.53	1.6
3	---	---	---	---	---	---	181	3.51	1.7
4	---	---	---	---	---	---	191	3.25	1.7
5	---	---	---	---	---	---	210	3.31	1.9
6	---	---	---	---	---	---	207	3.44	1.9
7	---	---	---	---	---	---	252	3.86	2.6
8	---	---	---	---	---	---	521	5.01	7.0
9	---	---	---	---	---	---	715	6.38	12
10	---	---	---	---	---	---	737	7.45	15
11	---	---	---	---	---	---	476	7.28	9.4
12	---	---	---	---	---	---	311	6.53	5.5
13	---	---	---	---	---	---	310	5.74	4.8
14	---	---	---	---	---	---	271	5.16	3.8
15	---	---	---	---	---	---	218	5.08	3.0
16	---	---	---	---	---	---	194	4.93	2.6
17	---	---	---	---	---	---	182	4.60	2.3
18	---	---	---	---	---	---	202	4.47	2.4
19	---	---	---	---	---	---	227	4.40	2.7
20	---	---	---	---	---	---	224	4.26	2.6
21	---	---	---	---	---	---	191	4.10	2.1
22	---	---	---	---	---	---	187	4.05	2.0
23	---	---	---	---	---	---	210	4.25	2.4
24	---	---	---	---	---	---	271	3.87	2.8
25	---	---	---	350	5.28	5.0	1020	5.09	14
26	---	---	---	250	5.08	3.4	2590	6.77	47
27	---	---	---	180	4.81	2.3	1170	6.98	22
28	---	---	---	175	4.35	2.1	450	6.41	7.8
29	---	---	---	170	4.19	1.9	309	5.92	4.9
30	---	---	---	---	---	---	236	5.11	3.3
31	---	---	---	---	---	---	196	4.37	2.3
TOTAL	---	---	---	1125	---	14.7	12797	---	196.8

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	173	3.98	1.9	70	.783	.15	41	.987	.11
2	172	3.64	1.7	63	.707	.12	33	.824	.08
3	687	3.51	6.9	59	.672	.11	17	.809	.04
4	2360	4.55	29	56	.635	.10	17	1.36	.06
5	769	5.52	11	57	.699	.11	17	1.62	.07
6	419	5.13	5.8	61	.649	.11	17	2.05	.09
7	594	4.53	7.2	60	.600	.10	21	2.59	.15
8	1260	4.61	16	57	.602	.09	20	2.21	.12
9	635	4.98	8.5	60	.661	.11	19	2.33	.12
10	516	5.07	7.1	74	.539	.11	18	1.50	.07
11	320	4.61	4.0	70	.500	.10	20	1.43	.08
12	207	4.24	2.4	65	.500	.09	17	1.56	.07
13	164	3.89	1.7	61	.525	.09	16	2.18	.09
14	138	3.50	1.3	55	.563	.08	17	2.74	.12
15	124	3.10	1.0	52	.501	.07	15	2.65	.11
16	111	2.83	.85	63	.500	.08	14	2.57	.10
17	101	2.58	.70	61	.502	.08	14	2.62	.10
18	101	2.38	.65	66	.851	.15	13	2.96	.11
19	98	1.94	.51	66	1.17	.21	12	2.81	.09
20	91	1.65	.41	61	1.17	.19	13	2.69	.09
21	91	1.65	.41	61	.850	.14	11	2.64	.08
22	91	1.48	.36	61	.739	.12	8.5	3.17	.07
23	89	1.40	.34	62	.953	.16	8.3	3.28	.07
24	83	1.36	.31	59	1.44	.23	8.3	2.93	.07
25	77	1.30	.27	54	1.77	.26	8.6	4.07	.09
26	70	1.12	.21	49	1.37	.18	8.1	3.97	.09
27	67	.998	.18	48	1.48	.19	8.3	4.29	.10
28	77	.935	.20	46	1.53	.19	6.1	4.96	.08
29	77	1.03	.21	45	1.52	.18	4.7	5.10	.06
30	76	.843	.17	43	1.42	.17	5.2	5.77	.08
31	---	---	---	44	1.18	.14	---	---	---
TOTAL	9838	---	111.28	1809	---	4.21	448.1	---	2.66
		JULY			AUGUST			SEPTEMBER	
1	5.6	4.94	.07	187	2.87	1.4	23	4.01	.25
2	5.5	3.52	.05	86	3.28	.75	18	3.21	.15
3	5.1	2.77	.04	48	3.62	.46	27	2.31	.16
4	5.2	3.22	.05	35	3.16	.30	88	3.16	.76
5	4.9	5.05	.07	29	2.31	.18	93	7.22	1.8
6	4.7	5.15	.07	26	1.92	.13	93	5.31	1.4
7	4.4	5.78	.07	28	1.79	.14	61	3.78	.62
8	4.7	6.01	.08	21	1.83	.10	41	2.78	.31
9	4.1	4.93	.05	17	2.31	.11	43	2.44	.28
10	4.7	4.30	.05	13	2.63	.09	26	1.86	.13
11	11	3.72	.09	13	2.64	.09	21	1.68	.09
12	8.0	3.92	.08	45	1.59	.17	20	1.57	.09
13	8.4	3.41	.08	22	2.17	.12	21	1.46	.08
14	5.9	3.64	.06	11	2.51	.07	21	1.23	.07
15	5.7	2.85	.04	9.0	2.13	.05	20	1.14	.06
16	5.2	3.41	.05	46	1.89	.22	17	1.57	.07
17	4.9	3.68	.05	19	2.62	.13	14	1.78	.07
18	5.8	3.48	.05	17	3.07	.14	14	1.29	.05
19	10	2.92	.08	612	2.84	4.9	13	1.33	.05
20	14	1.84	.07	232	5.06	3.0	14	1.53	.06
21	18	1.24	.06	74	5.92	1.2	13	2.00	.07
22	16	1.42	.06	42	5.40	.62	13	2.33	.08
23	18	2.90	.13	28	4.14	.31	13	1.90	.07
24	45	.400	.05	67	3.43	.62	12	1.83	.06
25	34	1.41	.13	33	3.53	.32	12	1.98	.06
26	130	2.39	.78	20	3.28	.18	11	2.67	.08
27	54	2.74	.40	12	3.01	.09	10	2.68	.07
28	34	2.78	.26	221	2.71	1.3	9.7	2.07	.05
29	23	2.60	.16	274	3.24	2.0	9.5	2.08	.05
30	28	2.06	.14	75	5.25	1.1	9.1	2.27	.06
31	379	1.34	1.2	36	4.25	.42	---	---	---
TOTAL	906.8	---	4.62	2398.0	---	20.71	800.3	---	7.20
PERIOD	30122.2		362.18						

STREAMS TRIBUTARY TO LAKE ERIE

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	170	1.1	.50
2	---	---	---	---	---	---	168	.97	.44
3	---	---	---	---	---	---	181	.77	.38
4	---	---	---	---	---	---	191	.81	.42
5	---	---	---	---	---	---	210	.85	.48
6	---	---	---	---	---	---	207	.72	.40
7	---	---	---	---	---	---	252	.99	.67
8	---	---	---	---	---	---	521	3.5	4.92
9	---	---	---	---	---	---	715	4.5	8.69
10	---	---	---	---	---	---	737	5.0	9.95
11	---	---	---	---	---	---	476	4.4	5.65
12	---	---	---	---	---	---	311	4.2	3.53
13	---	---	---	---	---	---	310	3.5	2.93
14	---	---	---	---	---	---	271	2.6	1.90
15	---	---	---	---	---	---	218	.71	.42
16	---	---	---	---	---	---	194	.62	.32
17	---	---	---	---	---	---	182	.67	.33
18	---	---	---	---	---	---	202	.63	.34
19	---	---	---	---	---	---	227	.62	.38
20	---	---	---	---	---	---	224	.59	.36
21	---	---	---	---	---	---	191	.64	.33
22	---	---	---	---	---	---	187	.61	.31
23	---	---	---	---	---	---	210	.75	.43
24	---	---	---	---	---	---	271	.92	.67
25	---	---	---	350	1.0	.94	1020	1.9	5.23
26	---	---	---	250	1.2	.81	2590	3.2	22.4
27	---	---	---	180	1.1	.53	1170	1.9	6.00
28	---	---	---	175	1.0	.47	450	1.2	1.46
29	---	---	---	170	1.0	.46	309	.94	.78
30	---	---	---	---	---	---	236	.75	.48
31	---	---	---	---	---	---	196	.79	.42
TOTAL	---	---	---	1125	---	3.21	12797	---	81.52
		APRIL			MAY			JUNE	
1	173	.85	.40	70	.69	.13	41	.80	.089
2	172	.71	.33	63	.74	.12	33	.80	.072
3	687	1.2	3.47	59	.89	.14	17	.97	.044
4	2360	3.4	22.3	56	.83	.13	17	1.5	.069
5	769	1.5	3.34	57	.66	.10	17	.92	.042
6	419	1.2	1.31	61	.60	.099	17	1.2	.054
7	594	1.2	2.08	60	.66	.11	21	1.4	.078
8	1260	1.7	5.92	57	.70	.11	20	1.0	.056
9	635	1.2	2.10	60	.77	.12	19	.94	.049
10	516	.92	1.28	74	.73	.15	18	1.1	.054
11	320	.90	.78	70	.77	.16	20	1.0	.057
12	207	.90	.50	65	.78	.14	17	1.1	.048
13	164	.90	.40	61	.68	.11	16	1.0	.045
14	138	.95	.35	55	.60	.090	17	1.2	.052
15	124	1.0	.34	52	.64	.089	15	1.0	.041
16	111	.86	.26	63	.79	.13	14	1.3	.049
17	101	.66	.18	61	1.1	.19	14	1.3	.048
18	101	.68	.18	66	1.1	.20	13	1.3	.047
19	98	.70	.18	66	.78	.14	12	1.3	.044
20	91	.72	.18	61	.63	.10	13	1.3	.043
21	91	.81	.20	61	.68	.11	11	1.3	.040
22	91	.87	.21	61	.71	.12	8.5	1.3	.031
23	89	.80	.19	62	.77	.13	8.3	1.3	.030
24	83	.76	.17	59	.84	.13	8.3	1.5	.033
25	77	.70	.15	54	1.1	.15	8.6	1.5	.036
26	70	.70	.13	49	.74	.099	8.1	1.2	.027
27	67	.71	.13	48	.85	.11	8.3	1.3	.029
28	77	.96	.20	46	.84	.10	6.1	2.8	.045
29	77	.77	.16	45	.80	.097	4.7	1.8	.023
30	76	.63	.13	43	.80	.094	5.2	1.2	.017
31	---	---	---	44	.80	.094	---	---	---
TOTAL	9838	---	47.55	1809	---	3.792	448.1	---	1.392

04199000 HURON RIVER AT MILAN, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	5.6	1.3	.019	187	2.1	1.12	23	1.2	.076
2	5.5	1.4	.021	86	1.7	.39	18	1.2	.055
3	5.1	1.5	.021	48	1.6	.21	27	1.2	.088
4	5.2	1.4	.020	35	1.6	.15	88	1.8	.43
5	4.9	1.5	.021	29	1.5	.12	93	1.6	.41
6	4.7	1.6	.020	26	1.6	.11	93	1.3	.32
7	4.4	1.7	.020	28	1.5	.11	61	.98	.16
8	4.7	1.7	.021	21	1.2	.070	41	.98	.11
9	4.1	1.8	.019	17	1.3	.059	43	1.0	.12
10	4.7	2.4	.029	13	1.3	.046	26	.98	.068
11	11	1.4	.041	13	1.4	.051	21	.88	.050
12	8.0	1.4	.031	45	1.3	.16	20	.85	.047
13	8.4	2.1	.047	22	1.2	.072	21	1.0	.057
14	5.9	1.8	.029	11	1.3	.037	21	1.1	.064
15	5.7	1.6	.025	9.0	1.3	.033	20	1.2	.065
16	5.2	1.8	.026	46	1.0	.12	17	1.1	.052
17	4.9	1.8	.023	19	1.2	.063	14	1.1	.043
18	5.8	1.9	.030	17	1.0	.047	14	.95	.035
19	10	1.8	.050	612	1.3	2.43	13	.83	.030
20	14	1.7	.064	232	1.3	.86	14	.88	.033
21	18	1.6	.078	74	1.1	.22	13	1.0	.034
22	16	1.8	.078	42	1.1	.13	13	1.4	.047
23	18	2.0	.094	28	1.2	.090	13	.88	.032
24	45	1.5	.18	67	1.3	.23	12	.93	.030
25	34	2.0	.19	33	1.3	.12	12	.76	.024
26	130	3.2	1.19	20	1.2	.067	11	.79	.024
27	54	1.9	.28	12	1.1	.034	10	1.1	.029
28	34	1.4	.13	221	1.4	1.26	9.7	1.4	.036
29	23	1.3	.082	274	2.6	2.01	9.5	1.1	.029
30	28	2.4	.19	75	2.0	.41	9.1	1.0	.024
31	379	4.5	5.16	36	1.3	.13	---	---	---
TOTAL	906.8	---	8.229	2398.0	---	10.959	800.3	---	2.622
PERIOD	30122.2		159.274						

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	170	.210	.096
2	---	---	---	---	---	---	168	.181	.082
3	---	---	---	---	---	---	181	.164	.080
4	---	---	---	---	---	---	191	.212	.11
5	---	---	---	---	---	---	210	.217	.12
6	---	---	---	---	---	---	207	.211	.12
7	---	---	---	---	---	---	252	.192	.13
8	---	---	---	---	---	---	521	.137	.19
9	---	---	---	---	---	---	715	.185	.36
10	---	---	---	---	---	---	737	.188	.37
11	---	---	---	---	---	---	476	.143	.18
12	---	---	---	---	---	---	311	.123	.10
13	---	---	---	---	---	---	310	.089	.074
14	---	---	---	---	---	---	271	.068	.050
15	---	---	---	---	---	---	218	.053	.031
16	---	---	---	---	---	---	194	.059	.031
17	---	---	---	---	---	---	182	.057	.028
18	---	---	---	---	---	---	202	.047	.026
19	---	---	---	---	---	---	227	.036	.022
20	---	---	---	---	---	---	224	.030	.018
21	---	---	---	---	---	---	191	.030	.015
22	---	---	---	---	---	---	187	.031	.016
23	---	---	---	---	---	---	210	.046	.026
24	---	---	---	---	---	---	271	.077	.056
25	---	---	---	350	.507	.48	1020	.392	1.08
26	---	---	---	250	.500	.34	2590	.789	5.52
27	---	---	---	180	.243	.12	1170	.398	1.26
28	---	---	---	175	.218	.10	450	.189	.23
29	---	---	---	170	.211	.097	309	.107	.090
30	---	---	---	---	---	---	236	.090	.057
31	---	---	---	---	---	---	196	.088	.046
TOTAL	---	---	---	1125	---	1.137	12797	---	10.614

04199000 HURON RIVER AT MILAN, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	173	.070	.033	70	.047	.009	41	.195	.022
2	172	.061	.028	63	.056	.009	33	.249	.022
3	687	.152	.51	59	.081	.013	17	.344	.016
4	2360	.748	4.89	56	.083	.013	17	.510	.023
5	769	.371	.81	57	.066	.010	17	.413	.019
6	419	.269	.30	61	.055	.009	17	.333	.015
7	594	.246	.40	60	.061	.010	21	.447	.026
8	1260	.274	.94	57	.083	.013	20	.505	.027
9	635	.220	.38	60	.084	.014	19	.338	.017
10	516	.143	.20	74	.107	.021	18	.256	.013
11	320	.105	.091	70	.082	.016	20	.213	.012
12	207	.099	.056	65	.087	.015	17	.228	.010
13	164	.076	.034	61	.087	.014	16	.280	.012
14	138	.070	.026	55	.083	.012	17	.424	.019
15	124	.058	.019	52	.101	.014	15	.373	.015
16	111	.036	.011	63	.143	.024	14	.462	.018
17	101	.030	.008	61	.128	.021	14	.474	.018
18	101	.029	.008	66	.099	.018	13	.463	.017
19	98	.022	.006	66	.078	.014	12	.431	.015
20	91	.024	.006	61	.063	.010	13	.497	.017
21	91	.011	.003	61	.080	.013	11	.554	.017
22	91	.012	.003	61	.114	.019	8.5	.570	.013
23	89	.016	.004	62	.120	.020	8.3	.522	.012
24	83	.017	.004	59	.134	.021	8.3	.459	.010
25	77	.043	.009	54	.161	.023	8.6	.446	.010
26	70	.066	.012	49	.130	.017	8.1	.421	.009
27	67	.057	.010	48	.135	.017	8.3	.394	.009
28	77	.057	.012	46	.156	.019	6.1	.732	.012
29	77	.050	.010	45	.123	.015	4.7	.717	.009
30	76	.035	.007	43	.119	.014	5.2	.535	.007
31	---	---	---	44	.152	.018	---	---	---
TOTAL	9838	---	8.830	1809	---	0.475	448.1	---	0.461
		JULY			AUGUST			SEPTEMBER	
1	5.6	.530	.008	187	.680	.36	23	.308	.019
2	5.5	.505	.007	86	.390	.090	18	.297	.014
3	5.1	.420	.006	48	.360	.046	27	.370	.029
4	5.2	.413	.006	35	.327	.031	88	.756	.18
5	4.9	.460	.006	29	.321	.025	93	.539	.13
6	4.7	.506	.006	26	.323	.022	93	.235	.063
7	4.4	.774	.009	28	.289	.022	61	.105	.017
8	4.7	.907	.012	21	.274	.015	41	.090	.010
9	4.1	.752	.008	17	.266	.012	43	.113	.013
10	4.7	.617	.008	13	.278	.010	26	.422	.028
11	11	.416	.012	13	.344	.012	21	.302	.017
12	8.0	.389	.008	45	.260	.030	20	.238	.013
13	8.4	.497	.011	22	.249	.015	21	.395	.022
14	5.9	.466	.008	11	.287	.008	21	.265	.015
15	5.7	.363	.006	9.0	.293	.007	20	.180	.010
16	5.2	.472	.007	46	.320	.040	17	.184	.008
17	4.9	1.10	.014	19	.307	.016	14	.160	.006
18	5.8	.914	.014	17	.325	.015	14	.136	.005
19	10	.759	.021	612	.863	1.62	13	.138	.005
20	14	.534	.020	232	.462	.32	14	.147	.005
21	18	.509	.024	74	.247	.050	13	.151	.005
22	16	1.24	.057	42	.189	.022	13	.197	.007
23	18	2.33	.11	28	.195	.015	13	.167	.006
24	45	.540	.067	67	.244	.044	12	.201	.006
25	34	.404	.039	33	.221	.020	12	.174	.006
26	130	.753	.29	20	.187	.010	11	.186	.006
27	54	.371	.056	12	.132	.004	10	.257	.007
28	34	.301	.028	221	.304	.36	9.7	.233	.006
29	23	.617	.038	274	.715	.58	9.5	.174	.004
30	28	.575	.049	75	.496	.10	9.1	.177	.004
31	379	1.29	1.47	36	.367	.036	---	---	---
TOTAL	906.8	---	2.425	2398.0	---	3.957	800.3	---	0.666
PERIOD	30122.2		28.565						

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	37	4	.44	63	4	.75	54	2	.32
2	35	7	.62	64	6	1.0	58	4	.56
3	37	7	.70	58	5	.85	61	4	.61
4	37	4	.38	55	4	.57	82	7	1.6
5	37	6	.59	54	3	.45	88	7	1.6
6	35	7	.63	52	3	.45	80	4	.96
7	35	8	.72	49	3	.44	67	3	.56
8	36	5	.48	50	3	.39	63	3	.55
9	35	4	.38	54	4	.65	97	13	3.7
10	35	5	.49	49	1	.17	117	11	3.6
11	43	8	.90	48	2	.25	90	5	1.3
12	42	4	.44	49	2	.27	93	5	1.3
13	41	4	.40	49	2	.26	134	6	2.0
14	41	6	.64	47	2	.26	106	6	1.8
15	39	6	.63	47	2	.28	309	130	153
16	38	6	.66	46	3	.36	1150	134	430
17	38	9	.95	45	3	.36	405	51	56
18	36	11	1.1	43	3	.35	395	27	29
19	73	8	1.6	47	3	.38	395	17	18
20	101	12	3.4	48	3	.39	453	21	28
21	99	9	2.5	42	3	.34	742	100	202
22	99	7	1.9	41	3	.33	500	43	82
23	96	7	1.8	43	3	.35	330	21	40
24	98	7	1.8	43	3	.34	150	17	17
25	109	9	2.5	52	4	.54	88	9	2.1
26	99	7	1.8	63	6	.97	89	7	1.6
27	101	7	2.0	56	3	.49	92	4	1.0
28	87	6	1.5	55	3	.45	100	3	.93
29	74	6	1.2	54	3	.41	167	12	5.6
30	70	4	.77	52	2	.29	343	31	34
31	67	4	.73	---	---	---	453	9	11
TOTAL	1850	---	34.65	1518	---	13.39	7351	---	1131.69
		JANUARY			FEBRUARY			MARCH	
1	380	7	7.1	1270	231	967	170	10	4.7
2	310	7	5.7	1670	212	960	168	10	4.5
3	250	7	4.5	1560	84	353	181	9	4.5
4	200	7	3.5	800	37	79	191	10	5.0
5	160	6	2.8	600	29	48	210	10	5.8
6	140	6	2.4	450	26	32	207	11	6.1
7	130	6	2.2	400	24	25	252	15	11
8	120	6	2.0	300	21	17	521	55	80
9	110	6	1.8	250	19	13	715	80	157
10	110	6	1.9	200	17	9.1	737	59	119
11	120	8	2.5	180	15	7.4	476	29	39
12	130	9	3.1	170	14	6.6	311	17	14
13	120	8	2.6	170	14	6.4	310	17	14
14	110	7	2.2	170	13	6.2	271	17	13
15	105	7	1.9	170	15	6.7	218	13	7.9
16	105	6	1.7	350	31	30	194	10	5.4
17	100	6	1.5	600	70	113	182	8	3.9
18	100	6	1.5	1000	155	417	202	7	4.0
19	150	12	4.7	1500	344	1390	227	8	5.2
20	250	25	17	2000	494	2670	224	7	4.4
21	400	43	47	1000	135	364	191	8	3.9
22	220	30	18	600	83	134	187	19	9.7
23	150	18	7.3	800	60	130	210	14	8.1
24	110	11	3.1	500	44	59	271	15	11
25	88	6	1.5	350	32	30	1020	471	2930
26	80	6	1.3	250	24	16	2590	544	4450
27	75	6	1.2	180	21	10	1170	121	991
28	72	6	1.2	175	16	7.4	450	49	345
29	70	6	1.1	170	12	5.6	309	26	22
30	69	6	1.1	---	---	---	236	14	9.2
31	90	14	3.4	---	---	---	196	11	5.6
TOTAL	4624	---	158.8	17835	---	7912.4	12797	---	9293.9

04199000 HURON RIVER AT MILAN, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	173	7	3.3	70	17	3.2	41	5	.54
2	172	8	3.7	63	30	5.0	33	7	.61
3	687	259	1150	59	19	3.0	17	5	.23
4	2360	570	3760	56	16	2.5	17	3	.15
5	769	161	358	57	17	2.7	17	4	.17
6	419	62	71	61	17	2.7	17	5	.23
7	594	78	183	60	16	2.6	21	5	.29
8	1260	162	576	57	16	2.5	20	5	.27
9	635	55	99	60	17	2.8	19	4	.22
10	516	23	32	74	17	3.4	18	4	.20
11	320	15	14	70	18	3.7	20	4	.23
12	207	12	6.8	65	17	2.9	17	5	.22
13	164	11	4.8	61	18	2.9	16	7	.32
14	138	8	3.0	55	11	1.7	17	5	.25
15	124	6	2.1	52	9	1.3	15	6	.23
16	111	6	1.8	63	13	2.3	14	7	.26
17	101	4	1.2	61	11	1.9	14	8	.29
18	101	5	1.3	66	16	2.8	13	9	.32
19	98	7	1.7	66	23	4.1	12	12	.39
20	91	4	.90	61	19	3.2	13	13	.45
21	91	3	.75	61	17	2.9	11	14	.43
22	91	4	1.0	61	7	1.1	8.5	10	.22
23	89	4	1.0	62	5	.79	8.3	9	.21
24	83	3	.57	59	8	1.3	8.3	8	.19
25	77	3	.55	54	6	.81	8.6	7	.17
26	70	4	.73	49	7	.94	8.1	6	.14
27	67	4	.72	48	5	.68	8.3	7	.15
28	77	4	.80	46	6	.72	6.1	8	.13
29	77	3	.67	45	6	.76	4.7	7	.09
30	76	4	.79	43	5	.55	5.2	8	.11
31	---	---	---	44	4	.49	---	---	---
TOTAL	9838	---	6281.18	1809	---	68.24	448.1	---	7.71
		JULY			AUGUST			SEPTEMBER	
1	5.6	6	.09	187	392	217	23	62	3.9
2	5.5	6	.09	86	107	27	18	47	2.2
3	5.1	7	.10	48	47	6.1	27	43	3.4
4	5.2	8	.11	35	33	3.2	88	91	22
5	4.9	8	.10	29	32	2.5	93	86	22
6	4.7	11	.13	26	32	2.2	93	76	19
7	4.4	9	.11	28	26	2.1	61	67	11
8	4.7	13	.17	21	16	.89	41	59	6.6
9	4.1	11	.13	17	17	.78	43	52	6.1
10	4.7	12	.17	13	17	.60	26	46	3.2
11	11	25	.81	13	20	.80	21	41	2.3
12	8.0	16	.35	45	50	6.4	20	39	2.2
13	8.4	13	.30	22	49	3.0	21	38	2.1
14	5.9	9	.15	11	35	1.0	21	37	2.1
15	5.7	10	.16	9.0	23	.55	20	36	2.0
16	5.2	10	.14	46	61	8.3	17	36	1.6
17	4.9	11	.14	19	75	3.9	14	35	1.3
18	5.8	15	.24	17	68	3.1	14	34	1.3
19	10	20	.56	612	1030	2000	13	33	1.2
20	14	17	.64	232	290	221	14	32	1.2
21	18	15	.73	74	88	18	13	31	1.1
22	16	17	.75	42	52	6.1	13	31	1.0
23	18	21	1.5	28	55	4.2	13	30	1.1
24	45	74	9.7	67	85	16	12	29	.94
25	34	54	5.4	33	67	6.1	12	29	.91
26	130	513	236	20	46	2.5	11	28	.84
27	54	123	19	12	30	.96	10	27	.75
28	34	42	4.0	221	314	402	9.7	27	.69
29	23	28	1.7	274	294	287	9.5	26	.66
30	28	53	5.7	75	108	22	9.1	25	.62
31	379	1010	1290	36	82	8.1	---	---	---
TOTAL	906.8	---	1579.17	2398.0	---	3283.38	800.3	---	125.31
YEAR	62175.2		29889.82						

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: Oct. 19 to Feb. 1, Feb. 4-14, Feb. 28 to Mar. 12. Records fair except those prior to Apr. 1 and those greater than 200 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)
Jan. 8	unknown	150	unknown	May 26	0845	*881	*11.16
Mar. 30	unknown	172	6.08	May 31	1045	334	7.28
Apr. 4	unknown	472	8.97	June 4	0300	592	9.32
May 13	0130	124	5.46	June 13	2045	177	5.71
May 23	2130	342	7.89	July 28	0315	152	5.41

Minimum daily discharge, no flow Oct. 1-17, Aug. 29-31, Sept. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.35	1.5	8.6	10	5.6	71	5.3	45	2.2	3.0	.83
2	.00	.45	1.3	7.2	8.5	5.2	48	5.8	24	1.7	1.7	.48
3	.00	.34	1.1	6.4	6.9	4.8	181	5.6	70	1.4	1.1	.24
4	.00	.50	1.0	6.0	5.8	5.0	241	4.9	257	1.4	1.2	.14
5	.00	.66	.90	8.0	5.2	5.6	62	5.7	37	1.3	1.7	.02
6	.00	1.0	.84	20	4.5	9.0	34	28	21	1.1	1.1	.00
7	.00	3.7	.76	50	4.0	6.0	24	58	13	.86	.67	.11
8	.00	1.8	.72	80	3.5	5.0	20	34	9.2	.66	.47	1.5
9	.00	1.3	.66	25	3.3	4.6	24	19	9.8	.64	.40	.38
10	.00	4.0	.62	15	3.1	4.5	19	34	17	.62	.35	.61
11	.00	21	.58	9.0	2.9	4.3	16	58	8.7	.50	.31	.49
12	.00	4.0	.56	8.0	2.8	4.2	14	70	8.8	.41	.27	.30
13	.00	2.0	.52	7.0	2.7	3.9	19	89	54	.42	.26	.24
14	.00	5.0	.50	6.2	5.0	4.6	15	54	74	.35	.25	3.2
15	.00	3.8	1.0	5.5	21	5.8	16	27	37	.30	.23	2.8
16	.00	2.7	1.4	5.0	18	5.2	16	18	36	.25	.25	1.4
17	.00	2.1	1.0	4.7	13	4.8	16	13	20	.21	.22	2.2
18	.01	1.6	.86	4.2	9.7	22	58	10	12	.18	.17	1.5
19	.12	1.0	.80	3.9	7.9	16	36	8.2	8.9	.55	.18	.75
20	.74	6.0	.74	3.6	7.6	14	21	11	6.9	1.5	.65	.49
21	.48	26	1.3	3.4	37	18	15	21	5.5	4.3	.58	.38
22	.39	10	1.7	3.1	38	15	11	11	6.1	1.5	.35	.43
23	.32	8.0	2.2	2.9	20	11	9.0	129	5.1	.71	.30	.71
24	.27	5.6	5.0	2.7	15	9.7	7.5	133	3.7	.47	.26	.55
25	.24	4.5	3.0	2.5	10	8.5	8.7	35	3.1	.36	.19	.40
26	.20	3.4	2.1	15	8.5	7.4	12	454	2.7	.91	.11	.32
27	.31	2.7	1.5	33	7.4	7.2	8.7	64	21	12	.03	.22
28	.50	2.3	35	18	6.2	8.8	7.2	26	18	65	.01	.19
29	.66	2.0	23	13	---	11	7.1	17	5.6	10	.00	.19
30	.37	1.7	15	12	---	102	6.2	12	3.1	5.6	.00	.11
31	.24	---	11	11	---	81	---	158	---	6.2	.00	---
TOTAL	4.85	129.50	118.16	399.9	287.5	419.7	1043.4	1618.5	843.2	123.60	16.31	21.18
MEAN	.16	4.32	3.81	12.9	10.3	13.5	34.8	52.2	28.1	3.99	.53	.71
MAX	.74	26	35	80	38	102	241	454	257	65	3.0	3.2
MIN	.00	.34	.50	2.5	2.7	3.9	6.2	4.9	2.7	.18	.00	.00
CFSM	.01	.20	.17	.58	.46	.61	1.57	2.36	1.27	.18	.02	.03
IN.	.01	.22	.20	.67	.48	.71	1.76	2.72	1.42	.21	.03	.04

CAL YR 1988 TOTAL 2877.48 MEAN 7.86 MAX 172 MIN .00 CFSM .36 IN. 4.84
WTR YR 1989 TOTAL 5025.80 MEAN 13.8 MAX 454 MIN .00 CFSM .62 IN. 8.46

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, 15.75 ft Dec. 31; minimum recorded gage height, 10.21 ft Jan. 8.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.27	13.36	14.53	12.06	12.29	11.48	12.38	12.92	13.20	13.74	15.28	14.93
2	13.25	13.34	14.53	11.19	13.11	12.02	12.31	12.78	13.19	13.75	15.29	14.94
3	13.25	13.34	14.53	11.91	13.28	12.72	12.66	12.64	13.29	13.77	15.29	14.93
4	13.25	13.37	14.51	12.21	13.38	12.27	12.83	12.64	13.44	13.80	15.30	14.90
5	13.22	13.42	14.52	11.97	13.46	12.40	12.40	12.61	13.46	13.81	15.34	14.88
6	13.21	13.53	14.52	12.22	12.47	13.07	12.52	12.83	13.40	13.83	15.35	14.86
7	13.21	13.53	14.52	12.10	11.32	12.77	12.53	12.83	13.40	13.83	15.33	14.85
8	13.18	13.53	14.51	10.87	10.81	12.15	12.70	12.69	13.44	13.84	15.31	14.86
9	13.19	13.55	14.51	11.42	11.15	11.97	12.36	12.85	13.45	13.84	15.29	14.86
10	13.19	13.63	14.51	11.61	11.23	12.00	12.32	13.26	13.32	13.84	15.27	14.86
11	13.16	13.67	14.51	12.15	11.42	11.99	12.50	13.44	13.46	13.83	15.25	14.85
12	13.15	13.71	14.51	11.81	11.65	12.06	12.34	13.24	13.52	13.81	15.23	14.84
13	13.14	13.77	14.51	11.77	11.81	12.03	12.54	13.24	13.51	13.80	15.20	14.82
14	13.15	13.79	14.51	11.85	11.95	11.94	12.50	13.04	13.60	13.80	15.18	14.84
15	13.15	13.82	14.51	11.60	12.01	11.50	12.56	12.88	13.63	13.80	15.16	14.96
16	13.14	13.88	14.51	11.52	12.05	11.71	12.60	12.88	13.56	13.78	15.13	14.98
17	13.14	13.86	14.51	11.42	11.99	12.25	12.55	12.83	13.30	13.77	15.12	15.03
18	13.34	13.85	14.51	11.75	12.03	12.28	12.76	12.86	13.36	13.75	15.09	15.06
19	13.35	13.85	14.51	11.66	11.88	12.06	12.58	12.84	13.52	13.75	15.08	15.06
20	13.35	13.91	14.54	11.89	11.98	12.15	12.60	12.85	13.57	13.79	15.09	15.06
21	13.35	14.17	14.54	11.91	12.07	12.15	12.65	12.79	13.64	13.93	15.10	15.05
22	13.36	14.36	14.54	11.62	12.16	12.13	12.71	12.86	13.63	13.97	15.09	15.04
23	13.38	14.43	14.60	11.83	12.55	12.26	12.80	13.36	13.64	13.98	15.07	15.02
24	13.40	14.46	14.61	11.97	12.12	12.18	12.65	13.16	13.61	13.97	15.05	15.01
25	13.39	14.49	14.65	12.96	11.94	12.09	12.69	12.90	13.70	13.96	15.03	15.01
26	13.38	14.52	14.65	13.14	11.84	12.23	12.74	13.32	13.75	13.95	15.01	14.99
27	13.38	14.54	14.70	11.82	11.84	12.08	12.69	13.06	13.61	14.02	14.99	14.97
28	13.38	14.53	14.99	11.78	11.95	11.97	12.93	13.08	13.73	14.71	14.97	14.96
29	13.37	14.53	15.48	11.92	---	12.25	12.91	13.05	14.11	15.08	14.96	14.95
30	13.36	14.53	15.67	11.86	---	12.60	12.70	12.98	13.77	15.16	14.93	14.93
31	13.36	---	12.86	11.62	---	12.63	---	13.12	---	15.24	14.91	---
MEAN	13.27	13.91	14.57	11.85	12.06	12.17	12.60	12.96	13.53	14.00	15.15	14.94
MAX	13.40	14.54	15.67	13.14	13.46	13.07	12.93	13.44	14.11	15.24	15.35	15.06
MIN	13.14	13.34	12.86	10.87	10.81	11.48	12.31	12.61	13.19	13.74	14.91	14.82

WTR YR 1989 MEAN 13.43 MAX 15.67 MIN 10.81

04199287 VERMILION RIVER NEAR FITCHVILLE, OH

LOCATION.--Lat 41°07'52", long 82°28'13, Huron County, Hydrologic Unit 04100012, on left bank upstream side of Prospect Road Bridge, 2.6 mi north of Fitchville.

DRAINAGE AREA.--112 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May, 1987 to current year. (Discontinued)

GAGE.--Water-stage recorder. Elevation of gage is 903 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 1-21, Jan. 2-6, Feb. 4-15, Feb. 24 to Mar. 5. Records good except those for estimated daily discharges which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,900 ft³/s July 2, 1987, gage height, 14.80 ft; (from flood mark), from drainage area adjustment of slope-area estimate of flow at Fitchville; minimum daily no flow July 8-10, 13-18, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 6,290 ft³/s May 26, gage height 14.03 ft; minimum daily discharge 1.2 ft³/s Aug. 11, 13, Sept. 26, 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	10	18	84	73	43	404	30	76	53	3.5	2.8
2	1.8	10	17	56	60	40	332	28	109	39	2.6	3.5
3	3.3	9.7	16	46	54	38	759	26	204	30	2.2	2.9
4	3.4	10	15	39	41	35	1800	23	943	27	2.4	2.8
5	2.6	22	14	32	37	150	748	23	260	25	4.1	2.5
6	2.4	90	13	45	33	267	274	33	152	21	5.5	2.1
7	2.3	68	11	367	29	89	243	68	100	17	4.8	2.1
8	2.3	38	9.5	1110	26	77	175	82	70	15	4.0	2.1
9	2.7	36	8.5	381	24	57	166	62	55	16	2.3	2.0
10	2.1	84	7.6	137	23	50	142	88	101	13	1.5	2.3
11	2.1	149	7.2	101	22	50	106	220	73	11	1.2	3.0
12	2.0	70	6.6	80	23	54	81	171	52	8.2	1.3	2.9
13	2.0	61	6.0	83	24	56	88	233	884	6.8	1.2	2.9
14	2.0	97	5.8	64	35	51	95	290	835	5.7	14	3.9
15	2.0	62	6.0	76	150	56	74	158	627	5.1	6.5	7.2
16	2.2	36	6.4	76	266	61	62	104	323	4.4	3.1	7.4
17	2.6	23	7.0	65	137	47	53	78	222	4.2	2.0	5.4
18	6.6	28	6.4	59	97	53	60	62	109	3.6	1.6	4.8
19	8.3	26	8.0	55	75	112	76	49	76	4.1	1.3	4.4
20	10	77	10	63	62	78	73	44	76	7.3	2.3	4.2
21	9.0	400	14	57	183	137	59	67	171	12	4.0	4.1
22	9.0	156	20	58	365	154	49	86	83	7.5	3.6	4.0
23	8.5	78	26	46	142	100	41	523	61	5.1	3.8	3.9
24	8.7	51	47	42	80	80	35	1810	45	3.5	3.7	3.7
25	9.0	43	60	40	78	70	33	441	36	2.5	3.6	2.5
26	9.0	35	50	85	60	61	44	3940	29	2.3	3.2	1.2
27	10	30	43	316	52	52	45	1390	147	3.2	2.9	1.3
28	12	27	357	145	47	47	36	240	598	17	2.4	1.5
29	12	23	462	102	---	73	35	143	152	10	2.2	1.4
30	11	20	163	93	---	555	34	102	76	6.0	2.0	1.2
31	10	---	123	84	---	823	---	86	---	5.0	1.7	---
TOTAL	172.5	1869.7	1564.0	4087	2298	3616	6222	10700	6745	390.5	100.5	96.0
MEAN	5.56	62.3	50.5	132	82.1	117	207	345	225	12.6	3.24	3.20
MAX	12	400	462	1110	365	823	1800	3940	943	53	14	7.4
MIN	1.6	9.7	5.8	32	22	35	33	23	29	2.3	1.2	1.2

CAL YR 1988 TOTAL 22887.71 MEAN 62.5 MAX 1570 MIN .00
WTR YR 1989 TOTAL 37861.2 MEAN 104 MAX 3940 MIN 1.2

STREAMS TRIBUTARY TO LAKE ERIE

04199287 VERMILION RIVER NEAR FITCHVILLE, OH--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--May, 1987 to current year (discontinued).

PERIOD OF DAILY RECORD.--May, 1987 to current year (discontinued).

INSTRUMENTATION.--Automatic sediment sampler.

REMARKS.--Water-quality samples collected periodically as part of non-point source pollution project, during 1987 and 1988 water years.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,010 mg/L May, 26, 1989; minimum daily mean, 2 mg/L Dec. 6, 1987.
SEDIMENT LOADS: Maximum daily, 10,600 tons May 26, 1989; minimum daily, 0.00 ton during July, Aug. 1988.

EXTREMES FOR WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 509 mg/L Mar. 26; minimum daily mean, 2 mg/L Dec. 6.
SEDIMENT LOADS: Maximum daily, 1,310 tons Mar. 26; minimum daily, 0.0 ton during July, Aug.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,010 mg/L May 26; minimum daily mean, 3 mg/L Dec. 9.
SEDIMENT LOADS: Maximum daily, 10,600 tons May 26; minimum daily, 0.02 ton Sept. 28.

04199287 VERMILION RIVER NEAR FITCHVILLE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	3.8	7	.07	11	6	.17	14	48	1.9
2	7.3	14	.27	8.6	5	.12	18	3	.15
3	8.0	7	.15	8.0	6	.13	18	4	.20
4	12	6	.20	8.0	8	.17	26	3	.21
5	15	6	.25	6.9	6	.11	34	4	.36
6	26	7	.50	4.3	7	.08	31	2	.17
7	25	9	.60	4.1	7	.08	26	3	.21
8	21	12	.69	4.1	10	.11	34	5	.45
9	16	13	.58	4.7	9	.12	65	17	3.0
10	12	18	.60	5.0	9	.12	60	11	1.8
11	17	6	.28	6.8	14	.26	35	8	.77
12	19	9	.47	6.2	6	.10	45	12	1.5
13	15	5	.21	5.6	8	.12	60	13	2.1
14	14	8	.30	5.2	24	.34	31	8	.67
15	12	18	.58	5.0	11	.15	242	129	95
16	8.0	13	.28	5.0	19	.26	282	85	71
17	4.5	21	.25	5.0	24	.32	101	32	8.7
18	2.4	16	.10	5.2	19	.27	65	13	2.3
19	2.7	14	.10	5.5	14	.21	50	10	1.3
20	2.8	19	.14	5.1	8	.11	205	68	60
21	3.0	13	.10	4.9	14	.19	251	57	49
22	5.4	5	.07	4.4	7	.08	107	15	4.3
23	8.1	6	.13	4.1	15	.17	71	15	2.9
24	9.8	8	.21	4.1	19	.21	56	9	1.4
25	12	12	.39	6.1	7	.12	54	8	1.2
26	26	6	.42	13	19	.65	65	7	1.2
27	15	5	.20	15	17	.67	58	9	1.4
28	27	9	.67	16	4	.17	48	15	2.0
29	26	3	.21	15	19	.76	92	12	3.0
30	27	4	.29	14	84	3.2	72	10	2.0
31	15	5	.20	---	---	---	45	10	1.2
TOTAL	417.8	---	9.51	215.9	---	9.57	2361	---	321.39
		JANUARY			FEBRUARY			MARCH	
1	32	10	.86	886	135	344	57	10	1.5
2	26	11	.77	1050	164	464	59	8	1.3
3	20	9	.49	510	96	130	67	8	1.5
4	16	6	.26	307	41	34	66	7	1.2
5	14	6	.23	230	30	19	54	8	1.2
6	12	7	.23	200	20	11	62	9	1.5
7	11	5	.15	180	14	6.8	104	40	15
8	11	14	.42	160	12	5.2	379	215	193
9	10	16	.43	150	6	2.4	394	142	151
10	10	17	.46	140	7	2.6	364	77	76
11	9.8	15	.40	140	5	1.9	150	32	13
12	9.8	31	.82	140	7	2.6	98	19	5.0
13	12	11	.36	140	5	1.9	111	18	5.4
14	11	28	.83	140	6	2.3	112	23	6.9
15	10	12	.32	150	17	6.9	80	13	2.8
16	9.8	42	1.1	180	26	13	73	8	1.6
17	11	22	.65	200	23	12	72	7	1.4
18	15	39	1.6	250	57	38	87	9	2.1
19	20	44	2.4	350	84	79	99.6	9	2.4
20	174	145	86	1570	236	998	85	10	2.3
21	191	123	72	760	96	197	80	7	1.5
22	60	53	8.6	138	75	28	79	8	1.7
23	43	28	3.3	428	229	265	100	10	2.7
24	35	13	1.2	260	96	67	129	39	14
25	32	9	.78	158	37	16	188	124	140
26	30	7	.57	94	26	6.6	835	509	1310
27	29	4	.31	86	14	3.2	372	116	109
28	28	7	.53	71	14	2.7	163	47	21
29	27	7	.51	58	10	1.6	117	28	8.8
30	45	13	1.6	---	---	---	92	20	5.0
31	235	62	46	---	---	---	71	16	3.1
TOTAL	1199.4	---	234.18	9126	---	2761.7	4799.6	---	2102.9

04199287 VERMILION RIVER NEAR FITCHVILLE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	60	9	1.5	24	7	.45	2.9	32	.25
2	56	10	1.5	19	15	.75	2.7	16	.12
3	379	189	433	15	10	.41	2.9	14	.11
4	687	386	898	13	14	.51	2.9	17	.13
5	223	88	59	13	10	.35	2.6	13	.09
6	137	41	15	17	26	1.2	2.6	11	.08
7	131	48	22	17	13	.60	2.6	36	.25
8	306	144	125	13	12	.42	2.1	27	.15
9	153	46	21	11	16	.48	1.3	32	.12
10	99.9	20	5.4	12	17	.53	1.1	26	.07
11	76	17	3.5	16	24	1.0	.90	30	.07
12	60	15	2.4	17	18	.83	.93	32	.08
13	48	13	1.7	15	28	1.1	.63	12	.02
14	41	12	1.3	11	29	.86	.60	18	.03
15	35	9	.85	9.0	31	.75	.49	10	.01
16	31	8	.68	12	33	1.0	.57	15	.02
17	28	9	.69	11	21	.64	.42	17	.02
18	26	8	.56	12	15	.50	.31	9	.01
19	25	7	.47	9.8	18	.48	.47	10	.01
20	21	6	.34	9.2	26	.64	.72	11	.02
21	20	5	.27	8.5	14	.32	.58	9	.01
22	21	8	.45	8.3	21	.47	.49	18	.02
23	19	7	.36	7.4	25	.50	.57	15	.02
24	25	11	.75	6.9	25	.47	.57	12	.02
25	26	7	.49	5.6	27	.41	.85	10	.02
26	20	8	.43	4.5	34	.41	.75	16	.03
27	18	8	.38	4.6	21	.26	.59	16	.03
28	17	7	.32	4.1	28	.31	.83	14	.03
29	26	6	.43	4.2	23	.26	.65	14	.02
30	31	6	.51	3.8	22	.23	.46	13	.02
31	---	---	---	3.6	30	.29	---	---	---
TOTAL	2845.9	---	1598.28	337.5	---	17.43	36.08	---	1.88
		JULY			AUGUST			SEPTEMBER	
1	.37	25	.02	13	91	4.2	11	25	.77
2	.28	18	.01	4.3	41	.47	4.9	20	.26
3	.30	15	.01	2.1	32	.18	2.7	20	.15
4	.21	17	.01	4.2	16	.18	5.0	15	.20
5	.11	13	.00	3.8	22	.23	32	40	3.5
6	.09	12	.00	2.5	10	.07	34	35	3.2
7	.04	9	.00	3.2	15	.13	16	25	1.1
8	.00	13	.00	2.8	10	.08	8.0	20	.43
9	.00	12	.00	1.6	15	.06	4.7	15	.19
10	.00	14	.00	.61	13	.02	3.2	15	.13
11	.02	21	.00	.36	9	.01	2.0	10	.05
12	.02	12	.00	.19	12	.01	1.8	10	.05
13	.00	10	.00	.14	14	.01	2.6	10	.07
14	.00	10	.00	.10	13	.00	4.2	15	.17
15	.00	16	.00	.07	15	.00	11	25	.74
16	.00	18	.00	1.3	9	.03	7.5	20	.41
17	.00	16	.00	4.0	13	.14	6.1	20	.33
18	.00	14	.00	3.0	13	.10	4.4	15	.18
19	.02	15	.00	273	424	358	2.9	15	.12
20	.07	16	.00	100	149	52	2.1	10	.06
21	.18	29	.01	31	27	2.3	1.5	10	.04
22	.20	12	.01	13	39	1.4	1.6	10	.04
23	.47	33	.09	7.6	38	.78	2.0	8	.04
24	10	61	1.4	28	42	3.2	2.0	8	.04
25	3.9	26	.35	13	23	.79	1.9	8	.04
26	1.8	18	.09	5.7	22	.34	1.5	7	.03
27	2.3	9	.06	3.3	18	.16	1.8	7	.03
28	1.5	12	.05	8.6	30	.70	1.8	7	.03
29	1.0	12	.03	54	52	7.6	1.7	7	.03
30	.68	28	.22	67	60	11	1.6	7	.03
31	51	332	43	27	35	2.5	---	---	---
TOTAL	74.56	---	45.36	678.47	---	446.69	183.5	---	12.46
YEAR	22268.83		7561.35						

04199287 VERMILION RIVER NEAR FITCHVILLE, 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	1.6	10	.04	10	17	.46	18	6	.29
2	1.8	10	.05	10	18	.49	17	6	.28
3	3.3	10	.09	9.7	7	.18	16	4	.17
4	3.4	10	.09	10	22	.59	15	4	.16
5	2.6	15	.11	22	15	.89	14	4	.15
6	2.4	15	.10	90	35	8.5	13	4	.14
7	2.3	15	.09	68	17	3.1	11	4	.12
8	2.3	16	.10	38	10	1.0	9.5	4	.10
9	2.7	17	.12	36	4	.39	8.5	3	.07
10	2.1	18	.10	84	225	68	7.6	20	.41
11	2.1	20	.11	149	107	47	7.2	12	.23
12	2.0	24	.13	70	28	5.3	6.6	25	.45
13	2.0	26	.14	61	47	7.7	6.0	12	.19
14	2.0	28	.15	97	37	9.7	5.8	24	.38
15	2.0	30	.16	62	11	1.8	6.0	17	.28
16	2.2	34	.20	36	8	.78	6.4	15	.26
17	2.6	38	.27	23	7	.43	7.0	16	.30
18	6.6	28	.50	28	18	1.4	6.4	18	.31
19	8.3	38	.85	26	15	1.1	8.0	19	.41
20	10	19	.51	77	109	49	10	13	.35
21	9.0	27	.66	400	207	219	14	16	.60
22	9.0	22	.53	156	50	21	20	8	.43
23	8.5	24	.55	78	18	3.8	26	8	.56
24	8.7	16	.38	51	14	1.9	47	14	1.8
25	9.0	20	.49	43	8	.93	60	8	1.3
26	9.0	18	.44	35	8	.76	50	18	2.4
27	10	16	.43	30	10	.81	43	9	1.0
28	12	8	.26	27	4	.29	357	166	284
29	12	22	.71	23	5	.31	462	167	253
30	11	22	.65	20	4	.22	163	63	28
31	10	10	.27	---	---	---	123	28	9.3
TOTAL	172.5	---	9.28	1869.7	---	456.83	1564.0	---	587.44
		JANUARY			FEBRUARY			MARCH	
1	84	26	5.9	73	9	1.8	43	6	.70
2	56	14	2.1	60	6	.97	40	12	1.3
3	46	13	1.6	54	6	.87	38	8	.82
4	39	12	1.3	41	4	.44	35	7	.66
5	32	9	.78	37	10	1.0	150	97	39
6	45	10	1.2	33	6	.53	267	181	157
7	367	85	136	29	9	.70	89	64	15
8	1110	345	1030	26	8	.56	77	28	5.8
9	381	152	194	24	8	.52	57	12	1.8
10	137	55	20	23	10	.62	50	8	1.1
11	101	32	8.7	22	6	.36	50	6	.81
12	80	22	4.8	23	5	.31	54	6	.87
13	83	14	3.1	24	30	1.9	56	12	1.8
14	64	35	6.0	35	22	2.1	51	8	1.1
15	76	12	2.5	150	45	18	56	6	.91
16	76	12	2.5	266	63	45	61	4	.66
17	65	40	7.0	137	32	12	47	3	.38
18	59	8	1.3	97	18	4.7	53	4	.57
19	55	7	1.0	75	10	2.0	112	16	4.8
20	63	8	1.4	62	6	1.0	78	14	2.9
21	57	6	.92	183	83	77	137	17	6.3
22	58	4	.63	365	191	213	154	24	10
23	46	6	.75	142	45	17	100	14	3.8
24	42	6	.68	80	28	6.0	80	6	1.3
25	40	6	.65	78	18	3.8	70	5	.94
26	85	95	41	60	10	1.6	61	6	.99
27	316	196	175	52	9	1.3	52	6	.84
28	145	48	19	47	8	1.0	47	6	.76
29	102	26	7.2	---	---	---	73	10	2.0
30	93	14	3.5	---	---	---	555	164	399
31	84	11	2.5	---	---	---	823	126	340
TOTAL	4087	---	1683.01	2298	---	416.08	3616	---	1003.91

04199287 VERMILION RIVER NEAR FITCHVILLE, 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	404	73	80	30	5	.40	76	35	7.2
2	332	68	61	28	6	.45	109	57	17
3	759	197	533	26	6	.42	204	130	174
4	1800	526	2620	23	9	.56	943	643	1730
5	748	216	573	23	8	.50	260	163	135
6	274	85	63	33	8	.71	152	78	32
7	243	63	41	68	16	2.9	100	55	15
8	175	42	20	82	8	1.8	70	42	7.9
9	166	36	16	62	7	1.2	55	36	5.3
10	142	42	16	88	9	2.1	101	213	59
11	106	27	7.7	220	40	27	73	98	19
12	81	20	4.4	171	35	16	52	75	11
13	88	22	5.2	233	40	25	884	534	1430
14	95	22	5.6	290	58	45	835	444	1200
15	74	21	4.2	158	22	9.4	627	319	587
16	62	13	2.2	104	11	3.1	323	140	122
17	53	11	1.6	78	7	1.5	222	105	63
18	60	12	1.9	62	6	1.0	109	53	16
19	76	13	2.7	49	7	.93	76	78	16
20	73	7	1.4	44	6	.71	76	37	7.6
21	59	8	1.3	67	8	1.4	171	122	56
22	49	6	.79	86	17	3.9	83	61	14
23	41	8	.89	523	340	1150	61	40	6.6
24	35	4	.38	1810	273	1470	45	30	3.6
25	33	6	.53	441	110	131	36	28	2.7
26	44	6	.71	3940	1010	10600	29	20	1.6
27	45	6	.73	1390	260	1260	147	156	141
28	36	6	.58	240	128	83	598	487	844
29	35	6	.57	143	78	30	152	115	47
30	34	6	.55	102	50	14	76	55	11
31	---	---	---	86	38	8.8	---	---	---
TOTAL	6222	---	4066.93	10700	---	14892.78	6745	---	6781.5
		JULY			AUGUST			SEPTEMBER	
1	53	39	5.6	3.5	11	.10	2.8	17	.13
2	39	31	3.3	2.6	10	.07	3.5	10	.09
3	30	31	2.5	2.2	11	.07	2.9	10	.08
4	27	29	2.1	2.4	14	.09	2.8	13	.10
5	25	25	1.7	4.1	9	.10	2.5	8	.05
6	21	24	1.4	5.5	12	.18	2.1	7	.04
7	17	18	.83	4.8	16	.21	2.1	7	.04
8	15	16	.65	4.0	19	.21	2.1	6	.03
9	16	16	.69	2.3	16	.10	2.0	8	.04
10	13	14	.49	1.5	10	.04	2.3	14	.09
11	11	15	.45	1.2	9	.03	3.0	9	.07
12	8.2	15	.33	1.3	22	.08	2.9	10	.08
13	6.8	10	.18	1.2	10	.03	2.9	9	.07
14	5.7	13	.20	14	16	.60	3.9	19	.20
15	5.1	11	.15	6.5	18	.32	7.2	16	.31
16	4.4	8	.10	3.1	8	.07	7.4	12	.24
17	4.2	9	.10	2.0	9	.05	5.4	11	.16
18	3.6	6	.06	1.6	12	.05	4.8	10	.13
19	4.1	18	.20	1.3	13	.05	4.4	7	.08
20	7.3	12	.24	2.3	8	.05	4.2	10	.11
21	12	18	.58	4.0	8	.09	4.1	9	.10
22	7.5	8	.16	3.6	9	.09	4.0	6	.06
23	5.1	6	.08	3.8	9	.09	3.9	18	.19
24	3.5	14	.13	3.7	16	.16	3.7	12	.12
25	2.5	16	.11	3.6	13	.13	2.5	16	.11
26	2.3	13	.08	3.2	13	.11	1.2	12	.04
27	3.2	10	.09	2.9	9	.07	1.3	10	.04
28	17	122	6.4	2.4	8	.05	1.5	6	.02
29	10	35	.94	2.2	8	.05	1.4	8	.03
30	6.0	32	.52	2.0	10	.05	1.2	9	.03
31	5.0	16	.22	1.7	8	.04	---	---	---
TOTAL	390.5	---	30.58	100.5	---	3.43	96.0	---	2.88
YEAR	37861.2		29934.65						

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: Dec. 8-22, Feb. 7-13. Records good except 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.--45 years, 330 ft³/s, 11.32 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)
Mar. 31	0430	3,670	8.82	June 4	1700	4,760	10.10
Apr. 4	1430	5,370	10.76	June 14	0300	3,580	8.70
May 27	0830	*9,660	*14.48				

Minimum daily discharge, 5.6 ft³/s Oct. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	14	51	299	263	116	2110	138	502	207	54	44
2	7.1	18	46	200	193	112	1780	120	468	138	42	27
3	9.2	17	41	166	154	115	2610	139	613	89	31	13
4	6.7	23	39	146	123	110	4820	138	4290	231	33	9.1
5	8.0	222	37	165	106	176	3630	136	2680	181	32	9.1
6	8.6	423	35	177	97	703	1190	256	694	103	29	6.9
7	8.5	489	32	682	90	425	655	1250	382	67	24	10
8	8.6	261	29	2800	82	239	456	1080	244	51	24	40
9	7.9	163	26	2310	74	173	358	541	186	45	19	25
10	7.9	299	23	671	70	150	329	700	265	40	16	17
11	12	459	22	305	66	130	279	2100	249	32	13	16
12	11	475	21	247	62	126	228	1350	177	28	12	16
13	8.0	280	20	197	60	144	219	799	908	25	11	14
14	7.6	224	20	163	166	146	229	850	3000	22	11	38
15	8.2	251	20	180	455	144	230	718	2160	20	9.7	35
16	8.2	184	21	177	773	172	182	436	1820	19	10	55
17	11	113	23	175	605	175	175	310	1570	18	9.1	46
18	56	82	25	155	352	191	282	231	673	16	8.2	33
19	20	63	27	139	239	235	277	176	345	20	9.2	24
20	12	182	30	147	178	302	227	157	264	54	19	24
21	17	832	41	143	427	328	187	201	1350	115	14	19
22	72	884	56	113	1100	459	146	227	636	71	13	27
23	53	411	84	109	697	382	118	536	314	55	12	28
24	33	214	126	115	312	270	101	2280	204	37	12	22
25	24	142	176	109	257	222	108	1640	143	29	12	21
26	19	104	174	437	194	193	160	6300	110	21	11	20
27	23	84	142	1140	147	167	197	8130	143	68	9.8	19
28	21	71	996	741	134	176	152	1650	1540	90	8.6	18
29	16	62	1810	441	---	622	122	512	1270	61	8.3	17
30	14	56	825	425	---	1700	144	328	368	79	7.4	16
31	13	---	434	350	---	3400	---	586	---	76	8.8	---
TOTAL	537.1	7102	5452	13624	7476	12003	21701	34015	27568	2108	533.1	709.1
MEAN	17.3	237	176	439	267	387	723	1097	919	68.0	17.2	23.6
MAX	72	884	1810	2800	1100	3400	4820	8130	4290	231	54	55
MIN	5.6	14	20	109	60	110	101	120	110	16	7.4	6.9
CFSM	.04	.60	.44	1.11	.67	.98	1.83	2.77	2.32	.17	.04	.06
IN.	.05	.67	.51	1.28	.70	1.13	2.04	3.20	2.59	.20	.05	.07

CAL YR 1988 TOTAL 69949.8 MEAN 191 MAX 3130 MIN 4.3 CFSM .48 IN. 6.57
WTR YR 1989 TOTAL 132828.3 MEAN 364 MAX 8130 MIN 5.6 CFSM .92 IN. 12.48

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. 11-19 and June 2-6. 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.--58 years, 272 ft³/s, 13.86 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)
Apr. 3	1600	4,220	4.71	June 14	0530	4,360	4.78
May 26	0900	*10,600	*7.37	June 16	0600	4,140	4.67
June 4	0530	4,880	5.03				

Minimum daily discharge, 23 ft³/s Oct. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	35	78	209	234	117	1180	162	484	111	98	186
2	25	44	78	150	194	110	1170	184	322	82	61	87
3	27	47	76	140	168	95	2810	424	586	171	48	61
4	23	96	74	130	141	105	3270	280	3460	647	60	36
5	26	531	67	110	132	394	1350	205	721	306	83	28
6	26	816	65	200	129	557	632	351	366	147	75	26
7	26	267	63	1220	213	214	431	1120	239	93	45	81
8	29	202	62	2700	182	162	324	715	237	71	36	308
9	31	176	58	840	298	144	279	367	172	58	34	98
10	29	378	55	334	337	122	253	773	328	50	33	65
11	36	524	52	221	273	123	217	2080	205	43	31	88
12	39	207	48	191	210	133	186	790	162	42	31	68
13	31	183	47	201	172	130	249	566	1500	39	30	43
14	28	253	47	157	426	126	243	817	3170	36	38	55
15	25	155	52	266	805	160	200	459	1470	35	34	91
16	27	112	60	249	760	183	178	327	3340	33	35	146
17	25	99	70	186	341	135	185	263	1210	30	35	135
18	160	81	80	162	219	234	430	196	445	29	35	100
19	93	71	100	152	174	327	329	161	275	28	37	65
20	64	294	178	155	148	277	229	148	822	97	60	44
21	53	982	307	142	562	434	174	245	1050	117	71	37
22	118	400	206	145	842	353	145	199	604	75	64	174
23	216	202	264	120	352	289	129	663	326	140	47	2220
24	119	139	365	121	197	243	117	1620	205	78	37	399
25	81	110	280	135	153	214	137	568	153	47	33	161
26	58	94	191	781	152	186	216	8030	124	41	32	99
27	46	87	150	1330	157	159	158	1920	368	92	29	71
28	40	91	1840	476	131	224	127	472	1690	176	29	57
29	40	96	1260	384	---	1060	134	289	341	126	39	49
30	35	84	434	437	---	2190	217	214	166	102	31	42
31	33	---	311	321	---	1900	---	594	---	135	30	---
TOTAL	1634	6856	7018	12365	8102	11100	15699	25202	24541	3277	1381	5120
MEAN	52.7	229	226	399	289	358	523	813	818	106	44.5	171
MAX	216	982	1840	2700	842	2190	3270	8030	3460	647	98	2220
MIN	23	35	47	110	129	95	117	148	124	28	29	26
CFSM	.20	.86	.85	1.49	1.08	1.34	1.96	3.04	3.06	.40	.17	.64
IN.	.23	.96	.98	1.72	1.13	1.55	2.19	3.51	3.42	.46	.19	.71

CAL YR 1988 TOTAL 71677 MEAN 196 MAX 3900 MIN 19 CFSM .73 IN. 9.99
WTR YR 1989 TOTAL 122295 MEAN 335 MAX 8030 MIN 23 CFSM 1.25 IN. 17.04

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: Dec. 12, 13, Jan. 5-7. 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.--53 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, 2,300 ft³/s May 27, gage height, 6.06 ft; minimum daily, 15 ft³/s Oct. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	86	105	415	373	138	656	61	1330	276	88	58
2	15	75	105	323	299	132	682	73	1590	207	81	92
3	16	68	101	263	236	129	716	92	1300	159	65	89
4	18	82	97	178	187	138	895	101	1020	130	62	75
5	20	123	91	160	156	197	1110	96	828	126	72	63
6	38	173	81	140	139	264	1080	117	684	112	77	57
7	52	220	74	130	123	258	879	151	538	95	72	55
8	51	278	69	293	120	278	670	180	412	83	68	62
9	50	306	64	443	119	235	507	201	322	76	62	65
10	46	313	57	629	114	190	391	234	267	72	59	65
11	47	316	52	576	110	166	316	336	229	69	58	64
12	64	305	50	517	110	155	283	442	204	66	56	64
13	91	312	47	438	108	143	294	584	258	65	55	68
14	102	312	52	360	129	116	277	632	296	64	60	60
15	101	304	70	323	183	109	293	589	349	60	66	73
16	98	290	100	301	245	115	285	564	370	58	62	82
17	94	267	98	280	269	107	272	516	372	55	61	90
18	111	226	88	253	245	112	265	477	367	55	60	89
19	129	180	83	229	211	133	227	428	348	62	59	80
20	122	154	97	219	177	145	200	364	454	71	59	72
21	104	180	165	209	194	150	178	319	554	107	60	68
22	93	217	241	195	253	144	160	276	611	119	60	60
23	106	259	340	183	283	136	142	286	623	117	61	123
24	110	274	392	175	278	133	125	414	590	101	63	165
25	102	244	394	171	215	134	103	476	510	89	63	190
26	89	197	362	210	179	133	95	1010	427	82	61	196
27	79	155	317	339	153	126	88	2010	360	82	58	155
28	78	126	354	504	141	127	62	2140	361	125	56	109
29	97	113	421	601	---	215	54	1650	362	128	56	84
30	107	108	514	553	---	331	56	1180	335	110	62	71
31	101	---	483	456	---	511	---	963	---	98	58	---
TOTAL	2347	6263	5564	10066	5349	5400	11361	16962	16271	3119	1960	2644
MEAN	75.7	209	179	325	191	174	379	547	542	101	63.2	88.1
MAX	129	316	514	629	373	511	1110	2140	1590	276	88	196
MIN	15	68	47	130	108	107	54	61	204	55	55	55
CFSM	.50	1.38	1.19	2.15	1.27	1.15	2.51	3.62	3.59	.67	.42	.58
IN.	.58	1.54	1.37	2.48	1.32	1.33	2.80	4.18	4.01	.77	.48	.65

CAL YR 1988 TOTAL 56116 MEAN 153 MAX 741 MIN 15 CFSM 1.02 IN. 13.82
WTR YR 1989 TOTAL 87306 MEAN 239 MAX 2140 MIN 15 CFSM 1.58 IN. 21.51

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.--No estimated daily discharges. Records good. Natural flow of stream affected by diversions, storage reservoirs and power plants. At Lake Rockwell, 17.7 mi upstream from gage, an average of 70 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.--64 years, 429 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, 3,920 ft³/s June 14, gage height, 9.58 ft; minimum daily, 51 ft³/s Oct. 15, 16.

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	62	112	159	719	682	357	1320	253	1510	674	301	194
2	63	137	147	628	559	338	1370	261	1570	611	244	169
3	66	226	137	485	517	328	1940	230	1980	510	222	137
4	58	221	168	402	416	325	2280	212	2360	296	391	129
5	55	575	180	313	355	452	2120	224	1840	264	320	128
6	61	397	183	419	321	443	2050	250	1410	247	242	136
7	55	399	165	607	310	409	1950	333	1110	210	227	187
8	53	405	161	855	301	370	1620	346	820	190	214	325
9	53	422	146	878	298	384	1260	355	630	192	198	223
10	56	723	143	731	287	392	955	474	481	185	193	230
11	57	579	140	803	278	358	694	663	448	171	191	198
12	55	506	122	903	272	344	476	715	443	161	177	161
13	53	675	126	806	271	334	567	839	982	166	195	152
14	52	634	222	652	342	332	490	1090	2750	161	159	378
15	51	551	249	645	427	418	468	1120	2620	153	149	350
16	51	509	229	555	439	381	452	1190	2120	144	160	298
17	55	462	225	517	396	379	445	1110	1640	140	166	273
18	252	407	223	467	378	422	462	927	1330	138	149	247
19	115	374	223	417	355	376	433	800	1040	142	164	221
20	104	543	242	373	351	385	378	710	1550	231	230	188
21	118	564	280	382	639	293	350	665	1920	148	188	170
22	168	495	266	368	654	254	324	541	1930	140	155	495
23	177	458	337	348	482	255	307	830	1600	133	147	444
24	166	421	338	332	528	217	273	1140	1370	126	143	306
25	159	389	339	328	592	200	226	1020	1240	130	141	227
26	144	374	464	474	531	191	239	1740	1090	477	135	206
27	126	320	511	621	419	210	226	2090	977	528	133	229
28	124	318	1110	610	375	201	187	2250	969	544	141	242
29	115	291	1080	688	---	387	222	2480	731	335	317	220
30	110	161	762	827	---	938	231	2150	671	348	216	194
31	113	---	698	808	---	1250	---	1880	---	337	176	---
TOTAL	2947	12648	9775	17961	11775	11923	24315	28888	41132	8232	6184	7057
MEAN	95.1	422	315	579	421	385	810	932	1371	266	199	235
MAX	252	723	1110	903	682	1250	2280	2480	2750	674	391	495
MIN	51	112	122	313	271	191	187	212	443	126	133	128

CAL YR 1988 TOTAL 100452 MEAN 274 MAX 1550 MIN 46
WTR YR 1989 TOTAL 182837 MEAN 501 MAX 2750 MIN 51

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. 17-19, Dec. 30 to Jan. 5, Feb. 3-13, Feb. 24 to Mar. 3. Records good 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.--26 years (1963-89), 130 ft³/s, 21.05 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)
Apr. 3	0930	1,560	6.11	June 16	0300	1,530	6.08
May 26	0500	*6,680	*9.77	Sept. 22	2100	2,200	6.68
June 3	2330	1,990	6.51				

Minimum daily discharge, 17 ft³/s Oct. 1, July 16, Aug. 27, Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	33	51	110	106	56	551	57	218	44	38	196
2	20	41	48	92.0	86	52	434	70	143	36	31	45
3	58	42	45	82.0	76	52	876	143	398	33	28	24
4	55	102	40	74.0	68	82	1010	90	633	96	65	17
5	63	390	38	70.0	62	189	626	72	269	43	111	19
6	50	241	40	207	58	174	326	156	134	36	54	20
7	47	184	38	342	54	113	190	193	97	33	40	73
8	44	135	35	728	52	88	144	145	71	28	64	213
9	44	90	35	444	49	65	128	113	102	25	32	62
10	47	239	32	243	46	59	120	301	84	27	29	59
11	93	191	31	125	44	57	105	382	58	26	24	47
12	90	113	30	127	42	58	91	220	135	25	20	37
13	48	163	31	116	41	55	126	164	320	26	66	30
14	43	165	45	99	228	57	100	251	389	23	62	95
15	40	114	79	140	259	76	83	171	552	20	37	110
16	58	89	58	109	244	77	65	275	929	17	35	87
17	57	77	52	97	142	62	88	210	283	18	25	77
18	242	63	48	80	103	128	153	143	191	21	22	47
19	104	53	46	73	71	120	109	103	117	38	20	35
20	65	221	176	76	68	103	80	95	289	67	56	30
21	64	299	227	69	269	137	67	216	563	48	48	27
22	202	172	122	59	301	129	58	101	529	49	32	439
23	179	100	212	59	201	112	51	783	352	59	26	293
24	115	73	160	56	140	95	48	627	162	35	24	78
25	80	60	129	62	84.0	82	54	455	109	26	21	42
26	62	58	91	462	72	73	50	2580	84	43	19	34
27	50	55	89	333	66	67	46	1190	161	215	17	28
28	54	64	652	189	60	131	43	558	156	235	18	26
29	47	61	467	152	---	431	46	163	84	108	43	24
30	41	59	250	160	---	742	53	118	55	56	26	23
31	36	---	130	132	---	611	---	365	---	47	22	---
TOTAL	2215	3747	3527	5167.0	3092.0	4333	5921	10510	7667	1603	1155	2337
MEAN	71.5	125	114	167	110	140	197	339	256	51.7	37.3	77.9
MAX	242	390	652	728	301	742	1010	2580	929	235	111	439
MIN	17	33	30	56	41	52	43	57	55	17	17	17
CFSM	.01	.02	.01	.02	.01	.02	.02	.04	.03	.01	.00	.01
IN.	.01	.02	.02	.02	.01	.02	.03	.05	.03	.01	.01	.01

CAL YR 1988 TOTAL 34865 MEAN 95.3 MAX 696 MIN 12 CFSM .01 IN. .16
WTR YR 1989 TOTAL 51274.0 MEAN 140 MAX 2580 MIN 17 CFSM .02 IN. .23

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: Jan. 16-23, Apr. 14, May 7-15 and June 6-13. 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.--58 years (1921-22, 1927-35, 1940-89), 835 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, 14,300 ft³/s May 26, gage height, 20.02 ft; minimum daily, 123 ft³/s Oct. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	201	418	1050	996	598	2990	495	1940	909	497	541
2	123	222	405	969	823	543	2750	605	1750	862	419	318
3	155	307	342	803	767	537	5350	818	2200	786	366	200
4	164	606	331	686	666	573	5990	614	5270	795	394	157
5	163	1610	365	596	574	787	3940	555	2640	625	784	143
6	157	1560	371	840	532	877	2890	753	2500	552	446	146
7	153	1060	359	1630	489	724	2530	780	2200	502	363	270
8	143	953	333	3710	465	643	2200	800	1800	455	388	1150
9	137	806	315	1990	457	609	1840	810	1500	436	315	418
10	140	1500	295	1320	446	605	1450	910	1200	457	288	356
11	192	1330	297	1130	443	594	1240	1100	1000	426	284	375
12	248	1020	281	1200	438	585	948	1200	900	407	272	261
13	152	1260	274	1170	432	556	896	1300	2000	408	301	215
14	135	1260	343	919	963	556	1050	1400	5270	389	423	270
15	133	1030	637	1130	1220	695	897	1500	5530	373	272	851
16	137	891	480	940	1270	667	750	1870	5790	358	277	512
17	143	854	442	860	810	624	708	1810	2930	342	243	491
18	840	727	425	780	672	818	704	1420	2110	341	222	386
19	429	639	434	680	650	787	749	1120	1610	353	211	322
20	280	1150	763	600	650	705	861	988	3000	558	283	271
21	248	1720	1050	700	1120	843	661	1110	3640	401	395	234
22	638	1150	715	620	1640	682	628	701	3630	348	254	1790
23	766	933	1060	540	1240	668	590	2760	2600	380	218	2880
24	507	805	965	520	814	619	560	3120	1970	325	201	663
25	384	714	874	517	807	538	510	1800	1660	281	186	429
26	315	677	804	1720	821	491	557	10000	1480	390	180	355
27	267	631	893	1710	742	454	506	3970	1400	1050	167	315
28	262	627	3350	1130	629	588	452	2870	1850	1420	162	335
29	235	594	2370	1080	---	905	456	2620	1170	677	318	326
30	213	478	1550	1220	---	2590	523	2350	958	547	323	293
31	197	---	1120	1160	---	3160	---	2570	---	578	234	---
TOTAL	8185	27315	22661	33920	21576	24621	46176	54719	73498	16731	9686	15273
MEAN	264	910	731	1094	771	794	1539	1765	2450	540	312	509
MAX	840	1720	3350	3710	1640	3160	5990	10000	5790	1420	784	2880
MIN	123	201	274	517	432	454	452	495	900	281	162	143

CAL YR 1988 TOTAL 238251 MEAN 651 MAX 4270 MIN 83
WTR YR 1989 TOTAL 354361 MEAN 971 MAX 10000 MIN 123

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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 September 1988.
NITROGEN, NITRITE + NITRATE: October 1987 to September 1988
NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1988.
PHOSPHORUS: October 1987 to September 1988.
SUSPENDED SEDIMENT DISCHARGE: Water years 1950-74, December 1976 to September 1984, October 1987 to September 1988.

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.

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, 270 mg/L March 21, 1988; minimum daily mean, 77 mg/L Oct. 1, 1987.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,290 tons Feb. 20, 1988; minimum daily, 31.6 tons July 7, 1988.
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, 18.0 tons Sept. 4, 1988; minimum daily, .73 ton Aug. 2, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.9 mg/L March 26, 1988; minimum daily mean, .32 mg/L Aug. 31, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 40.4 tons March 26, 1988; minimum daily, .17 ton Sept. 26, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean 2.27 mg/L July 11, 1988; minimum daily mean .052 mg/L Apr. 26, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily 10.5 tons March 26, 1988; minimum daily, .042 ton Sept. 28, 30, 1988.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,000 mg/L May 16, 1988; minimum daily mean, 3 mg/L Nov. 23, 1987.
SEDIMENT LOADS: Maximum daily, 11,900 tons March 25, 1988; minimum daily, 2 tons Nov. 23, 1987.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 2,110 microsiemens Dec. 20; minimum, 267 microsiemens May 26.
pH: Maximum 8.9 units, on several days during March thru May; minimum, 7.6 units on several days during May thru July.
WATER TEMPERATURES: Maximum, 28.0°C July 11, 24, 25; minimum, .5°C Dec. 30, Feb. 9, 10.
DISSOLVED OXYGEN: Maximum, 16.4 mg/L March 27; minimum, 4.6 mg/L July 27.

Data unavailable for some water quality records and sediment--will be published in 1990 WDR.

EXTREMES FOR 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 270 mg/L March 21; minimum daily mean, 77 mg/L Oct. 1.
DISSOLVED CHLORIDE LOADS: Maximum daily, 1,290 tons Feb. 20; minimum daily, 31.6 tons July 7.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 9.8 mg/L July 11; minimum daily mean, .311 mg/L Jan. 21.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 18.0 tons Sept. 4; minimum daily, .73 ton Aug. 2.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.9 mg/L March 26; minimum daily mean, .32 mg/L Aug. 31.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 40.4 tons March 26; minimum daily, .17 ton Sept. 26.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean 2.27 mg/L July 11; minimum daily mean .052 mg/L Apr. 26.
TOTAL PHOSPHORUS LOADS: Maximum daily 10.5 tons March 26; minimum daily, .042 ton Sept. 28, 30.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,000 mg/L May 16; minimum daily mean, 3 mg/L Nov. 23.
SEDIMENT LOADS: Maximum daily, 11,900 tons March 25; minimum daily, 2 tons Nov. 23.

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE 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)
DEC											
21...	1045	1080	1500	8.1	3.0	5.0	58	8.8	71	6000	1200
MAR											
09...	1130	723	766	8.3	-1.0	4.0	3.8	12.5	99	1000	240
JUN											
26...	1145	1500	336	7.8	31.0	23.5	22	7.6	93	1700	2200
AUG											
15...	1530	255	705	8.5	22.0	23.0	6.5	9.8	118	3300	1000

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	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)
DEC											
21...	260	180	75	17	190	4.4	95	0	76	95	300
MAR											
09...	230	110	66	15	140	4.1	142	0	114	87	210
JUN											
26...	160	54	48	10	33	3.3	129	0	107	49	54
AUG											
15...	230	48	67	15	63	5.4	200	12	182	83	110

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)
DEC											
21...	0.3	7.1	818	0.06	1.60	0.39	0.38	1.3	0.11	0.07	0.05
MAR											
09...	0.3	5.1	615	0.06	2.00	0.11	0.11	0.90	0.06	0.02	0.01
JUN											
26...	0.2	7.7	300	0.03	1.30	0.06	0.03	0.50	0.07	0.04	0.05
AUG											
15...	0.4	6.3	465	0.02	3.10	0.04	0.02	0.60	0.12	0.06	0.04

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC											
21...	20	1	44	<0.5	<1	1	<3	5	29	<5	11
MAR											
09...	<10	1	46	<0.5	<1	1	<3	7	27	<5	12
JUN											
26...	30	2	35	<0.5	<1	<1	<3	8	87	1	7
AUG											
15...	20	2	39	<0.5	1	<1	<3	10	11	<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)
DEC										
21...	79	1.0	<10	6	<1	<1.0	250	<6	16	104
MAR										
09...	86	<0.1	<10	5	<1	<1.0	200	<6	29	11
JUN										
26...	13	<0.1	<10	<1	<1	<1.0	130	<6	9	106
AUG										
15...	19	0.2	<10	4	<1	<1.0	190	<6	14	22

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
Nov. 2	1615	<0.10	Apr. 5	--	<0.10	July 27	--	<0.10
Nov. 11	1330	<0.10	May 9	--	<0.10	Aug. 7	--	<0.10
Dec. 8	1230	<0.10	May 16	--	<0.10	Aug. 15	--	<0.10
Dec. 30	--	<0.10	May 23	--	<0.10	Aug. 29	--	<0.10
Jan. 11	1330	<0.10	June 1	--	<0.10	Sept. 6	--	<0.10
Feb. 1	--	<0.10	June 7	--	<0.10	Sept. 12	--	<0.10
Feb. 29	--	<0.10	June 13	--	<0.10	Sept. 20	--	<0.10
Mar. 14	--	<0.10	June 21	--	<0.10	Sept. 26	--	<0.10

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	1120	1040	1060	921	900	913	888	798	851	816	744	778
2	1030	1000	1020	951	909	925	942	879	905	768	744	762
3	1000	981	995	993	918	970	993	945	964	756	738	744
4	1020	954	994	903	810	839	1020	996	1010	900	768	827
5	951	915	936	840	504	684	999	903	946	1230	909	1070
6	966	912	946	696	492	610	945	906	927	1920	1230	1550
7	966	954	961	786	705	749	954	927	938	1990	1210	1670
8	963	951	958	807	759	785	942	921	933	825	795	895
9	969	948	961	762	753	759	939	906	922	795	717	753
10	966	945	957	753	579	680	957	912	931	720	690	709
11	954	900	938	675	579	644	1030	960	993	735	660	692
12	885	732	794	675	642	662	1290	1030	1160	705	660	681
13	933	846	896	714	654	689	1390	1270	1320	762	699	716
14	957	930	943	702	633	670	1610	1330	1380	780	669	705
15	969	945	958	711	669	686	2090	1680	1830	933	789	835
16	969	951	960	705	669	688	1680	1350	1520	783	750	767
17	1020	957	986	738	690	715	1340	1140	1220	771	738	759
18	930	666	800	741	693	720	1130	1060	1090	801	735	768
19	846	696	761	747	726	732	1380	1110	1180	789	750	772
20	930	852	897	735	666	711	2110	1440	1850	792	750	769
21	1000	933	974	627	585	609	1660	1300	1470	906	780	826
22	999	798	918	678	627	656	1310	1160	1230	990	876	943
23	846	807	821	711	678	699	1230	1100	1150	993	921	960
24	906	810	852	720	699	707	1140	1040	1070	918	846	889
25	936	915	923	726	687	705	1060	984	1030	885	825	847
26	960	942	953	747	687	715	993	885	963	1010	744	891
27	972	921	950	864	753	822	1020	867	914	819	777	800
28	930	915	921	855	786	823	1210	774	936	798	735	773
29	945	924	935	777	744	761	921	837	879	747	729	736
30	921	888	900	795	744	769	837	777	807	732	690	711
31	906	891	901	---	---	---	861	795	831	708	687	697
MONTH	1120	666	928	993	492	737	2110	774	1100	1990	660	848
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	711	690	701	1130	1060	1100	957	834	905	909	882	893
2	723	672	703	1120	1030	1060	819	681	734	924	858	900
3	846	672	751	1070	960	1010	687	516	584	867	804	832
4	1220	855	1040	1030	936	968	567	489	518	864	822	837
5	1250	1170	1210	1130	966	1030	531	516	522	873	846	861
6	1230	1180	1210	1060	906	957	528	510	520	894	741	853
7	1240	1140	1170	1100	903	987	519	495	507	771	732	750
8	1160	1110	1140	1350	1030	1120	534	510	521	768	744	758
9	1150	1030	1080	1320	996	1150	573	540	557	804	768	795
10	1080	1010	1050	981	906	947	675	579	614	807	651	758
11	1110	1020	1060	918	882	903	699	633	669	654	627	638
12	1120	1090	1110	897	876	890	717	642	676	672	642	660
13	1090	1030	1060	882	858	870	822	738	766	675	645	659
14	1780	1090	1410	888	858	877	747	708	735	663	585	624
15	1310	1110	1180	1150	876	936	735	708	722	597	576	587
16	1150	1040	1100	1240	954	1050	726	714	721	624	579	597
17	1040	981	1010	945	894	919	741	699	718	579	567	573
18	975	951	962	1050	867	944	807	744	767	600	573	582
19	942	909	926	969	936	953	765	735	750	606	588	596
20	924	897	912	1090	963	1010	747	729	737	729	591	661
21	1120	918	1030	1420	1190	1310	750	729	739	648	588	617
22	957	864	892	1360	1190	1270	1600	726	782	639	609	626
23	864	840	852	1180	1060	1120	795	756	776	663	429	561
24	846	816	829	1050	1030	1040	804	762	784	528	432	483
25	813	744	790	1020	987	998	867	792	817	660	495	536
26	942	741	798	999	975	983	921	870	891	564	267	387
27	1340	933	1170	984	963	974	885	867	877	---	---	---
28	1270	1120	1170	1130	972	1050	921	891	904	---	---	---
29	---	---	---	1060	819	883	924	879	895	---	---	---
30	---	---	---	852	657	757	903	876	890	---	---	---
31	---	---	---	912	666	742	---	---	---	460	388	401
MONTH	1780	672	1010	1420	657	994	1600	489	720	924	267	668

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	453	438	445	597	579	591	735	705	720	906	594	746
2	483	438	452	594	576	586	765	732	745	900	750	859
3	432	351	410	618	573	598	807	768	783	882	846	862
4	381	318	358	711	594	637	831	729	807	966	885	930
5	417	384	399	735	654	705	1000	567	721	966	951	959
6	441	417	428	1150	729	902	795	648	725	984	951	967
7	474	444	462	1170	1050	1130	816	789	800	978	543	918
8	510	477	495	1160	876	987	819	696	782	660	531	608
9	603	507	552	867	840	853	858	822	845	---	---	---
10	606	570	594	864	846	856	876	858	866	---	---	---
11	633	582	612	882	843	861	882	852	869	---	---	---
12	663	618	636	888	858	872	879	855	870	---	---	---
13	642	516	556	891	879	885	906	879	888	864	849	860
14	424	341	378	906	882	892	903	624	770	891	729	869
15	400	341	367	918	897	907	831	786	798	831	543	654
16	412	341	371	915	891	904	897	840	878	801	630	729
17	459	412	422	915	897	907	945	879	897	798	732	765
18	482	447	462	957	909	921	930	900	915	804	747	779
19	518	471	492	957	915	946	954	933	944	819	792	803
20	576	365	491	933	867	907	960	891	936	852	822	839
21	471	388	429	888	720	778	927	720	867	888	852	871
22	447	388	417	894	798	859	858	708	802	900	294	750
23	471	435	445	921	870	895	906	864	893	615	420	497
24	482	459	470	888	864	876	948	903	930	777	627	707
25	518	482	490	900	888	892	945	933	940	855	780	818
26	518	494	504	912	834	894	957	936	949	867	795	827
27	576	506	535	861	492	621	978	954	969	846	828	838
28	576	506	534	708	480	558	993	966	981	852	828	841
29	565	529	547	729	531	642	999	948	980	861	834	849
30	591	553	580	768	717	738	984	654	794	876	852	863
31	---	---	---	774	711	752	891	792	834	---	---	---
MONTH	663	318	478	1170	480	818	1000	567	855	984	294	808
YEAR	2110	267	833									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	21.6	19.4	20.4	8.0	6.5	7.0	6.5	6.0	6.0	2.5	2.0	2.5
2	20.9	19.2	20.3	8.0	7.5	8.0	6.0	5.0	5.5	2.5	2.0	2.5
3	19.1	17.2	18.1	10.0	7.5	9.0	6.0	4.5	5.5	2.0	1.5	2.0
4	17.0	14.4	15.5	12.5	10.0	11.5	6.0	5.5	5.5	2.0	1.0	1.5
5	14.3	13.0	13.5	12.5	12.0	12.0	5.5	5.0	5.5	2.0	1.0	1.5
6	13.5	12.5	13.0	12.0	8.5	10.0	6.0	5.0	5.5	3.5	2.0	2.5
7	12.5	12.0	12.5	8.5	8.0	8.0	6.0	6.0	6.0	4.0	3.0	3.5
8	12.5	11.0	12.0	9.0	8.0	8.5	6.0	4.5	5.5	4.5	3.0	4.0
9	12.5	11.5	12.0	9.5	8.5	9.5	4.5	3.5	4.0	3.0	2.0	2.5
10	12.5	12.0	12.5	10.5	9.5	10.0	3.5	2.5	3.0	2.5	1.5	2.0
11	12.0	11.0	12.0	10.0	8.5	9.0	2.5	2.0	2.5	3.0	2.0	2.5
12	11.0	9.0	9.5	8.5	7.5	8.0	2.0	1.5	2.0	4.5	3.0	4.0
13	9.5	9.0	9.5	9.0	8.0	8.5	2.0	1.5	1.5	3.5	3.0	3.5
14	10.0	8.0	9.0	8.5	7.0	8.0	3.5	1.5	2.5	2.5	2.0	2.5
15	12.0	9.5	10.5	9.5	8.0	8.5	4.5	3.5	4.0	3.0	2.5	3.0
16	13.5	12.0	13.0	11.0	9.0	10.0	3.5	2.0	2.5	3.5	2.5	3.0
17	14.5	13.5	14.0	10.5	8.5	9.5	2.5	2.0	2.0	3.5	2.5	3.0
18	15.5	14.0	15.0	8.5	7.5	8.0	2.5	2.0	2.0	4.5	3.5	4.0
19	14.0	12.0	13.0	9.0	8.0	8.5	3.0	1.5	2.5	5.0	4.5	4.5
20	12.0	11.0	11.5	9.5	9.0	9.5	5.5	3.0	4.0	4.5	3.0	4.5
21	11.5	11.0	11.0	9.0	7.5	8.0	5.5	5.0	5.0	3.0	2.5	2.5
22	11.0	10.5	11.0	8.0	7.5	7.5	5.0	4.5	4.5	3.5	2.0	2.5
23	11.0	10.0	10.5	7.5	6.5	7.0	6.0	4.5	5.5	4.0	2.5	3.0
24	10.0	9.0	9.5	7.0	6.0	6.5	5.5	4.5	5.0	4.5	3.0	3.5
25	9.0	8.5	9.0	6.5	5.5	6.5	5.0	4.0	4.5	5.5	4.0	4.5
26	8.5	8.0	8.5	8.5	6.5	7.5	3.5	3.0	3.5	6.5	5.0	6.0
27	8.5	7.5	8.0	9.5	8.5	9.0	5.0	3.0	4.0	5.5	4.0	4.5
28	10.0	8.5	9.0	9.0	7.0	8.0	5.5	3.0	4.5	5.0	3.5	4.5
29	9.0	8.0	8.5	6.5	6.0	6.5	3.0	1.5	2.5	5.5	5.0	5.5
30	8.5	7.5	8.0	6.5	6.5	6.5	1.5	.5	1.5	5.5	5.0	5.5
31	7.5	6.0	7.0	---	---	---	2.5	1.5	2.0	6.5	5.0	5.5
MONTH	21.6	6.0	11.8	12.5	5.5	8.5	6.5	.5	4.0	6.5	1.0	3.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.0	6.0	6.5	4.5	3.0	4.0	7.5	6.5	7.0	17.0	14.5	16.0
2	6.5	5.0	5.5	3.5	2.5	3.0	8.5	6.5	7.5	15.0	13.0	14.0
3	5.0	3.5	4.0	5.5	3.5	4.5	9.0	7.5	8.0	14.0	12.0	13.0
4	3.0	2.5	3.0	8.0	5.5	6.5	10.5	8.5	9.5	15.0	11.0	13.0
5	3.5	2.5	3.0	7.5	4.0	6.5	10.5	9.5	10.0	16.0	14.5	15.5
6	3.0	1.5	2.5	4.0	2.5	3.0	9.5	8.5	9.0	15.5	11.0	13.5
7	2.5	1.0	1.5	4.0	1.5	2.5	9.5	8.0	8.5	11.0	10.0	10.5
8	2.0	1.0	1.5	4.5	2.5	3.5	9.0	7.5	8.5	12.5	10.5	11.5
9	1.5	.5	1.0	6.0	3.5	4.5	9.5	8.0	8.5	13.0	12.0	12.5
10	2.0	.5	1.5	6.5	4.0	5.5	9.0	6.5	8.0	12.5	11.5	12.0
11	3.5	2.0	2.5	8.5	5.5	7.0	8.5	7.5	8.0	12.5	11.0	11.5
12	3.5	2.5	3.0	7.5	5.5	7.0	9.5	7.0	8.5	12.5	12.0	12.0
13	3.0	2.5	3.0	7.0	4.5	6.0	10.5	8.5	9.5	12.5	12.0	12.0
14	4.0	2.0	3.0	10.0	6.5	8.0	11.5	8.0	10.0	13.5	12.0	12.5
15	3.5	3.0	3.5	10.5	8.0	9.5	12.0	10.5	11.5	13.5	12.0	12.5
16	3.5	3.0	3.5	8.5	6.5	8.0	12.5	9.0	11.0	15.0	12.5	13.5
17	3.0	2.0	2.5	9.5	7.0	8.5	12.0	11.5	11.5	17.0	13.0	15.0
18	3.5	2.0	2.5	9.5	6.5	8.0	12.0	10.5	11.5	18.0	15.0	16.0
19	4.5	2.5	3.5	6.0	5.0	5.5	13.0	9.5	11.5	18.5	16.5	17.5
20	5.0	4.0	4.5	5.5	4.5	5.5	13.5	11.0	12.0	18.5	17.5	18.0
21	5.0	4.5	4.5	5.5	4.5	5.0	14.5	12.5	13.5	19.5	16.5	18.0
22	4.0	3.0	4.0	6.0	3.0	4.5	13.5	11.5	12.5	20.0	17.5	18.5
23	3.0	1.5	2.5	8.0	4.5	6.0	14.0	11.0	12.5	19.5	15.0	17.0
24	2.5	1.0	1.5	8.5	7.0	8.0	14.5	11.0	12.5	19.0	15.0	16.5
25	2.5	1.0	1.5	10.0	7.5	9.0	14.5	12.0	13.0	21.0	18.0	19.5
26	3.5	2.5	3.0	12.0	8.5	10.0	16.5	13.0	14.5	21.0	18.5	19.5
27	4.0	3.0	3.5	14.5	10.5	12.5	17.5	15.0	16.0	---	---	---
28	4.5	2.5	3.5	16.0	13.5	14.5	16.5	14.5	15.5	---	---	---
29	---	---	---	15.5	12.5	14.0	14.5	13.5	14.0	---	---	---
30	---	---	---	12.5	9.5	10.5	18.0	14.5	16.0	---	---	---
31	---	---	---	9.5	7.0	8.0	---	---	---	22.0	21.0	21.5
MONTH	7.0	.5	3.0	16.0	1.5	7.0	18.0	6.5	11.0	22.0	10.0	15.0

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

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

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.4	8.3	9.2	12.6	11.8	12.2	13.7	12.6	13.1	13.0	12.7	12.9
2	8.7	7.7	8.1	11.8	10.8	11.2	14.7	13.3	14.0	12.9	12.7	12.8
3	9.6	7.8	8.6	11.8	10.4	11.0	15.2	14.3	14.8	12.9	12.7	12.8
4	10.1	8.6	9.4	10.3	9.2	9.7	15.4	14.4	14.9	13.1	12.7	12.9
5	10.4	9.1	9.8	9.1	7.8	8.7	15.7	14.8	15.2	13.0	12.6	12.8
6	10.8	9.5	10.1	10.2	8.2	9.3	15.3	14.5	14.9	12.6	11.9	12.3
7	10.9	9.8	10.3	10.7	10.3	10.6	14.5	14.1	14.3	12.0	11.9	11.9
8	11.2	9.8	10.5	10.6	10.5	10.5	14.7	13.9	14.3	12.3	11.9	12.0
9	11.1	9.8	10.4	10.7	10.4	10.5	14.9	14.0	14.4	12.8	12.3	12.6
10	10.7	9.6	10.2	10.3	9.5	10.1	14.6	14.0	14.3	12.8	12.4	12.7
11	10.5	9.5	10.0	10.7	9.6	10.3	14.6	13.9	14.3	12.8	12.6	12.7
12	10.6	10.0	10.4	11.1	10.7	10.9	14.6	14.2	14.4	12.5	12.1	12.3
13	11.4	10.5	10.9	10.7	10.3	10.5	14.2	13.2	13.7	12.6	12.1	12.4
14	11.9	10.8	11.2	11.1	10.5	10.8	14.0	12.8	13.4	12.9	12.6	12.7
15	11.6	10.4	10.9	10.8	10.4	10.6	13.5	12.2	12.8	12.6	12.1	12.4
16	11.0	9.8	10.4	10.4	9.9	10.2	14.4	12.7	13.5	12.7	12.3	12.5
17	10.0	9.2	9.6	10.6	9.9	10.3	14.2	12.9	13.6	12.6	12.1	12.4
18	9.2	8.1	8.5	11.4	10.7	11.0	13.6	12.5	13.1	12.5	12.1	12.3
19	9.7	8.3	9.1	11.0	10.6	10.8	12.8	11.4	12.2	12.3	11.7	12.0
20	10.5	9.5	10.0	10.6	10.3	10.5	11.4	10.6	11.0	12.2	11.5	11.9
21	10.4	10.0	10.2	11.2	10.4	10.9	11.5	10.1	10.9	13.0	12.2	12.5
22	10.3	9.9	10.1	11.4	11.2	11.3	12.2	11.1	11.5	12.6	12.3	12.5
23	10.4	10.1	10.3	11.7	11.2	11.4	11.4	10.6	11.0	12.6	12.0	12.4
24	11.1	10.4	10.7	11.7	11.3	11.5	11.2	10.6	10.9	12.9	11.7	12.4
25	11.5	10.7	11.1	11.9	11.4	11.7	11.5	10.7	11.1	12.6	11.8	12.2
26	11.7	11.0	11.4	11.7	11.0	11.4	11.9	11.2	11.5	11.9	11.3	11.5
27	12.0	11.2	11.6	11.0	10.6	10.8	11.8	11.2	11.4	12.1	11.4	11.9
28	11.6	11.0	11.3	12.2	10.6	11.2	12.3	10.8	11.5	12.5	12.0	12.2
29	12.1	10.9	11.5	13.2	12.0	12.6	13.0	12.3	12.7	12.2	11.8	11.9
30	12.4	11.3	11.8	12.9	12.5	12.7	13.3	13.0	13.1	12.0	11.6	11.8
31	12.9	11.8	12.3	---	---	---	13.0	12.8	13.0	12.4	11.6	12.0
MONTH	12.9	7.7	10.3	13.2	7.8	10.8	15.7	10.1	13.1	13.1	11.3	12.3

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.2	11.5	11.8	14.3	12.3	13.2	11.4	11.0	11.2	10.5	8.2	9.3
2	12.1	11.5	11.8	14.5	12.5	13.4	11.4	11.0	11.3	12.1	8.5	9.9
3	12.8	11.8	12.3	14.6	12.3	13.3	11.0	10.3	10.7	9.9	8.8	9.4
4	13.4	12.4	12.8	14.4	11.7	12.9	10.6	9.8	10.2	13.2	9.2	10.9
5	13.6	12.5	13.0	12.2	11.0	11.7	10.2	9.8	10.1	12.7	8.6	10.3
6	13.6	12.4	12.9	13.1	12.1	12.6	10.5	10.2	10.4	11.1	8.4	9.7
7	14.0	12.6	13.3	14.3	12.6	13.3	10.5	10.2	10.4	10.2	9.4	9.7
8	14.1	12.7	13.4	14.6	12.6	13.5	10.2	9.8	10.1	11.3	9.4	10.1
9	14.4	13.2	13.7	14.7	12.3	13.4	10.1	9.7	9.9	11.1	8.9	9.9
10	14.3	13.1	13.6	14.8	12.1	13.3	10.4	9.9	10.2	9.6	9.0	9.3
11	14.3	12.7	13.4	14.7	11.5	13.0	10.4	9.9	10.2	9.6	9.2	9.4
12	14.2	12.6	13.4	13.9	10.9	12.3	10.6	9.7	10.2	9.8	9.3	9.5
13	13.2	12.6	13.0	15.5	11.8	13.4	9.6	9.2	9.4	10.0	9.3	9.6
14	13.0	12.4	12.7	15.8	11.2	12.9	---	---	---	9.8	9.1	9.5
15	13.0	12.6	12.8	11.7	9.9	10.9	---	---	---	9.9	9.2	9.5
16	13.3	12.6	12.9	14.3	10.2	12.1	11.4	9.4	10.2	9.7	9.0	9.3
17	14.3	13.0	13.6	14.7	10.8	12.6	10.7	9.0	9.7	---	---	---
18	14.4	13.0	13.6	11.6	10.2	10.8	10.1	8.9	9.5	9.2	8.2	8.8
19	14.3	12.6	13.4	13.6	11.1	12.3	11.7	9.3	10.4	9.0	7.9	8.3
20	14.0	12.3	13.1	13.2	11.5	12.4	12.0	9.3	10.5	8.4	7.6	8.0
21	12.7	11.8	12.0	13.1	11.4	12.2	12.0	8.9	10.3	8.6	7.6	8.1
22	12.5	12.0	12.2	15.2	12.1	13.4	12.8	9.1	10.7	8.9	7.8	8.3
23	13.6	12.4	13.0	15.1	11.8	13.3	13.2	9.2	10.9	8.3	7.6	7.9
24	14.0	13.0	13.5	14.1	10.8	12.3	13.8	9.3	11.2	8.2	7.9	8.1
25	13.7	13.1	13.4	14.7	10.6	12.4	12.4	9.0	10.5	8.1	5.6	7.3
26	13.3	12.6	13.0	15.8	10.5	12.4	12.7	8.2	10.1	8.5	6.9	7.4
27	13.4	12.4	12.9	16.4	10.0	12.4	13.7	8.3	10.4	---	---	---
28	14.2	12.5	13.3	11.6	9.0	10.2	10.8	8.1	9.3	---	---	---
29	---	---	---	9.4	8.4	9.0	11.3	8.3	9.5	---	---	---
30	---	---	---	10.4	9.5	10.0	12.4	8.2	9.9	---	---	---
31	---	---	---	11.3	10.1	10.7	---	---	---	8.5	7.3	8.2
MONTH	14.4	11.5	13.0	16.4	8.4	12.3	13.8	8.1	10.3	13.2	5.6	9.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.9	7.5	7.7	8.0	7.4	7.7	8.0	7.3	7.6	7.6	6.5	7.0
2	7.8	7.1	7.5	8.1	7.3	7.7	8.1	7.2	7.6	7.8	7.0	7.3
3	7.7	7.4	7.6	8.1	7.3	7.6	8.5	7.0	7.7	8.5	7.1	7.8
4	7.6	6.8	7.2	7.6	7.3	7.4	8.2	6.8	7.5	8.9	7.5	8.1
5	7.6	7.3	7.5	7.8	7.3	7.5	8.0	6.1	7.0	9.0	7.6	8.2
6	7.7	7.3	7.5	8.3	7.2	7.6	8.9	6.8	7.7	9.1	7.5	8.2
7	7.5	7.0	7.3	8.6	7.0	7.6	9.3	7.1	8.0	8.3	6.9	7.6
8	7.2	6.9	7.1	8.9	7.0	7.8	9.2	7.8	8.4	7.5	6.8	7.0
9	7.2	6.8	7.0	9.2	6.9	7.9	9.5	8.2	8.8	---	---	---
10	7.5	7.1	7.3	8.9	7.1	7.9	10.3	7.8	8.9	---	---	---
11	7.8	7.3	7.6	9.5	6.7	8.0	11.3	7.5	9.2	---	---	---
12	7.8	7.3	7.5	7.9	6.6	7.3	11.3	7.4	9.4	---	---	---
13	8.1	7.5	7.9	9.1	7.1	8.0	10.7	7.0	8.8	8.6	7.9	8.1
14	8.1	7.0	7.4	9.3	7.2	8.1	8.2	7.4	7.9	8.0	7.4	7.8
15	8.2	7.3	7.7	9.8	7.2	8.4	9.6	7.1	8.3	7.9	6.2	7.1
16	8.4	7.9	8.2	10.1	7.3	8.6	11.6	7.2	9.1	8.3	7.6	8.0
17	8.3	8.0	8.1	10.9	7.3	8.9	11.4	7.1	9.1	8.5	7.6	8.1
18	8.4	7.9	8.2	11.1	7.3	9.1	10.7	7.1	8.8	8.8	8.0	8.4
19	8.2	7.8	8.1	8.9	7.1	8.0	9.4	7.0	8.2	8.9	8.0	8.4
20	8.0	7.5	7.9	8.9	7.1	7.7	8.9	7.1	7.8	8.9	7.9	8.4
21	8.1	7.5	7.8	10.7	6.3	8.2	8.9	7.0	7.8	9.0	7.7	8.3
22	7.8	7.4	7.6	8.8	6.5	7.6	9.3	6.6	7.8	8.5	7.0	7.8
23	7.6	7.3	7.4	9.4	6.7	7.8	8.5	6.7	7.6	8.2	6.4	7.3
24	7.6	7.2	7.4	9.3	6.5	7.8	10.0	6.8	8.2	8.7	8.2	8.5
25	7.8	7.3	7.5	9.0	6.3	7.6	10.6	6.9	8.6	9.0	8.5	8.7
26	7.7	7.1	7.4	8.1	6.3	7.0	10.7	6.9	8.7	8.8	8.4	8.6
27	7.3	6.9	7.1	6.5	4.6	5.7	10.5	6.9	8.5	9.2	8.5	8.8
28	7.1	6.3	6.8	6.8	5.5	6.2	10.3	7.0	8.5	9.3	8.8	9.0
29	7.6	7.0	7.4	7.5	6.7	7.1	8.8	6.6	7.5	9.2	8.5	8.8
30	7.9	7.4	7.6	7.7	7.0	7.3	9.0	5.9	7.3	9.4	8.3	8.8
31	---	---	---	7.9	7.4	7.6	9.4	6.3	7.7	---	---	---
MONTH	8.4	6.3	7.5	11.1	4.6	7.7	11.6	5.9	8.2	9.4	6.2	8.1
YEAR	16.4	4.6	10.3									

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	433	77	89.7	426	96	110	569	120	186
2	394	85	90.1	403	95	104	796	170	369
3	503	85	116	398	95	102	724	190	370
4	444	85	102	381	95	97.7	886	310	759
5	395	84	89.2	354	93	88.8	895	390	953
6	372	86	86.2	373	91	92.1	774	330	686
7	600	85	137	355	94	90.4	691	240	455
8	892	73	175	346	93	86.9	827	210	456
9	532	80	115	460	93	115	1370	180	648
10	440	87	104	480	90	117	1140	150	445
11	792	87	186	451	94	115	932	120	307
12	614	87	143	428	99	114	1010	110	300
13	615	86	142	362	98	95.7	887	100	247
14	504	85	116	293	99	78.1	811	99	217
15	463	84	105	263	100	70.9	1590	110	456
16	434	84	102	255	100	70.9	1310	110	391
17	471	86	112	279	100	77.2	1080	110	329
18	480	87	115	397	95	102	993	120	309
19	437	84	101	241	98	63.4	952	120	303
20	430	86	101	242	110	69.6	3050	100	829
21	425	86	99.1	257	110	76.3	2220	91	548
22	545	85	125	230	120	73.0	1830	92	458
23	392	87	92.3	224	160	95.8	1420	91	350
24	341	93	85.5	274	190	143	1300	96	336
25	486	99	129	280	180	137	1220	99	326
26	374	97	98.0	433	170	198	1080	96	280
27	557	97	145	331	150	135	959	95	246
28	629	97	164	282	130	103	884	90	216
29	577	96	150	495	140	190	1050	100	285
30	522	96	135	592	120	194	857	180	409
31	495	96	128	---	---	---	732	180	349
TOTAL	15588	---	3678.1	10585	---	3205.8	34839	---	12818
		JANUARY			FEBRUARY			MARCH	
1	855	180	421	2700	140	1000	928	120	302
2	620	160	272	3490	120	1140	852	110	259
3	561	140	206	2410	110	727	862	120	284
4	527	120	173	1900	130	663	854	160	380
5	467	120	156	1540	150	631	797	260	562
6	533	150	215	1190	160	498	760	250	506
7	448	130	154	1000	150	403	841	180	415
8	324	130	111	866	140	334	884	150	350
9	495	120	164	817	140	301	962	150	383
10	488	130	167	712	130	252	1040	140	394
11	477	120	156	622	130	211	899	130	317
12	382	120	127	616	120	202	843	120	279
13	355	130	121	544	130	189	1010	130	348
14	349	130	124	496	140	186	937	130	327
15	340	150	135	987	150	405	893	170	399
16	338	150	138	1110	160	487	881	260	607
17	428	170	202	953	180	453	839	250	568
18	948	230	600	1160	190	597	902	220	544
19	728	210	407	1540	200	835	923	210	532
20	1870	150	760	3400	140	1290	922	230	571
21	1500	120	499	1930	130	679	913	270	667
22	1130	110	347	1390	130	488	928	240	610
23	993	120	313	2430	130	847	1040	200	562
24	946	120	307	1910	110	594	1110	170	497
25	889	120	292	1510	100	425	2410	150	918
26	774	120	259	1340	120	433	4270	110	1210
27	633	130	216	1270	120	425	2400	110	714
28	530	130	185	1110	130	379	1730	100	488
29	470	130	167	1020	130	354	1610	96	418
30	559	130	203	---	---	---	1460	94	371
31	822	140	304	---	---	---	1230	94	312
TOTAL	20779	---	7901	41963	---	15428	36930	---	15094

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1070	97	278	667	110	203	241	120	75.8
2	961	100	261	471	120	152	264	110	80.7
3	1760	110	509	391	120	127	257	130	89.3
4	3070	96	797	368	120	119	260	120	84.2
5	2110	97	551	486	120	156	242	140	88.9
6	1610	98	428	594	110	179	227	130	82.5
7	1640	100	444	447	110	133	224	140	81.9
8	1570	100	430	383	110	115	219	140	81.2
9	1300	100	363	378	120	121	229	120	76.5
10	1120	100	317	763	110	230	229	130	80.1
11	1010	110	291	618	110	184	217	140	81.2
12	907	110	265	465	110	138	215	140	80.7
13	788	110	234	432	110	128	208	130	74.5
14	691	110	209	434	110	129	216	140	80.7
15	661	110	203	437	110	130	210	140	79.6
16	692	120	216	1330	99	356	234	140	88.6
17	667	120	212	744	98	197	313	140	117
18	816	120	262	484	110	139	249	130	87.9
19	715	110	218	474	110	141	224	120	73.6
20	627	110	186	564	110	167	203	120	66.8
21	609	110	181	483	110	143	227	130	78.3
22	478	110	142	419	110	124	212	120	70.2
23	559	110	168	375	110	111	219	130	75.2
24	622	120	201	661	100	182	199	120	65.4
25	461	120	145	390	100	105	174	120	56.3
26	417	120	135	327	110	94.2	170	120	56.4
27	382	120	124	307	110	91.0	180	120	57.1
28	512	120	166	293	110	87.0	174	120	58.0
29	802	120	260	277	110	82.3	161	130	54.4
30	1040	120	333	252	110	74.9	115	130	39.7
31	---	---	---	253	110	75.3	---	---	---
TOTAL	29667	---	8529	14967	---	4413.7	6512	---	2262.7
		JULY			AUGUST			SEPTEMBER	
1	111	130	38.7	152	110	43.2	193	130	67.6
2	109	130	38.6	139	100	38.7	157	130	55.1
3	109	130	39.2	453	100	122	229	130	78.0
4	98	140	35.6	190	100	52.9	2350	110	689
5	87	140	32.3	259	110	75.3	1600	87	375
6	87	140	32.7	552	110	165	889	87	209
7	83	140	31.6	254	110	78.4	622	88	148
8	92	140	35.5	153	120	49.0	479	85	109
9	90	150	35.2	128	120	41.6	344	90	83.3
10	96	150	38.2	119	120	38.4	260	100	70.0
11	264	150	105	125	120	40.6	202	120	63.1
12	172	130	61.8	117	120	37.8	205	110	61.5
13	128	130	44.4	107	120	34.6	612	110	190
14	112	120	36.8	103	120	33.5	348	96	91.9
15	115	120	37.2	105	120	33.9	229	95	58.9
16	127	120	41.4	101	120	32.9	207	100	55.8
17	121	130	41.8	107	120	34.7	176	110	50.8
18	185	130	64.8	114	120	36.9	176	120	55.3
19	621	130	216	357	120	115	219	110	65.6
20	459	100	130	206	100	58.7	250	110	74.6
21	1650	100	473	143	100	38.4	175	120	55.4
22	985	120	327	124	130	43.8	140	120	45.6
23	866	140	317	159	140	57.9	159	130	54.6
24	772	120	246	398	130	142	162	120	53.6
25	598	110	181	149	130	51.0	133	130	46.2
26	592	120	184	184	120	60.7	128	130	43.6
27	301	120	96.1	135	120	43.5	135	120	44.3
28	184	120	60.7	640	110	197	130	140	47.7
29	158	130	53.5	981	110	294	134	130	48.6
30	182	130	62.9	985	100	279	131	160	55.9
31	227	110	66.4	578	130	190	---	---	---
TOTAL	9781	---	3204.4	8317	---	2560.4	11174	---	3147.0
YEAR	241145		82224.2						

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	433	1.55	1.8	426	2.44	2.8	569	2.82	4.3
2	394	1.75	1.9	403	2.43	2.6	796	2.78	6.0
3	503	2.20	3.0	398	2.42	2.6	724	2.23	4.4
4	444	2.40	2.9	381	2.39	2.5	886	2.06	4.9
5	395	2.23	2.4	354	2.12	2.0	895	1.89	4.6
6	372	2.44	2.4	373	1.93	1.9	774	1.87	3.9
7	600	2.39	3.8	355	1.76	1.7	691	1.97	3.7
8	892	1.74	4.2	346	1.77	1.7	827	2.06	4.6
9	532	1.88	2.7	460	1.93	2.4	1370	1.90	7.0
10	440	2.00	2.4	480	1.98	2.6	1140	1.70	5.2
11	792	1.76	3.7	451	2.03	2.5	932	1.83	4.6
12	614	1.85	3.1	428	1.94	2.2	1010	1.73	4.7
13	615	1.82	3.0	362	2.18	2.1	887	1.71	4.1
14	504	1.73	2.4	293	2.77	2.2	811	2.10	4.6
15	463	1.84	2.3	263	3.00	2.1	1590	2.02	8.4
16	434	1.90	2.3	255	3.22	2.2	1310	1.71	6.1
17	471	1.76	2.3	279	3.67	2.8	1080	1.77	5.1
18	480	1.70	2.2	397	2.95	3.2	993	1.82	4.9
19	437	1.92	2.3	241	2.73	1.8	952	1.86	4.8
20	430	2.41	2.8	242	2.52	1.6	3050	1.28	10
21	425	2.39	2.8	257	2.54	1.8	2220	1.19	7.1
22	545	2.24	3.3	230	2.60	1.6	1830	1.31	6.5
23	392	2.29	2.4	224	3.22	1.9	1420	1.55	6.0
24	341	2.26	2.1	274	3.61	2.7	1300	1.60	5.6
25	486	2.04	2.7	280	3.59	2.7	1220	1.61	5.3
26	374	2.56	2.6	433	3.46	4.0	1080	1.70	5.0
27	557	2.33	3.4	331	3.06	2.7	959	1.83	4.7
28	629	2.36	4.0	282	2.94	2.2	884	2.23	5.3
29	577	2.49	3.9	495	3.04	4.1	1050	2.43	6.8
30	522	2.47	3.5	592	2.89	4.6	857	2.45	5.7
31	495	2.46	3.3	---	---	---	732	2.12	4.2
TOTAL	15588	---	87.9	10585	---	73.8	34839	---	168.1
		JANUARY			FEBRUARY			MARCH	
1	855	1.83	4.2	2700	1.01	7.2	928	2.44	6.1
2	620	1.98	3.3	3490	1.08	10	852	1.99	4.6
3	561	2.56	3.9	2410	1.34	8.7	862	2.05	4.8
4	527	2.65	3.8	1900	1.36	7.0	854	1.95	4.5
5	467	2.63	3.3	1540	1.09	4.6	797	2.06	4.4
6	533	2.31	3.3	1190	1.07	3.4	760	1.94	4.0
7	448	2.58	3.1	1000	1.18	3.2	841	1.55	3.5
8	324	2.95	2.6	866	1.29	3.0	884	1.72	4.1
9	495	3.02	4.0	817	1.42	3.1	962	1.55	4.0
10	488	2.65	3.5	712	1.57	3.0	1040	1.57	4.4
11	477	2.92	3.8	622	1.72	2.9	899	1.52	3.7
12	382	2.96	3.1	616	1.87	3.1	843	1.57	3.6
13	355	3.03	2.9	544	1.90	2.8	1010	1.54	4.2
14	349	3.02	2.8	496	1.89	2.5	937	1.55	3.9
15	340	2.61	2.4	987	1.51	3.9	893	.808	1.9
16	338	2.72	2.5	1110	1.61	4.8	881	.743	1.8
17	428	2.43	2.8	953	2.15	5.5	839	1.10	2.5
18	948	1.88	4.8	1160	2.26	7.1	902	1.07	2.6
19	728	1.97	3.8	1540	2.16	8.8	923	.786	2.0
20	1870	.935	4.8	3400	1.44	13	922	.929	2.3
21	1500	.311	1.3	1930	1.46	7.6	913	1.09	2.7
22	1130	.957	2.9	1390	1.29	4.9	928	1.47	3.7
23	993	1.67	4.5	2430	1.14	7.5	1040	1.25	3.5
24	946	1.77	4.5	1910	1.21	6.2	1110	1.27	3.8
25	889	1.80	4.3	1510	1.37	5.6	2410	1.01	5.3
26	774	1.80	3.8	1340	1.49	5.4	4270	.910	11
27	633	1.80	3.1	1270	1.89	6.5	2400	.959	6.2
28	530	1.80	2.6	1110	2.41	7.2	1730	1.28	5.9
29	470	1.80	2.3	1020	2.91	8.0	1610	1.41	6.1
30	559	1.80	2.7	---	---	---	1460	1.40	5.5
31	822	1.74	3.8	---	---	---	1230	1.40	4.6
TOTAL	20779	---	104.5	41963	---	166.5	36930	---	131.2

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1070	1.40	4.0	667	1.05	1.9	241	3.76	2.4
2	961	1.40	3.6	471	1.21	1.5	264	3.55	2.5
3	1760	1.37	6.4	391	1.30	1.4	257	3.47	2.4
4	3070	1.22	10	368	1.41	1.4	260	3.43	2.4
5	2110	1.24	7.1	486	1.56	2.0	242	3.38	2.2
6	1610	1.28	5.5	594	1.48	2.4	227	3.29	2.0
7	1640	1.31	5.8	447	1.26	1.5	224	3.39	2.0
8	1570	1.35	5.7	383	1.40	1.4	219	3.71	2.2
9	1300	1.39	4.9	378	1.56	1.6	229	3.45	2.1
10	1120	1.43	4.3	763	1.73	3.6	229	3.36	2.1
11	1010	1.47	4.0	618	1.64	2.7	217	3.75	2.2
12	907	1.51	3.7	465	1.70	2.1	215	4.03	2.3
13	788	1.55	3.3	432	1.81	2.1	208	3.92	2.2
14	691	1.60	3.0	434	1.95	2.3	216	3.81	2.2
15	661	1.64	2.9	437	1.87	2.2	210	3.79	2.2
16	692	1.69	3.2	1330	2.04	7.3	234	3.75	2.4
17	667	1.74	3.1	744	1.97	4.0	313	3.88	3.3
18	816	1.77	3.9	484	2.11	2.7	249	3.37	2.3
19	715	1.38	2.7	474	2.33	3.0	224	3.22	1.9
20	627	1.40	2.4	564	2.33	3.5	203	3.72	2.0
21	609	1.36	2.2	483	2.24	2.9	227	3.65	2.2
22	478	1.30	1.7	419	2.33	2.6	212	3.89	2.2
23	559	1.36	2.1	375	2.33	2.4	219	4.09	2.4
24	622	1.47	2.4	661	2.30	4.1	199	3.71	2.0
25	461	1.54	1.9	390	2.34	2.5	174	3.84	1.8
26	417	1.89	2.1	327	2.67	2.4	170	3.81	1.8
27	382	1.89	2.0	307	2.86	2.4	180	3.80	1.8
28	512	1.75	2.4	293	2.69	2.1	174	3.80	1.8
29	802	1.78	3.8	277	2.68	2.0	161	3.80	1.7
30	1040	1.27	3.6	252	3.20	2.2	115	3.80	1.2
31	---	---	---	253	3.51	2.4	---	---	---
TOTAL	29667	---	113.7	14967	---	78.6	6512	---	64.2
		JULY			AUGUST			SEPTEMBER	
1	111	3.80	1.1	152	1.80	.74	193	2.97	1.5
2	109	3.80	1.1	139	1.93	.73	157	3.54	1.5
3	109	3.80	1.1	453	1.85	2.3	229	3.87	2.3
4	98	3.80	1.0	190	1.87	.96	2350	2.83	18
5	87	3.80	.90	259	1.88	1.3	1600	2.02	8.7
6	87	3.80	.89	552	1.97	2.9	889	2.30	5.5
7	83	3.80	.85	254	2.34	1.6	622	2.65	4.4
8	92	3.80	.94	153	2.76	1.1	479	2.83	3.6
9	90	3.80	.92	128	2.98	1.0	344	3.17	2.9
10	96	3.81	.98	119	3.53	1.1	260	3.45	2.4
11	264	9.81	7.4	125	4.06	1.4	202	3.52	1.9
12	172	7.72	3.7	117	3.92	1.2	205	3.58	2.0
13	128	5.36	1.9	107	3.61	1.0	612	3.39	5.6
14	112	3.82	1.2	103	3.86	1.1	348	2.73	2.6
15	115	4.14	1.3	105	3.69	1.0	229	2.88	1.8
16	127	3.51	1.2	101	3.40	.93	207	3.37	1.9
17	121	3.17	1.0	107	3.70	1.1	176	3.43	1.6
18	185	2.66	1.3	114	3.62	1.1	176	3.42	1.6
19	621	3.45	5.8	357	3.40	3.3	219	3.80	2.2
20	459	2.72	3.4	206	2.54	1.5	250	3.95	2.7
21	1650	2.51	11	143	2.42	.93	175	3.67	1.7
22	985	1.91	5.1	124	3.13	1.0	140	3.61	1.4
23	866	1.88	4.4	159	2.94	1.2	159	4.36	1.9
24	772	2.19	4.5	398	1.94	2.0	162	4.67	2.0
25	598	2.11	3.3	149	2.29	.91	133	4.70	1.7
26	592	1.75	2.8	184	2.46	1.2	128	4.56	1.6
27	301	2.03	1.6	135	2.71	.98	135	4.29	1.6
28	184	2.35	1.2	640	2.12	3.2	130	4.78	1.7
29	158	2.73	1.2	981	2.75	7.3	134	4.75	1.7
30	182	3.11	1.5	985	2.78	7.4	131	4.23	1.5
31	227	2.20	1.4	578	2.85	4.4	---	---	---
TOTAL	9781	---	75.98	8317	---	57.88	11174	---	91.5
YEAR	241145		1214.61						

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	433	1.2	1.43	426	.80	.92	569	.91	1.40
2	394	1.5	1.58	403	.80	.87	796	1.3	2.89
3	503	1.3	1.79	398	.80	.86	724	1.4	2.72
4	444	1.3	1.58	381	.80	.82	886	1.4	3.28
5	395	1.1	1.13	354	.87	.83	895	1.4	3.36
6	372	1.1	1.07	373	.91	.91	774	1.1	2.33
7	600	1.1	1.87	355	1.1	1.05	691	.86	1.61
8	892	1.5	3.55	346	1.2	1.11	827	.81	1.83
9	532	1.3	1.85	460	1.0	1.22	1370	.99	3.64
10	440	.93	1.11	480	1.1	1.39	1140	1.4	4.14
11	792	.95	2.03	451	1.2	1.46	932	1.2	3.09
12	614	.99	1.64	428	1.4	1.58	1010	1.1	2.91
13	615	1.0	1.72	362	1.5	1.43	887	1.0	2.45
14	504	1.1	1.47	293	1.6	1.29	811	.78	1.72
15	463	1.1	1.38	263	1.7	1.21	1590	1.5	6.97
16	434	1.3	1.56	255	1.4	.98	1310	1.1	4.05
17	471	1.3	1.63	279	.84	.63	1080	1.0	2.99
18	480	1.1	1.50	397	1.1	1.17	993	.97	2.60
19	437	.80	.97	241	1.2	.81	952	.93	2.40
20	430	.60	.70	242	2.0	1.27	3050	1.7	15.2
21	425	.62	.71	257	2.1	1.47	2220	1.4	8.33
22	545	.74	1.10	230	1.9	1.16	1830	1.1	5.55
23	392	.64	.68	224	1.3	.78	1420	.93	3.57
24	341	.67	.62	274	.83	.61	1300	.89	3.13
25	486	.64	.84	280	1.0	.78	1220	.79	2.61
26	374	.79	.79	433	.92	1.07	1080	.64	1.86
27	557	.80	1.20	331	.80	.72	959	.72	1.86
28	629	.80	1.36	282	.73	.56	884	1.0	2.44
29	577	.80	1.24	495	.87	1.18	1050	1.0	2.90
30	522	.80	1.13	592	.90	1.44	857	1.0	2.43
31	495	.80	1.07	---	---	---	732	1.1	2.13
TOTAL	15588	---	42.30	10585	---	31.58	34839	---	108.39
		JANUARY			FEBRUARY			MARCH	
1	855	1.4	3.25	2700	1.5	11.3	928	.72	1.81
2	620	1.2	2.10	3490	2.2	20.7	852	.77	1.78
3	561	1.0	1.56	2410	1.3	8.18	862	.70	1.64
4	527	.93	1.32	1900	1.4	7.17	854	.63	1.46
5	467	1.0	1.30	1540	1.2	4.98	797	.74	1.60
6	533	1.5	2.13	1190	1.1	3.45	760	.64	1.32
7	448	1.4	1.73	1000	1.0	2.83	841	.74	1.68
8	324	1.4	1.24	866	1.0	2.37	884	.72	1.73
9	495	1.5	2.07	817	.99	2.17	962	.78	2.04
10	488	1.4	1.88	712	.96	1.84	1040	.79	2.22
11	477	1.3	1.70	622	.93	1.56	899	.72	1.76
12	382	1.4	1.48	616	.90	1.49	843	.81	1.85
13	355	1.7	1.66	544	.86	1.26	1010	1.0	2.84
14	349	2.3	2.20	496	.82	1.10	937	.89	2.26
15	340	5.3	4.91	987	1.2	3.50	893	.80	1.93
16	338	4.1	3.75	1110	1.3	3.93	881	.79	1.88
17	428	1.6	1.82	953	.97	2.50	839	.71	1.62
18	948	1.6	4.13	1160	.98	3.08	902	.71	1.73
19	728	1.3	2.48	1540	1.2	5.14	923	.79	1.98
20	1870	1.7	8.78	3400	1.9	17.7	922	.88	2.20
21	1500	1.3	5.49	1930	1.4	7.47	913	.78	1.93
22	1130	1.1	3.45	1390	1.2	4.52	928	.69	1.72
23	993	1.0	2.76	2430	1.6	10.5	1040	.62	1.76
24	946	.93	2.37	1910	1.6	8.26	1110	.71	2.13
25	889	.84	2.02	1510	1.5	6.30	2410	2.8	32.0
26	774	.75	1.56	1340	1.6	5.79	4270	2.9	40.4
27	633	.64	1.10	1270	1.3	4.43	2400	1.2	7.98
28	530	.55	.80	1110	1.0	3.06	1730	.87	4.13
29	470	.48	.61	1020	.82	2.26	1610	.70	3.04
30	559	.42	.63	---	---	---	1460	.70	2.76
31	822	.48	1.10	---	---	---	1230	.70	2.32
TOTAL	20779	---	73.38	41963	---	158.84	36930	---	137.50

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1070	.69	1.98	667	.70	1.26	241	.83	.54
2	961	.60	1.57	471	.71	.90	264	.80	.57
3	1760	1.1	6.65	391	.75	.79	257	.80	.56
4	3070	1.6	13.7	368	.80	.80	260	.86	.60
5	2110	1.3	7.30	486	.88	1.16	242	.83	.54
6	1610	1.3	5.47	594	.89	1.43	227	.91	.56
7	1640	1.2	5.48	447	.81	.98	224	.90	.55
8	1570	1.2	5.13	383	.83	.85	219	.90	.53
9	1300	1.2	4.18	378	.94	.96	229	1.1	.66
10	1120	1.2	3.53	763	.99	2.04	229	1.1	.67
11	1010	1.1	3.12	618	1.1	1.79	217	1.0	.59
12	907	1.1	2.76	465	1.0	1.26	215	1.0	.58
13	788	1.1	2.35	432	.90	1.05	208	1.0	.57
14	691	1.1	2.02	434	.82	.97	216	1.1	.63
15	661	1.1	1.90	437	1.0	1.31	210	1.0	.57
16	692	1.0	1.95	1330	2.3	8.43	234	.94	.60
17	667	1.0	1.85	744	1.1	2.27	313	1.1	.96
18	816	1.0	2.20	484	.93	1.22	249	1.1	.74
19	715	.86	1.66	474	.90	1.15	224	.97	.58
20	627	.73	1.24	564	.97	1.46	203	1.1	.60
21	609	.70	1.15	483	.93	1.21	227	.86	.53
22	478	.70	.90	419	.90	1.02	212	.96	.55
23	559	.92	1.54	375	.87	.88	219	.92	.55
24	622	1.0	1.79	661	.99	1.75	199	.97	.52
25	461	.71	.88	390	.81	.86	174	.91	.43
26	417	.71	.80	327	.70	.62	170	.90	.42
27	382	.78	.81	307	.70	.58	180	.90	.42
28	512	.80	1.10	293	.77	.60	174	.90	.42
29	802	.79	1.71	277	.73	.55	161	.90	.39
30	1040	.71	2.00	252	.70	.48	115	.90	.28
31	---	---	---	253	.83	.57	---	---	---
TOTAL	29667	---	88.72	14967	---	41.20	6512	---	16.71
		JULY			AUGUST			SEPTEMBER	
1	111	.90	.27	152	1.0	.42	193	.39	.20
2	109	.90	.26	139	1.0	.38	157	.48	.21
3	109	.90	.27	453	.99	1.21	229	.50	.31
4	98	.90	.24	190	.91	.47	2350	.47	2.98
5	87	.90	.21	259	.83	.57	1600	.34	1.46
6	87	.90	.21	552	.75	1.12	889	.48	1.13
7	83	.90	.20	254	.68	.47	622	.66	1.11
8	92	.90	.22	153	.62	.26	479	.70	.90
9	90	.90	.22	128	.61	.21	344	.70	.65
10	96	.90	.23	119	.73	.24	260	.69	.48
11	264	1.4	1.02	125	.60	.20	202	.63	.34
12	172	2.5	1.16	117	.67	.21	205	.75	.41
13	128	1.8	.61	107	.70	.20	612	.70	1.16
14	112	1.6	.47	103	.70	.20	348	.70	.65
15	115	1.9	.60	105	.74	.21	229	.63	.39
16	127	1.6	.54	101	.79	.22	207	.60	.33
17	121	1.4	.46	107	.87	.25	176	.60	.29
18	185	1.1	.51	114	.83	.26	176	.67	.32
19	621	.87	1.45	357	.87	.84	219	.75	.45
20	459	.83	1.03	206	.83	.47	250	.64	.43
21	1650	.93	4.21	143	.79	.31	175	.60	.28
22	985	.86	2.29	124	.63	.21	140	.61	.23
23	866	.73	1.70	159	.59	.25	159	.67	.29
24	772	.74	1.53	398	.57	.62	162	.60	.27
25	598	.80	1.37	149	.56	.22	133	.51	.19

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	433	.230	.27	426	.288	.33	569	.245	.38
2	394	.230	.24	403	.286	.31	796	.360	.77
3	503	.225	.31	398	.283	.30	724	.305	.60
4	444	.289	.34	381	.281	.29	886	.289	.69
5	395	.241	.26	354	.301	.29	895	.281	.68
6	372	.219	.22	373	.315	.32	774	.234	.49
7	600	.277	.47	355	.278	.27	691	.191	.36
8	892	.352	.87	346	.267	.25	827	.185	.44
9	532	.235	.34	460	.270	.34	1370	.539	1.99
10	440	.209	.25	480	.263	.34	1140	.540	1.64
11	792	.277	.60	451	.308	.37	932	.400	1.02
12	614	.260	.43	428	.331	.38	1010	.352	.97
13	615	.227	.38	362	.306	.30	887	.261	.63
14	504	.199	.27	293	.272	.21	811	.208	.46
15	463	.197	.25	263	.253	.18	1590	.526	2.51
16	434	.194	.23	255	.243	.17	1310	.478	1.71
17	471	.210	.27	279	.255	.19	1080	.422	1.23
18	480	.213	.28	397	.312	.33	993	.385	1.03
19	437	.185	.22	241	.310	.20	952	.355	.91
20	430	.203	.24	242	.482	.31	3050	.606	5.28
21	425	.222	.26	257	.364	.26	2220	.355	2.15
22	545	.234	.35	230	.246	.15	1830	.279	1.38
23	392	.173	.18	224	.217	.13	1420	.280	1.08
24	341	.181	.17	274	.225	.17	1300	.236	.83
25	486	.216	.28	280	.504	.38	1220	.212	.70
26	374	.241	.24	433	.528	.62	1080	.203	.59
27	557	.265	.41	331	.277	.25	959	.235	.61
28	629	.298	.51	282	.200	.15	884	.394	.94
29	577	.296	.46	495	.285	.39	1050	.391	1.11
30	522	.293	.41	592	.314	.50	857	.326	.76
31	495	.291	.39	---	---	---	732	.229	.45
TOTAL	15588	---	10.40	10585	---	8.68	34839	---	34.39
		JANUARY			FEBRUARY			MARCH	
1	855	.225	.52	2700	.429	3.18	928	.206	.52
2	620	.180	.31	3490	.604	5.84	852	.171	.39
3	561	.174	.26	2410	.356	2.34	862	.147	.34
4	527	.184	.26	1900	.304	1.57	854	.171	.39
5	467	.217	.27	1540	.240	1.01	797	.211	.45
6	533	.240	.35	1190	.222	.71	760	.160	.33
7	448	.205	.25	1000	.225	.61	841	.133	.30
8	324	.186	.16	866	.228	.53	884	.130	.31
9	495	.204	.27	817	.231	.51	962	.137	.36
10	488	.203	.27	712	.234	.45	1040	.128	.36
11	477	.214	.27	622	.237	.40	899	.105	.26
12	382	.258	.27	616	.240	.40	843	.113	.26
13	355	.320	.31	544	.240	.35	1010	.158	.43
14	349	.384	.36	496	.240	.32	937	.183	.47
15	340	.360	.33	987	.271	.74	893	.167	.40
16	338	.302	.28	1110	.285	.86	881	.144	.34
17	428	.223	.26	953	.267	.69	839	.140	.32
18	948	.326	.83	1160	.300	.94	902	.137	.33
19	728	.237	.47	1540	.417	1.93	923	.114	.28
20	1870	.420	2.14	3400	.697	6.76	922	.110	.27
21	1500	.301	1.23	1930	.344	1.84	913	.123	.30
22	1130	.216	.66	1390	.232	.88	928	.136	.34
23	993	.150	.40	2430	.409	2.71	1040	.130	.37
24	946	.130	.33	1910	.336	1.73	1110	.187	.56
25	889	.129	.31	1510	.360	1.47	2410	.568	6.47
26	774	.127	.27	1340	.352	1.28	4270	.809	10.5
27	633	.125	.21	1270	.324	1.11	2400	.391	2.57
28	530	.124	.18	1110	.296	.89	1730	.218	1.04
29	470	.122	.15	1020	.265	.73	1610	.177	.77
30	559	.124	.19	---	---	---	1460	.168	.66
31	822	.155	.35	---	---	---	1230	.142	.47
TOTAL	20779	---	12.72	41963	---	42.78	36930	---	31.16

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1070	.119	.34	667	.084	.15	241	.297	.19
2	961	.091	.24	471	.072	.091	264	.228	.16
3	1760	.255	1.76	391	.075	.079	257	.194	.13
4	3070	.425	3.65	368	.081	.081	260	.237	.17
5	2110	.289	1.65	486	.099	.13	242	.266	.17
6	1610	.275	1.20	594	.115	.18	227	.253	.16
7	1640	.262	1.16	447	.106	.13	224	.240	.15
8	1570	.249	1.06	383	.133	.14	219	.258	.15
9	1300	.237	.83	378	.152	.16	229	.285	.18
10	1120	.226	.68	763	.206	.42	229	.291	.18
11	1010	.215	.59	618	.196	.33	217	.296	.17
12	907	.205	.50	465	.149	.19	215	.280	.16
13	788	.195	.41	432	.145	.17	208	.268	.15
14	691	.185	.35	434	.124	.15	216	.309	.18
15	661	.176	.31	437	.164	.22	210	.384	.22
16	692	.168	.31	1330	.601	2.24	234	.492	.31
17	667	.160	.29	744	.282	.59	313	.374	.32
18	816	.150	.33	484	.195	.26	249	.289	.19
19	715	.099	.19	474	.173	.22	224	.279	.17
20	627	.073	.12	564	.177	.27	203	.360	.20
21	609	.070	.11	483	.186	.24	227	.305	.19
22	478	.063	.081	419	.176	.20	212	.341	.19
23	559	.106	.20	375	.186	.19	219	.473	.28
24	622	.133	.24	661	.372	.68	199	.402	.22
25	461	.063	.079	390	.283	.30	174	.347	.16
26	417	.052	.058	327	.208	.18	170	.340	.16
27	382	.067	.069	307	.191	.16	180	.337	.16
28	512	.073	.10	293	.224	.18	174	.334	.16
29	802	.097	.21	277	.261	.19	161	.331	.14
30	1040	.112	.31	252	.285	.19	115	.329	.10
31	---	---	---	253	.290	.20	---	---	---
TOTAL	29667	---	17.427	14967	---	8.911	6512	---	5.47
		JULY			AUGUST			SEPTEMBER	
1	111	.326	.098	152	.218	.089	193	.195	.10
2	109	.323	.095	139	.254	.096	157	.224	.094
3	109	.320	.094	453	.282	.35	229	.509	.33
4	98	.317	.084	190	.256	.13	2350	.264	1.56
5	87	.315	.074	259	.232	.17	1600	.148	.64
6	87	.312	.073	552	.232	.35	889	.127	.31
7	83	.309	.069	254	.203	.14	622	.112	.19
8	92	.306	.076	153	.178	.074	479	.109	.14
9	90	.304	.073	128	.180	.062	344	.102	.095
10	96	.302	.078	119	.224	.072	260	.110	.077
11	264	2.27	1.75	125	.170	.057	202	.117	.064
12	172	1.05	.52	117	.170	.054	205	.115	.064
13	128	.548	.19	107	.170	.049	612	.140	.23
14	112	.403	.12	103	.162	.045	348	.122	.12
15	115	.399	.12	105	.164	.046	229	.123	.076
16	127	.355	.12	101	.168	.046	207	.123	.069
17	121	.320	.10	107	.163	.047	176	.127	.060
18	185	.275	.14	114	.153	.047	176	.137	.065
19	621	.390	.67	357	.136	.13	219	.163	.095
20	459	.297	.37	206	.116	.065	250	.224	.15
21	1650	.327	1.50	143	.117	.045	175	.198	.095
22	985	.220	.59	124	.136	.046	140	.163	.061
23	866	.174	.41	159	.140	.060	159	.151	.065
24	772	.192	.40	398	.140	.15	162	.148	.065
25	598	.203	.34	149	.140	.056	133	.133	.048
26	592	.242	.39	184	.140	.069	128	.127	.044
27	301	.200	.16	135	.140	.051	135	.120	.044
28	184	.165	.083	640	.341	.76	130	.120	.042
29	158	.136	.058	981	.465	1.23	134	.120	.043
30	182	.194	.10	985	.304	.81	131	.120	.042
31	227	.251	.16	578	.225	.36	---	---	---
TOTAL	9781	---	9.105	8317	---	5.756	11174	---	5.078
YEAR	241145		191.917						

STREAMS TRIBUTARY TO LAKE ERIE

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	433	38	45	425	14	16	567	19	29
2	394	32	34	402	14	15	795	63	136
3	503	34	46	397	15	17	724	25	50
4	443	21	26	381	15	16	886	39	95
5	394	21	22	354	15	14	895	36	89
6	372	27	27	373	11	11	773	23	48
7	599	49	85	355	9	8.2	691	13	25
8	892	222	600	345	10	9.7	826	48	149
9	532	34	51	459	17	22	1370	159	587
10	440	19	23	480	14	18	1130	97	300
11	792	55	122	450	7	8.8	932	42	107
12	613	33	55	427	6	6.9	1010	47	129
13	614	23	38	362	6	5.9	887	23	56
14	504	19	26	292	7	5.8	811	15	32
15	463	19	24	263	6	4.4	1590	201	1070
16	446	19	23	256	6	4.2	1310	88	320
17	482	25	32	278	9	6.6	1080	43	126
18	489	20	27	397	41	47	992	26	71
19	443	12	14	241	16	10	952	23	59
20	434	17	20	241	5	3.5	3050	385	3780
21	427	14	16	257	5	3.3	2220	150	918
22	544	28	42	230	4	2.5	1830	80	401
23	392	24	25	224	3	2.0	1420	56	216
24	340	26	25	274	5	3.4	1300	44	153
25	486	29	39	280	9	7.0	1220	35	116
26	374	14	14	433	19	23	1080	30	87
27	557	28	47	330	10	9.2	959	31	79
28	628	25	44	282	8	6.1	884	29	70
29	576	22	35	495	18	28	1050	27	77
30	522	16	22	591	22	35	857	23	54
31	494	16	22	---	---	---	732	20	39
TOTAL	15622	---	1671	10574	---	369.5	34823	---	9468
		JANUARY			FEBRUARY			MARCH	
1	855	20	46	2700	416	3060	928	22	55
2	620	14	24	3490	427	4250	851	18	42
3	560	11	16	2410	239	1570	862	16	37
4	527	10	14	1900	160	828	854	14	33
5	466	10	12	1540	107	451	797	14	31
6	532	10	14	1190	72	233	760	17	35
7	448	9	11	1000	48	132	841	18	41
8	324	9	8.0	866	33	76	884	18	43
9	495	9	12	816	24	52	962	31	84
10	487	11	15	712	19	37	1040	26	72
11	476	15	18	622	15	25	899	14	34
12	382	18	19	615	14	23	843	11	25
13	354	12	11	543	14	21	1010	23	64
14	349	9	8.6	495	16	21	937	12	32
15	340	8	7.5	987	92	305	892	10	24
16	338	8	6.9	1110	57	177	881	11	25
17	428	18	27	953	34	89	839	10	23
18	948	114	293	1160	58	185	902	12	30
19	727	41	83	1540	118	675	922	14	35
20	1870	291	1530	3400	522	5430	922	11	27
21	1500	115	481	1930	140	746	913	10	25
22	1130	53	163	1390	94	362	928	11	27
23	994	34	93	2430	298	2010	1040	23	70
24	946	27	69	1910	96	496	1110	38	115
25	889	25	61	1510	72	296	2420	859	11900
26	773	26	55	1340	46	166	4270	757	10900
27	632	27	47	1270	35	122	2400	200	1310
28	530	25	36	1110	33	100	1740	132	626
29	470	29	37	1020	27	76	1610	93	404
30	558	52	80	---	---	---	1460	72	285
31	822	70	163	---	---	---	1230	57	188
TOTAL	20770	---	3461.0	41959	---	22014	36947	---	26642

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	1060	44	127	666	18	34	241	34	22
2	962	34	89	470	13	16	263	39	28
3	1760	470	3810	391	10	10	257	38	26
4	3070	537	4790	368	12	12	259	36	25
5	2110	140	810	485	23	32	242	33	22
6	1610	86	376	594	22	36	227	28	17
7	1640	73	325	446	11	13	224	27	16
8	1570	56	241	383	11	12	218	25	15
9	1300	40	141	378	16	18	229	27	17
10	1120	38	116	762	98	214	229	30	18
11	1010	30	82	618	24	41	217	29	17
12	907	25	61	464	13	17	215	27	16
13	788	21	45	431	15	17	208	20	11
14	691	15	28	434	15	18	216	21	13
15	661	11	19	437	28	42	210	19	11
16	692	9	17	1330	1000	4010	234	24	16
17	667	10	18	743	78	170	312	43	37
18	815	19	42	484	43	57	249	27	18
19	715	9	17	474	38	49	224	23	14
20	627	10	17	563	42	64	203	24	13
21	609	11	18	483	35	45	227	23	14
22	477	11	14	418	31	35	212	21	12
23	559	23	48	375	32	33	219	26	15
24	622	41	77	661	443	1030	199	28	15
25	460	14	17	389	40	42	174	33	15
26	417	11	13	327	36	32	170	32	15
27	382	11	11	306	37	30	180	31	14
28	512	17	25	293	36	29	174	32	15
29	802	26	58	277	32	24	161	37	16
30	1040	41	118	252	32	22	115	36	11
31	---	---	---	253	34	23	---	---	---
TOTAL	29655	---	11570	14955	---	6227	6508	---	514
		JULY			AUGUST			SEPTEMBER	
1	111	36	11	152	31	13	192	32	16
2	109	34	9.9	139	27	11	157	29	12
3	109	31	9.0	453	919	1410	229	67	60
4	98	29	7.6	190	87	48	2350	518	3580
5	87	23	5.4	259	196	281	1600	281	1240
6	87	27	6.4	551	406	711	889	121	300
7	83	25	5.6	254	67	47	622	59	101
8	92	27	6.8	153	48	20	478	45	58
9	90	35	8.4	128	44	15	344	39	36
10	96	37	9.7	119	26	8.3	260	30	21
11	264	69	52	125	19	6.6	202	25	14
12	172	46	22	117	15	4.8	205	25	14
13	127	36	12	107	14	3.9	612	105	196
14	112	28	8.4	103	13	3.6	347	45	43
15	115	24	7.3	105	13	3.5	229	30	19
16	127	32	11	101	17	4.6	206	23	13
17	121	23	7.6	107	13	3.8	176	24	11
18	185	23	14	114	12	3.5	176	25	12
19	621	142	274	357	596	685	219	23	14
20	458	64	82	206	28	19	250	29	20
21	1650	559	3280	143	18	7.0	175	19	9.6
22	984	130	355	124	18	6.2	140	17	6.3
23	865	158	420	159	78	48	159	16	7.0
24	771	149	349	398	266	421	162	18	8.0
25	597	134	309	149	27	11	133	19	6.7
26	591	299	561	183	25	13	127	16	5.4
27	301	86	73	135	27	9.8	135	14	5.1
28	184	49	25	640	238	640	130	13	4.6
29	158	30	13	981	144	380	134	12	4.4
30	182	66	38	985	63	169	131	12	4.2
31	227	81	53	578	38	64	---	---	---
TOTAL	9774	---	6046.1	8315	---	5071.6	11169	---	5841.3
YEAR	241071		98895.5						

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. 11-14, 18-19, Feb. 3-13, 18-20, Mar. 7-14, May 29-30, June 2-3, 6-8, 11-12, 18-19, 23-27, June 29 to July 3 and July 9-18. 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.--56 years, 337 ft³/s, 18.61 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)
Jan. 26	1630	5,370	8.06	May 23	2400	4,480	7.30
Mar. 30	1330	4,120	6.98	May 26	0900	*23,900	*17.14
Apr. 3	1130	6,130	8.69	May 31	1200	14,000	14.07
Apr. 4	0930	4,710	7.50	June 4	0030	4,980	8.40
				June 20	1300	12,200	13.24

Minimum daily discharge, 31 ft³/s Oct. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	95	183	335	275	153	1120	85	1870	64	69	157
2	41	106	188	293	218	156	1330	106	400	56	62	169
3	57	111	184	253	170	142	3880	304	600	50	58	81
4	50	268	196	210	150	348	3360	193	2140	79	60	61
5	193	1020	176	228	130	897	1440	125	697	171	111	55
6	138	1110	160	327	120	572	821	158	250	121	85	53
7	171	622	154	721	110	190	619	658	200	93	64	51
8	137	587	146	2630	110	140	470	467	150	82	61	128
9	91	394	138	988	100	140	386	300	245	70	59	91
10	69	864	132	510	100	130	350	821	346	64	56	76
11	86	694	120	347	96.0	130	365	1930	160	58	54	77
12	136	340	120	269	92.0	130	281	1060	180	54	53	64
13	120	541	110	274	90.0	120	375	628	691	50	53	58
14	86	525	110	200	632	120	337	816	440	48	70	67
15	71	297	356	406	903	186	236	548	701	46	66	127
16	64	227	268	302	796	171	186	839	2050	45	111	92
17	63	223	182	225	322	148	172	526	694	44	70	102
18	943	188	170	198	190	662	460	302	300	44	57	91
19	313	168	160	198	160	417	330	178	200	54	54	70
20	181	470	779	205	140	307	214	156	908	100	64	61
21	122	1150	1430	199	687	336	164	390	917	176	75	58
22	180	569	632	171	863	248	133	189	886	113	63	403
23	254	316	749	175	363	296	104	1410	280	86	64	985
24	217	234	638	162	207	299	94	2270	170	82	59	220
25	159	199	521	163	194	251	91	728	110	65	57	142
26	170	182	336	2310	188	214	89	10300	98.0	57	53	117
27	196	177	274	1620	161	192	81	2010	86.0	274	51	96
28	405	190	2250	721	153	384	80	919	310	240	51	85
29	190	191	1340	533	---	1220	80	400	110	110	83	79
30	128	180	640	479	---	2540	90	250	76.0	83	70	77
31	103	---	485	359	---	1570	---	4650	---	77	56	---
TOTAL	5165	12238	13327	16011	7720.0	12809	17738	33716	16265.0	2756	2019	3993
MEAN	167	408	430	516	276	413	591	1088	542	88.9	65.1	133
MAX	943	1150	2250	2630	903	2540	3880	10300	2140	274	111	985
MIN	31	95	110	162	90	120	80	85	76	44	51	51
CFSM	.68	1.66	1.75	2.10	1.12	1.68	2.40	4.42	2.20	.36	.26	.54
IN.	.78	1.85	2.02	2.42	1.17	1.94	2.68	5.10	2.46	.42	.31	.60

WTR YR 1989 TOTAL 143757.0 MEAN 394 MAX 10300 MIN 31 CFSM 1.60 IN. 21.74

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: Jan. 1-11, 15-20, Feb. 6-13, 17-21. Records fair except periods of estimated record, which are poor.

AVERAGE DISCHARGE.--15 years, 1,046 ft³/s, 20.73 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)
Jan. 26	1700	7,920	8.01	May 26	0900	*18,400	*12.93
Mar. 30	1300	7,110	7.50	June 21	1630	7,570	7.79
Apr. 3	1300	10,500	9.31				

Minimum daily discharge, 15 ft³/s Oct. 1-4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	431	456	1500	905	331	4920	332	4770	901	191	33
2	15	372	456	1200	797	323	4860	385	4390	594	131	65
3	15	359	463	900	698	322	8390	757	3810	419	100	49
4	15	672	635	700	583	447	9050	883	4890	354	78	59
5	61	1830	571	560	511	1340	7190	877	3670	310	70	69
6	89	2660	451	1300	400	1890	4850	827	2060	236	63	62
7	88	2090	390	2000	350	1430	3610	1250	1450	187	53	46
8	131	1950	328	7600	320	914	2680	2140	1030	168	110	53
9	96	1690	283	4000	300	611	1730	2320	751	172	132	45
10	88	1710	248	2000	290	454	1210	2810	708	162	96	33
11	102	2260	254	1600	280	371	1040	4990	741	126	70	34
12	136	1860	227	1300	270	335	964	4380	691	106	55	34
13	155	1970	235	1000	260	286	962	3310	679	97	43	35
14	126	2470	293	764	1190	302	954	2660	1040	77	35	40
15	114	1770	643	700	3150	410	872	2220	2130	65	30	64
16	108	1170	785	620	2300	496	803	2120	3870	55	31	53
17	84	927	758	560	1100	543	738	2290	3540	44	35	86
18	1130	738	592	520	700	1430	965	1850	3120	40	47	89
19	1400	579	425	470	600	1830	951	1470	2450	34	54	116
20	1300	685	1260	430	560	1210	927	1150	3680	101	56	134
21	1040	2590	3720	739	540	983	855	912	7260	456	53	97
22	927	2770	2500	702	2050	859	749	865	5490	370	42	772
23	942	1590	1780	600	2350	894	638	1820	5700	734	36	1460
24	842	1110	2030	524	1430	927	545	5450	4600	534	43	431
25	714	792	1710	529	1000	856	483	4200	3030	317	34	627
26	620	589	1280	3620	677	772	438	12400	2080	234	34	432
27	724	468	937	6060	542	682	394	13300	1240	338	33	236
28	1240	426	3290	3930	456	915	363	8460	985	467	28	132
29	952	427	5050	2020	---	2500	339	5430	1660	470	33	80
30	742	442	3130	1400	---	5440	336	3720	1380	353	38	54
31	561	---	1790	1060	---	5760	---	4060	---	281	30	---
TOTAL	14572	39397	36970	50908	24609	35863	62806	99638	82895	8802	1884	5520
MEAN	470	1313	1193	1642	879	1157	2094	3214	2763	284	60.8	184
MAX	1400	2770	5050	7600	3150	5760	9050	13300	7260	901	191	1460
MIN	15	359	227	430	260	286	336	332	679	34	28	33
CFSM	.69	1.92	1.74	2.40	1.28	1.69	3.06	4.69	4.03	.41	.09	.27
IN.	.79	2.14	2.01	2.76	1.34	1.95	3.41	5.41	4.50	.48	.10	.30

CAL YR 1988 TOTAL 257640.0 MEAN 704 MAX 5840 MIN 6.0 CFSM 1.03 IN. 13.99
WTR YR 1989 TOTAL 463864 MEAN 1271 MAX 13300 MIN 15 CFSM 1.86 IN. 25.19

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 September 1988.
NITROGEN, NITRITE + NITRATE: February 1988 to September 1988.
NITROGEN, AMMONIA + ORGANIC: February 1988 to September 1988.
PHOSPHORUS: February 1988 to September 1988.
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.

EXTREMES FOR PERIOD OF DAILY RECORD.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 64 mg/L Feb. 16, March 25, 1988; minimum daily mean, 23 mg/L Apr. 5, 1988.
DISSOLVED CHLORIDE LOADS: Maximum daily, 532 tons March 26, 1988; minimum daily, .57 tons Aug. 13, 1988.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 1.24 mg/L Sept. 9, 1988; minimum daily mean, <.100 mg/L on many times during 1988 water year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 8.6 tons Feb. 21, 1988; minimum daily, .00 ton many days during 1988 water year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.1 mg/L March 4, 1988; minimum daily mean, .30 mg/L March 22, 1988.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 21.5 tons Feb. 21, 1988; minimum daily, .007 ton July 10, 14, 17, 19, Aug. 13, 1988.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .421 mg/L July 31, 1988; minimum daily mean .012 mg/L April 29, 1988.
TOTAL PHOSPHORUS LOADS: Maximum daily 2.92 tons Feb. 21, 1988; minimum daily, .001 ton on several days during 1988 water year.
SEDIMENT CONCENTRATIONS: Maximum daily nean, 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 CURRENT YEAR.--Data unavailable for some water quality records--will be published in 1990 WDR.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,360 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 1988 YEAR.--
DISSOLVED CHLORIDE CONCENTRATIONS: Maximum daily mean, 64 mg/L Feb. 16, March 25; minimum daily mean, 23 mg/L April 5.
DISSOLVED CHLORIDE LOADS: Maximum daily, 532 tons March 26; minimum daily, .57 ton Aug. 13.
DISSOLVED NITROGEN, NITRITE + NITRATE CONCENTRATIONS: Maximum daily mean, 1.24 mg/L Sept. 9; minimum daily mean, <.100 mg/L on many times during year.
DISSOLVED NITROGEN, NITRITE + NITRATE LOADS: Maximum daily, 8.6 tons Feb. 21; minimum daily, .00 ton many days during year.
TOTAL NITROGEN, AMMONIA + ORGANIC CONCENTRATIONS: Maximum daily mean, 2.1 mg/L March 4; minimum daily mean, .30 mg/L March 22.
TOTAL NITROGEN, AMMONIA + ORGANIC LOADS: Maximum daily 21.5 tons Feb. 21; minimum daily, .007 ton July 10, 14, 17, 19, Aug. 13.
TOTAL PHOSPHORUS CONCENTRATIONS: Maximum daily mean .421 mg/L July 31; minimum daily mean .012 mg/L April 29.
TOTAL PHOSPHORUS LOADS: Maximum daily 2.92 tons Feb. 21; minimum daily, .001 ton on several days during year.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 332 mg/L March 26; minimum daily mean, 3 mg/L Nov. 3, Jan. 14, 15, 17.
SEDIMENT LOADS: Maximum daily, 4,420 tons Feb. 21; minimum daily, 0.13 ton July 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)	DATE	TIME	ALACHLOR TOT RECV (UG/L)
Mar. 12	0945	<0.10	July 13	1730	<0.10	Aug. 22	1600	<0.10
June 13	1130	<0.10						

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	772	39	81.2
2	---	---	---	---	---	---	837	39	88.1
3	---	---	---	---	---	---	945	39	99.1
4	---	---	---	---	---	---	847	37	85.4
5	---	---	---	---	---	---	640	34	59.4
6	---	---	---	---	---	---	600	39	62.6
7	---	---	---	---	---	---	640	41	70.2
8	---	---	---	---	---	---	720	40	77.4
9	---	---	---	---	---	---	1000	38	104
10	---	---	---	---	---	---	1300	38	134
11	---	---	---	---	---	---	900	35	85.3
12	---	---	---	---	---	---	700	34	63.8
13	---	---	---	---	---	---	800	37	80.8
14	---	---	---	---	---	---	1100	44	130
15	---	---	---	---	---	---	900	52	128
16	---	---	---	1300	64	223	840	52	118
17	---	---	---	1100	54	161	780	52	109
18	---	---	---	1300	53	185	740	55	111
19	---	---	---	1600	43	188	740	56	111
20	---	---	---	2930	35	270	780	54	115
21	---	---	---	5840	28	448	760	52	107
22	---	---	---	4250	27	304	640	54	92.5
23	---	---	---	5050	28	180	740	53	107
24	---	---	---	4450	28	336	2500	43	288
25	---	---	---	2540	36	246	2300	64	395
26	---	---	---	1750	37	177	4500	44	532
27	---	---	---	1190	38	121	2400	30	197
28	---	---	---	818	38	84.4	1640	30	131
29	---	---	---	746	39	77.8	1340	33	110
30	---	---	---	---	---	---	1010	34	84.8
31	---	---	---	---	---	---	769	33	62.7
TOTAL	---	---	---	34864	---	3001.2	35180	---	4020.3
		APRIL			MAY			JUNE	
1	627	34	51.1	1200	25	84.9	85	31	5.86
2	550	34	45.1	731	25	54.1	123	32	8.85
3	929	37	89.0	475	25	38.2	132	33	9.73
4	3920	31	317	338	27	30.1	105	32	7.59
5	3920	23	247	268	29	26.6	86	34	6.35
6	2260	24	143	258	30	26.7	71	34	5.30
7	2250	27	160	271	29	26.9	62	36	4.85
8	2200	26	150	287	29	28.2	50	37	3.97
9	1400	26	99.2	292	30	29.1	44	36	3.34
10	923	26	69.3	364	37	44.1	35	37	2.73
11	668	28	55.7	448	35	49.5	32	39	2.59
12	503	29	46.0	453	30	43.3	24	40	2.01
13	402	30	38.5	354	31	36.2	23	40	1.91
14	365	30	35.5	267	33	29.7	22	39	1.78
15	334	33	36.2	213	35	25.6	22	39	1.80
16	320	36	37.7	1640	31	134	24	42	2.18
17	317	35	36.0	1550	26	103	24	46	2.41
18	324	35	36.9	1030	25	64.9	22	43	2.07
19	317	35	36.2	712	25	43.9	20	43	1.90
20	279	34	31.7	614	25	37.4	19	43	1.73
21	320	39	41.5	675	25	41.7	16	44	1.52
22	304	34	34.5	783	25	49.2	16	47	1.54
23	276	35	31.8	738	25	46.2	22	50	2.37
24	383	34	41.8	560	26	36.4	24	45	2.38
25	555	30	51.1	401	27	26.6	21	44	1.97
26	488	30	45.8	304	27	19.5	18	44	1.65
27	355	31	35.9	241	28	15.7	16	43	1.47
28	292	32	31.2	188	29	12.6	13	45	1.25
29	265	32	28.7	155	31	11.1	12	50	1.26
30	931	29	75.6	135	30	9.24	11	50	1.17
31	---	---	---	103	31	7.06	---	---	---
TOTAL	26977	---	2179.0	16048	---	1231.70	1194	---	95.53

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

CHLORIDE DISSOLVED (MG/L AS CL), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	11	50	1.18	216	28	14.8	33	44	3.49
2	11	52	1.17	114	35	9.38	32	42	3.37
3	9.8	54	1.09	49	38	4.32	30	42	3.15
4	8.4	54	.91	27	40	2.52	39	45	4.40
5	7.4	54	.81	19	42	1.83	579	48	71.3
6	7.2	56	.80	28	43	2.82	962	32	80.3
7	7.7	56	.86	25	41	2.41	653	31	53.1
8	9.7	56	1.11	14	39	1.30	351	32	29.0
9	7.0	56	.78	10	41	.96	189	34	16.6
10	7.0	57	.78	9.2	43	.89	109	36	9.92
11	7.2	57	.82	7.8	42	.74	65	38	6.11
12	7.4	57	.88	6.9	42	.65	44	39	4.24
13	7.1	57	.86	6.0	43	.57	40	42	4.16
14	7.0	57	.84	6.8	43	.65	34	42	3.53
15	7.0	58	.86	9.5	49	1.07	30	41	3.08
16	7.0	60	.89	8.7	48	.95	25	42	2.64
17	6.7	60	.85	8.0	44	.80	22	43	2.34
18	6.6	60	.83	8.6	43	.84	20	43	2.10
19	6.9	60	.88	10	45	1.09	19	43	2.04
20	8.0	60	1.02	11	47	1.15	20	45	2.23
21	16	63	2.31	8.9	46	.94	24	46	2.74
22	18	60	2.53	7.4	47	.78	24	46	2.71
23	39	58	5.27	7.4	49	.83	34	55	4.71
24	146	49	18.0	7.7	55	.96	43	51	5.40
25	57	44	5.77	7.8	57	1.02	30	46	3.50
26	60	41	5.66	7.8	55	.97	28	45	3.23
27	44	38	3.89	7.4	53	.89	25	46	2.83
28	36	39	3.26	15	53	1.96	21	45	2.47
29	28	40	2.61	31	60	4.41	18	46	2.05
30	30	41	2.86	28	60	3.96	16	45	1.85
31	328	34	27.9	33	49	3.86	---	---	---
TOTAL	959.1	---	98.28	755.9	---	70.32	3559	---	338.59
PERIOD	119537.0		11034.92						

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	772	.485	1.0
2	---	---	---	---	---	---	837	.424	.96
3	---	---	---	---	---	---	945	.473	1.2
4	---	---	---	---	---	---	847	.410	.94
5	---	---	---	---	---	---	640	.400	.69
6	---	---	---	---	---	---	600	.400	.65
7	---	---	---	---	---	---	640	.400	.69
8	---	---	---	---	---	---	720	.400	.78
9	---	---	---	---	---	---	1000	.400	1.1
10	---	---	---	---	---	---	1300	.400	1.4
11	---	---	---	---	---	---	900	.384	.93
12	---	---	---	---	---	---	700	.310	.59
13	---	---	---	---	---	---	800	.300	.65
14	---	---	---	---	---	---	1100	.300	.89
15	---	---	---	---	---	---	900	.300	.73
16	---	---	---	1300	.600	2.1	840	.300	.68
17	---	---	---	1100	.600	1.8	780	.287	.61
18	---	---	---	1300	.597	2.1	740	.210	.42
19	---	---	---	1600	.580	2.5	740	.200	.40
20	---	---	---	2930	.563	4.4	780	.200	.42
21	---	---	---	5840	.546	8.6	760	.200	.41
22	---	---	---	4250	.530	6.1	640	.200	.35
23	---	---	---	5050	.515	3.4	740	.350	.70
24	---	---	---	4450	.541	6.5	2500	.384	2.6
25	---	---	---	2540	.510	3.5	2300	.427	2.7
26	---	---	---	1750	.500	2.4	4500	.427	5.2
27	---	---	---	1190	.500	1.6	2400	.400	2.6
28	---	---	---	818	.500	1.1	1640	.388	1.7
29	---	---	---	746	.500	1.0	1340	.292	1.0
30	---	---	---	---	---	---	1010	.207	.52
31	---	---	---	---	---	---	769	.145	.28
TOTAL	---	---	---	34864	---	47.1	35180	---	33.79

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

NITROGEN NITRITE PLUS NITRATE DISSOLVED (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	627	<.100	.08	1200	.300	1.0	85	<.100	.01
2	550	<.100	.07	731	.300	.65	123	<.100	.01
3	929	.126	.39	475	.273	.42	132	<.100	.01
4	3920	.300	3.2	338	.203	.23	105	<.100	.01
5	3920	.300	3.2	268	.200	.18	86	<.100	.01
6	2260	.300	1.8	258	.200	.18	71	<.100	.01
7	2250	.293	1.7	271	.200	.18	62	<.100	.01
8	2200	.225	1.3	287	.200	.19	50	.106	.01
9	1400	.269	1.0	292	.196	.19	44	.181	.02
10	923	.208	.55	364	.120	.14	35	.200	.01
11	668	.200	.40	448	.108	.16	32	.200	.01
12	503	.164	.26	453	.188	.27	24	.200	.01
13	402	<.100	.10	354	.200	.23	23	.166	.01
14	365	<.100	.06	267	.200	.18	22	<.100	.00
15	334	<.100	.05	213	.200	.15	22	<.100	.00
16	320	<.100	.05	1640	.200	.85	24	.128	.01
17	317	<.100	.05	1550	.200	.80	24	.152	.01
18	324	<.100	.06	1030	.200	.52	22	.100	.00
19	317	.286	.29	712	.200	.35	20	<.100	.00
20	279	.312	.29	614	.200	.30	19	<.100	.00
21	320	.300	.32	675	.200	.33	16	.145	.00
22	304	.300	.30	783	.200	.39	16	.200	.01
23	276	.300	.27	738	.200	.37	22	.200	.01
24	383	.300	.37	560	.200	.28	24	.200	.01
25	555	.300	.52	401	<.100	.10	21	.200	.01
26	488	.300	.47	304	<.100	.04	18	.145	.01
27	355	.300	.35	241	<.100	.03	16	<.100	.00
28	292	.300	.29	188	<.100	.02	13	<.100	.00
29	265	.300	.27	155	<.100	.02	12	<.100	.00
30	931	.300	.80	135	<.100	.02	11	<.100	.00
31	---	---	---	103	<.100	.01	---	---	---
TOTAL	26977	---	18.86	16048	---	8.78	1194	---	0.21
		JULY			AUGUST			SEPTEMBER	
1	11	<.100	.00	216	.535	.31	33	<.100	.00
2	11	<.100	.00	114	.137	.04	32	<.100	.00
3	9.8	<.100	.00	49	.161	.02	30	<.100	.00
4	8.4	<.100	.00	27	.207	.01	39	<.100	.01
5	7.4	.189	.00	19	.330	.01	579	.205	.41
6	7.2	.278	.00	28	.200	.01	962	.539	1.4
7	7.7	.228	.00	25	<.100	.00	653	.598	1.0
8	9.7	.179	.00	14	.182	.01	351	.984	.88
9	7.0	.140	.00	10	.214	.01	189	1.24	.60
10	7.0	.110	.00	9.2	.104	.00	109	1.20	.33
11	7.2	<.100	.00	7.8	<.100	.00	65	.981	.16
12	7.4	<.100	.00	6.9	<.100	.00	44	.957	.10
13	7.1	<.100	.00	6.0	<.100	.00	40	.775	.08
14	7.0	<.100	.00	6.8	<.100	.00	34	.700	.06
15	7.0	<.100	.00	9.5	.106	.00	30	.688	.05
16	7.0	<.100	.00	8.7	.236	.00	25	.592	.04
17	6.7	.201	.00	8.0	.214	.00	22	.478	.03
18	6.6	.265	.00	8.6	.200	.00	20	.404	.02
19	6.9	.233	.00	10	.219	.01	19	.400	.02
20	8.0	.339	.01	11	.265	.01	20	.440	.02
21	16	.173	.01	8.9	.202	.00	24	.448	.03
22	18	<.100	.00	7.4	.239	.00	24	.399	.02
23	39	<.100	.01	7.4	.434	.01	34	.334	.03
24	146	.368	.10	7.7	.410	.01	43	.371	.04
25	57	.678	.09	7.8	.364	.01	30	.400	.03
26	60	.700	.10	7.8	.400	.01	28	.387	.03
27	44	.513	.05	7.4	.400	.01	25	.292	.02
28	36	<.100	.01	15	.387	.01	21	.207	.01
29	28	<.100	.00	31	.310	.02	18	.225	.01
30	30	<.100	.00	28	.276	.02	16	.344	.01
31	328	.275	.22	33	.154	.01	---	---	---
TOTAL	959.1	---	0.60	755.9	---	0.55	3559	---	5.44
PERIOD	119537.0		115.33						

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	772	1.6	3.41
2	---	---	---	---	---	---	837	1.9	4.33
3	---	---	---	---	---	---	945	2.0	5.15
4	---	---	---	---	---	---	847	2.1	4.91
5	---	---	---	---	---	---	640	2.0	3.44
6	---	---	---	---	---	---	600	1.5	2.51
7	---	---	---	---	---	---	640	.48	.82
8	---	---	---	---	---	---	720	.34	.65
9	---	---	---	---	---	---	1000	.48	1.29
10	---	---	---	---	---	---	1300	.48	1.70
11	---	---	---	---	---	---	900	.41	1.00
12	---	---	---	---	---	---	700	.38	.73
13	---	---	---	---	---	---	800	.31	.67
14	---	---	---	---	---	---	1100	.31	.93
15	---	---	---	---	---	---	900	.39	.94
16	---	---	---	1300	.51	1.77	840	.40	.91
17	---	---	---	1100	.59	1.76	780	.40	.84
18	---	---	---	1300	.60	2.11	740	.38	.77
19	---	---	---	1600	.60	2.59	740	.33	.65
20	---	---	---	2930	.73	6.13	780	.38	.80
21	---	---	---	5840	1.3	21.5	760	.33	.68
22	---	---	---	4250	.75	8.88	640	.30	.52
23	---	---	---	5050	.41	2.75	740	.75	1.50
24	---	---	---	4450	.89	10.6	2500	1.4	9.19
25	---	---	---	2540	.51	3.49	2300	1.7	10.4
26	---	---	---	1750	.37	1.76	4500	1.3	16.2
27	---	---	---	1190	.35	1.11	2400	.87	5.65
28	---	---	---	818	.32	.71	1640	.70	3.12
29	---	---	---	746	.41	.82	1340	.59	2.02
30	---	---	---	---	---	---	1010	.51	1.28
31	---	---	---	---	---	---	769	.50	.94
TOTAL	---	---	---	34864	---	65.98	35180	---	87.95
		APRIL			MAY			JUNE	
1	627	.50	.75	1200	.90	3.02	85	.74	.14
2	550	.50	.66	731	.70	1.52	123	.76	.21
3	929	.61	1.59	475	.55	.84	132	.79	.23
4	3920	1.1	11.7	338	.43	.49	105	.75	.18
5	3920	1.0	11.0	268	.57	.51	86	.64	.12
6	2260	.93	5.60	258	.60	.53	71	.60	.092
7	2250	.90	5.37	271	.55	.51	62	.60	.081
8	2200	.89	5.20	287	.54	.52	50	.60	.065
9	1400	.81	3.13	292	.57	.56	44	.59	.055
10	923	.76	2.01	364	.61	.73	35	.53	.039
11	668	.61	1.21	448	.66	.95	32	.65	.043
12	503	.57	.90	453	.52	.75	24	.62	.031
13	402	.50	.64	354	.50	.58	23	.60	.029
14	365	.50	.59	267	.50	.45	22	.62	.028
15	334	.50	.55	213	.50	.37	22	.75	.035
16	320	.50	.52	1640	1.1	4.77	24	.78	.040
17	317	.43	.45	1550	1.2	4.61	24	.56	.029
18	324	.47	.50	1030	.84	2.21	22	.50	.024
19	317	.43	.44	712	.67	1.17	20	.50	.022
20	279	.49	.45	614	.55	.82	19	.50	.020
21	320	.50	.53	675	.70	1.19	16	.58	.020
22	304	.50	.50	783	1.1	2.09	16	.74	.024
23	276	.53	.48	738	.76	1.42	22	.63	.030
24	383	.60	.74	560	.70	.95	24	.60	.031
25	555	.55	.95	401	.74	.72	21	.64	.028
26	488	.55	.86	304	.64	.46	18	.73	.028
27	355	.60	.70	241	.67	.38	16	.60	.021
28	292	.53	.52	188	.69	.30	13	.60	.017
29	265	.50	.45	155	.63	.22	12	.54	.014
30	931	.67	1.89	135	.69	.21	11	.44	.010
31	---	---	---	103	.72	.17	---	---	---
TOTAL	26977	---	60.88	16048	---	34.02	1194	---	1.736

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

NITROGEN AMMONIA PLUS ORGANIC TOTAL (MG/L AS N), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JULY			AUGUST			SEPTEMBER	
1	11	.40	.009	216	1.2	.67	33	.69	.055
2	11	.40	.009	114	.84	.23	32	.73	.058
3	9.8	.49	.010	49	.86	.097	30	.76	.057
4	8.4	.66	.011	27	.75	.047	39	.70	.068
5	7.4	.68	.010	19	.62	.027	579	1.5	2.66
6	7.2	.60	.009	28	.61	.040	962	1.6	4.18
7	7.7	.58	.009	25	.69	.040	653	1.3	2.25
8	9.7	.57	.011	14	.70	.023	351	1.0	.92
9	7.0	.56	.008	10	.62	.015	189	.91	.45
10	7.0	.54	.007	9.2	.66	.014	109	.85	.23
11	7.2	.53	.008	7.8	.60	.011	65	.84	.14
12	7.4	.52	.008	6.9	.55	.008	44	.73	.080
13	7.1	.50	.008	6.0	.50	.007	40	.70	.070
14	7.0	.50	.007	6.8	.56	.009	34	.71	.059
15	7.0	.51	.008	9.5	.54	.012	30	.77	.058
16	7.0	.57	.008	8.7	.71	.014	25	.70	.044
17	6.7	.53	.007	8.0	.64	.012	22	.64	.035
18	6.6	.57	.008	8.6	.67	.013	20	.57	.028
19	6.9	.50	.007	10	.61	.015	19	.50	.024
20	8.0	.54	.009	11	.63	.015	20	.61	.030
21	16	.60	.022	8.9	.66	.014	24	1.6	.093
22	18	.60	.025	7.4	.60	.010	24	1.2	.074
23	39	.62	.063	7.4	.65	.011	34	.72	.062
24	146	.83	.30	7.7	.58	.010	43	.72	.077
25	57	.72	.095	7.8	.50	.009	30	.61	.047
26	60	.70	.097	7.8	.57	.010	28	.50	.036
27	44	.70	.071	7.4	.52	.009	25	.43	.026
28	36	.72	.060	15	.50	.018	21	.49	.027
29	28	.80	.052	31	.50	.037	18	.47	.021
30	30	.80	.055	28	.52	.034	16	.37	.015
31	328	1.8	1.65	33	.62	.049	---	---	---
TOTAL	959.1	---	2.661	755.9	---	1.530	3559	---	11.974
PERIOD	119537.0		266.731						

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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)
		JANUARY			FEBRUARY			MARCH	
1	---	---	---	---	---	---	772	.050	.10
2	---	---	---	---	---	---	837	.051	.12
3	---	---	---	---	---	---	945	.059	.15
4	---	---	---	---	---	---	847	.058	.13
5	---	---	---	---	---	---	640	.049	.085
6	---	---	---	---	---	---	600	.042	.069
7	---	---	---	---	---	---	640	.046	.079
8	---	---	---	---	---	---	720	.038	.073
9	---	---	---	---	---	---	1000	.075	.20
10	---	---	---	---	---	---	1300	.082	.29
11	---	---	---	---	---	---	900	.052	.13
12	---	---	---	---	---	---	700	.039	.075
13	---	---	---	---	---	---	800	.029	.063
14	---	---	---	---	---	---	1100	.021	.062
15	---	---	---	---	---	---	900	.024	.059
16	---	---	---	1300	.071	.25	840	.050	.11
17	---	---	---	1100	.088	.26	780	.032	.068
18	---	---	---	1300	.126	.44	740	.021	.042
19	---	---	---	1600	.130	.56	740	.020	.040
20	---	---	---	2930	.148	1.21	780	.018	.039
21	---	---	---	5840	.182	2.92	760	.013	.026
22	---	---	---	4250	.077	.92	640	.018	.031
23	---	---	---	5050	.032	.22	740	.150	.30
24	---	---	---	4450	.133	1.60	2500	.158	1.06
25	---	---	---	2540	.084	.58	2300	.187	1.16
26	---	---	---	1750	.065	.31	4500	.218	2.65
27	---	---	---	1190	.061	.20	2400	.168	1.09
28	---	---	---	818	.057	.13	1640	.128	.57
29	---	---	---	746	.053	.11	1340	.081	.28
30	---	---	---	---	---	---	1010	.061	.15
31	---	---	---	---	---	---	769	.054	.10
TOTAL	---	---	---	34864	---	9.71	35180	---	9.401

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

PHOSPHOROUS TOTAL (MG/L AS P), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	627	.040	.061	1200	.100	.34	85	.034	.006
2	550	.040	.052	731	.068	.15	123	.036	.010
3	929	.067	.21	475	.048	.074	132	.039	.012
4	3920	.191	2.05	338	.040	.045	105	.040	.009
5	3920	.191	2.03	268	.040	.036	86	.046	.009
6	2260	.158	.96	258	.040	.035	71	.049	.008
7	2250	.142	.84	271	.045	.042	62	.035	.005
8	2200	.129	.75	287	.050	.048	50	.038	.004
9	1400	.105	.41	292	.056	.055	44	.046	.004
10	923	.101	.27	364	.046	.055	35	.034	.003
11	668	.072	.14	448	.061	.089	32	.045	.003
12	503	.050	.081	453	.052	.075	24	.050	.003
13	402	.024	.031	354	.050	.058	23	.050	.002
14	365	.025	.030	267	.050	.045	22	.052	.002
15	334	.020	.022	213	.050	.037	22	.069	.003
16	320	.020	.021	1640	.128	.59	24	.088	.004
17	317	.020	.021	1550	.126	.50	24	.056	.003
18	324	.021	.022	1030	.103	.27	22	.045	.002
19	317	.028	.029	712	.077	.14	20	.056	.002
20	279	.030	.028	614	.057	.086	19	.060	.002
21	320	.030	.032	675	.057	.095	16	.069	.002
22	304	.030	.030	783	.066	.13	16	.100	.003
23	276	.033	.030	738	.056	.10	22	.111	.005
24	383	.040	.049	560	.050	.069	24	.114	.006
25	555	.040	.069	401	.044	.043	21	.096	.004
26	488	.028	.044	304	.033	.024	18	.103	.004
27	355	.020	.023	241	.030	.017	16	.090	.003
28	292	.020	.019	188	.030	.013	13	.090	.002
29	265	.012	.011	155	.030	.011	12	.078	.002
30	931	.050	.15	135	.030	.009	11	.057	.001
31	---	---	---	103	.032	.007	---	---	---
TOTAL	26977	---	8.515	16048	---	3.288	1194	---	0.128
		JULY			AUGUST			SEPTEMBER	
1	11	.044	.001	216	.212	.12	33	.070	.006
2	11	.055	.001	114	.099	.028	32	.076	.006
3	9.8	.075	.002	49	.073	.008	30	.082	.006
4	8.4	.072	.001	27	.071	.004	39	.083	.008
5	7.4	.073	.001	19	.093	.004	579	.275	.51
6	7.2	.089	.001	28	.098	.006	962	.276	.71
7	7.7	.091	.001	25	.086	.005	653	.192	.34
8	9.7	.093	.002	14	.111	.004	351	.127	.12
9	7.0	.094	.001	10	.080	.002	189	.087	.043
10	7.0	.095	.001	9.2	.053	.001	109	.065	.018
11	7.2	.097	.001	7.8	.068	.001	65	.060	.010
12	7.4	.098	.002	6.9	.075	.001	44	.060	.007
13	7.1	.099	.001	6.0	.070	.001	40	.075	.007
14	7.0	.093	.001	6.8	.088	.001	34	.098	.008
15	7.0	.108	.002	9.5	.087	.002	30	.120	.009
16	7.0	.122	.002	8.7	.107	.002	25	.092	.006
17	6.7	.138	.002	8.0	.084	.002	22	.078	.004
18	6.6	.140	.002	8.6	.073	.001	20	.070	.003
19	6.9	.140	.002	10	.081	.002	19	.070	.003
20	8.0	.131	.002	11	.092	.002	20	.078	.004
21	16	.087	.003	8.9	.103	.002	24	.292	.017
22	18	.054	.002	7.4	.106	.002	24	.247	.015
23	39	.060	.007	7.4	.095	.002	34	.083	.007
24	146	.118	.046	7.7	.084	.001	43	.073	.008
25	57	.059	.008	7.8	.093	.002	30	.071	.005
26	60	.050	.007	7.8	.113	.002	28	.076	.005
27	44	.050	.005	7.4	.099	.002	25	.058	.004
28	36	.054	.004	15	.126	.005	21	.047	.003
29	28	.074	.005	31	.101	.007	18	.071	.003
30	30	.095	.007	28	.079	.005	16	.084	.003
31	328	.421	.39	33	.070	.006	---	---	---
TOTAL	959.1	---	0.513	755.9	---	0.233	3559	---	1.898
PERIOD	119537.0		33.686						

STREAMS TRIBUTARY TO LAKE ERIE

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	193	6	3.1	726	11	22	1480	34	135
2	265	10	7.2	687	8	15	1390	20	75
3	659	38	68	657	10	18	1240	14	47
4	686	34	63	596	10	16	1230	14	46
5	555	15	22	524	9	13	1310	18	64
6	424	7	8.0	460	8	9.9	1300	14	49
7	757	65	189	412	7	7.8	1220	15	50
8	2580	115	800	383	5	5.2	1290	22	77
9	2490	63	424	439	7	8.3	2600	120	975
10	1410	28	107	499	5	6.7	3620	113	1100
11	1120	23	70	490	4	5.3	2330	39	245
12	990	18	48	437	4	4.7	1740	26	122
13	798	13	28	391	4	4.2	1370	15	55
14	631	12	20	347	4	3.7	1090	11	32
15	481	12	16	313	4	3.4	1600	71	423
16	371	10	10	292	5	3.9	2920	85	670
17	295	8	6.4	276	5	3.7	2260	34	207
18	256	6	4.1	430	4	4.6	1630	28	123
19	227	5	3.1	364	5	4.9	1370	18	67
20	202	5	2.7	287	25	19	3870	217	2800
21	198	5	2.7	259	11	7.7	5580	172	2590
22	555	28	42	280	6	4.5	3640	58	570
23	828	21	47	280	3	2.3	2370	39	249
24	741	18	36	320	4	3.5	1940	30	157
25	989	28	75	574	9	14	1500	22	89
26	775	11	23	667	8	14	1120	17	51
27	760	22	45	719	12	23	855	12	28
28	1040	16	45	591	5	8.0	723	10	20
29	2040	63	381	693	14	26	661	9	16
30	1510	23	94	1350	37	135	600	8	13
31	966	14	36	---	---	---	589	8	13
TOTAL	25792	---	2726.3	14743	---	417.3	56438	---	11158
		JANUARY			FEBRUARY			MARCH	
1	650	10	18	2750	238	1880	772	20	42
2	693	14	26	4350	220	2580	837	25	56
3	460	14	17	3110	100	839	945	18	46
4	340	9	8.3	1500	67	271	847	22	50
5	300	8	6.5	1100	60	178	640	13	22
6	270	7	5.1	880	50	119	600	14	23
7	260	6	4.2	720	40	78	640	24	41
8	240	5	3.2	600	35	57	720	17	33
9	230	4	2.5	520	35	49	1000	104	281
10	220	6	3.6	450	30	36	1300	32	112
11	210	5	2.8	410	30	33	900	22	53
12	210	9	5.1	380	30	31	700	16	30
13	200	4	2.2	350	25	24	800	16	35
14	190	3	1.5	330	25	22	1100	13	39
15	190	3	1.5	320	20	17	900	10	24
16	180	4	1.9	1300	20	70	840	10	23
17	180	3	1.5	1100	22	65	780	9	19
18	1600	211	910	1300	25	88	740	8	16
19	2920	200	1570	1600	30	130	740	9	18
20	4530	291	3820	2930	104	1030	780	8	17
21	5290	250	3570	5840	271	4420	760	7	14
22	2720	115	843	4250	119	1370	640	8	14
23	1470	55	219	5050	127	1730	740	92	184
24	1070	34	98	4450	293	3520	2500	86	580
25	810	32	70	2540	140	960	2300	185	1150
26	641	29	50	1750	63	298	4500	332	4030
27	520	25	35	1190	35	112	2400	150	972
28	430	20	23	818	28	62	1640	70	310
29	370	20	20	746	20	40	1340	50	181
30	440	15	18	---	---	---	1010	40	110
31	1560	82	345	---	---	---	769	24	50
TOTAL	29394	---	11701.9	52634	---	20109	35180	---	8575

04212100 GRAND RIVER NEAR PAINESVILLE, OH--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

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	627	15	25	1200	32	103	85	9	2.1
2	550	17	25	731	23	45	123	12	4.0
3	929	87	330	475	18	23	132	8	2.8
4	3920	242	2560	338	14	13	105	10	2.8
5	3920	160	1690	268	12	8.7	86	8	1.9
6	2260	83	507	258	8	5.6	71	9	1.7
7	2250	70	425	271	12	8.8	62	10	1.7
8	2200	61	362	287	12	9.3	50	9	1.2
9	1400	42	159	292	9	7.1	44	10	1.2
10	923	27	67	364	12	12	35	8	.76
11	668	24	43	448	18	22	32	9	.78
12	503	20	27	453	12	15	24	9	.59
13	402	14	15	354	11	11	23	14	.87
14	365	10	9.9	267	10	7.2	22	13	.77
15	334	11	9.9	213	10	5.7	22	11	.67
16	320	9	7.8	1640	315	1610	24	16	1.0
17	317	10	8.6	1550	92	384	24	8	.52
18	324	11	9.6	1030	55	153	22	9	.54
19	317	8	6.8	712	21	40	20	10	.55
20	279	10	7.5	614	18	30	19	11	.55
21	320	9	7.8	675	25	46	16	10	.44
22	304	8	6.6	783	28	59	16	9	.38
23	276	8	6.0	738	22	44	22	17	1.0
24	383	10	10	560	24	36	24	26	1.7
25	555	14	21	401	16	17	21	12	.67
26	488	18	24	304	12	9.8	18	14	.67
27	355	10	9.6	241	9	5.8	16	9	.39
28	292	8	6.3	188	10	5.1	13	10	.35
29	265	7	5.0	155	9	3.8	12	10	.32
30	931	42	106	135	9	3.3	11	10	.30
31	---	---	---	103	12	3.3	---	---	---
TOTAL	26977	---	6497.4	16048	---	2746.5	1194	---	33.22
		JULY			AUGUST			SEPTEMBER	
1	11	9	.27	216	72	42	33	23	2.1
2	11	8	.24	114	42	13	32	22	1.9
3	9.8	41	1.1	49	26	3.4	30	12	.97
4	8.4	32	.72	27	18	1.3	39	22	2.3
5	7.4	10	.20	19	17	.89	579	142	282
6	7.2	11	.21	28	22	1.7	962	124	322
7	7.7	8	.17	25	13	.87	653	77	136
8	9.7	11	.29	14	12	.46	351	42	40
9	7.0	9	.17	10	16	.44	189	28	14
10	7.0	9	.17	9.2	12	.30	109	22	6.5
11	7.2	14	.27	7.8	12	.25	65	16	2.8
12	7.4	11	.22	6.9	12	.22	44	21	2.5
13	7.1	27	.52	6.0	12	.20	40	18	2.0
14	7.0	24	.45	6.8	15	.27	34	18	1.6
15	7.0	8	.15	9.5	19	.49	30	16	1.3
16	7.0	8	.15	8.7	12	.28	25	14	.96
17	6.7	7	.13	8.0	12	.26	22	8	.48
18	6.6	8	.14	8.6	11	.25	20	8	.42
19	6.9	8	.15	10	15	.42	19	8	.41
20	8.0	10	.22	11	14	.40	20	16	.85
21	16	13	.57	8.9	14	.34	24	12	.78
22	18	8	.40	7.4	28	.56	24	18	1.2
23	39	28	2.9	7.4	37	.74	34	22	2.0
24	146	45	18	7.7	16	.33	43	12	1.4
25	57	17	2.6	7.8	17	.36	30	10	.82
26	60	20	3.2	7.8	14	.29	28	12	.92
27	44	7	.83	7.4	14	.28	25	14	.94
28	36	9	.89	15	17	.71	21	12	.69
29	28	11	.84	31	16	1.3	18	12	.57
30	30	23	1.9	28	20	1.5	16	11	.48
31	328	212	204	33	20	1.8	---	---	---
TOTAL	959.1	---	242.07	755.9	---	75.61	3559	---	830.89
YEAR	263670.9		65113.19						

04212100 GRAND RIVER NEAR PAINESVILLE, 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	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

04212100 GRAND RIVER NEAR PAINESVILLE, 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	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

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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE 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 19...	1100	1400	512	7.6	6.0	11.0	43	9.5	89	4000	5500
MAR 27...	1100	772	550	8.0	24.0	11.0	4.5	11.0	103	50	K35
JUN 26...	1000	1760	260	7.9	40.0	24.0	2.5	6.5	80	100	630
AUG 15...	1230	29	1700	8.4	22.0	25.0	3.0	9.0	113	K40	K33

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	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)
OCT 19...	160	80	44	11	35	6.3	88	0	76	67	68
MAR 27...	150	95	47	8.0	39	2.4	66	0	56	48	97
JUN 26...	88	38	27	5.0	13	2.8	61	0	50	15	31
AUG 15...	500	390	180	11	140	5.2	120	7	105	60	430

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)
OCT 19...	0.1	5.6	318	0.01	1.50	0.01	0.05	0.80	0.10	0.03	0.02
MAR 27...	0.1	1.6	296	<0.01	0.200	0.03	0.03	0.90	0.04	0.01	0.02
JUN 26...	0.1	6.7	168	0.02	0.330	0.06	0.04	0.80	0.07	0.05	0.07
AUG 15...	0.2	2.7	1120	<0.01	0.890	0.06	0.04	0.70	0.05	<0.01	<0.01

DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT 19...	90	2	38	<0.5	<1	<1	<3	5	140	<5	12
MAR 27...	20	<1	27	<0.5	<1	8	<3	7	74	<5	<4
JUN 26...	50	1	22	<0.5	<1	4	<3	9	410	1	<4
AUG 15...	10	<1	76	<0.5	<1	10	<3	5	6	<1	18

04212200 GRAND RIVER AT PAINESVILLE, OH--Continued

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 19...	33	<0.1	<10	1	<1	1.0	150	<6	11	94
MAR 27...	38	<0.1	<10	4	<1	<1.0	140	<6	6	8
JUN 26...	16	<0.1	<10	<1	<1	<1.0	82	<6	8	58
AUG 15...	9	<0.1	<10	1	<1	<1.0	440	<6	5	10

K Results based on colony count outside the acceptable range

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, 14.3 mg/L Mar. 22, 1988; minimum, 1.4 mg/L Aug. 10, 1986.

EXTREMES FOR CURRENT YEAR. --
SPECIFIC CONDUCTANCE: Maximum, 17,800 microsiemens Feb. 12; minimum, 620 microsiemens Oct. 18.
pH: Maximum, >10.0 units Jan. 3, 4, 17; minimum, 3.1 units on Apr. 19.
WATER TEMPERATURES: Maximum, 31.5°C on Aug. 5, 6; minimum, 4.0°C Dec. 28, Feb. 14.
DISSOLVED OXYGEN: Maximum, 12.4 mg/L Dec. 11, 15, 18; minimum, 5.7 mg/L July 16.

04212680 FIELDS BROOK AT ASHTABULA, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9300	4360	4950	13200	3220	5590	5360	3080	4220	10100	4300	5260
2	6840	4520	4950	5980	3680	4400	4100	2640	2940	4660	4280	4490
3	10900	4220	5090	6520	3300	4510	6020	2760	3550	7540	4540	4950
4	9700	3660	5320	5180	3060	3660	3720	3260	3410	7360	4420	5130
5	11700	3640	5310	9900	2500	3460	4700	3580	3950	6160	4620	4850
6	9560	3100	4700	5260	2620	3200	6120	3920	4360	6780	4440	4980
7	6620	2740	3540	6440	3340	3760	6520	3880	4440	4860	2740	3860
8	6580	4120	4560	5360	3680	4000	6120	4560	4910	4000	1800	2300
9	5880	2960	4110	6600	3820	4390	7000	4580	5170	11000	2380	3250
10	4000	2520	3350	5640	2400	3400	7580	4080	4620	5320	2460	2900
11	6040	2980	3790	8660	3100	4580	8100	4400	5300	5080	2980	3450
12	7400	3500	4190	7420	3580	3940	9280	4380	5010	7260	2860	3890
13	8080	4000	4740	4200	2820	3210	6440	4100	4860	4320	3140	3580
14	7820	2800	4710	3680	3080	3270	6460	4080	4670	6440	3760	4220
15	12800	4280	6070	4220	3440	3670	4800	2400	3430	5440	3620	4070
16	5660	4180	4940	5260	3620	4120	5900	2320	3170	8760	3580	4400
17	6880	3600	4360	3980	2180	3070	7320	3760	4450	11600	3960	4940
18	3740	620	1360	6840	2100	3090	7580	3980	4760	7920	4100	4890
19	4500	1240	2140	5680	3680	4380	7480	3620	4390	8700	3960	4880
20	4120	1640	2330	6380	2880	4080	5960	2600	3390	7160	4020	4570
21	5720	2620	3430	4060	2740	3080	3960	2480	2840	10000	4440	5820
22	7080	2820	3810	6500	3100	4000	5020	3160	3690	10900	4600	5640
23	7120	3200	4030	7080	3820	4570	4360	3240	3680	7480	4620	5730
24	10900	3300	4680	7020	3760	4630	11000	3300	4190	7160	2300	3640
25	5500	3400	3970	5640	3880	4330	8280	3220	3830	6860	3240	5090
26	7720	3340	3980	5700	3860	4170	4500	3780	4090	4160	1100	2120
27	6340	3280	3780	4640	3940	4120	5400	4060	4320	4140	1380	2190
28	5680	3100	3730	5020	3880	4030	4340	1800	2520	4380	1160	3390
29	7860	3300	4330	6980	3340	3920	4260	1960	2450	5360	1020	2070
30	5640	3620	4240	4680	3220	3810	4840	2000	2920	5440	2740	3270
31	11100	3220	4560	---	---	---	4980	3500	4080	6600	3440	4010
MONTH	12800	620	4160	13200	2100	3950	11000	1800	3990	11600	1020	4120

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5480	3980	4330	6420	3820	4350	3340	1860	2310	5120	3840	4270
2	8340	4000	5040	7700	4480	5110	3460	2280	2600	6220	4000	4340
3	6500	4420	4860	6440	4580	4970	2640	1300	1800	5640	4060	4490
4	9100	4520	5450	7700	4320	4860	1740	860	1160	7460	3460	4320
5	5420	4420	4700	7620	3880	4440	3580	1060	1800	5000	2720	3560
6	5640	4300	4630	4920	3980	4280	6940	2260	3160	5100	4000	4420
7	4980	4040	4520	4820	3700	4250	3900	3000	3370	4920	3440	3760
8	5820	4120	4640	9900	3660	4980	5580	3400	3630	4060	2440	2880
9	5900	3140	4170	11200	3760	4590	4440	3420	3930	9260	2800	3820
10	4240	2840	3290	5360	3360	3900	6020	3360	3900	3480	1560	2700
11	5640	3700	4420	6660	3300	4020	4560	3440	3860	2480	1480	1840
12	17800	3460	5620	12700	3920	5160	5380	3860	4280	3840	2080	2520
13	6540	3960	4460	6460	3180	3890	6440	3940	4370	7700	2780	3400
14	4260	1580	2710	9480	4160	4910	9460	3580	4950	4140	3020	3280
15	2940	1720	2300	6900	4440	5060	6100	3580	3910	3680	3260	3430
16	3940	2560	2930	5400	3940	4320	4500	3720	3950	4380	3100	3350
17	3780	2380	2750	4560	3260	3690	4700	3360	3970	3680	3160	3340
18	6340	3320	3960	4000	2140	2710	3680	2920	3110	8460	2540	3760
19	6180	3420	4050	4500	2740	3190	7360	2960	3840	3320	2340	2780
20	6440	3620	4110	4000	2660	3220	7560	2740	4000	3800	3080	3350
21	4260	2600	3260	4440	3000	3390	4800	2700	3320	4280	3480	3740
22	3180	2300	2580	7420	2960	3670	5440	3720	4150	5620	3600	4200
23	4520	2100	2830	4000	2760	3410	5480	4180	4610	4960	1180	2800
24	3540	2040	2380	3640	2880	3120	11300	4800	5400	3020	1340	2350
25	4880	2060	2520	4540	3180	3610	6140	4660	4910	4120	2780	3150
26	9040	2600	4030	6580	3260	3580	12700	4480	5470	3460	780	1480
27	6080	3400	4180	5020	3180	3660	9540	3040	5270	4080	1720	2610
28	4300	3140	3420	4180	1820	2280	5020	4300	4680	4160	3020	3600
29	---	---	---	3020	1900	2380	5200	4480	4660	5060	3580	3990
30	---	---	---	4040	1160	1790	5060	4260	4670	5320	4320	4720
31	---	---	---	3240	1520	2010	---	---	---	5140	1640	2920
MONTH	17800	1580	3860	12700	1160	3830	12700	860	3830	9260	780	3390

04212680 FIELDS BROOK AT ASHTABULA, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6800	2120	2860	5820	4160	4620	8440	4220	5320	3720	3180	3440
2	3840	2520	2980	6460	4260	5030	9600	4520	5570	3940	3280	3450
3	4460	1440	3420	7280	4280	5010	5540	3540	4220	3680	3360	3510
4	3680	1720	2540	9220	4380	5130	5920	3720	4480	3900	3620	3740
5	5360	3380	3910	11000	4820	5730	5860	4100	4650	3740	3420	3590
6	4520	3460	3950	5800	4420	5060	6540	3880	4510	3720	2800	3350
7	4720	3160	3990	5380	4080	4500	4760	3620	4080	3040	2560	2750
8	6640	4480	5110	6980	5040	5610	5240	3860	4270	3760	2900	3200
9	6440	3540	4840	6240	5080	5500	5760	3900	4490	4120	3300	3780
10	6720	3520	4350	6380	4860	5540	5460	4560	4840	3980	3280	3700
11	5940	4340	5040	10200	4400	5410	5800	3700	4350	4040	2960	3490
12	6220	4040	4940	8820	4500	5450	4940	3620	4070	3100	2860	2970
13	7400	4140	4640	10300	3540	4590	6520	4400	4810	3780	2960	3430
14	5200	4340	4730	4660	3520	3780	6100	4660	4900	4020	3560	3820
15	4800	2860	3670	4900	3540	3820	12300	4380	5830	3860	3220	3510
16	3180	1880	2540	8680	3720	4680	5720	4560	4830	3820	3060	3310
17	5620	2700	3370	4880	4040	4340	5120	3660	4340	3640	3300	3410
18	6120	2540	3160	5560	4040	4510	5640	4320	4570	3700	3460	3590
19	5360	3560	3900	4720	3720	4170	6440	4620	4910	3800	3360	3540
20	4720	1600	2720	5360	3960	4460	6220	4820	5350	3920	3700	3780
21	3880	2240	2790	8420	3760	4730	5740	4440	4920	4020	3640	3770
22	3580	2340	2820	5060	3700	4270	4940	4160	4430	4060	1660	3320
23	7540	3140	4030	5240	4340	4620	5680	1960	4110	3280	2500	2800
24	5700	3840	4220	9860	4020	4740	3900	2480	3320	3180	2780	3010
25	5240	3960	4590	5200	3980	4330	3680	2520	3040	3960	3160	3520
26	5900	4580	4960	7140	3940	4500	4000	3360	3760	4020	2920	3560
27	7860	4280	5100	6040	2840	3750	4200	3960	4090	3900	2880	3400
28	6680	4440	4820	4000	2900	3490	4520	3880	4150	4060	3780	3900
29	6780	3740	4550	4920	3700	4100	4540	2800	4020	4260	3900	4060
30	4880	3440	4060	5420	3920	4200	4000	3680	3860	4280	3920	4060
31	---	---	---	5340	3940	4310	3800	3220	3530	---	---	---
MONTH	7860	1440	3950	11000	2840	4640	12300	1960	4440	4280	1660	3490
YEAR	17800	620	3980									

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.0	7.9	7.9	7.9	7.6	7.8	8.2	7.9	8.0	7.9	7.8	7.9
2	8.0	7.9	7.9	7.8	7.7	7.7	8.3	8.0	8.1	8.0	7.9	7.9
3	8.0	7.9	7.9	7.9	7.7	7.8	8.1	7.8	8.0	10.0	7.9	8.2
4	8.1	7.9	8.0	7.9	7.7	7.8	8.0	7.8	7.9	10.0	8.0	8.7
5	8.1	7.5	7.9	7.9	7.6	7.8	8.1	7.8	7.9	8.2	8.0	8.0
6	8.2	8.0	8.1	7.7	7.6	7.7	8.1	7.9	8.0	8.2	7.5	7.9
7	8.2	7.5	8.0	8.0	7.6	7.8	8.0	7.9	8.0	8.1	7.6	7.8
8	7.8	7.5	7.7	7.9	7.9	7.9	8.2	8.0	8.0	7.8	7.6	7.6
9	7.8	7.5	7.6	8.0	7.8	7.9	8.7	8.0	8.1	8.0	7.6	7.8
10	7.7	7.5	7.6	7.9	7.7	7.8	8.2	8.0	8.1	8.1	7.9	8.0
11	7.7	7.5	7.6	7.8	7.6	7.7	8.2	7.8	8.0	8.3	8.1	8.1
12	7.8	7.6	7.7	7.9	7.8	7.9	8.1	7.7	8.0	8.1	7.8	8.0
13	7.8	7.5	7.7	7.9	7.6	7.7	8.1	7.9	8.0	8.2	7.9	8.0
14	8.2	7.8	7.9	7.9	7.7	7.8	8.3	7.9	8.0	8.1	8.0	8.0
15	8.1	7.9	8.0	8.0	7.8	7.9	8.0	7.8	7.9	8.0	7.9	7.9
16	8.0	7.9	8.0	8.1	7.9	8.0	8.2	8.0	8.1	8.3	7.7	7.9
17	8.1	7.9	8.0	8.2	7.8	8.0	8.2	8.0	8.1	10.0	7.7	9.0
18	7.9	7.4	7.5	8.1	7.9	8.1	8.2	8.1	8.1	8.2	7.8	7.9
19	7.6	7.3	7.5	8.0	7.9	7.9	8.2	8.1	8.1	7.9	7.8	7.9
20	7.7	7.4	7.5	7.9	7.7	7.8	8.1	7.6	7.8	7.9	7.7	7.8
21	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.7	7.8	7.9	7.7	7.8
22	7.7	7.5	7.6	8.0	7.8	7.9	8.0	7.9	7.9	8.0	7.8	7.8
23	7.8	7.6	7.7	8.1	7.8	7.9	7.9	7.8	7.9	7.9	7.7	7.8
24	8.0	7.7	7.8	8.1	7.9	8.0	7.9	7.7	7.9	8.2	7.9	8.1
25	7.9	7.7	7.8	8.1	7.9	8.0	8.0	7.8	7.9	8.1	7.9	8.0
26	7.8	7.6	7.7	8.2	8.0	8.0	8.0	7.9	7.9	7.9	7.5	7.7
27	7.7	7.6	7.7	8.1	8.0	8.0	8.0	7.9	7.9	7.8	7.4	7.5
28	7.7	7.2	7.6	8.1	8.0	8.0	7.9	7.5	7.7	8.6	8.0	8.4
29	7.8	7.6	7.7	8.2	7.9	8.0	7.9	7.6	7.7	8.5	7.9	8.2
30	7.8	7.7	7.8	8.0	7.8	8.0	8.0	7.9	7.9	8.2	7.8	8.0
31	7.9	7.7	7.8	---	---	---	7.9	7.8	7.9	7.9	7.8	7.8
MONTH	8.2	7.2	7.8	8.2	7.6	7.9	8.7	7.5	8.0	10.0	7.4	8.0

04212680 FIELDS BROOK AT ASHTABULA, OH

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.8	7.8	8.0	7.8	7.9	7.5	7.4	7.5	8.1	7.7	7.9
2	7.8	7.7	7.8	8.0	7.8	7.9	7.7	7.5	7.6	8.2	7.7	7.9
3	7.9	7.7	7.8	8.0	7.8	7.9	7.6	7.5	7.6	8.2	7.8	7.9
4	7.9	7.7	7.8	8.1	7.8	7.9	7.6	7.5	7.6	8.4	7.7	8.0
5	8.1	7.9	8.0	7.8	7.7	7.8	8.4	7.5	7.7	8.3	7.8	8.0
6	8.0	7.7	7.9	8.0	7.7	7.8	7.9	7.7	7.8	8.3	7.7	7.9
7	8.1	7.9	8.0	8.1	7.8	7.9	8.0	7.8	7.9	8.2	7.7	7.9
8	8.0	7.9	7.9	8.0	7.8	7.9	8.1	7.8	7.9	8.1	7.6	7.8
9	8.0	7.8	7.9	8.2	7.0	7.8	8.1	7.9	8.0	8.1	7.8	7.9
10	8.0	7.7	7.8	8.1	7.7	7.9	8.1	7.8	8.0	7.8	7.6	7.7
11	8.0	7.8	7.9	8.2	7.8	8.0	8.2	7.9	8.0	7.7	7.6	7.6
12	8.0	7.7	7.9	8.2	7.8	7.9	8.3	7.8	8.0	7.8	7.7	7.7
13	7.9	7.8	7.9	8.4	7.8	8.0	8.3	7.8	8.0	8.0	7.7	7.8
14	7.9	7.6	7.7	8.2	7.8	7.9	8.4	7.7	8.0	8.2	7.8	7.9
15	7.9	7.5	7.7	7.9	7.4	7.8	8.4	7.8	8.0	8.0	7.8	7.9
16	7.9	7.7	7.8	8.1	7.7	7.9	8.5	7.7	8.0	8.3	7.8	7.9
17	8.0	7.9	7.9	8.2	7.7	7.9	8.4	7.6	7.9	8.3	7.8	8.0
18	7.9	7.8	7.9	7.8	7.6	7.6	8.3	7.7	7.9	8.5	7.8	8.1
19	8.1	7.9	8.0	8.0	7.6	7.7	8.3	3.1	7.5	8.4	7.9	8.1
20	8.0	7.9	8.0	8.0	7.7	7.8	8.0	6.5	7.6	8.2	7.8	8.0
21	7.9	7.7	7.8	8.0	7.7	7.8	8.1	7.8	8.0	8.3	7.8	8.0
22	7.8	7.6	7.8	8.0	7.7	7.8	8.2	7.8	8.0	8.3	7.8	8.0
23	8.0	7.7	7.9	8.1	7.7	7.9	8.2	7.8	8.0	7.8	7.5	7.7
24	8.2	8.0	8.1	8.2	7.8	8.0	8.2	7.8	8.0	7.8	7.5	7.6
25	8.2	8.0	8.1	8.3	7.8	8.0	8.3	7.8	8.0	7.8	7.5	7.6
26	8.0	7.8	7.9	8.3	7.8	8.0	8.3	7.7	8.0	7.6	7.3	7.4
27	8.0	7.8	7.9	8.4	7.0	7.9	8.3	7.7	8.0	7.7	7.4	7.6
28	8.1	7.9	8.0	7.9	7.6	7.7	8.1	7.7	7.9	7.8	7.6	7.7
29	---	---	---	8.3	7.7	7.8	8.1	7.7	7.9	7.9	7.6	7.7
30	---	---	---	7.8	7.5	7.6	8.2	7.7	7.9	7.8	7.6	7.7
31	---	---	---	7.5	7.5	7.5	---	---	---	7.6	7.5	7.6
MONTH	8.2	7.5	7.9	8.4	7.0	7.8	8.5	3.1	7.9	8.5	7.3	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	7.5	7.7	8.3	7.8	8.0	8.2	7.7	7.9	8.0	7.9	7.9
2	7.7	7.6	7.7	8.3	7.8	8.0	8.2	7.7	7.9	8.1	7.9	8.0
3	7.8	7.3	7.6	8.2	7.7	7.9	8.3	7.7	7.9	8.1	7.9	8.0
4	7.6	7.4	7.5	8.1	7.7	7.9	8.1	7.7	7.8	8.1	7.8	7.9
5	7.8	7.6	7.7	8.2	7.0	7.9	8.2	7.7	7.9	8.1	7.8	7.9
6	7.8	7.6	7.7	8.2	7.8	7.9	8.2	7.8	8.0	8.4	7.8	8.0
7	7.9	7.7	7.7	8.3	7.8	8.0	8.3	7.8	8.0	8.2	7.9	8.0
8	7.9	7.6	7.7	8.2	7.8	8.0	8.2	7.9	8.0	8.2	7.9	8.0
9	7.7	7.5	7.6	8.2	7.8	8.0	8.3	7.8	8.0	8.1	7.9	8.0
10	7.7	7.6	7.7	8.2	7.8	8.0	8.3	7.8	8.0	8.0	7.8	7.9
11	7.9	7.6	7.7	8.2	7.8	8.0	8.3	7.9	8.0	8.1	7.9	8.0
12	7.8	7.6	7.7	8.0	7.8	7.9	8.4	7.5	8.0	8.2	7.9	8.0
13	7.8	7.6	7.7	8.3	7.8	8.0	8.3	7.8	8.0	8.1	7.9	8.0
14	7.7	7.6	7.6	8.3	7.9	8.1	8.2	7.8	8.0	8.0	7.8	7.9
15	7.8	7.6	7.7	8.3	7.9	8.0	8.2	7.8	7.9	8.1	7.9	8.0
16	7.8	7.6	7.7	8.2	7.8	8.0	8.2	7.8	7.9	7.9	7.8	7.9
17	7.9	7.6	7.7	8.2	7.8	8.0	8.4	7.8	8.0	8.0	7.8	7.9
18	7.8	7.5	7.7	8.2	7.8	8.0	8.2	7.8	8.0	8.0	7.8	7.9
19	7.9	7.7	7.8	8.1	7.8	8.0	8.1	7.8	7.9	8.1	7.9	8.0
20	7.7	7.5	7.6	8.0	7.7	7.8	8.0	7.8	7.9	8.0	7.8	7.9
21	7.8	7.6	7.7	8.1	7.6	7.9	8.1	7.8	8.0	8.0	7.8	7.9
22	7.9	7.8	7.9	8.0	7.7	7.9	8.0	7.7	7.9	8.0	7.6	7.9
23	8.0	7.8	7.9	8.1	7.7	7.9	7.9	7.5	7.8	7.8	7.6	7.7
24	8.0	7.8	7.9	8.1	7.8	7.9	8.1	7.9	8.0	8.0	7.8	7.9
25	8.0	7.8	7.9	8.1	7.8	7.9	8.1	8.0	8.0	7.9	7.8	7.8
26	8.1	7.8	7.9	8.2	7.7	7.9	8.1	7.9	8.0	7.9	7.7	7.8
27	8.1	7.7	7.9	8.0	7.8	7.9	8.1	7.9	8.0	7.8	7.7	7.8
28	8.1	7.8	7.9	8.1	7.8	7.9	8.1	7.9	7.9	7.8	7.7	7.7
29	8.1	7.8	7.9	8.1	7.8	8.0	7.9	7.6	7.8	7.8	7.6	7.7
30	8.2	7.8	8.0	8.2	7.9	8.0	8.1	7.9	8.0	7.9	7.7	7.8
31	---	---	---	8.2	7.9	8.0	8.1	7.9	8.0	---	---	---
MONTH	8.2	7.3	7.7	8.3	7.0	8.0	8.4	7.5	7.9	8.4	7.6	7.9
YEAR	10.0	3.1	7.9									

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	27.0	25.0	26.0	15.0	14.0	14.5	12.0	9.5	11.0	10.5	9.0	9.5
2	25.5	24.0	25.0	14.5	13.5	14.0	10.0	9.5	10.0	10.0	9.0	9.5
3	24.5	23.5	24.0	16.0	14.0	15.0	11.0	8.5	9.5	10.0	9.0	9.5
4	23.5	22.0	22.5	16.5	14.0	15.5	9.0	7.5	8.5	9.5	7.5	8.5
5	21.5	19.0	20.0	17.0	13.5	15.5	10.5	9.0	10.0	10.0	8.5	9.0
6	21.0	19.5	20.0	13.5	12.5	13.0	12.0	10.0	11.0	10.5	10.0	10.5
7	20.0	17.0	19.0	13.0	12.0	12.5	12.0	11.0	11.5	10.5	7.0	9.5
8	19.5	17.5	18.5	13.5	13.0	13.0	11.5	10.5	11.0	7.0	4.5	5.5
9	19.0	16.0	17.5	15.0	13.0	14.0	10.5	9.5	10.0	6.5	5.0	6.0
10	18.0	16.0	17.0	15.0	12.5	13.5	9.5	8.0	9.0	8.5	6.5	7.5
11	17.5	16.0	17.0	13.0	12.0	12.0	8.5	7.0	7.5	9.5	8.5	9.0
12	17.0	15.5	16.5	14.0	12.0	13.0	6.5	6.0	6.5	10.0	7.5	9.5
13	17.5	16.0	16.5	13.5	10.5	11.5	8.5	6.5	7.5	8.5	7.5	8.0
14	18.5	16.0	17.5	13.5	11.0	12.5	9.5	8.5	9.0	9.5	8.0	8.5
15	20.5	17.5	19.0	15.5	13.0	14.0	8.5	6.5	7.0	8.5	8.0	8.5
16	21.0	19.0	20.0	16.0	13.5	15.0	8.5	7.0	8.0	9.0	8.0	8.5
17	21.0	20.0	20.5	13.5	12.0	12.5	9.0	7.5	8.5	9.5	8.5	9.0
18	19.0	14.5	15.5	14.0	12.0	13.0	9.0	8.0	8.5	11.0	9.0	10.0
19	16.0	14.0	15.0	14.0	13.5	14.0	10.0	8.5	9.0	10.5	10.0	10.0
20	16.0	13.5	14.5	14.0	10.5	13.0	10.0	7.5	8.5	10.5	7.5	9.5
21	16.5	15.5	16.0	11.5	10.5	11.0	9.0	7.5	8.5	9.5	7.5	8.5
22	16.0	15.5	15.5	13.0	11.5	12.5	10.5	9.0	10.0	11.5	8.0	9.5
23	17.0	15.5	16.5	13.5	11.5	13.0	10.5	9.5	10.0	12.5	10.0	11.0
24	16.5	15.0	15.5	13.0	11.5	12.0	10.5	9.5	10.0	12.0	11.0	11.5
25	15.0	14.0	15.0	14.0	12.0	13.0	9.5	8.5	9.0	11.0	10.0	10.5
26	13.5	12.0	12.5	15.5	14.0	15.0	9.5	8.5	9.0	10.0	5.0	7.5
27	14.5	12.0	13.0	15.5	14.5	15.5	11.0	9.0	10.0	8.0	5.0	6.0
28	14.5	12.0	13.5	14.0	12.0	13.0	11.0	4.0	6.0	10.0	8.0	9.0
29	14.0	12.5	13.5	12.5	11.5	11.5	6.5	4.5	5.5	10.5	8.0	9.0
30	14.5	13.5	14.0	12.0	11.5	11.5	8.0	6.0	7.0	10.5	10.0	10.0
31	14.5	12.5	13.5	---	---	---	9.5	7.5	9.0	12.5	10.0	11.0
MONTH	27.0	12.0	17.5	17.0	10.5	13.5	12.0	4.0	9.0	12.5	4.5	9.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	11.0	12.0	10.5	9.0	9.5	8.5	5.5	6.5	16.0	14.5	15.5
2	11.0	10.0	10.0	11.0	8.5	9.5	10.5	7.0	8.5	18.5	14.0	16.0
3	10.0	9.0	9.5	11.0	9.5	10.0	10.0	8.0	9.0	18.5	15.5	16.5
4	10.5	9.0	9.5	13.5	9.5	11.0	12.0	9.0	10.5	21.0	15.0	18.0
5	10.5	9.0	9.5	11.0	7.0	9.0	11.5	10.5	11.0	19.5	17.0	18.0
6	9.5	8.5	9.0	7.5	6.5	7.0	13.0	10.0	11.5	19.0	14.5	17.0
7	9.0	8.0	8.5	8.0	6.0	7.0	14.5	11.0	12.5	15.0	12.5	13.5
8	8.5	6.0	7.5	10.0	6.0	8.0	14.0	10.5	12.0	14.5	11.5	12.5
9	8.0	6.0	6.5	12.0	8.0	9.5	13.5	11.0	12.0	17.0	13.5	15.0
10	9.0	7.0	7.5	12.0	9.0	10.5	13.5	9.0	11.0	15.0	11.0	13.0
11	9.5	8.0	8.5	13.0	10.0	11.0	14.0	10.5	12.0	12.5	10.5	11.5
12	9.5	7.0	8.5	11.0	9.5	10.5	15.0	11.0	12.5	14.5	12.0	13.0
13	10.0	8.5	9.0	12.0	8.5	10.0	15.0	11.5	13.0	16.0	14.0	15.0
14	9.5	4.0	6.0	15.0	11.0	13.0	16.0	11.5	13.5	18.5	15.0	16.5
15	7.5	5.0	6.5	13.5	9.5	11.5	15.0	13.0	14.0	16.5	16.0	16.5
16	9.0	7.5	8.0	12.5	9.0	10.5	17.5	12.0	14.5	20.0	16.0	17.5
17	9.5	7.5	8.5	12.5	10.0	11.0	17.5	14.0	15.5	22.5	17.0	19.5
18	10.0	8.0	9.0	10.0	6.0	7.0	14.5	11.5	13.0	22.5	18.5	20.5
19	11.0	8.5	10.0	9.0	6.0	7.5	16.5	11.0	13.5	23.0	19.5	21.0
20	12.0	10.5	11.0	9.5	7.5	8.5	16.5	12.5	14.5	22.0	20.5	21.0
21	11.0	7.0	8.5	10.5	8.5	9.0	18.5	14.5	15.5	23.5	19.0	21.0
22	8.0	6.5	7.0	12.0	8.0	9.5	17.5	13.5	15.0	25.0	19.5	22.0
23	8.0	6.5	7.0	12.5	8.5	10.5	18.5	13.0	15.5	22.5	15.5	18.5
24	8.5	6.5	7.0	12.5	10.0	11.0	19.0	14.0	16.0	22.0	15.5	18.5
25	9.0	7.0	8.0	14.0	10.5	12.0	19.0	15.5	17.0	23.5	19.5	21.5
26	10.0	9.0	9.5	14.5	11.5	12.5	20.5	16.0	17.5	23.0	18.0	20.5
27	10.0	8.5	9.5	17.5	12.5	14.5	19.5	15.0	16.5	22.5	20.0	21.0
28	11.0	9.5	10.5	16.5	13.0	15.0	15.5	15.0	15.5	23.5	18.5	21.0
29	---	---	---	15.0	12.0	14.0	16.5	14.5	15.5	24.5	19.5	22.0
30	---	---	---	12.0	7.0	8.5	18.0	14.5	16.0	26.0	22.5	24.5
31	---	---	---	8.5	5.5	7.0	---	---	---	24.5	20.0	22.5
MONTH	13.0	4.0	8.5	17.5	5.5	10.0	20.5	5.5	13.5	26.0	10.5	18.0

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	22.0	23.5	28.0	24.0	26.0	28.5	26.5	27.5	28.0	27.0	27.5
2	25.5	22.0	24.0	28.5	24.5	26.5	29.0	26.0	27.5	27.5	25.5	26.5
3	26.5	20.0	23.5	27.5	25.5	26.5	30.0	27.5	28.5	27.5	25.0	26.0
4	24.0	19.5	21.5	26.5	25.5	26.0	30.0	28.5	29.0	27.0	24.5	25.5
5	23.0	22.0	22.5	27.5	25.5	26.5	31.5	28.5	30.0	27.5	24.5	26.0
6	26.0	21.5	23.5	28.5	25.0	26.5	31.5	28.5	30.0	27.5	26.0	27.0
7	27.5	22.5	25.0	28.0	25.0	26.5	28.0	26.5	27.5	27.5	26.0	26.5
8	28.0	24.5	26.0	28.0	24.5	26.5	27.5	26.0	26.5	28.5	26.0	27.5
9	26.0	23.5	25.0	28.0	25.0	26.5	28.5	25.5	27.0	29.0	27.0	28.0
10	24.0	22.5	23.0	30.0	26.5	28.0	29.5	26.5	27.5	28.0	26.5	27.0
11	26.0	21.5	24.0	30.5	28.0	29.0	28.5	27.0	28.0	28.0	26.5	27.0
12	24.5	22.5	23.5	28.5	27.0	27.5	29.0	26.5	28.0	28.0	25.5	26.5
13	24.0	22.5	23.0	29.5	26.5	27.5	30.0	27.0	28.5	27.5	25.5	26.5
14	23.5	23.5	23.5	28.5	26.0	27.0	30.0	27.5	28.5	26.0	24.0	25.5
15	23.0	22.0	23.0	27.5	25.0	26.0	30.0	28.0	29.0	24.5	23.5	24.0
16	22.5	20.0	21.5	28.0	24.5	26.0	30.0	28.0	29.0	23.5	22.0	22.5
17	23.5	20.5	22.0	28.5	24.5	26.5	29.5	27.5	28.5	23.0	21.5	22.5
18	24.5	20.0	22.0	29.0	25.5	27.0	28.5	26.0	27.0	25.0	21.5	23.5
19	26.5	23.0	24.5	27.5	26.5	27.5	28.0	26.5	27.0	25.5	23.5	24.5
20	25.0	20.5	22.5	26.5	25.5	26.0	27.5	27.0	27.5	26.0	23.5	24.5
21	22.5	21.0	22.0	26.5	25.5	26.0	29.5	27.5	28.5	26.0	24.0	25.0
22	26.0	22.5	24.0	27.0	25.0	26.0	29.0	27.0	28.0	26.0	22.0	25.0
23	28.0	24.5	26.0	29.0	25.5	27.0	28.0	24.0	27.0	22.5	19.5	20.5
24	29.0	25.0	27.0	29.5	26.5	28.0	28.5	26.5	27.5	21.5	19.5	20.5
25	29.5	26.0	27.5	30.5	27.0	28.5	28.0	25.5	26.5	22.0	19.5	21.0
26	29.5	26.0	27.5	30.5	28.5	29.5	28.0	25.5	26.5	22.5	20.5	21.5
27	29.5	27.0	28.0	29.0	27.0	28.5	28.0	25.5	26.5	21.5	19.5	20.5
28	29.5	26.5	27.5	29.0	27.5	28.0	28.5	25.5	27.0	22.5	19.5	21.0
29	27.0	24.5	25.5	29.5	26.5	28.0	27.5	24.5	27.0	23.0	21.0	22.0
30	28.0	24.0	25.5	29.0	27.0	28.0	29.0	27.0	28.0	23.5	21.0	22.0
31	---	---	---	29.0	26.5	27.5	29.5	26.5	28.0	---	---	---
MONTH	29.5	19.5	24.0	30.5	24.0	27.0	31.5	24.0	28.0	29.0	19.5	24.5
YEAR	31.5	4.0	17.0									

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.5	7.8	8.1	9.5	8.7	9.1	10.2	9.6	9.8	10.6	10.0	10.3
2	8.6	8.0	8.3	9.1	8.8	8.9	10.9	10.0	10.3	10.4	10.0	10.1
3	9.0	8.5	8.7	9.3	8.7	8.9	10.7	10.1	10.3	10.5	9.8	10.1
4	9.3	8.6	9.0	9.2	8.6	8.9	11.1	10.3	10.7	10.8	9.9	10.6
5	9.6	8.9	9.3	8.9	8.5	8.7	10.8	10.1	10.3	10.6	10.1	10.4
6	9.7	9.2	9.4	9.4	8.9	9.2	11.0	10.0	10.4	10.2	10.1	10.2
7	9.6	9.0	9.3	10.0	9.3	9.5	10.5	10.0	10.2	10.8	10.2	10.4
8	9.2	8.3	8.7	9.5	9.2	9.4	11.3	10.2	10.5	11.5	10.9	11.2
9	8.6	8.2	8.4	9.6	8.6	9.2	11.5	10.5	10.8	11.3	10.9	11.1
10	8.4	8.0	8.1	9.5	8.6	9.1	11.6	10.7	11.1	11.0	10.6	10.8
11	8.7	8.3	8.5	9.9	9.4	9.7	12.4	11.2	11.7	10.8	10.4	10.6
12	9.0	8.6	8.7	9.8	9.1	9.5	12.3	11.9	12.0	10.7	10.1	10.4
13	9.1	8.6	8.8	10.2	9.2	9.9	12.1	11.6	11.8	10.8	10.6	10.7
14	9.0	8.4	8.7	10.1	9.5	9.9	11.9	11.3	11.5	10.7	10.4	10.6
15	8.7	8.2	8.5	9.7	9.0	9.4	12.4	11.6	12.1	10.8	10.4	10.7
16	8.7	8.2	8.4	9.4	9.0	9.2	12.3	11.6	12.0	10.7	10.5	10.6
17	8.8	8.1	8.3	10.2	9.5	9.9	12.1	11.5	11.7	10.5	10.3	10.4
18	9.1	8.2	8.6	10.4	9.5	10.0	12.4	11.6	11.8	10.5	10.2	10.4
19	9.4	9.1	9.2	9.7	9.3	9.5	12.2	11.4	11.7	10.5	10.2	10.4
20	9.7	9.2	9.4	9.9	9.2	9.5	11.8	11.3	11.5	10.9	10.1	10.4
21	9.3	9.0	9.2	10.2	9.9	10.1	11.6	11.1	11.2	11.0	10.4	10.7
22	9.3	9.0	9.2	10.2	9.4	9.8	11.4	10.5	11.0	10.7	10.0	10.3
23	9.3	8.8	9.1	9.9	9.2	9.5	11.2	10.5	10.7	10.2	9.6	9.9
24	9.5	8.9	9.2	10.3	9.5	9.8	10.8	10.4	10.6	9.9	9.6	9.8
25	10.1	8.8	9.4	10.4	9.3	9.7	11.4	10.6	10.9	10.3	9.8	10.0
26	9.8	9.3	9.6	10.0	8.9	9.3	11.6	10.8	11.1	10.8	9.9	10.4
27	9.9	9.3	9.6	9.5	8.9	9.0	11.0	10.2	10.7	11.0	9.8	10.7
28	9.7	9.2	9.5	9.9	9.1	9.5	12.0	10.2	11.4	---	---	---
29	9.7	9.3	9.5	10.6	9.7	10.0	11.9	11.2	11.6	---	---	---
30	9.7	9.3	9.5	10.0	9.6	9.7	11.3	10.7	11.0	9.9	9.8	9.9
31	9.9	9.2	9.5	---	---	---	10.7	10.3	10.5	9.8	9.2	9.6
MONTH	10.1	7.8	9.0	10.6	8.5	9.5	12.4	9.6	11.1	11.5	9.2	10.4

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.8	9.4	9.5	10.9	10.2	10.5	11.5	10.6	11.0	9.8	8.5	9.1
2	10.1	9.7	10.0	11.0	10.0	10.5	10.6	9.6	10.3	10.0	8.5	9.1
3	10.4	10.0	10.2	10.9	10.1	10.4	10.0	8.1	9.4	10.0	8.5	9.1
4	10.4	10.1	10.3	10.9	9.9	10.2	9.3	6.9	8.0	10.2	8.2	9.1
5	10.4	10.2	10.3	10.9	10.0	10.5	7.5	5.9	6.9	9.7	8.2	8.8
6	10.7	10.1	10.4	11.8	10.9	11.2	9.7	6.4	8.1	10.2	8.4	9.0
7	10.7	10.5	10.6	12.0	11.0	11.4	9.5	8.8	9.2	10.7	9.2	9.7
8	11.1	10.6	10.7	11.8	10.6	11.2	9.7	8.8	9.2	10.6	9.4	9.9
9	11.2	10.9	11.1	11.8	10.1	10.8	9.9	8.7	9.2	10.4	9.0	9.5
10	10.9	10.6	10.8	11.7	10.1	10.7	10.7	9.0	9.6	10.2	9.0	9.7
11	10.6	10.5	10.6	11.5	9.7	10.4	10.9	8.7	9.6	10.4	9.9	10.1
12	11.1	10.6	10.7	11.8	9.8	10.6	11.1	9.0	9.8	10.1	9.4	9.8
13	10.7	10.3	10.6	12.0	9.8	10.7	11.7	9.0	10.1	10.2	8.9	9.5
14	11.9	10.5	11.3	11.5	9.0	10.1	11.6	8.6	9.9	10.2	8.7	9.4
15	11.7	11.1	11.3	10.7	9.1	9.9	11.3	8.5	9.4	9.8	8.8	9.1
16	11.2	11.0	11.1	12.0	9.8	10.7	11.6	8.3	9.7	10.2	8.4	9.2
17	11.2	10.9	11.0	11.8	9.8	10.6	10.9	8.3	9.0	10.2	8.1	9.0
18	11.0	10.6	10.8	11.4	9.9	10.9	10.8	8.6	9.5	9.9	7.9	8.8
19	10.8	10.3	10.5	11.8	11.1	11.4	11.0	8.6	9.7	9.4	7.6	8.3
20	10.5	10.1	10.3	11.4	10.8	11.0	9.5	8.5	9.0	9.1	7.5	8.0
21	11.1	10.2	10.7	11.6	10.7	11.0	9.6	8.3	8.8	9.2	7.5	8.2
22	11.2	11.0	11.1	11.7	10.6	11.1	9.9	8.4	9.0	8.9	6.9	7.9
23	11.3	11.1	11.2	11.8	10.5	11.1	10.2	8.3	9.1	8.3	7.0	7.7
24	11.3	10.9	11.1	11.7	10.3	10.8	10.3	8.0	9.0	8.8	8.1	8.4
25	11.1	10.3	10.8	11.9	9.9	10.7	10.1	7.8	8.8	8.7	7.8	8.2
26	10.4	10.2	10.3	12.2	10.0	10.8	10.4	7.8	8.7	8.6	7.5	7.8
27	10.8	10.2	10.5	12.0	9.4	10.4	10.5	8.3	9.1	8.5	7.9	8.2
28	10.7	10.1	10.3	10.0	9.3	9.6	9.8	8.5	9.0	8.7	8.0	8.4
29	---	---	---	10.7	9.5	9.9	10.1	8.6	9.1	8.5	7.9	8.2
30	---	---	---	10.9	9.5	10.3	10.0	8.4	9.0	8.2	7.7	7.9
31	---	---	---	11.8	10.1	10.6	---	---	---	8.3	7.7	7.9
MONTH	11.9	9.4	10.6	12.2	9.0	10.6	11.7	5.9	9.2	10.7	6.9	8.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.2	7.8	8.0	7.7	6.5	7.0	7.8	6.3	7.0	7.1	6.7	6.8
2	8.3	7.9	8.0	7.9	6.4	7.0	8.0	6.3	7.0	7.5	6.8	7.1
3	8.2	7.7	8.1	7.9	6.4	6.9	8.2	6.1	6.9	7.4	6.8	7.0
4	8.5	7.9	8.1	7.5	6.5	6.8	7.6	6.1	6.6	7.4	6.7	7.0
5	8.4	8.1	8.2	7.6	6.4	6.8	7.9	5.9	6.6	7.7	6.7	7.1
6	8.4	7.8	8.1	7.6	6.3	6.8	7.7	5.9	6.6	8.0	6.7	7.2
7	8.2	7.7	7.9	8.1	6.4	6.9	7.9	6.3	6.9	7.9	7.1	7.4
8	8.3	7.5	7.9	7.7	6.2	6.8	7.9	6.6	7.0	8.1	6.8	7.3
9	8.0	7.6	7.8	7.4	6.3	6.7	7.9	6.6	7.1	7.9	6.9	7.2
10	8.3	7.9	8.1	7.8	6.1	6.8	7.9	6.7	7.1	7.3	7.0	7.1
11	8.8	7.8	8.3	7.4	6.0	6.6	7.9	6.7	7.1	7.8	7.1	7.4
12	8.4	7.9	8.1	7.1	6.2	6.6	8.0	6.6	7.1	7.8	7.2	7.4
13	8.7	8.0	8.2	7.4	6.3	6.7	8.0	6.5	7.1	7.8	7.2	7.4
14	8.3	8.0	8.1	7.5	6.3	6.7	8.0	6.5	7.0	7.6	7.3	7.4
15	8.5	8.0	8.2	7.6	6.1	6.8	7.8	6.4	6.9	8.0	7.5	7.7
16	8.5	8.1	8.3	7.2	5.7	6.4	7.7	6.4	6.9	8.0	7.6	7.8
17	8.8	7.9	8.3	7.4	5.8	6.7	7.8	6.5	6.9	8.3	7.7	8.0
18	8.6	8.0	8.3	8.0	7.1	7.5	7.7	6.6	7.0	8.1	7.5	7.8
19	8.5	7.7	8.1	7.6	7.1	7.3	7.5	6.6	6.8	8.1	7.3	7.6
20	8.2	7.8	8.0	7.7	7.2	7.4	7.1	6.5	6.7	8.1	7.4	7.6
21	8.4	7.4	7.9	8.0	7.4	7.6	7.3	6.5	6.7	8.1	7.3	7.6
22	7.4	6.8	7.2	8.1	7.5	7.7	7.1	6.4	6.6	8.0	7.2	7.5
23	7.2	6.7	7.0	8.2	7.4	7.7	7.3	6.2	6.8	8.3	7.3	7.9
24	7.3	6.6	6.9	8.2	7.3	7.7	7.4	7.1	7.2	8.6	8.0	8.2
25	7.3	6.5	6.9	8.1	7.1	7.5	7.3	7.1	7.2	8.4	7.6	8.0
26	7.3	6.3	6.8	8.4	6.3	7.2	7.4	7.0	7.2	8.0	7.4	7.7
27	7.2	6.3	6.6	7.1	6.5	6.6	7.5	7.0	7.1	8.2	7.5	7.8
28	7.2	6.3	6.6	7.3	6.4	6.7	7.6	6.8	7.2	7.9	7.1	7.5
29	7.6	6.5	6.9	7.3	6.5	6.8	7.4	6.8	7.0	7.8	6.7	7.2
30	7.5	6.6	6.9	7.4	6.5	6.9	7.4	6.8	7.0	7.6	6.6	7.0
31	---	---	---	7.7	6.6	7.0	7.5	6.7	7.0	---	---	---
MONTH	8.8	6.3	7.7	8.4	5.7	7.0	8.2	5.9	6.9	8.6	6.6	7.5
YEAR	12.4	5.7	9.0									

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: Oct. 1 to July 12, July 27, 28, Aug. 1-21, Aug. 31 to Sept. 15. Records poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--52 years, 270 ft³/s, 20.96 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)
May 27	--	*1,300 a/	--	No other discharge greater than base discharge.			

Minimum daily discharge, 8.8 ft³/s Oct. 1.

a/ Maximum daily discharge.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	80	190	580	450	140	840	96	1000	130	19	18
2	9.2	74	180	460	350	130	800	150	500	100	18	17
3	11	70	160	380	270	120	1050	230	330	82	17	16
4	12	70	150	300	220	200	1200	185	290	65	16	15
5	11	200	140	200	180	310	700	170	220	54	17	15
6	11	500	130	180	150	300	500	190	170	48	19	14
7	12	620	120	500	140	270	390	250	130	45	18	14
8	14	580	110	660	130	240	330	325	110	42	17	13
9	16	580	110	760	120	200	280	450	100	40	16	13
10	25	660	130	600	110	170	245	850	350	38	15	13
11	29	650	140	500	100	140	225	1200	220	37	14	13
12	26	640	130	410	96	120	200	1200	170	35	13	12
13	29	620	130	350	210	100	185	1200	300	29	12	12
14	23	680	120	280	400	90	170	900	500	31	12	16
15	26	560	110	240	540	120	160	600	900	25	11	20
16	34	470	110	210	600	200	150	500	1000	24	10	27
17	60	410	110	180	520	350	150	370	920	22	10	46
18	140	340	110	170	460	480	170	300	820	20	11	68
19	320	260	110	160	380	430	190	250	750	20	13	42
20	150	370	110	170	580	380	140	230	840	50	17	26
21	130	480	110	170	660	340	130	250	980	38	20	20
22	130	550	110	170	740	310	120	225	750	40	24	27
23	150	500	110	150	640	290	115	195	580	37	47	92
24	140	440	120	220	580	270	110	210	400	27	22	126
25	130	370	180	360	440	250	100	400	200	22	32	128
26	130	310	360	580	330	240	98	900	130	20	25	86
27	120	260	620	680	240	220	95	1300	115	18	20	59
28	110	200	820	860	180	210	92	700	105	17	20	41
29	100	180	900	780	---	350	88	450	96	20	30	30
30	94	210	760	660	---	550	86	300	110	25	20	21
31	84	---	700	520	---	900	---	250	---	20	19	---
TOTAL	2285.0	11934	7390	12440	9816	8420	9109	14826	13086	1221	574	1060
MEAN	73.7	398	238	401	351	272	304	478	436	39.4	18.5	35.3
MAX	320	680	900	860	740	900	1200	1300	1000	130	47	128
MIN	8.8	70	110	150	96	90	86	96	96	17	10	12
CFSM	.42	2.27	1.36	2.29	2.00	1.55	1.74	2.73	2.49	.23	.11	.20
IN.	.49	2.54	1.57	2.64	2.09	1.79	1.94	3.15	2.78	.26	.12	.23

CAL YR 1988 TOTAL 68890.3 MEAN 188 MAX 1860 MIN 5.2 CFSM 1.08 IN. 14.64
WTR YR 1989 TOTAL 92161.0 MEAN 252 MAX 1300 MIN 8.8 CFSM 1.44 IN. 19.59

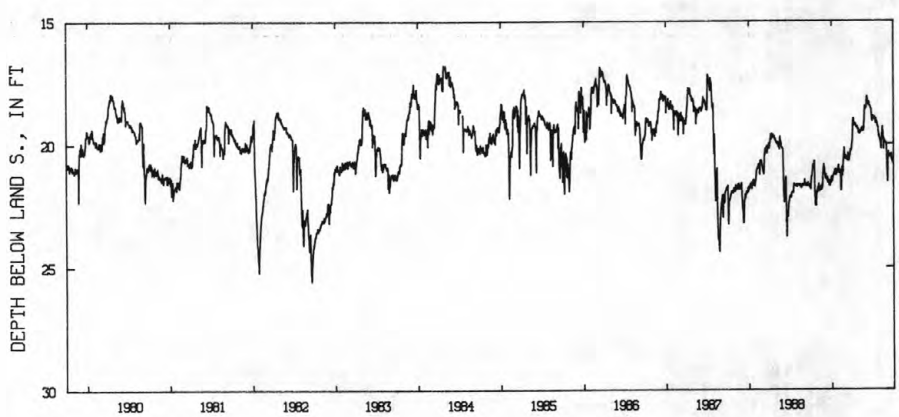
CRAWFORD COUNTY

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, 16.78 ft below land-surface datum, Apr. 24-25, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.84	21.76	21.22	21.34	21.01	20.62	19.95	19.53	18.54	18.87	19.79	20.54
2	21.59	21.83	21.24	21.35	21.05	20.59	19.85	19.53	18.55	18.92	19.82	20.94
3	21.46	21.81	21.33	21.36	21.18	20.48	19.61	19.60	18.51	18.94	19.88	21.14
4	21.33	21.71	21.39	21.52	21.16	20.51	19.29	19.60	18.23	18.92	19.87	21.28
5	21.30	21.62	21.26	21.37	21.06	20.56	19.08	19.46	18.11	18.97	19.97	21.53
6	21.28	21.74	21.23	21.34	21.08	20.51	18.98	19.54	18.08	18.98	20.00	20.98
7	21.17	21.87	21.35	21.33	21.08	20.63	18.96	19.56	18.12	19.00	20.10	20.58
8	21.06	21.92	21.45	21.27	21.16	20.64	19.00	19.51	18.15	19.00	20.19	20.31
9	20.94	21.91	21.38	21.27	21.20	20.63	19.19	19.48	18.24	18.90	19.89	20.37
10	20.85	21.80	21.42	21.21	21.58	20.60	19.26	19.51	18.38	18.94	19.79	20.44
11	20.92	21.89	21.49	21.25	21.89	20.62	19.19	19.51	18.43	19.03	19.63	20.48
12	20.97	21.84	21.49	21.16	21.84	20.69	19.17	19.40	18.36	19.03	19.45	20.53
13	20.99	21.76	21.36	21.26	21.48	20.55	19.25	19.39	18.31	19.03	19.31	20.51
14	20.84	21.74	21.39	21.20	21.15	20.37	19.18	19.39	18.33	19.16	19.42	20.45
15	20.74	21.73	21.58	21.06	20.96	20.64	19.18	19.35	18.30	19.10	19.49	20.47
16	20.70	21.70	21.56	21.11	20.97	20.69	19.22	19.38	18.37	18.98	19.62	20.42
17	20.70	21.80	21.48	21.05	21.30	20.61	19.25	19.46	18.44	19.17	19.73	20.51
18	21.33	21.85	21.49	21.03	21.09	20.67	19.27	19.49	18.47	19.15	20.22	20.55
19	22.06	21.73	21.47	21.10	20.88	20.69	19.32	19.46	18.48	19.10	19.89	20.53
20	22.31	21.73	21.53	21.25	21.15	20.51	19.31	19.39	18.48	19.09	19.80	20.53
21	22.51	21.79	21.68	21.25	20.68	20.46	19.31	19.47	18.50	19.21	19.86	20.51
22	22.40	21.61	21.67	21.11	20.53	20.45	19.34	19.44	18.56	19.30	19.86	20.40
23	22.37	21.31	21.52	21.10	20.47	20.35	19.35	19.34	18.58	19.31	19.89	20.65
24	22.46	21.13	21.51	21.13	20.38	20.23	19.38	19.10	18.59	19.30	19.92	20.69
25	22.50	21.03	21.68	21.18	20.17	20.27	19.30	19.00	18.62	19.33	19.93	20.59
26	22.10	20.93	21.70	21.06	20.31	20.30	19.38	18.74	18.83	19.47	19.94	20.74
27	21.89	20.83	21.50	21.04	20.41	20.25	19.42	18.47	18.93	19.56	19.98	20.77
28	21.91	20.95	21.59	21.03	20.54	20.20	19.38	18.51	19.04	19.69	19.99	20.66
29	21.96	20.96	21.56	20.97	---	20.22	19.46	18.62	19.08	19.71	19.96	20.63
30	21.97	21.01	21.39	20.92	---	20.07	19.56	18.55	18.97	19.65	20.02	20.66
31	21.89	---	21.43	20.87	---	19.93	---	18.55	---	19.74	20.08	---
MAX	22.51	21.92	21.70	21.52	21.89	20.69	19.95	19.60	19.08	19.74	20.22	21.53

CAL YR 1988 LOW 23.75
WTR YR 1989 LOW 22.51



404838082563100 CR-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

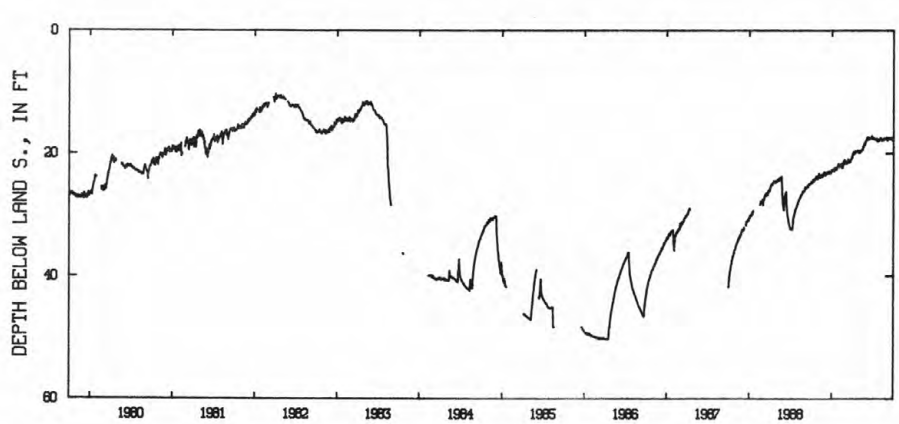
GEAUGA COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.67	23.68	23.37	22.66	21.83	21.55	20.63	19.84	17.99	17.46	17.80	17.40
2	24.59	23.75	23.39	22.62	21.92	21.56	20.62	19.67	17.86	17.45	17.77	17.73
3	24.63	23.74	23.37	22.62	22.21	21.38	20.24	19.83	17.79	17.42	17.66	17.84
4	24.60	23.51	23.54	22.86	22.21	21.26	19.98	19.86	17.66	17.49	17.51	17.87
5	24.71	23.26	23.32	22.75	22.04	21.41	20.05	19.53	17.63	17.57	17.44	17.79
6	24.78	23.46	23.15	22.59	21.91	21.38	20.00	19.63	17.46	17.61	17.45	17.72
7	24.70	23.78	23.19	22.61	21.94	21.64	19.80	19.67	17.43	17.58	17.55	17.61
8	24.55	23.89	23.35	22.67	21.99	21.67	19.67	19.69	17.42	17.60	17.73	17.49
9	24.37	23.94	23.30	22.79	22.16	21.65	19.83	19.70	17.29	17.56	17.84	17.42
10	24.23	23.69	23.10	22.78	21.86	21.55	20.05	19.66	17.65	17.54	17.91	17.49
11	24.31	23.93	23.28	22.89	21.62	21.30	20.00	19.66	17.75	17.70	17.88	17.58
12	24.52	23.93	23.29	22.48	21.96	21.32	19.92	19.44	17.63	17.68	17.82	17.65
13	24.59	23.64	22.98	22.77	21.92	21.27	19.89	19.41	17.40	17.60	17.73	17.65
14	24.47	23.67	22.99	22.73	21.99	20.89	19.86	19.43	17.49	17.71	17.69	17.56
15	24.26	23.68	23.29	22.29	22.03	21.21	19.59	19.38	17.47	17.82	17.62	17.56
16	24.22	23.44	23.27	22.37	22.37	21.37	19.64	19.25	17.52	17.78	17.63	17.49
17	24.19	23.66	22.92	22.31	22.36	21.27	19.59	19.31	17.61	17.72	17.79	17.59
18	24.16	23.82	22.97	22.30	22.15	21.35	19.67	19.31	17.64	17.71	17.83	17.69
19	24.18	23.68	22.91	22.30	21.67	21.45	19.69	19.12	17.60	17.64	17.78	17.66
20	24.24	23.43	22.89	22.56	21.52	21.31	19.69	18.86	17.57	17.55	17.57	17.64
21	24.08	23.71	23.26	22.65	21.27	21.22	19.64	18.87	17.50	17.78	17.56	17.61
22	23.90	23.70	23.29	22.40	21.58	21.36	19.64	18.80	17.47	17.99	17.58	17.40
23	23.90	23.54	22.88	22.29	21.77	21.31	19.64	18.63	17.45	18.04	17.56	17.63
24	23.79	23.39	22.87	22.29	21.78	21.12	19.63	18.48	17.37	18.03	17.64	17.81
25	23.86	23.31	23.14	22.39	21.58	20.98	19.53	18.31	17.33	17.99	17.67	17.67
26	23.99	23.22	23.25	22.06	21.02	21.05	19.51	18.29	17.26	17.95	17.64	17.75
27	24.07	23.08	23.03	22.10	21.23	20.95	19.54	18.49	17.13	17.80	17.66	17.89
28	24.05	23.34	23.02	22.10	21.32	20.81	19.54	18.57	17.39	17.72	17.69	17.80
29	24.12	23.49	23.06	21.99	---	20.79	19.58	18.35	17.57	17.80	17.54	17.54
30	24.17	23.19	22.90	21.69	---	20.62	19.84	18.05	17.58	17.74	17.58	17.61
31	24.07	---	22.79	21.69	---	20.42	---	18.02	---	17.74	17.64	---
MAX	24.78	23.94	23.54	22.89	22.37	21.67	20.63	19.86	17.99	18.04	17.91	17.89

CAL YR 1988 LOW 32.38
WTR YR 1989 LOW 24.78



412518081221500 GE-3A CHAGRIN FALLS W DPT NR CHAGRIN FALLS OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

HANCOCK COUNTY

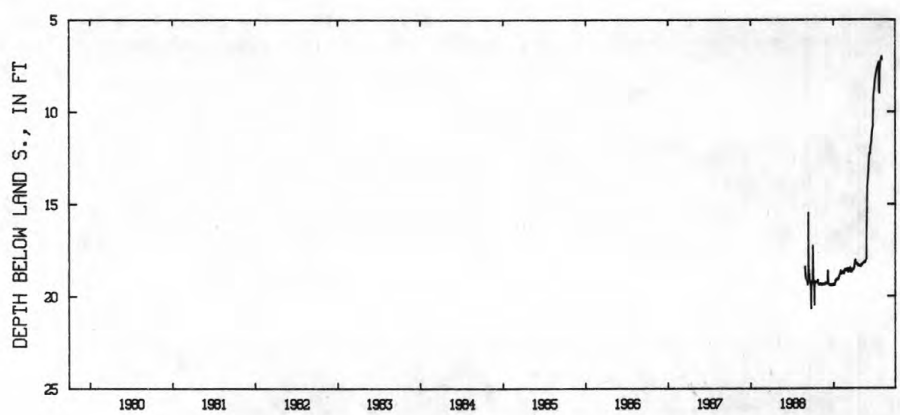
405940083275500. Local number, HA-3.

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.56	19.29	19.32	19.33	18.79	18.63	18.48	18.35	13.69	8.53	7.03	---
2	18.98	19.35	19.31	19.33	18.75	18.55	18.37	18.29	13.52	8.39	6.99	---
3	19.12	19.36	19.32	19.33	18.79	18.48	18.25	18.30	13.32	8.26	7.19	---
4	19.14	19.32	19.33	19.41	18.76	18.54	18.10	18.28	13.12	8.17	---	---
5	19.31	19.29	18.60	19.36	18.67	18.68	18.10	18.22	12.85	8.12	---	---
6	20.07	19.37	18.63	19.27	18.68	18.66	18.02	18.27	12.61	8.07	---	---
7	20.47	19.40	19.19	19.28	18.73	18.69	18.00	18.30	12.46	7.98	---	---
8	19.21	19.38	19.31	19.13	18.76	18.67	18.12	18.25	12.33	7.91	---	---
9	19.20	19.40	19.31	19.19	18.76	18.65	18.25	18.21	12.20	7.85	---	---
10	19.18	19.33	19.37	19.13	18.67	18.59	18.27	18.23	12.27	7.75	---	---
11	19.21	19.38	19.37	19.14	18.63	18.51	18.22	18.22	12.27	7.76	---	---
12	19.26	19.36	19.36	19.05	18.73	18.60	18.20	18.16	12.00	7.67	---	---
13	19.27	19.32	19.36	19.15	18.68	18.47	18.25	18.17	11.82	7.56	---	---
14	19.26	19.31	19.40	19.12	18.72	18.43	18.18	18.16	11.80	7.55	---	---
15	19.18	19.30	19.42	19.03	18.75	18.61	18.21	18.12	11.75	7.58	---	---
16	19.20	19.30	19.36	19.07	18.77	18.61	18.22	18.15	11.68	7.49	---	---
17	19.22	19.34	19.39	19.04	18.68	18.52	18.27	18.16	11.55	7.43	---	---
18	19.21	19.37	19.38	19.02	18.58	18.68	18.33	18.18	11.37	7.38	---	---
19	19.21	19.35	19.38	19.02	18.53	18.68	18.35	18.13	11.17	7.32	---	---
20	19.21	19.35	19.37	19.01	18.55	18.53	18.33	18.10	11.08	7.29	---	---
21	19.21	19.37	19.43	19.09	18.54	18.63	18.30	18.13	10.94	8.35	---	---
22	19.11	19.35	19.43	19.06	18.60	18.65	18.28	18.08	10.88	8.88	---	---
23	19.32	19.29	19.35	18.93	18.61	18.58	18.31	18.03	10.85	8.99	---	---
24	19.28	19.26	19.36	18.88	18.62	18.53	18.35	18.00	10.76	8.05	---	---
25	19.35	19.25	19.43	18.91	18.53	18.54	18.35	18.00	10.05	7.65	---	---
26	19.37	19.25	19.43	18.92	18.50	18.56	18.36	17.96	9.45	7.49	---	---
27	19.37	19.26	19.36	18.80	18.54	18.55	18.35	16.24	9.11	7.32	---	---
28	19.37	19.33	19.41	18.79	18.60	18.52	18.37	15.47	8.93	7.19	---	---
29	19.38	19.34	19.41	18.75	---	18.56	18.34	14.75	8.93	7.19	---	---
30	19.35	19.27	19.32	18.70	---	18.45	18.39	14.03	8.77	7.05	---	---
31	19.32	---	19.37	18.60	---	18.46	---	13.83	---	7.03	---	---
MAX	20.47	19.40	19.43	19.41	18.79	18.69	18.48	18.35	13.69	8.99	7.19	---

CAL YR 1988 LOW 20.67
WTR YR 1989 LOW 20.47



405940083275500 HA-3 CTY OF FINDLAY NR VANLUE OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

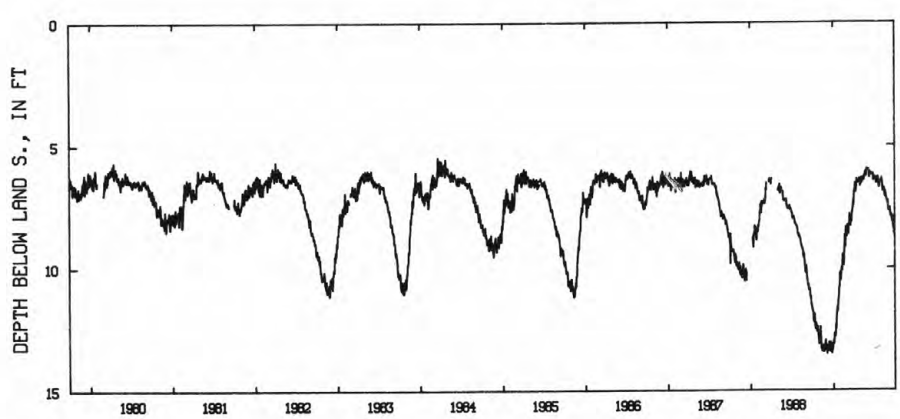
HARDIN COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.75	12.85	13.35	12.98	10.18	8.73	7.46	6.66	6.03	6.31	6.55	7.29
2	11.69	12.97	13.37	12.95	10.22	8.73	7.45	6.50	6.03	6.28	6.55	7.58
3	11.80	12.95	13.39	12.93	10.50	8.43	7.04	6.59	6.01	6.27	6.49	7.67
4	11.87	12.67	13.52	13.10	10.49	8.26	6.85	6.61	6.01	6.29	6.35	7.67
5	12.10	12.42	13.30	12.90	10.24	8.45	6.89	6.34	6.00	6.35	6.37	7.65
6	12.21	12.82	13.17	12.67	10.05	8.40	6.88	6.49	5.96	6.36	6.49	7.65
7	12.20	13.10	13.25	12.67	9.98	8.63	6.67	6.55	5.97	6.36	6.55	7.62
8	12.14	13.30	13.40	12.77	10.05	8.64	6.54	6.51	6.00	6.36	6.67	7.57
9	11.97	13.30	13.32	12.83	10.11	8.64	6.85	6.45	6.09	6.34	6.80	7.54
10	11.90	13.22	13.27	12.72	9.75	8.55	6.93	6.51	6.28	6.37	6.88	7.68
11	12.14	13.40	13.36	12.71	9.47	8.20	6.87	6.50	6.32	6.55	6.87	7.78
12	12.41	13.37	13.36	12.33	9.67	8.25	6.71	6.32	6.23	6.42	6.83	7.89
13	12.50	13.21	13.05	12.50	9.44	8.15	6.73	6.35	6.08	6.31	6.80	7.89
14	12.43	13.25	13.15	12.42	9.59	7.81	6.64	6.36	6.14	6.40	6.80	7.85
15	12.27	13.25	13.40	11.96	9.80	8.16	6.38	6.34	6.14	6.45	6.74	7.85
16	12.29	13.16	13.40	11.97	9.90	8.20	6.46	6.35	6.16	6.40	6.85	7.82
17	12.33	13.35	13.19	11.76	9.89	8.12	6.49	6.43	6.20	6.36	7.04	7.95
18	12.42	13.44	13.19	11.62	9.60	8.21	6.52	6.43	6.21	6.36	7.10	8.05
19	12.50	13.33	13.05	11.59	9.16	8.30	6.55	6.31	6.17	6.28	7.08	8.10
20	12.60	13.30	13.20	11.78	8.95	8.00	6.55	6.24	6.18	6.34	6.87	8.07
21	12.46	13.41	13.45	11.78	8.66	8.00	6.50	6.29	6.14	6.54	6.96	8.05
22	12.42	13.40	13.45	11.48	9.03	8.13	6.50	6.24	6.20	6.69	6.96	7.92
23	12.41	13.34	13.14	11.29	9.15	8.05	6.50	6.12	6.21	6.72	7.04	8.27
24	12.41	13.25	13.20	11.19	9.15	7.80	6.50	6.12	6.21	6.72	7.13	8.40
25	12.61	13.18	13.45	11.19	8.82	7.69	6.40	6.08	6.22	6.72	7.17	8.30
26	12.78	13.08	13.50	10.83	8.33	7.73	6.36	6.13	6.20	6.67	7.18	8.50
27	12.81	12.96	13.12	10.83	8.38	7.65	6.36	6.23	6.17	6.53	7.25	8.62
28	12.99	13.28	13.35	10.81	8.60	7.58	6.38	6.27	6.34	6.54	7.27	8.58
29	13.10	13.33	13.35	10.64	---	7.52	6.42	6.10	6.44	6.55	7.24	8.35
30	13.12	13.16	13.20	10.22	---	7.27	6.66	5.95	6.43	6.43	7.30	8.42
31	13.10	---	13.12	10.20	---	7.31	---	6.01	---	6.50	7.43	---
MAX	13.12	13.44	13.52	13.10	10.50	8.73	7.46	6.66	6.44	6.72	7.43	8.62

CAL YR 1988 LOW 13.52
WTR YR 1989 LOW 13.52



404648083412600 HN-2A
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

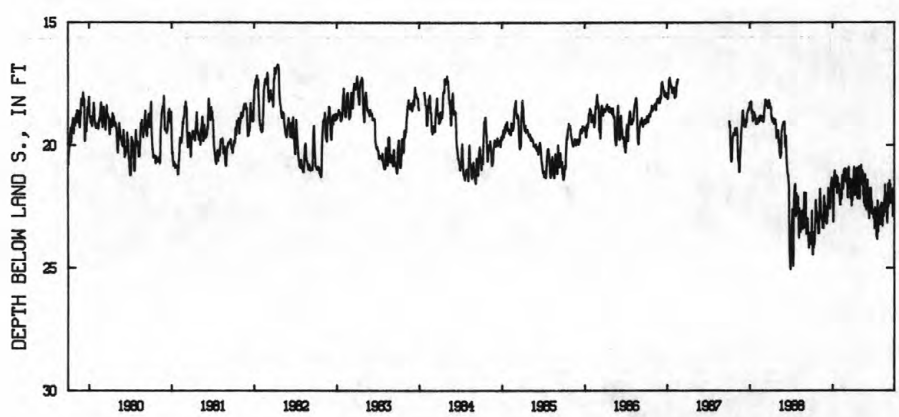
HENRY COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.45	23.55	23.11	21.64	22.07	21.42	21.38	22.17	21.94	22.95	22.44	22.57
2	22.67	23.56	23.10	21.46	22.03	21.51	21.93	22.06	21.53	22.87	23.12	21.90
3	23.68	23.06	22.86	22.04	22.25	21.31	21.92	21.50	22.28	22.98	22.85	21.57
4	23.71	22.89	22.87	23.12	22.42	21.13	21.47	21.13	21.93	22.71	22.91	22.49
5	24.45	22.32	22.49	23.07	22.42	21.10	21.10	21.62	21.41	22.61	22.94	22.48
6	24.44	21.83	23.19	22.21	21.85	20.98	20.88	21.47	21.93	23.40	22.35	21.86
7	23.99	21.77	23.13	21.69	21.87	21.43	21.43	21.11	22.49	23.18	22.66	21.53
8	23.99	22.15	22.62	21.24	21.82	21.61	22.03	20.81	22.16	22.54	22.66	21.99
9	24.17	22.18	22.65	21.24	22.17	22.05	21.84	21.36	22.70	22.97	22.43	21.69
10	24.00	22.33	22.88	21.11	22.01	22.13	21.47	21.58	22.66	22.62	23.28	21.43
11	23.53	22.76	22.65	21.04	21.68	21.73	21.15	21.37	22.53	23.10	23.07	22.12
12	23.61	22.79	22.26	21.26	21.40	21.29	22.01	21.02	22.97	23.00	22.75	21.89
13	24.02	22.82	21.75	21.67	21.21	21.13	22.00	21.58	22.51	22.58	22.84	21.58
14	23.66	23.01	21.88	21.70	21.57	20.88	21.56	21.48	21.76	23.71	22.36	22.36
15	23.55	23.01	22.12	21.53	21.64	21.51	21.01	21.07	22.53	23.71	22.61	22.24
16	23.19	22.93	22.10	21.42	21.77	21.69	20.96	21.21	22.54	22.80	22.88	21.76
17	23.13	23.21	22.16	21.22	21.77	21.68	21.69	22.02	21.96	23.59	22.50	22.09
18	22.34	23.36	22.16	21.23	21.63	21.40	21.64	21.83	22.75	23.81	22.15	21.88
19	22.23	23.16	22.21	21.49	21.45	21.55	21.20	21.73	22.51	23.18	22.49	22.14
20	22.59	23.11	22.23	21.66	21.07	21.37	20.92	22.34	21.75	22.25	22.22	22.15
21	22.57	23.34	22.57	21.94	20.98	22.15	22.14	22.09	22.59	23.52	21.61	21.79
22	22.80	23.37	22.58	21.75	21.16	22.17	22.17	21.50	22.53	23.52	22.70	21.77
23	22.91	22.90	22.30	21.32	21.40	21.87	21.72	22.46	22.78	22.82	22.71	22.23
24	22.69	22.31	21.94	21.47	21.42	21.44	21.20	22.48	22.27	23.19	22.21	22.89
25	22.89	22.07	21.57	21.74	21.36	22.02	21.74	21.86	22.78	23.19	22.53	22.46
26	22.92	22.61	21.57	21.60	20.96	22.46	21.97	21.18	22.63	22.58	22.12	21.77
27	23.16	22.67	21.50	21.62	20.98	22.15	21.72	22.52	22.68	23.12	22.53	22.47
28	23.08	22.36	21.33	21.83	21.12	21.57	21.26	22.45	22.63	23.14	22.52	22.18
29	23.36	23.04	21.72	21.76	---	22.24	20.87	21.82	22.79	22.65	21.94	22.08
30	23.59	22.73	21.69	21.57	---	22.23	21.30	22.62	22.77	23.23	22.90	21.86
31	23.40	---	21.66	21.59	---	21.71	---	22.59	---	22.94	23.15	---
MAX	24.45	23.56	23.19	23.12	22.42	22.46	22.17	22.62	22.97	23.81	23.28	22.89

CAL YR 1988 LOW 25.04
WTR YR 1989 LOW 24.45



412123083574000 HY-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

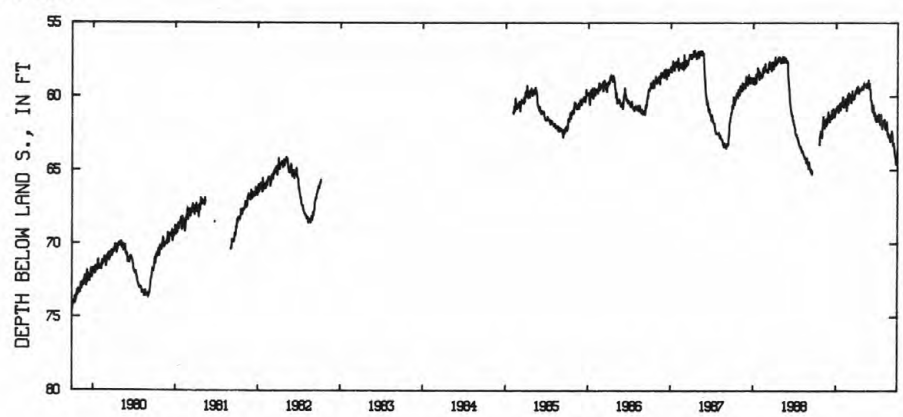
LUCAS COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	62.09	61.52	60.83	60.27	60.24	59.74	59.53	59.53	61.28	61.83	62.57
2	---	62.14	61.54	60.76	60.39	60.24	59.71	59.32	59.52	61.47	61.73	62.64
3	---	62.10	61.53	60.76	60.73	60.04	59.43	59.42	59.63	61.62	61.60	62.66
4	---	61.76	61.73	60.97	60.71	59.86	59.37	59.43	60.13	61.58	61.53	62.55
5	---	61.36	61.49	60.83	60.58	60.13	59.52	59.06	60.26	61.46	61.58	62.32
6	---	61.45	61.25	60.63	60.44	60.16	59.52	59.23	60.24	61.56	62.02	62.38
7	---	61.84	61.29	60.64	60.43	60.39	59.41	59.29	60.24	61.67	62.17	62.49
8	---	62.07	61.51	60.81	60.60	60.42	59.30	59.24	60.40	61.67	62.19	62.63
9	---	62.11	61.46	60.97	60.71	60.41	59.64	59.25	60.41	61.41	62.15	62.79
10	---	61.86	61.27	60.95	60.42	60.31	59.80	59.34	60.86	61.19	62.24	63.18
11	---	62.15	61.50	61.10	60.16	60.02	59.79	59.33	61.05	61.55	62.23	63.35
12	---	62.15	61.52	60.77	60.42	60.13	59.66	59.18	61.00	61.67	62.07	63.35
13	---	61.78	60.92	61.03	60.33	60.01	59.75	59.16	60.90	61.67	61.85	63.28
14	---	61.84	60.93	60.95	60.47	59.61	59.67	59.20	60.88	61.68	61.70	63.15
15	---	61.85	61.42	60.56	60.64	59.94	59.44	59.20	60.76	61.90	61.77	63.32
16	---	61.51	61.42	60.64	60.95	60.02	59.47	59.26	60.59	61.71	62.16	63.38
17	---	61.82	61.05	60.52	60.95	59.95	59.52	59.39	60.91	61.44	62.53	63.70
18	63.22	61.99	61.06	60.43	60.79	60.13	59.58	59.42	61.14	61.46	62.55	63.86
19	63.22	61.86	60.84	60.49	60.35	60.21	59.58	59.31	61.30	61.41	62.46	63.95
20	63.26	61.52	60.87	60.86	60.13	60.02	59.59	59.10	61.27	61.21	62.49	64.05
21	63.00	61.87	61.35	60.90	59.89	60.02	59.57	59.20	61.10	61.33	62.73	64.11
22	62.67	61.87	61.39	60.63	60.27	60.15	59.55	59.15	61.08	61.76	62.75	63.96
23	62.66	61.76	60.89	60.51	60.50	60.10	59.53	59.02	61.19	62.03	62.75	64.44
24	62.33	61.56	60.89	60.59	60.52	59.91	59.50	58.97	61.40	62.17	62.78	64.60
25	62.44	61.42	61.24	60.66	60.26	59.83	59.35	58.89	61.55	62.18	62.67	64.44
26	62.56	61.28	61.38	60.35	59.75	59.89	59.35	59.09	61.61	62.04	62.61	64.45
27	62.59	61.02	61.09	60.43	59.87	59.72	59.33	59.39	61.56	61.85	62.85	64.49
28	62.61	61.37	61.08	60.41	60.02	59.60	59.31	59.49	61.61	61.85	62.96	64.22
29	62.75	61.51	61.16	60.35	---	59.69	59.29	59.30	61.69	61.84	62.97	63.72
30	62.81	61.22	61.03	60.08	---	59.55	59.52	59.13	61.49	61.63	63.08	63.66
31	62.64	---	60.93	60.01	---	59.57	---	59.45	---	61.78	62.99	---
MAX	63.26	62.15	61.73	61.10	60.95	60.42	59.80	59.53	61.69	62.18	63.08	64.60

CAL YR 1988 LOW 65.27
WTR YR 1989 LOW 64.60



413704083362200 LU-1 STATE OF OHIO STATE HOSPITAL TOLEDO OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

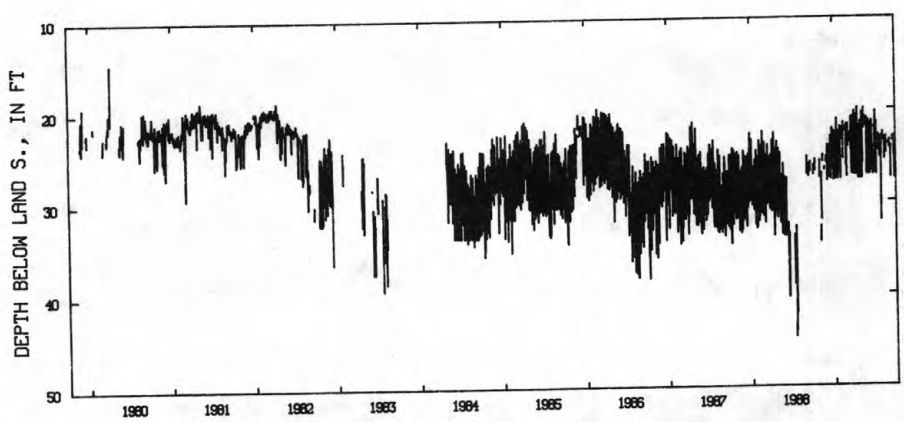
MEDINA COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.11	---	---	22.38	---	---	21.17	27.16	25.99	21.77	---	---
2	26.10	---	27.77	22.96	---	---	20.27	27.53	27.09	21.77	---	24.23
3	---	34.32	24.74	27.60	---	---	25.92	26.89	21.67	25.81	---	23.60
4	---	32.70	23.91	27.57	23.44	24.10	25.68	27.53	21.28	20.25	---	23.43
5	---	---	---	---	22.07	21.67	27.10	27.53	26.34	26.57	23.49	---
6	---	26.91	---	27.65	---	---	27.10	20.35	26.12	---	22.57	---
7	---	31.97	---	24.04	---	---	25.16	20.82	---	27.10	---	---
8	26.68	---	---	22.57	---	---	20.96	25.88	26.95	23.25	---	27.42
9	25.47	---	27.44	26.33	---	---	20.63	---	27.09	21.48	---	24.01
10	---	---	24.45	27.60	25.38	---	26.48	27.07	22.46	---	---	24.11
11	---	---	23.96	26.88	22.70	23.63	27.12	---	21.59	---	---	---
12	---	25.68	---	26.20	21.46	22.67	26.80	---	---	---	25.46	---
13	---	24.99	27.57	24.92	---	---	25.83	22.14	25.11	27.10	23.10	---
14	---	---	---	22.53	---	---	26.95	19.97	---	---	---	27.01
15	---	---	---	21.06	25.75	---	20.65	---	---	24.56	---	---
16	26.55	---	---	27.24	---	26.55	19.88	---	26.73	22.78	---	23.50
17	---	---	23.84	27.60	---	---	26.41	27.09	21.28	---	---	23.08
18	---	---	22.92	27.03	22.44	24.41	27.53	---	21.42	---	---	---
19	32.70	26.60	27.60	---	22.03	20.88	27.53	---	26.42	---	24.82	---
20	---	26.33	---	---	---	27.06	27.01	21.87	26.27	---	23.03	---
21	---	---	---	26.86	---	26.86	27.53	20.89	24.00	---	---	---
22	26.93	---	---	22.49	---	27.07	23.50	---	27.10	25.25	---	---
23	---	---	---	---	---	27.07	21.83	27.08	---	23.01	---	24.99
24	---	24.06	26.54	---	26.12	25.86	26.80	---	22.02	---	---	22.98
25	---	---	22.07	---	22.02	23.49	25.95	26.59	22.03	---	---	27.53
26	---	25.74	24.59	---	21.68	20.82	27.53	27.08	---	---	23.84	27.53
27	31.36	25.16	---	25.53	27.37	27.08	27.53	21.31	---	32.07	23.67	27.15
28	---	---	27.70	23.19	27.20	26.84	26.48	21.02	---	27.53	---	27.17
29	27.42	27.75	---	21.90	---	27.09	21.52	21.56	27.00	24.86	---	27.53
30	25.54	---	27.70	27.57	---	27.09	21.34	25.85	26.43	22.98	---	26.06
31	---	---	23.28	25.12	---	25.70	---	27.08	---	---	---	---
MAX	32.70	34.32	27.77	27.65	27.37	27.09	27.53	27.53	27.10	32.07	25.46	27.53

CAL YR 1988 LOW 45.21
WTR YR 1989 LOW 34.32



410142082005900 MD-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

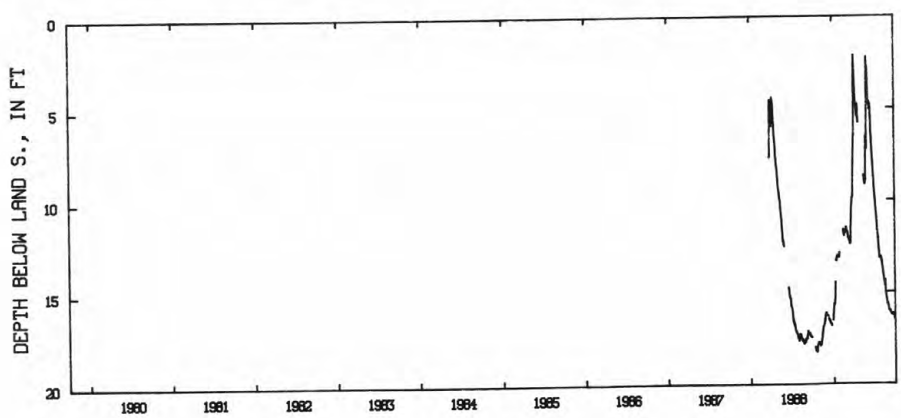
OTTAWA COUNTY

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, 2.13 ft below land-surface datum, Apr. 5, 1989.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	17.82	16.25	15.86	---	11.69	6.75	---	2.23	8.99	13.16	15.78
2	---	17.93	16.26	15.71	---	11.71	6.61	---	2.95	9.22	13.18	15.90
3	---	17.89	16.28	15.65	---	11.72	6.47	---	3.49	9.49	13.33	16.00
4	---	17.88	16.31	15.60	---	11.75	4.10	---	2.75	9.66	13.30	16.03
5	---	17.87	16.31	15.69	---	11.83	2.13	---	2.88	9.80	13.45	16.03
6	---	17.70	16.31	15.51	---	11.91	2.60	---	3.41	9.95	13.59	16.03
7	---	17.61	16.32	15.43	---	12.02	3.03	---	3.95	10.12	13.66	16.04
8	18.00	17.54	---	15.25	---	12.05	3.38	---	4.40	10.35	13.75	16.02
9	18.02	17.50	16.45	14.47	---	12.11	3.86	---	4.75	10.47	13.84	16.07
10	18.03	17.37	16.48	---	---	12.10	4.27	---	4.90	10.66	13.97	16.15
11	18.02	17.25	16.54	---	---	12.06	4.50	---	4.65	10.80	14.10	16.15
12	18.16	17.16	16.56	13.25	---	12.20	4.73	---	4.91	10.90	14.15	16.18
13	18.18	17.08	16.53	13.30	11.60	12.19	4.85	---	5.08	11.19	14.33	16.20
14	18.20	16.97	16.56	13.24	11.77	12.10	5.05	---	4.77	11.41	14.37	16.22
15	18.23	16.88	16.62	13.07	11.85	12.33	5.11	---	4.78	11.65	14.46	16.21
16	18.26	16.85	16.70	13.06	11.93	12.38	5.22	---	4.83	11.70	14.52	16.26
17	18.27	---	16.67	13.02	11.94	12.35	5.45	---	5.08	11.81	14.68	16.26
18	18.25	---	16.70	13.04	11.85	12.31	4.93	8.66	5.48	11.95	14.35	16.23
19	18.02	16.75	16.72	13.01	11.77	11.48	4.78	8.75	6.00	12.05	14.36	16.19
20	17.92	16.73	16.73	13.05	11.77	10.92	4.89	8.85	6.28	12.25	14.99	16.23
21	17.86	16.62	16.77	13.11	11.69	10.49	5.25	9.02	6.53	12.47	15.08	16.24
22	17.84	16.48	16.82	13.07	11.72	10.36	5.55	9.12	6.80	12.72	15.17	16.19
23	17.80	16.39	16.81	13.00	11.77	10.20	5.79	9.14	7.07	12.85	15.22	16.29
24	17.75	16.27	---	13.03	11.74	10.00	---	9.04	7.42	13.10	15.30	16.32
25	17.71	16.23	---	13.11	11.60	9.85	---	8.97	7.58	13.13	15.41	16.30
26	17.76	16.18	---	13.03	11.47	9.87	---	8.93	7.77	13.15	15.50	16.37
27	17.75	16.15	---	12.85	11.52	9.79	---	6.50	7.98	13.09	15.60	16.42
28	17.75	16.16	---	---	11.58	9.78	---	6.81	8.30	13.05	15.66	16.45
29	17.79	16.18	16.53	---	---	8.35	---	6.98	8.50	13.07	15.62	16.50
30	17.82	16.18	16.24	---	---	7.99	---	7.17	8.73	13.12	15.67	16.57
31	17.81	---	16.01	---	---	7.33	---	7.23	---	13.14	15.72	---
MAX	18.27	17.93	16.82	15.86	11.94	12.38	6.75	9.14	8.73	13.15	15.72	16.57

CAL YR 1988 LOW 18.27
WTR YR 1989 LOW 18.27



413434082494000 O-2 W WILLIAMS NR PORT CLINTON OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

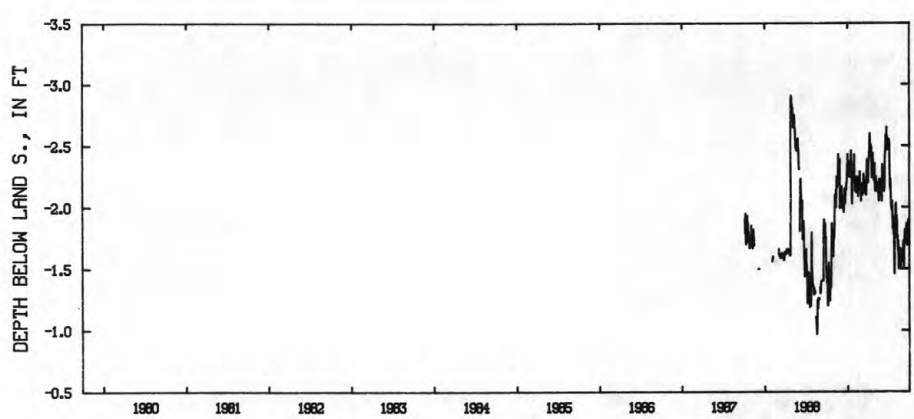
PORTAGE COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-1.39	-1.81	-2.04	-2.43	-2.23	-2.05	-2.27	-2.36	-2.05	-2.55	-2.03	-1.63
2	-1.49	-1.75	-2.05	-2.39	-2.25	-2.14	-2.20	-2.20	-2.10	-2.55	-2.03	-1.65
3	-1.41	-1.80	-2.13	-2.37	-2.13	-2.11	-2.25	-2.13	-2.18	-2.55	-1.87	-1.68
4	-1.32	-1.86	-2.17	-2.33	-2.16	-2.10	-2.36	-2.13	-2.35	-2.52	-1.83	-1.73
5	-1.20	-2.06	-2.17	-2.30	-2.18	-2.19	-2.38	-2.14	-2.32	-2.50	-1.93	-1.70
6	-1.21	-2.10	-2.16	-2.26	-2.16	-2.15	-2.44	-2.18	-2.26	-2.33	-1.90	-1.65
7	-1.34	-2.04	-2.08	-2.25	-2.17	-2.13	-2.45	-2.25	-2.16	-2.25	-1.87	-1.50
8	-1.47	-2.08	-2.09	-2.31	-2.15	-2.10	-2.57	-2.20	-2.15	-2.17	-1.75	-1.70
9	-1.55	-2.08	-1.99	-2.37	-2.12	-2.13	-2.60	-2.17	-2.14	-2.15	-1.75	-1.73
10	-1.46	-2.14	-2.03	-2.28	-2.15	-2.14	-2.50	-2.19	-2.13	-2.23	-1.77	-1.77
11	-1.43	-2.00	-2.05	-2.26	-2.20	-2.18	-2.47	-2.18	-2.13	-2.10	-1.68	-1.82
12	-1.32	-2.09	-2.03	-2.25	-2.25	-2.22	-2.47	-2.18	-2.15	-2.03	-1.64	-1.71
13	-1.25	-2.25	-2.03	-2.31	-2.20	-2.27	-2.51	-2.13	-2.15	-2.00	-1.73	-1.74
14	-1.24	-2.21	-1.99	-2.32	-2.16	-2.22	-2.41	-2.20	-2.24	-1.98	-1.58	-1.73
15	-1.32	-2.24	-1.96	-2.40	-2.16	-2.25	-2.43	-2.18	-2.41	-1.98	-1.50	-1.79
16	-1.39	-2.19	-1.99	-2.46	-2.16	-2.18	-2.49	-2.18	-2.45	-1.97	-1.62	-1.74
17	-1.36	-2.16	-2.07	-2.37	-2.09	-2.18	-2.41	-2.17	-2.48	-2.05	-1.59	-1.84
18	-1.36	-2.23	-2.15	-2.37	-2.17	-2.17	-2.27	-2.13	-2.59	-1.92	-1.55	-1.87
19	-1.35	-2.32	-2.07	-2.37	-2.20	-2.13	-2.24	-2.06	-2.46	-1.83	-1.63	-1.75
20	-1.46	-2.43	-2.09	-2.07	-2.20	-2.11	-2.29	-2.05	-2.50	-1.88	-1.67	-1.75
21	-1.60	-2.32	-2.03	-2.03	-2.24	-2.22	-2.25	-2.23	-2.55	-1.92	-1.64	-1.69
22	-1.75	-2.30	-2.05	-2.17	-2.20	-2.18	-2.35	-2.15	-2.65	-1.80	-1.60	-1.70
23	-1.87	-2.26	-2.10	-2.27	-2.22	-2.13	-2.44	-2.10	-2.51	-1.79	-1.58	-1.71
24	-1.79	-2.30	-2.14	-2.22	-2.29	-2.10	-2.36	-2.18	-2.56	-1.79	-1.55	-1.82
25	-1.65	-2.32	-2.17	-2.22	-2.22	-2.17	-2.34	-2.18	-2.57	-1.76	-1.50	-1.90
26	-1.61	-2.38	-2.14	-2.21	-2.19	-2.28	-2.30	-2.18	-2.48	-1.47	-1.61	-1.86
27	-1.64	-2.39	-2.20	-2.26	-2.14	-2.35	-2.26	-2.15	-2.53	-1.46	-1.66	-1.84
28	-1.60	-1.99	-2.20	-2.27	-2.16	-2.39	-2.22	-2.20	-2.47	-1.60	-1.61	-1.80
29	-1.60	-2.00	-2.26	-2.31	---	-2.27	-2.25	-2.23	-2.50	-1.88	-1.56	-1.82
30	-1.69	-2.05	-2.35	-2.43	---	-2.32	-2.22	-2.11	-2.55	-1.92	-1.64	-1.79
31	-1.81	---	-2.32	-2.32	---	-2.23	---	-2.12	---	-2.02	-1.62	---
MAX	-1.20	-1.75	-1.96	-2.03	-2.09	-2.05	-2.20	-2.05	-2.05	-1.46	-1.50	-1.50

CAL YR 1988 LOW -.97
WTR YR 1989 LOW -1.20



410540081213600 PO-7 CITY OF TALMIDGE NR BRIMFIELD OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

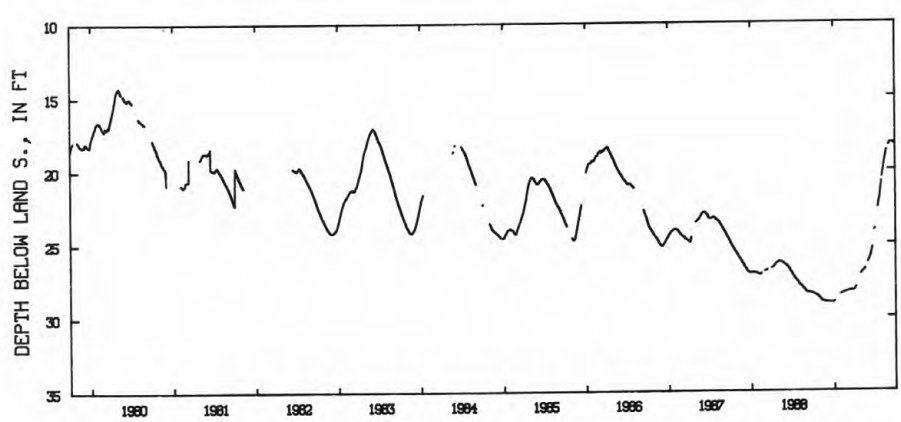
PORTAGE COUNTY--Continued

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.42	28.81	29.03	29.02	28.45	28.28	28.18	27.08	26.29	24.06	---	18.37
2	28.43	28.82	29.03	29.01	28.45	28.28	28.18	27.05	26.22	---	20.52	18.36
3	28.46	28.84	29.03	29.00	28.44	28.26	28.18	27.04	26.21	---	20.49	18.36
4	28.46	28.84	29.03	---	28.44	28.25	28.14	27.03	26.18	---	20.39	18.32
5	28.47	28.85	29.02	---	28.43	28.25	28.11	26.99	26.18	---	20.30	18.21
6	28.48	28.87	29.02	---	28.42	28.25	28.10	26.96	26.10	---	20.16	18.26
7	28.49	28.88	29.03	---	28.42	28.25	28.05	26.96	26.10	---	20.11	18.23
8	28.49	28.91	29.03	---	28.41	28.25	28.01	26.95	26.01	---	19.99	18.18
9	28.50	28.91	29.03	---	28.40	28.25	27.99	26.94	26.00	---	19.94	18.17
10	28.51	28.95	29.03	---	28.39	28.24	---	26.90	25.97	---	19.85	18.17
11	28.51	28.95	29.03	---	28.38	28.22	---	26.90	25.93	---	19.73	18.18
12	28.52	28.95	29.03	---	28.37	28.22	---	26.87	25.87	---	19.63	18.19
13	28.54	28.95	29.03	---	28.36	28.22	---	26.86	25.81	---	19.52	18.19
14	28.54	28.95	29.04	---	28.35	28.20	---	26.86	25.74	---	19.43	18.18
15	28.54	28.95	29.04	---	28.34	28.23	27.64	26.83	25.67	---	19.33	18.20
16	28.55	28.97	29.04	---	28.35	28.23	---	26.80	25.60	22.57	19.25	18.19
17	28.55	28.97	29.04	---	28.34	28.22	---	26.80	25.55	22.43	19.17	18.20
18	28.59	28.97	29.04	---	28.32	28.22	---	26.76	25.46	22.35	19.12	18.20
19	28.60	28.97	29.04	---	28.31	28.22	---	26.73	25.37	22.22	19.05	18.18
20	28.60	28.97	29.05	---	28.31	28.22	---	---	25.32	22.12	18.95	18.17
21	28.60	29.03	29.05	---	28.29	28.21	---	---	---	22.02	18.81	18.17
22	28.64	29.03	29.05	---	28.29	28.21	---	---	---	22.02	18.78	18.16
23	28.64	29.01	29.06	---	28.29	28.22	---	---	---	21.90	18.76	18.22
24	28.65	29.01	29.06	---	28.30	28.22	---	---	---	21.80	18.73	18.27
25	28.67	29.01	29.06	---	28.30	28.22	---	---	---	21.62	---	18.27
26	28.68	29.01	29.06	---	28.29	28.22	---	---	---	21.50	---	18.21
27	28.69	29.01	29.05	---	28.29	28.22	---	---	---	21.40	---	18.30
28	28.72	29.02	29.06	---	28.28	28.21	---	---	---	21.25	---	18.30
29	28.72	29.02	29.06	---	---	28.20	---	---	---	21.14	---	18.25
30	28.74	29.01	29.04	---	---	28.20	---	---	24.12	21.03	---	18.28
31	28.78	---	29.02	28.47	---	28.18	---	---	---	20.82	---	---
MAX	28.78	29.03	29.06	29.02	28.45	28.28	28.18	27.08	26.29	24.06	20.52	18.37

CAL YR 1988 LOW 29.06
WTR YR 1989 LOW 29.06



410920081192000 PO-6
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

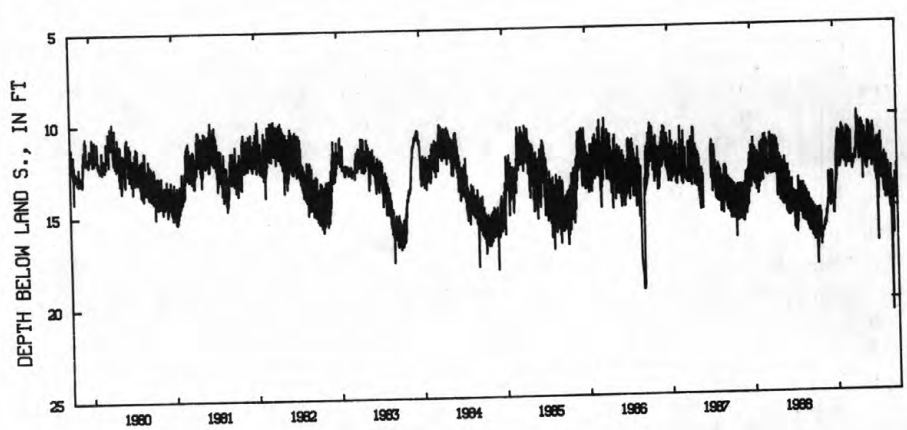
PUTNAM COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.80	16.74	13.15	13.91	10.64	10.91	12.47	12.02	10.51	13.67	14.10	14.24
2	16.49	16.44	14.80	13.53	12.37	12.67	12.02	10.52	12.28	11.42	13.20	14.88
3	16.53	16.43	14.81	13.80	10.82	10.85	12.03	13.57	10.64	12.94	14.28	12.84
4	16.03	16.30	14.84	12.25	12.48	12.68	11.50	10.93	12.37	11.31	12.88	14.74
5	16.55	16.21	13.21	13.64	10.81	10.91	11.15	12.39	12.30	13.13	13.76	18.42
6	15.33	16.18	14.74	11.94	12.40	12.52	11.50	10.71	12.40	14.76	12.10	20.70
7	16.66	16.30	13.20	13.43	10.81	11.02	11.48	12.51	10.71	16.31	13.96	17.28
8	16.59	16.23	14.70	11.46	12.41	12.67	9.84	12.01	12.60	16.91	12.37	14.97
9	16.66	16.32	13.17	13.05	12.52	11.05	11.79	12.35	12.29	14.04	14.61	14.87
10	15.09	16.12	14.99	11.28	12.57	12.60	11.45	11.39	12.48	14.71	13.75	13.84
11	16.96	16.02	13.22	12.71	12.44	11.00	11.43	12.64	12.43	14.11	14.52	13.97
12	18.11	16.02	14.79	11.01	12.62	12.63	11.59	10.79	12.89	13.52	12.43	15.23
13	17.16	15.82	13.11	12.82	12.53	12.65	11.78	12.60	11.87	11.54	14.13	15.66
14	17.30	15.85	14.79	10.87	12.43	12.40	10.24	12.36	12.27	13.10	12.33	16.54
15	16.99	16.09	13.21	12.52	12.58	12.29	12.24	12.78	11.03	11.28	14.02	13.66
16	15.29	15.67	14.79	10.92	12.67	12.86	10.41	11.12	12.17	12.98	12.66	14.64
17	16.76	15.92	13.13	12.62	11.15	12.86	12.50	12.92	10.52	11.25	14.29	13.96
18	15.08	15.88	14.88	10.93	12.96	13.01	10.44	11.13	12.12	13.16	13.95	14.47
19	16.61	15.92	13.19	12.56	12.43	12.78	11.96	12.63	10.74	12.89	14.58	13.77
20	15.09	15.61	14.82	10.98	12.73	12.74	12.05	11.13	12.44	12.61	13.88	14.26
21	16.52	15.30	14.62	12.92	10.69	12.77	12.13	13.02	10.91	11.08	14.30	13.26
22	16.46	15.22	14.85	12.42	12.53	12.66	11.73	12.29	12.66	13.55	12.71	13.67
23	16.57	15.46	14.75	12.78	12.40	12.55	12.21	12.72	12.42	11.58	14.23	13.79
24	15.06	15.27	15.38	11.02	12.72	12.30	10.86	11.62	12.69	13.53	13.07	14.00
25	16.73	15.13	14.70	12.65	10.75	12.53	12.17	12.64	12.90	12.76	14.53	13.90
26	16.74	15.05	15.39	12.51	12.51	12.39	11.09	10.45	13.22	13.39	13.99	14.66
27	16.50	14.79	14.82	12.16	10.80	12.44	12.43	12.29	13.30	12.30	14.52	12.78
28	15.32	14.65	14.30	12.27	12.50	12.49	10.35	10.82	13.08	13.65	14.19	14.61
29	17.08	14.87	14.67	12.18	---	12.36	12.24	12.08	13.19	13.09	14.92	14.60
30	16.63	14.87	14.69	10.59	---	12.03	10.74	11.24	11.53	13.17	14.12	14.42
31	16.64	---	14.14	12.28	---	11.96	---	12.56	---	13.25	15.16	---
MAX	18.11	16.74	15.39	13.91	12.96	13.01	12.50	13.57	13.30	16.91	15.16	20.70

CAL YR 1988 LOW 18.11
WTR YR 1989 LOW 20.70



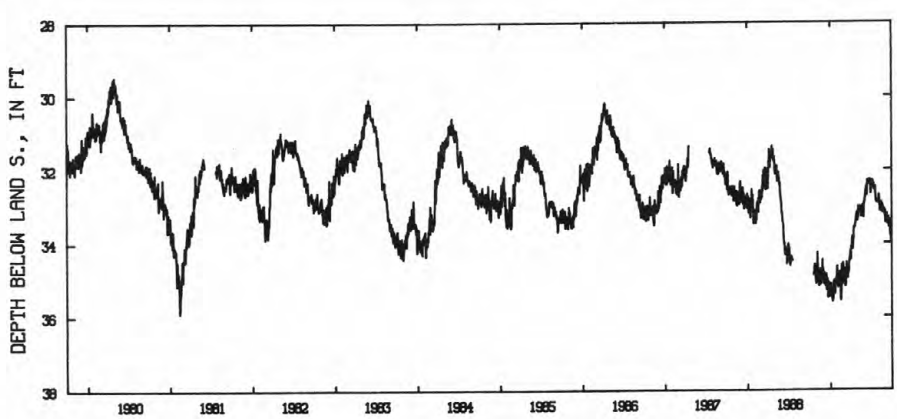
RICHLAND COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	34.64	34.95	35.11	34.81	34.98	34.46	33.39	32.92	32.48	32.88	33.13
2	---	34.76	34.99	35.14	34.92	34.98	34.44	33.18	32.86	32.38	32.92	33.40
3	---	34.75	34.94	35.13	35.21	34.75	34.12	33.33	32.80	32.33	32.86	33.45
4	---	34.60	35.12	35.46	35.21	34.70	34.10	33.33	32.73	32.30	32.75	33.41
5	---	34.26	34.96	35.40	35.03	34.88	34.16	33.01	32.73	32.36	32.69	33.37
6	---	34.50	34.82	35.23	34.92	34.86	34.12	33.11	32.58	32.36	32.80	33.39
7	---	34.88	34.83	35.28	34.93	35.16	33.95	33.15	32.58	32.37	32.86	33.33
8	---	35.06	35.12	35.41	35.13	35.18	33.83	33.13	32.58	32.37	32.97	33.26
9	---	35.07	35.12	35.55	35.18	35.18	34.05	33.10	32.47	32.32	33.08	33.21
10	---	34.88	34.97	35.52	34.97	35.11	34.17	33.14	32.67	32.37	33.13	33.35
11	---	35.17	35.16	35.60	34.78	34.88	34.05	33.14	32.71	32.51	33.11	33.42
12	---	35.17	35.19	35.28	35.06	34.94	33.93	33.03	32.58	32.48	33.08	33.48
13	---	34.82	34.84	35.55	35.02	34.87	33.93	33.01	32.30	32.39	33.02	33.48
14	---	34.89	34.88	35.50	35.15	34.53	33.85	33.08	32.33	32.53	32.97	33.39
15	---	34.88	35.28	35.07	35.31	34.82	33.57	33.07	32.33	32.57	32.90	33.40
16	---	34.71	35.29	35.15	35.56	34.91	33.59	33.14	32.33	32.54	33.00	33.30
17	---	35.01	35.02	35.08	35.51	34.84	33.55	33.25	32.41	32.51	33.15	33.49
18	---	35.13	35.07	35.02	35.29	34.91	33.56	33.29	32.42	32.52	33.17	33.57
19	34.86	35.03	34.98	35.03	34.90	34.95	33.57	33.24	32.37	32.47	33.10	33.54
20	34.88	34.74	35.08	35.32	34.72	34.80	33.57	33.04	32.34	32.51	32.95	33.58
21	34.78	35.11	35.46	35.39	34.59	34.72	33.50	33.15	32.28	32.67	33.00	33.54
22	34.64	35.11	35.49	35.18	34.92	34.81	33.49	33.13	32.30	32.84	33.01	33.37
23	34.65	34.97	35.10	35.09	35.12	34.78	33.42	33.00	32.34	32.87	33.07	33.70
24	34.58	34.83	35.07	35.13	35.12	34.57	33.40	33.04	32.32	32.87	33.14	33.80
25	34.68	34.74	35.37	35.13	34.97	34.50	33.30	32.98	32.33	32.91	33.14	33.66
26	34.85	34.65	35.47	34.96	34.55	34.52	33.25	33.05	32.28	32.91	33.12	33.83
27	34.88	34.45	35.27	34.99	34.67	34.43	33.25	33.27	32.34	32.86	33.18	33.95
28	34.99	34.84	35.32	34.99	34.78	34.38	33.24	33.31	32.54	32.87	33.20	33.78
29	35.07	34.92	35.39	34.92	---	34.38	33.17	33.11	32.66	32.90	33.08	33.60
30	35.11	34.73	35.25	34.69	---	34.21	33.40	32.92	32.63	32.86	33.20	33.48
31	35.03	---	35.23	34.64	---	34.26	---	32.93	---	32.84	33.24	---
MAX	35.11	35.17	35.49	35.60	35.56	35.18	34.46	33.39	32.92	32.91	33.24	33.95

CAL YR 1988 LOW 35.49
WTR YR 1989 LOW 35.60



405753082360800 R-3
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

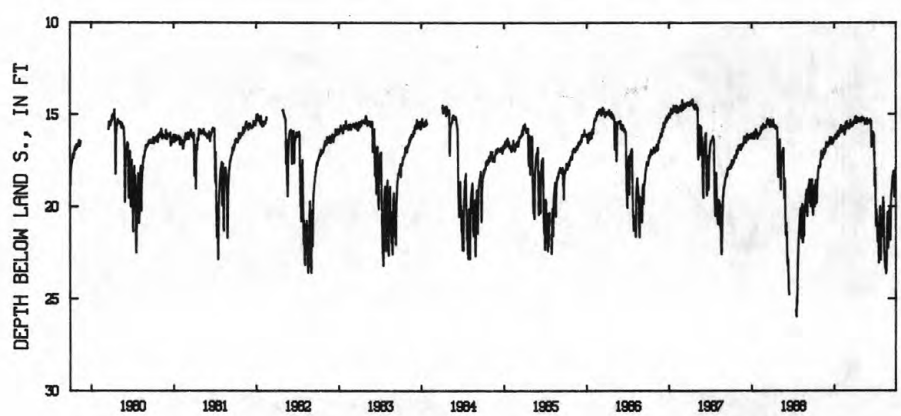
SANDUSKY COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.02	17.45	16.70	16.26	15.77	15.73	15.48	15.39	15.42	17.90	21.41	21.31
2	19.28	17.47	16.72	16.30	15.82	15.69	15.45	15.29	15.45	18.78	20.64	20.98
3	19.06	17.43	16.67	16.24	15.97	15.56	15.30	15.36	15.40	19.90	20.08	20.34
4	18.88	17.23	16.76	16.32	15.96	15.54	15.15	15.37	15.36	20.57	20.24	20.06
5	19.38	17.00	16.62	16.25	15.91	15.66	15.29	15.15	15.32	21.07	19.82	21.36
6	20.00	17.09	16.53	16.12	15.81	15.66	15.26	15.27	15.31	20.41	19.51	21.82
7	19.43	17.30	16.58	16.11	15.80	15.77	15.25	15.30	15.34	20.17	20.44	21.19
8	19.88	17.42	16.63	16.22	15.88	15.78	15.12	15.30	15.35	20.52	19.77	20.23
9	19.25	17.41	16.61	16.30	15.95	15.77	15.34	15.26	15.29	20.58	21.37	19.73
10	18.84	17.22	16.50	16.26	15.77	15.70	15.48	15.32	15.48	20.92	22.21	19.41
11	18.58	17.34	16.59	16.34	15.66	15.51	15.46	15.31	15.56	21.53	22.43	19.31
12	18.65	17.33	16.62	16.09	15.86	15.66	15.34	15.24	15.42	21.90	22.84	19.15
13	18.65	17.07	16.24	16.26	15.76	15.53	15.35	15.23	15.37	21.31	23.01	19.02
14	19.31	17.10	16.27	16.18	15.87	15.32	15.31	15.29	16.27	20.92	23.32	18.83
15	19.80	17.13	16.53	16.01	15.91	15.52	15.19	15.32	16.79	21.29	22.46	18.60
16	19.50	16.89	16.50	16.03	16.10	15.55	15.22	15.39	16.08	21.62	22.55	18.47
17	19.28	17.05	16.34	15.99	16.08	15.51	15.24	15.49	16.60	22.47	23.37	18.35
18	18.64	17.17	16.30	15.92	15.95	15.62	15.29	15.56	16.35	23.05	23.62	18.36
19	18.54	17.00	16.25	15.92	15.73	15.66	15.34	15.54	16.14	22.71	23.13	18.29
20	18.47	16.89	16.33	16.15	15.61	15.55	15.40	15.36	16.05	21.19	23.49	18.17
21	18.19	17.08	16.62	16.19	15.46	15.54	15.34	15.52	15.96	20.61	22.90	18.08
22	18.03	17.04	16.61	16.08	15.65	15.65	15.37	15.51	16.00	20.24	21.78	18.54
23	17.98	16.97	16.34	15.99	15.77	15.60	15.38	15.37	16.03	20.00	21.07	18.82
24	17.82	16.87	16.33	15.99	15.79	15.45	15.40	15.30	16.08	21.48	20.65	19.49
25	17.83	16.80	16.55	16.02	15.63	15.48	15.26	15.25	16.12	22.64	20.32	18.85
26	17.85	16.71	16.61	15.77	15.38	15.57	15.28	15.24	16.19	22.88	20.87	18.40
27	17.86	16.54	16.44	15.83	15.50	15.50	15.26	15.49	17.27	21.55	22.05	18.38
28	17.81	16.71	16.43	15.82	15.57	15.41	15.20	15.54	17.08	20.63	22.24	18.20
29	17.85	16.78	16.49	15.77	---	15.47	15.22	15.47	18.87	20.55	21.16	17.95
30	17.87	16.59	16.39	15.66	---	15.33	15.41	15.42	18.52	21.64	20.51	17.92
31	17.77	---	16.36	15.60	---	15.34	---	15.37	---	20.89	20.25	---
MAX	20.02	17.47	16.76	16.34	16.10	15.78	15.48	15.56	18.87	23.05	23.62	21.82

CAL YR 1988 LOW 25.97
WTR YR 1989 LOW 23.62



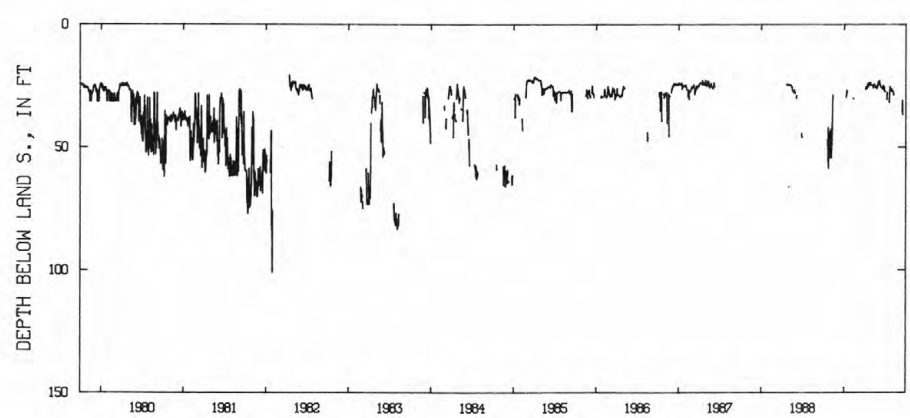
411914083045300 S-3 H KEISER COLE RD SE OF FREMONT OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	42.60	---	---	---	---	---	24.72	24.26	27.44	27.40	---
2	---	53.12	---	---	---	---	---	24.76	24.46	27.42	26.80	---
3	---	47.84	---	---	---	---	---	24.80	24.42	---	27.08	---
4	---	43.74	---	---	---	---	---	24.72	24.38	---	26.96	---
5	---	54.32	---	---	---	---	26.50	24.64	24.02	---	27.40	---
6	---	49.66	---	---	---	---	25.92	24.76	22.86	---	---	---
7	---	49.32	---	---	---	---	25.38	24.84	24.32	---	27.74	31.50
8	---	41.22	---	---	---	---	25.84	26.00	24.58	---	28.76	---
9	---	40.00	---	29.58	30.00	---	26.00	25.24	24.46	30.60	---	35.60
10	---	32.76	---	28.56	30.32	---	26.10	25.04	24.90	27.66	---	---
11	---	30.08	---	28.12	---	---	26.06	24.94	25.34	---	---	---
12	---	28.74	---	26.82	---	---	25.98	24.92	25.52	---	---	29.78
13	---	---	---	28.04	---	---	24.50	24.22	25.74	---	---	---
14	---	---	---	27.06	---	---	24.10	24.82	25.88	35.14	---	---
15	---	---	---	---	---	---	25.40	25.06	25.86	---	---	35.80
16	---	---	---	---	---	---	24.90	25.06	25.68	---	---	30.96
17	---	---	---	---	---	---	24.88	24.98	26.12	---	---	36.80
18	49.32	---	---	27.40	---	---	25.22	25.88	26.12	---	---	---
19	46.88	---	---	---	---	---	23.70	25.38	26.28	30.32	---	36.00
20	47.68	---	---	---	---	---	24.42	25.18	26.36	31.80	---	---
21	55.76	---	---	---	27.58	---	24.68	25.46	25.16	27.72	---	---
22	41.96	---	---	---	---	---	24.68	25.72	26.40	26.66	---	31.14
23	58.64	---	---	---	---	---	24.74	25.60	25.06	25.40	---	---
24	47.80	---	---	---	---	---	24.76	25.62	26.12	26.16	---	---
25	45.48	---	---	---	---	---	24.60	25.78	26.54	26.58	---	---
26	48.30	---	---	---	---	---	24.22	26.16	26.66	26.98	---	29.44
27	53.92	---	---	---	---	---	23.58	25.54	25.60	26.82	---	---
28	43.66	---	---	---	---	---	24.32	24.44	26.98	26.66	---	---
29	54.14	---	---	---	---	---	24.58	24.76	27.38	26.14	---	---
30	54.18	---	---	---	---	---	24.84	24.72	27.42	26.48	---	---
31	48.46	---	---	---	---	---	---	23.36	---	27.42	---	---
MAX	58.64	54.32	---	29.58	30.32	---	26.50	26.16	27.42	35.14	28.76	36.80

CAL YR 1988 LOW 58.64
WTR YR 1989 LOW 58.64



412703083213600 S-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

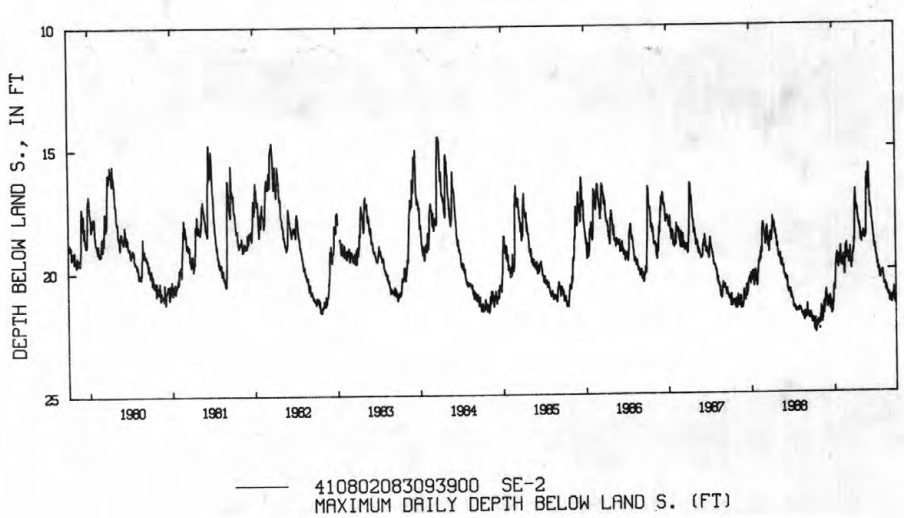
SENECA COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.96	21.85	21.36	20.66	19.43	19.56	18.90	18.80	16.57	18.97	20.22	21.00
2	22.01	22.03	21.38	20.63	19.55	19.53	18.84	18.74	16.76	19.06	20.19	21.26
3	22.17	22.02	21.34	20.62	19.86	19.30	18.39	18.90	16.78	19.16	20.13	21.34
4	22.14	21.77	21.56	20.86	19.83	19.32	17.75	18.92	16.08	19.25	20.06	21.30
5	22.35	21.47	21.34	20.79	19.64	19.46	17.35	18.57	15.83	19.37	20.09	21.21
6	22.48	21.70	21.15	20.44	19.54	19.52	17.16	18.73	15.73	19.42	20.21	21.21
7	22.35	22.05	21.29	20.30	19.59	19.74	16.84	18.72	16.02	19.43	20.27	21.14
8	22.22	22.19	21.45	19.85	19.80	19.74	16.76	18.70	16.29	19.49	20.39	21.12
9	22.05	22.20	21.45	19.89	19.87	19.74	17.22	18.65	16.73	19.49	20.51	21.09
10	21.99	21.77	21.28	19.63	19.59	19.60	17.47	18.71	17.30	19.60	20.64	21.26
11	22.25	22.02	21.46	19.69	19.40	19.31	17.49	18.69	17.49	19.81	20.61	21.35
12	22.52	22.02	21.49	19.46	19.84	19.59	17.40	18.54	17.36	19.79	20.60	21.39
13	22.56	21.58	21.08	19.79	19.74	19.45	17.64	18.44	17.44	19.70	20.58	21.37
14	22.41	21.63	21.15	19.70	19.87	19.09	17.60	18.52	17.52	19.86	20.62	21.29
15	22.18	21.65	21.63	19.33	20.03	19.69	17.50	18.53	17.50	20.03	20.56	21.24
16	22.20	21.35	21.63	19.43	20.24	19.76	17.62	18.60	17.68	19.99	20.66	21.14
17	22.23	21.66	21.34	19.42	20.20	19.69	17.78	18.73	17.88	20.01	20.83	21.04
18	22.13	21.80	21.34	19.38	19.94	19.93	17.85	18.76	18.00	20.04	20.89	21.09
19	22.21	21.61	21.24	19.46	19.48	19.99	17.96	18.71	18.01	19.93	20.80	21.06
20	22.34	21.27	21.38	19.93	19.35	19.77	18.02	18.49	18.12	19.98	20.67	21.00
21	22.10	21.56	21.79	19.94	19.02	19.66	18.06	18.69	18.16	20.15	20.74	20.97
22	22.06	21.54	21.81	19.68	19.42	19.77	18.13	18.64	18.32	20.31	20.80	20.75
23	22.05	21.30	21.34	19.58	19.59	19.62	18.19	18.48	18.42	20.38	20.83	21.18
24	22.03	21.08	21.36	19.73	19.60	19.35	18.24	17.85	18.55	20.35	20.92	21.32
25	22.14	20.98	21.69	19.78	19.32	19.32	18.15	17.38	18.65	20.38	20.99	21.09
26	22.27	20.92	21.74	19.45	18.92	19.42	18.29	17.01	18.69	20.37	20.97	21.27
27	22.31	20.83	21.45	19.38	19.14	19.30	18.37	16.37	18.76	20.24	21.01	21.40
28	22.35	21.20	21.35	19.38	19.33	19.17	18.36	16.41	18.98	20.15	21.07	21.24
29	22.42	21.35	21.40	19.30	---	19.27	18.51	16.11	19.14	20.22	20.96	21.08
30	22.43	21.09	21.06	19.09	---	19.13	18.81	16.20	19.05	20.10	21.05	21.14
31	22.29	---	20.77	19.05	---	18.76	---	16.39	---	20.17	21.10	---
MAX	22.56	22.20	21.81	20.86	20.24	19.99	18.90	18.92	19.14	20.38	21.10	21.40

CAL YR 1988 LOW 22.56
WTR YR 1989 LOW 22.56



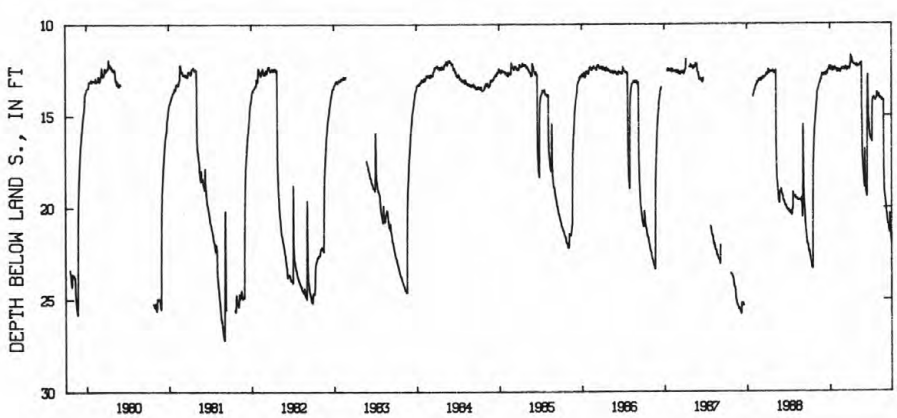
SUMMIT COUNTY

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, 11.73 ft below land-surface datum, April 4, 1989.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.38	14.59	12.84	12.35	12.57	12.51	12.31	12.22	18.57	16.29	13.88	19.32
2	22.31	14.46	12.84	12.31	12.61	12.51	12.22	12.29	18.75	16.30	13.92	19.46
3	22.38	14.34	12.82	12.37	12.64	12.47	12.03	12.35	18.88	16.31	13.98	19.52
4	22.49	14.24	12.80	12.53	12.62	12.50	11.73	12.35	16.82	16.34	13.98	19.60
5	22.60	14.11	12.72	12.53	12.55	12.46	11.82	12.32	17.49	16.40	13.88	19.77
6	22.71	13.73	12.73	12.52	12.47	12.39	11.83	12.29	18.14	16.44	13.84	19.94
7	22.80	13.67	12.79	12.52	12.53	12.49	11.88	12.27	18.55	14.70	13.87	20.09
8	22.87	13.64	12.81	12.35	12.60	12.51	11.88	12.27	18.83	14.28	13.98	20.21
9	22.88	13.60	12.80	12.40	12.62	12.50	11.89	12.30	19.05	14.13	14.03	20.33
10	22.92	13.52	12.77	12.45	12.61	12.45	12.03	12.30	19.15	14.07	14.07	20.36
11	23.03	13.51	12.71	12.51	12.57	12.44	12.11	12.27	19.21	14.07	14.07	20.51
12	23.11	13.51	12.68	12.50	12.56	12.40	12.16	12.28	19.35	14.05	14.07	20.66
13	23.19	13.39	12.73	12.56	12.51	12.35	12.16	12.28	19.40	14.07	14.07	20.80
14	23.27	13.27	12.76	12.56	12.57	12.35	12.14	12.22	19.33	14.09	14.03	20.89
15	23.30	13.26	12.81	12.38	12.59	12.47	12.16	12.17	14.59	14.09	14.07	20.88
16	23.30	13.26	12.80	12.40	12.65	12.48	12.16	12.18	13.58	14.01	14.09	20.91
17	23.29	13.27	12.67	12.43	12.63	12.48	12.19	12.22	13.00	14.05	14.13	20.91
18	19.67	13.25	12.64	12.45	12.59	12.54	12.24	12.24	12.79	14.07	14.14	21.03
19	18.14	13.19	12.61	12.49	12.51	12.53	12.25	12.25	14.07	14.07	14.17	21.14
20	17.48	13.09	12.67	12.54	12.53	12.40	12.23	12.25	14.61	14.09	14.13	21.26
21	17.00	13.03	12.74	12.54	12.49	12.46	12.25	12.13	15.17	14.19	14.09	21.32
22	16.61	13.04	12.74	12.43	12.44	12.49	12.25	14.35	15.24	14.13	14.19	21.35
23	16.32	13.07	12.58	12.36	12.47	12.49	12.24	15.45	15.55	14.11	14.15	20.32
24	15.95	13.04	12.54	12.43	12.48	12.48	12.22	16.53	15.75	14.11	14.19	20.69
25	15.73	12.92	12.53	12.45	12.47	12.46	12.24	17.12	15.86	14.11	14.20	21.02
26	15.56	12.85	12.53	12.43	12.41	12.39	12.25	17.39	15.98	14.08	14.20	21.24
27	15.40	12.72	12.50	12.49	12.42	12.39	12.30	17.64	16.09	13.86	14.17	21.38
28	15.23	12.78	12.51	12.51	12.49	12.45	12.32	17.81	16.08	13.74	17.51	21.50
29	15.12	12.80	12.36	12.51	---	12.49	12.30	17.96	16.17	13.76	18.35	21.76
30	14.95	12.79	12.38	12.46	---	12.47	12.22	18.16	16.27	13.74	18.90	21.96
31	14.75	---	12.41	12.49	---	12.36	---	18.36	---	13.83	19.12	---
MAX	23.30	14.59	12.84	12.56	12.65	12.54	12.32	18.36	19.40	16.44	19.12	21.96

CAL YR 1988 LOW 23.30
WTR YR 1989 LOW 23.30



410330081282000 SU-6
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

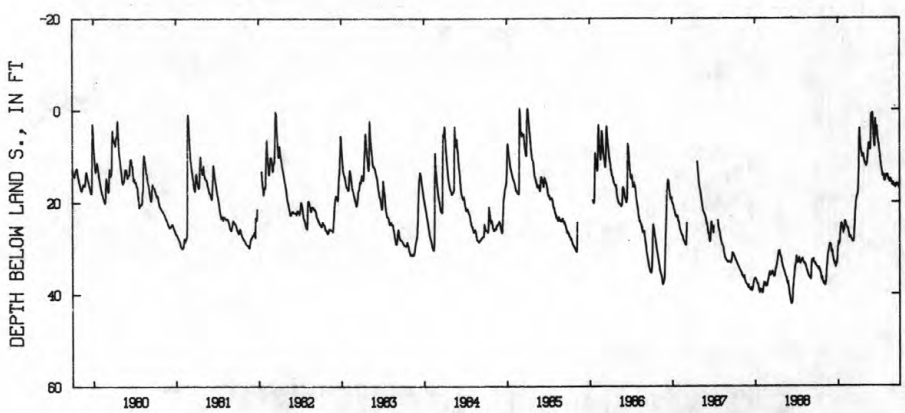
SUMMIT COUNTY--Continued

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, 0.45 ft above land-surface datum, Feb. 27, 1985.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.00	37.59	29.42	29.62	24.14	27.78	16.19	11.35	2.45	7.39	14.09	16.28
2	34.06	37.76	29.66	29.52	24.10	28.11	14.56	11.84	2.39	8.06	14.23	15.80
3	34.11	37.78	30.57	29.46	24.21	28.22	13.21	11.48	1.58	8.57	14.24	15.86
4	34.16	37.95	30.79	28.62	24.26	28.18	11.62	11.90	.61	9.10	14.48	16.39
5	34.20	38.02	30.86	28.90	24.58	28.22	7.11	11.86	1.60	9.15	14.45	16.50
6	34.33	38.03	30.33	29.10	24.84	28.35	5.03	12.02	3.04	9.64	14.28	16.29
7	34.49	38.03	31.10	29.12	25.03	28.56	4.09	12.21	4.14	10.28	14.39	16.38
8	34.60	37.37	30.66	28.96	25.10	28.56	4.03	11.76	5.46	10.91	14.26	16.38
9	34.66	37.37	31.51	28.68	25.41	28.52	5.64	11.51	5.82	11.08	14.10	16.22
10	34.19	36.30	31.80	27.82	25.48	28.54	6.75	11.76	6.73	11.60	14.45	16.21
11	34.33	35.95	32.08	27.03	25.51	28.53	7.88	11.46	7.69	12.06	14.61	16.78
12	34.64	34.86	32.33	26.31	25.70	28.18	8.11	10.62	7.72	12.27	15.05	16.15
13	34.79	34.09	32.61	25.66	25.75	27.89	8.57	10.11	7.99	12.51	15.17	16.44
14	34.89	33.71	32.82	25.67	25.59	26.53	9.15	9.32	7.36	12.90	15.09	16.72
15	35.02	33.41	33.12	24.86	25.88	25.63	9.12	8.87	2.65	13.17	15.15	16.45
16	35.25	32.38	33.15	24.57	26.18	25.36	9.44	8.28	2.01	13.36	15.31	16.01
17	35.24	31.49	33.22	24.55	26.37	24.08	9.49	7.70	3.09	14.09	15.57	16.37
18	35.48	31.17	33.47	24.67	26.60	22.89	9.87	7.32	4.28	14.25	15.62	16.04
19	36.23	30.89	33.56	24.80	26.80	21.92	10.20	7.18	5.55	14.28	15.47	15.97
20	36.46	30.74	33.48	25.17	27.17	21.20	10.20	7.45	5.50	14.13	15.14	16.14
21	36.56	30.59	33.03	25.35	27.72	20.38	9.78	7.62	4.46	13.91	14.97	16.27
22	36.76	30.29	33.13	25.50	27.70	19.72	9.92	8.38	3.54	14.08	15.49	16.31
23	36.82	29.90	34.05	26.10	27.77	19.63	9.63	8.51	3.54	14.10	15.44	16.36
24	36.27	29.60	33.41	25.94	27.76	19.11	9.60	8.65	4.49	14.70	15.18	16.20
25	37.00	29.31	33.50	26.70	27.61	18.84	9.99	8.43	5.11	15.18	15.62	16.29
26	37.04	29.14	33.51	26.36	27.40	18.70	10.39	7.85	5.81	15.42	15.65	16.35
27	37.20	28.98	33.44	26.11	27.48	18.59	10.65	5.46	6.38	15.42	15.61	16.89
28	37.39	29.07	33.23	25.85	27.73	18.47	10.87	2.36	6.35	15.29	15.65	16.80
29	37.50	29.12	32.73	25.48	---	18.39	11.34	.86	6.99	15.32	16.28	16.50
30	37.64	29.21	31.88	25.95	---	17.97	11.23	1.09	7.24	14.82	16.07	15.97
31	37.42	---	30.53	24.32	---	17.28	---	1.95	---	14.36	16.25	---
MAX	37.64	38.03	34.05	29.62	27.77	28.56	16.19	12.21	7.99	15.42	16.28	16.89

CAL YR 1988 LOW 42.11
WTR YR 1989 LOW 38.03



410846081271600 SU-7
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

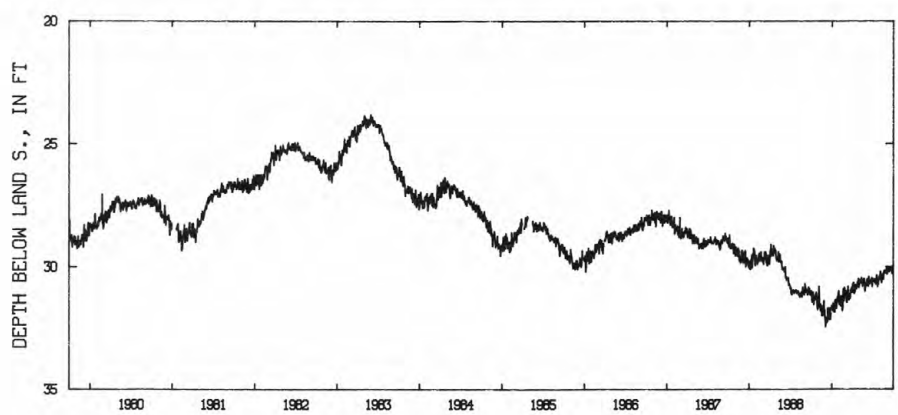
VAN WERT COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.05	31.25	32.00	31.60	31.00	31.25	31.00	30.85	30.80	30.60	30.50	30.00
2	31.00	31.40	32.10	31.60	31.25	31.25	31.05	30.70	30.80	30.55	30.50	30.25
3	31.00	31.35	32.25	31.60	31.55	31.05	30.75	30.75	30.70	30.50	30.40	30.30
4	31.15	31.10	32.45	31.80	31.55	31.00	30.70	30.75	30.70	30.50	30.25	30.30
5	31.35	30.80	32.30	31.70	31.45	31.15	30.85	30.55	30.60	30.60	30.20	30.20
6	31.45	31.10	32.10	31.50	31.35	31.20	30.80	30.55	30.55	30.60	30.30	30.20
7	31.40	31.35	32.10	31.50	31.35	31.40	30.75	30.65	30.55	30.55	30.40	30.10
8	31.30	31.65	32.30	31.60	31.45	31.45	30.65	30.65	30.50	30.60	30.40	30.05
9	31.15	31.65	32.25	31.75	31.60	31.45	30.90	30.60	30.50	30.50	30.55	30.00
10	31.05	31.60	32.10	31.70	31.35	31.35	31.10	30.60	30.75	30.50	30.65	30.05
11	31.15	31.80	32.20	31.85	31.20	31.10	31.05	30.65	30.80	30.65	30.60	30.15
12	31.45	31.75	32.25	31.55	31.35	31.20	30.95	30.60	30.65	30.65	30.50	30.20
13	31.55	31.55	31.70	31.85	31.30	31.10	31.00	30.45	30.40	30.55	30.45	30.20
14	31.40	31.65	31.75	31.85	31.30	30.80	31.00	30.55	30.50	30.65	30.40	30.10
15	31.25	31.65	32.15	31.40	31.40	31.10	30.75	30.60	30.50	30.70	30.30	30.10
16	31.20	31.60	32.15	31.50	31.75	31.15	30.80	30.70	30.60	30.65	30.30	30.05
17	31.20	31.90	31.90	31.45	31.80	31.10	30.75	30.75	30.65	30.60	30.40	30.05
18	31.20	32.00	31.90	31.35	31.65	31.30	30.85	30.80	30.70	30.60	30.50	30.15
19	31.30	31.85	31.70	31.35	31.35	31.35	30.90	30.70	30.65	30.45	30.35	30.15
20	31.35	31.80	31.80	31.45	31.05	31.20	30.90	30.55	30.65	30.35	30.20	30.10
21	31.20	32.00	32.15	31.70	30.90	31.20	30.85	30.65	30.60	30.50	30.20	30.10
22	31.15	31.95	32.15	31.60	31.00	31.30	30.85	30.60	30.60	30.70	30.20	30.00
23	31.10	31.85	31.75	31.40	31.40	31.25	30.80	30.50	30.56	30.80	30.15	30.05
24	31.05	31.75	31.70	31.40	31.40	31.10	30.80	30.55	30.55	30.76	30.20	30.25
25	31.15	31.65	32.05	31.45	31.20	30.95	30.65	30.50	30.55	30.75	30.25	30.20
26	31.35	31.55	32.15	31.25	30.85	31.05	30.65	30.65	30.50	30.70	30.20	30.20
27	31.35	31.40	31.90	31.30	30.90	30.95	30.60	30.90	30.45	30.60	30.20	30.30
28	31.55	31.80	31.95	31.30	31.10	30.90	30.60	31.00	30.60	30.50	30.25	30.20
29	31.65	31.90	---	31.25	---	30.90	30.50	30.85	30.80	30.55	30.15	30.00
30	31.75	31.75	31.75	31.05	---	30.85	30.75	30.75	30.80	30.40	30.15	30.05
31	31.60	---	31.70	31.05	---	30.90	---	30.75	---	30.50	---	---
MAX	31.75	32.00	32.45	31.85	31.80	31.45	31.10	31.00	30.80	30.80	30.65	30.30

CAL YR 1988 LOW 32.45
WTR YR 1989 LOW 32.45



405215084335400 VW-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

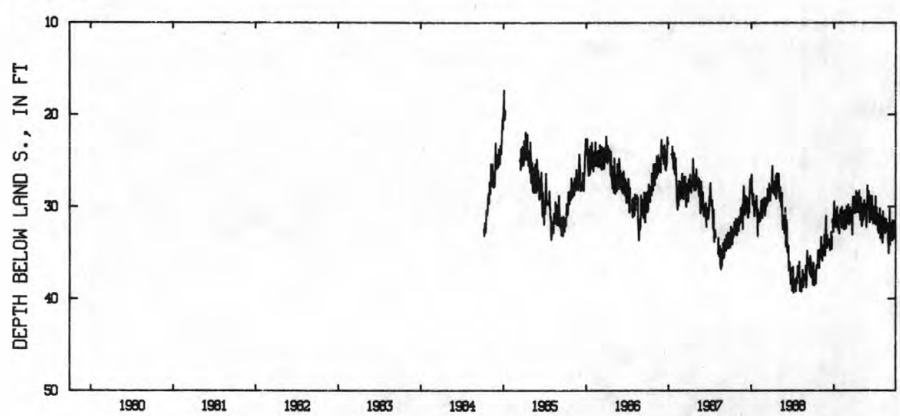
WILLIAMS COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37.40	35.20	34.45	30.20	31.75	31.55	29.60	30.10	29.65	31.80	33.50	34.20
2	36.10	35.55	34.05	29.45	32.00	31.80	28.90	30.75	30.25	30.20	32.95	33.20
3	36.10	35.65	33.10	30.90	32.25	31.55	29.55	31.75	28.65	30.00	33.70	31.95
4	37.05	35.55	---	32.10	30.85	30.75	30.10	32.10	28.30	28.85	33.90	30.20
5	38.50	33.50	33.65	30.95	30.00	29.75	30.20	32.00	29.55	30.85	33.30	33.00
6	38.55	33.30	34.20	31.30	32.05	30.60	30.65	31.20	30.30	31.90	30.50	34.00
7	38.40	35.00	---	30.40	---	30.90	29.55	29.70	31.05	31.70	32.50	34.10
8	38.10	35.10	---	30.35	31.60	31.80	29.20	30.80	31.70	31.00	32.40	---
9	37.20	34.45	---	32.20	31.65	30.80	28.30	30.55	31.35	30.10	32.65	---
10	37.00	35.20	---	---	32.30	31.90	28.80	31.50	30.00	31.85	32.00	31.80
11	37.75	35.85	---	---	31.50	30.50	30.20	31.30	28.80	31.75	---	33.35
12	38.30	34.20	33.55	---	30.50	30.50	30.20	31.30	30.15	31.50	31.70	33.60
13	38.35	---	34.40	---	31.75	30.75	30.55	30.50	30.75	31.60	31.25	33.20
14	38.05	---	33.95	---	32.05	30.05	29.75	29.45	30.70	32.55	32.20	33.40
15	36.95	---	34.70	30.05	32.40	31.25	29.10	29.30	31.40	31.85	32.85	33.65
16	36.35	---	34.60	32.00	31.65	31.40	28.55	30.15	31.15	30.80	32.40	31.75
17	36.55	34.75	---	32.25	32.45	31.65	29.85	30.40	29.60	32.55	32.70	31.50
18	36.75	35.25	---	31.70	30.40	31.05	30.55	30.95	28.80	32.80	32.70	33.40
19	36.35	34.80	33.90	32.05	30.35	30.40	30.45	30.35	29.80	32.00	32.00	33.50
20	36.40	33.00	32.75	32.50	30.55	31.50	30.60	30.15	30.20	32.10	31.35	33.55
21	36.30	34.90	34.55	31.40	30.90	31.25	30.35	29.75	30.50	32.60	---	32.90
22	35.15	35.05	34.60	30.90	31.45	32.45	29.40	30.50	31.45	31.10	---	32.70
23	34.75	35.30	33.25	32.30	31.90	33.00	28.20	31.25	31.80	30.20	---	32.60
24	35.65	34.05	---	32.90	32.30	30.65	30.50	32.20	30.10	32.10	33.05	31.50
25	36.35	32.55	31.65	32.50	31.10	29.35	30.00	31.00	30.00	33.40	---	32.00
26	35.50	31.30	31.30	---	29.95	28.95	30.70	31.70	31.60	---	32.40	33.15
27	36.30	31.00	32.15	---	30.35	30.45	31.40	29.85	31.50	---	31.75	33.40
28	36.65	33.10	32.30	30.65	30.95	30.25	30.95	29.25	31.60	32.85	33.40	33.20
29	34.80	33.70	32.75	30.30	---	30.70	29.95	27.70	31.70	31.30	34.00	33.25
30	34.65	34.30	31.60	31.45	---	30.45	29.00	29.90	31.80	31.00	33.55	32.50
31	35.30	---	31.05	30.80	---	30.10	---	30.10	---	31.70	35.05	---
MAX	38.55	35.85	34.70	32.90	32.45	33.00	31.40	32.20	31.80	33.40	35.05	34.20

CAL YR 1988 LOW 39.35
WTR YR 1989 LOW 38.55



412821084313600 WM-1 CITY OF BRYAN AT BRYAN OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

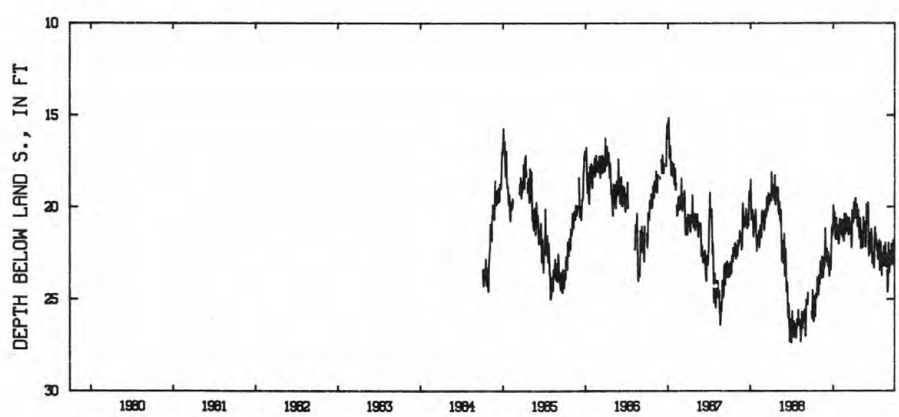
WILLIAMS COUNTY--Continued

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.85	24.05	22.85	20.50	21.05	21.00	20.70	20.70	20.45	23.30	22.65	24.50
2	25.25	24.20	23.00	19.90	21.20	21.05	20.10	21.10	20.55	22.55	22.70	24.10
3	24.50	24.15	23.00	20.20	21.40	21.30	19.75	21.60	20.25	21.85	23.40	23.00
4	25.10	23.85	22.25	20.85	21.20	21.20	20.10	22.20	19.75	21.65	23.65	21.95
5	25.75	23.50	22.30	20.50	20.70	20.55	20.55	22.25	19.85	21.10	23.70	22.65
6	25.95	22.95	22.90	20.55	20.95	20.70	20.60	22.20	20.25	21.90	22.75	23.40
7	26.20	23.10	23.00	20.45	21.50	20.90	20.50	21.30	21.90	22.10	22.50	23.55
8	26.20	23.70	23.00	20.30	21.50	21.15	20.40	21.30	22.45	22.05	22.85	23.30
9	25.60	23.60	23.20	21.05	21.50	21.35	19.55	21.60	22.65	21.45	23.20	23.30
10	24.85	23.60	22.95	21.65	21.60	21.50	19.50	21.95	22.40	21.70	23.20	22.40
11	25.25	23.85	22.45	21.60	21.50	21.30	20.10	22.00	21.55	22.00	23.20	22.50
12	25.80	23.70	22.60	21.45	20.70	20.90	20.50	22.20	21.40	21.85	23.20	23.05
13	25.95	22.70	23.20	21.75	21.05	20.60	20.60	22.10	22.00	21.90	22.50	23.10
14	25.95	23.05	23.35	21.40	21.55	20.60	20.60	21.30	22.30	22.30	22.15	23.10
15	25.60	23.50	23.75	20.60	21.60	20.90	20.45	20.55	22.50	22.40	22.85	23.15
16	25.10	23.30	23.65	21.10	21.70	21.35	19.85	20.80	22.35	22.00	22.90	22.70
17	24.70	23.55	23.30	21.15	21.85	21.45	20.00	21.05	22.05	22.25	23.00	22.00
18	24.75	23.80	22.85	21.50	21.85	21.35	20.80	21.40	21.35	22.85	23.20	22.45
19	24.80	23.55	22.75	21.50	20.95	20.95	21.05	21.35	21.20	22.80	23.15	22.95
20	24.90	22.75	23.05	21.75	20.35	20.85	21.05	21.10	21.55	22.75	22.40	23.10
21	24.85	22.80	23.40	21.75	20.40	21.40	21.00	20.80	21.65	22.65	21.95	23.00
22	24.45	23.30	23.40	21.00	20.75	21.85	20.80	21.00	22.40	22.35	22.40	22.80
23	24.00	23.30	22.95	21.30	21.35	22.20	20.15	21.65	23.05	22.00	22.90	22.60
24	23.80	23.15	22.20	21.80	21.45	21.95	20.65	22.15	23.00	21.80	23.00	22.00
25	24.35	22.45	21.45	22.00	21.30	20.85	20.75	22.15	22.50	23.05	23.20	21.80
26	24.70	21.80	21.20	22.00	20.85	20.20	21.20	21.95	22.55	23.40	23.25	22.55
27	24.70	21.15	21.05	21.80	20.40	20.20	21.60	21.60	22.75	23.45	22.55	23.05
28	24.75	21.60	21.50	21.70	20.75	20.75	21.70	20.75	23.00	23.40	22.60	23.20
29	24.45	22.20	21.55	20.90	---	20.85	21.45	19.85	23.10	23.15	23.40	23.00
30	23.90	22.85	21.35	20.65	---	20.80	20.60	20.35	23.15	22.45	23.70	23.00
31	23.70	---	21.15	20.80	---	20.80	---	20.80	---	21.90	24.60	---
MAX	26.20	24.20	23.75	22.00	21.85	22.20	21.70	22.25	23.15	23.45	24.60	24.50

CAL YR 1988 LOW 27.35
WTR YR 1989 LOW 26.20



412930084320900 WM-3 CITY OF BRYAN AT BRYAN OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL.LSD

WILLIAMS COUNTY--Continued

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.--Digital recorder -- 60-minute punch.
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 daily low, 10.56 ft below land-surface datum, Feb. 6-7, 1977; 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
Oct. 20, 1988	10.08	Apr. 10, 1989	7.69

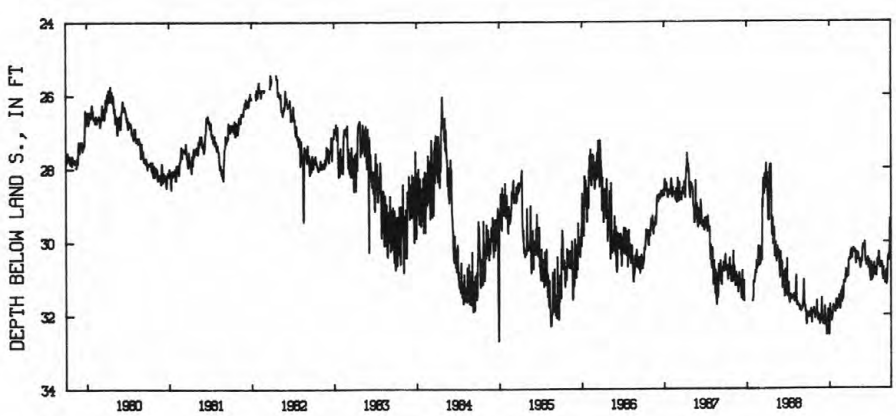
WYANDOT COUNTY

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 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.06	31.98	32.05	32.28	31.57	31.58	30.48	30.37	30.13	30.98	30.48	30.91
2	31.95	31.95	32.24	31.78	31.57	31.58	30.49	30.29	30.19	31.07	30.50	30.85
3	31.94	31.95	32.24	31.72	31.69	31.37	30.47	30.42	30.19	31.00	30.55	31.09
4	31.94	31.86	32.11	31.98	31.84	31.19	30.34	30.48	30.11	30.74	30.65	31.14
5	31.99	31.76	32.18	31.98	31.83	31.09	30.25	30.48	30.06	30.57	30.62	31.02
6	31.99	31.61	32.18	31.95	31.74	31.07	30.25	30.38	30.00	30.84	30.46	30.93
7	32.04	31.92	32.05	32.02	31.74	31.07	30.22	30.31	30.12	31.00	30.28	30.95
8	32.04	31.94	32.10	31.93	31.75	31.10	30.20	30.31	30.33	31.05	30.28	30.95
9	31.94	32.09	32.26	32.10	31.75	31.11	30.20	30.41	30.45	30.96	30.47	30.78
10	31.86	32.07	32.26	32.15	31.70	31.12	30.45	30.47	30.56	30.74	30.61	31.10
11	31.83	32.14	31.76	32.14	31.67	31.11	30.45	30.48	30.56	30.92	30.63	31.17
12	32.02	32.14	32.01	32.07	31.46	30.92	30.36	30.48	30.64	30.99	30.71	31.12
13	32.05	31.98	32.00	32.03	31.54	30.91	30.30	30.54	30.57	30.81	30.71	31.05
14	32.20	32.03	32.08	32.03	31.54	30.83	30.30	30.51	30.54	30.74	30.56	31.05
15	32.20	32.06	32.12	31.80	31.71	30.75	30.22	30.48	30.59	30.64	30.58	30.86
16	31.94	32.02	32.24	31.87	31.83	30.99	30.17	30.68	30.57	30.72	30.61	30.58
17	31.94	32.03	32.24	31.86	31.83	30.99	30.20	30.69	30.60	30.62	30.61	30.41
18	31.90	32.24	32.35	31.73	31.80	30.86	30.26	30.72	30.57	30.58	30.64	30.48
19	31.94	32.24	32.54	31.85	31.67	30.91	30.26	30.72	30.47	30.70	30.64	30.46
20	31.94	32.18	32.54	31.88	31.39	30.91	30.27	30.66	30.43	30.71	30.56	30.36
21	31.94	32.11	32.42	31.88	31.36	30.81	30.25	30.56	30.61	30.82	30.65	30.38
22	31.92	32.11	32.42	31.85	31.42	30.85	30.23	30.51	30.72	30.92	30.64	30.51
23	31.82	32.17	32.42	31.82	31.44	30.95	30.21	30.48	30.72	30.86	30.83	30.45
24	31.81	32.17	32.28	31.81	31.65	30.94	30.31	30.55	30.62	30.84	30.94	30.11
25	31.90	31.86	31.85	31.84	31.64	30.71	30.24	30.53	30.50	30.87	30.90	29.68
26	31.97	31.76	31.94	31.92	31.29	30.54	30.26	30.40	30.50	30.90	31.03	29.38
27	31.98	31.53	31.94	31.89	31.24	30.48	30.43	30.22	30.65	30.93	30.76	29.50
28	32.09	31.78	32.09	31.84	31.35	30.48	30.60	30.17	30.76	30.81	30.70	29.52
29	32.09	31.88	32.36	31.69	---	30.51	30.56	30.08	30.90	30.70	30.91	29.60
30	32.00	32.00	32.54	31.59	---	30.51	30.40	30.08	30.97	30.67	31.05	30.02
31	32.00	---	32.52	31.59	---	30.45	---	30.10	---	30.48	31.01	---
MAX	32.20	32.24	32.54	32.28	31.84	31.58	30.60	30.72	30.97	31.07	31.05	31.17

CAL YR 1988 LOW 32.54
WTR YR 1989 LOW 32.54



405009083172600 WY-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 eight sites. Continuous stream-discharge data were collected at three of the sites and are presented in volume one of this report.

MISCELLANEOUS STATION ANALYSES

DATE	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
03160007 LEADING CR BL CARPENTER OH (LAT 39 09 44N LONG 082 13 12W)							
AUG 1989 03...	0.45	460	7.7	16.5	5.7	80	58
03201947 STRONGS RN NR EWINGTON OH (LAT 39 01 35N LONG 082 20 16W)							
AUG 1989 04...	0.18	220	7.9	19.0	6.2	78	25
390222082092200 051 LEADING C (12-2) NR LANGSVILLE OH (LAT 39 02 22N LONG 082 09 22W)							
AUG 1989 03...	6.0	3500	7.7	17.0	10.2	96	1500
390248082204100 FLATLICK RN NR WILKESVILLE OH (LAT 39 02 48N LONG 082 20 41W)							
AUG 1989 04...	0.15	1750	6.9	18.0	6.0	39	22
390545082135300 DEXTER RN NR DEXTER OH (LAT 39 05 45N LONG 082 13 53W)							
AUG 1989 03...	0.004	570	7.3	17.0	--	105	130
390759082155100 UNNAMED TR TO OGDEN RN NR CARPENTER OH (LAT 39 07 59N LONG 082 15 51W)							
AUG 1989 03...	0.002	400	7.3	17.0	5.4	111	61

QUALITY AND QUANTITY OF SURFACE WATER NEAR AN ACTIVE LONGWALL COAL MINE--Continued

MISCELLANEOUS STATION ANALYSES--Continued

DATE	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
03160007 LEADING CR BL CARPENTER OH (LAT 39 09 44N LONG 082 13 12W)						
AUG 1989 03...	--	400	7.30	17.0	5.4	111	61
03201947 STRONGS RN NR EWINGTON OH (LAT 39 01 35N LONG 082 20 16W)						
AUG 1989 04...	40	<10	1200	370	1100	1200
390222082092200 051 LEADING C (12-2) NR LANGSVILLE OH (LAT 39 02 22N LONG 082 09 22W)						
AUG 1989 03...	280	30	830	50	790	330
390248082204100 FLATLICK RN NR WILKESVILLE OH (LAT 39 02 48N LONG 082 20 41W)						
AUG 1989 04...	130	10	1800	280	2400	2200
390545082135300 DEXTER RN NR DEXTER OH (LAT 39 05 45N LONG 082 13 53W)						
AUG 1989 03...	160	20	600	90	1200	1100
390759082155100 UNNAMED TR TO OGDEN RN NR CARPENTER OH (LAT 39 07 59N LONG 082 15 51W)						
AUG 1989 03...	350	10	780	80	--	--

Instantaneous Discharge at Miscellaneous Sites

Site number	Name	Drainage Area (mi^2)	Date	Discharge (ft^3/s)
890545082135300	Dexter Run near Dexter	7.60	Aug 03, 1989	0.004
			Sept 21, 1989	0.28
			Oct 16, 1989	3.09
390248082204100	Flatlich Run near Wilksville	7.00	Aug 03, 1989	0.15
			Sept 21, 1989	0.58
			Oct 16, 1989	2.89
39022082092200	Leading Creek near Longsville	80.8	Aug 03, 1989	6.04
			Sept 21, 1989	9.59
			Oct 16, 1989	28.7
390413082180900	Strongs Run near Wilksville	5.60	Aug 03, 1989	Dry
			Sept 21 1989	0.99
			Oct 16, 1989	1.71
39057590821551	Unnamed Tributary to Ogden Run near Carpenter	2.04	Aug 03, 1989	0.002
			Sept 21, 1989	0.051
			Oct 16, 1989	0.62

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

	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
395105084011800	CL-101	361RCMD	06-26-89	4.86	835
395123084011800	CL-102	112OTSH	06-26-89	11.01	830
395114083592100	CL-103	112OTSH	06-26-89	3.04	840
395103083590600	CL-104	361RCMD	06-26-89	62.99	910
395103083590500	CL-105	112OTSH	06-26-89	63.04	910
395103083582400	CL-106	112OTSH	06-26-89	15.56	960
395104083582500	CL-107	--	06-26-89	15.30	960
395136083572800	CL-108	112OTSH	06-26-89	21.80	875
395144083572600	CL-109	112OTSH	06-26-89	22.37	875
395220084021400	CL-110	112OTSH	06-26-89	15.20	845
395226084013200	CL-111	112OTSH	06-26-89	16.86	850
395225084021000	CL-112	112OTSH	06-26-89	19.28	845
395207084011200	CL-113	112OTSH	06-27-89	-1.28	835
394929083585400	GR-102	357BFLD	06-26-89	3.59	875
394900083585500	GR-103	--	06-27-89	12.76	900
395019083594400	GR-104	--	06-26-89	29.16	860
395023083594300	GR-105	--	06-26-89	7.51	855
394758084014200	GR-106	--	06-27-89	2.44	910
394640084023900	GR-107	112OTSH	06-27-89	88.24	920
394642084023900	GR-108	--	06-27-89	70.47	920
394746084011900	GR-109	112OTSH	06-27-89	81.93	925
394615084031700	GR-110	--	06-26-89	3.58	975
394614084031700	GR-111	361RCMD	06-26-89	107.90	975
394521084014500	GR-113	361RCMD	06-26-89	49.45	970
394539084045200	GR-114	--	06-26-89	23.85	945
394601084043000	GR-115	357BFLD	06-26-89	12.31	1015
394554084052300	GR-116	361RCMD	06-26-89	38.15	925
394601084050900	GR-117	361RCMD	06-26-89	21.27	935
394619084043200	GR-118	361RCMD	06-26-89	39.97	995
394707084044100	GR-119	112TILL	06-26-89	24.81	970
394657084035000	GR-120	361RCMD	06-26-89	118.81	955
394600084023400	GR-121	--	06-26-89	98.25	965
394601084023500	GR-122	361RCMD	06-26-89	105.68	965
394551084020000	GR-123	112OTSH	06-26-89	105.21	975
394843083594400	GR-124	357BFLD	06-27-89	18.60	935
395019083594500	GR-125	112OTSH	06-26-89	9.54	860
395031083591800	GR-126	112OTSH	06-26-89	5.75	855
394856083564500	GR-127	--	06-29-89	24.66	1025
394908083564300	GR-128	--	06-27-89	36.22	1020
394934084045800	GR-129	361RCMD	06-26-89	5.47	870
394728084012700	GR-130	112OTSH	06-27-89	111.76	940
394706084003000	GR-131	112OTSH	06-27-89	71.36	900
394735083593700	GR-132	361RCMD	06-27-89	7.62	865
395007084040400	GR-133	357BFLD	06-26-89	26.68	930
394916084043000	GR-134	361RCMD	06-26-89	18.48	820
394643083592200	GR-135	361RCMD	06-27-89	13.76	890
394606083595100	GR-136	361RCMD	06-27-89	48.20	885
394653083591100	GR-137	--	06-27-89	14.93	890
394752083573100	GR-141	361RCMD	06-27-89	4.21	1010
394645084012000	GR-144	--	06-27-89	58.70	950
394533084004200	GR-145	112OTSH	06-26-89	17.47	840
395038083565300	GR-146	357BFLD	06-26-89	37.88	1005
394921084053500	GR-147	357BFLD	06-26-89	11.40	930
394719084043000	GR-181	112OTSH	06-28-89	13.37	907.2
394718084042800	GR-182	112TILL	06-28-89	-1.62	881.5
394723084041800	GR-183	112OTSH	06-29-89	31.54	878.7
394727084042000	GR-184	112OTSH	06-28-89	7.69	837.9
394712084042800	GR-187	112TILL	06-28-89	8.20	891.0
394720084043400	GR-188	112TILL	06-28-89	6.03	910.8
394719084043300	GR-189	112TILL	06-28-89	3.12	910.4

GROUND-WATER LEVELS--Continued

	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394711084043100	GR-190	112TILL	06-28-89	16.92	912.1
394709084043300	GR-191	112TILL	06-28-89	-1.38	891.5
394717084041500	GR-192	112OTSH	06-29-89	33.89	912.5
394716084041500	GR-193	112OTSH	06-29-89	80.57	912.4
394731084041100	GR-195	112OTSH	06-29-89	44.07	841.8
394731084041600	GR-196	112OTSH	06-29-89	10.37	852.1
394831084015500	GR-197	112OTSH	06-26-89	24.90	836.4
394726084041200	GR-198	112OTSH	06-29-89	17.01	875.4
394725084041200	GR-199	112OTSH	06-29-89	49.19	876.6
394900084042100	GR-203	111ALVM	06-28-89	13.70	806.6
394856084041600	GR-205	112OTSH	06-28-89	7.04	798.3
394857084041300	GR-206	111ALVM	06-28-89	4.08	798.5
394854084042100	GR-207	112OTSH	06-28-89	3.98	796.7
394853084042200	GR-208	112OTSH	06-16-89	4.71	796.3
			06-28-89	5.47	
394852084042100	GR-209	112OTSH	06-28-89	5.17	796.1
394851084042300	GR-210	112OTSH	06-28-89	4.08	796.1
394850084042800	GR-211	112OTSH	06-28-89	5.04	795.6
394849084042800	GR-212	112OTSH	06-28-89	4.63	795.6
394849084042700	GR-213	112OTSH	06-28-89	4.47	795.6
394853084042600	GR-214	112OTSH	06-28-89	4.82	795.3
394852084042500	GR-215	112OTSH	06-28-89	4.98	795.6
394852084042600	GR-216	112OTSH	06-28-89	4.64	795.5
394848084043000	GR-217	112OTSH	06-28-89	4.61	795.2
394859084040600	GR-220	112OTSH	06-28-89	5.01	800.4
			06-28-89	6.96	
394858084042300	GR-221	112OTSH	06-28-89	6.20	796.3
394856084042500	GR-222	112OTSH	06-28-89	4.31	797.2
394858084042301	GR-223	112OTSH	06-28-89	4.84	796.9
394802084032000	GR-225	112OTSH	06-27-89	10.61	809.4
394756084033200	GR-227	112OTSH	06-27-89	8.66	806.9
394747084033700	GR-228	112OTSH	06-27-89	4.22	808.9
394759084032200	GR-230	112OTSH	06-27-89	15.67	815.4
394759084031800	GR-231	112OTSH	06-27-89	14.89	814.9
			06-27-89	15.60	
394743084032300	GR-232	112OTSH	06-27-89	8.19	817.2
394743084032600	GR-233	112OTSH	06-27-89	8.80	817.2
394737084032800	GR-234	112OTSH	06-27-89	4.30	816.2
394752084033700	GR-236	112OTSH	06-27-89	4.61	804.4
394754084033400	GR-237	112OTSH	06-27-89	6.65	804.8
			06-27-89	6.99	
394755084033800	GR-237	112OTSH	06-27-89	6.22	803.4
394755084025200	GR-238	112OTSH	06-27-89	23.52	890.8
394750084033700	GR-244	112OTSH	06-27-89	6.17	804.3
395011084012600	GR-247	112OTSH	06-26-89	1.87	819.8
395008084011500	GR-248	112OTSH	06-26-89	4.79	825.4
394907084014601	GR-249	112OTSH	06-26-89	22.06	833.8
394945084014500	GR-250	112OTSH	06-26-89	5.95	818.4
395005084012900	GR-251	112OTSH	06-26-89	2.47	821.1
395012084012600	GR-252	112OTSH	06-26-89	5.12	819.9
395009084013100	GR-253	112OTSH	06-26-89	4.92	823.5
394955084013700	GR-254	112OTSH	06-26-89	5.24	822.8
394952084013700	GR-255	112OTSH	06-26-89	2.73	820.2
395004084013700	GR-257	112OTSH	06-26-89	5.16	822.3
394811084050500	GR-259	111ALVM	06-27-89	7.97	789.1
394808084050500	GR-260	112OTSH	06-27-89	8.22	789.3
394807084045700	GR-261	112OTSH	06-27-89	12.22	794.3
394800084044700	GR-263	112OTSH	06-27-89	5.41	793.0
394811084045100	GR-264	112OTSH	06-27-89	4.24	791.2
394822084051200	GR-267	112OTSH	06-27-89	6.38	787.1
394809084050800	GR-268	112OTSH	06-27-89	3.98	787.9
384817084050500	GR-269	112OTSH	06-27-89	6.15	790.1
394759084044200	GR-270	112OTSH	06-27-89	2.98	792.6
394800084044400	GR-271	112OTSH	06-27-89	6.44	794.6
394758084044700	GR-272	112OTSH	06-27-89	3.25	791.7

GROUND-WATER LEVELS--Continued

	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394825084045300	GR-273	1120TSH	06-27-89	0	788.0
395029084012100	GR-275	1120TSH	06-26-89	10.56	828.8
394916084035600	GR-277	1120TSH	06-28-89	9.92	803.4
394916084035601	GR-278	1120TSH	06-28-89	9.07	806.0
394913084035700	GR-279	1120TSH	06-28-89	12.52	807.8
394919084035500	GR-280	1120TSH	06-28-89	4.56	803.1
394719084035200	GR-281	1120TSH	06-28-89	11.72	808.3
394920084035200	GR-282	1120TSH	06-28-89	10.44	808.6
394625084054200	GR-283	1120TSH	06-29-89	1.81	825.9
394644084052000	GR-284	1120TSH	06-29-89	28.15	897.5
394642084051900	GR-285	1120TSH	06-29-89	16.95	892.9
394736084054700	GR-287	1120TSH	06-29-89	22.54	793.2
394907084014600	GR-288	1120TSH	06-26-89	22.06	833.8
			06-26-89	20.07	
394906084021300	GR-290	1120TSH	06-26-89	24.92	828.9
394904084021300	GR-291	1120TSH	06-24-89	28.48	832.2
394903084020600	GR-292	1120TSH	06-26-89	26.89	831.5
394920084014900	GR-293	1120TSH	06-26-89	22.62	833.6
394923084015600	GR-294	1120TSH	06-26-89	11.06	819.7
394921084015600	GR-295	1120TSH	06-26-89	13.17	821.9
394830084014900	GR-296	1120TSH	06-26-89	27.36	839.5
394834084015400	GR-298	1120TSH	06-26-89	26.34	838.3
394802084054400	GR-301	1120TSH	06-26-89	8.04	783.6
394801084054300	GR-302	1120TSH	06-26-89	28.99	783.8
394942084033500	GR-303	360ODVC	12-15-88	9.07	800
			12-20-88	9.58	
			01-06-89	8.20	
			01-11-89	7.49	
			01-19-89	7.59	
			01-30-89	8.4	
			02-14-89	8.58	
			03-04-89	7.87	
			03-13-89	8.41	
			03-19-89	8.47	
			03-21-89	7.92	
394942084033500	GR-303	360ODVC	03-28-89	8.20	800
			04-12-89	7.35	
			04-20-89	7.40	
			04-27-89	6.63	
394855084033900	GR-304	360ODVC	03-04-89	3.04	802
			03-13-89	2.79	
			03-19-89	2.91	
			03-21-89	2.92	
			03-28-89	2.94	
			04-12-89	2.56	
			04-20-89	2.28	
			04-27-89	2.47	
394831084042700	GR-305	360ODVC	12-15-88	5.16	795
			12-20-88	5.58	
			01-06-89	5.38	
			01-11-89	4.87	
			01-19-89	5.06	
			01-30-89	5.65	
			02-14-89	6.04	
			03-04-89	6.44	
			03-13-89	5.76	
			03-19-89	6.09	
			03-21-89	5.84	
			03-28-89	5.87	
			04-12-89	5.18	
			04-20-89	5.32	
			04-27-89	5.17	
394815084020700	GR-306	360ODVC	03-19-89	209.34	840
			03-21-89	205.48	
			03-28-89	191.44	

GROUND-WATER LEVELS--Continued

	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
			04-12-89	168.42	
			04-20-89	158.27	
			04-27-89	148.87	
394743084024300	GR-307	360ODVC	03-05-89	40.29	840
			03-13-89	36.39	
			03-19-89	36.01	
			03-21-89	35.76	
			03-28-89	35.31	
			04-12-89	34.48	
			04-20-89	34.18	
394743084024300	GR-307	360ODVC	04-27-89	33.87	840
394750084043800	GR-308	360ODVC	03-13-89	3.68	800
			03-19-89	5.10	
			03-21-89	3.87	
			03-28-89	3.80	
			04-12-89	3.26	
			04-20-89	6.54	
			04-27-89	3.43	
394706084045800	GR-309	357BFLD	03-25-89	24.61	975
			03-28-89	25.00	
			04-12-89	25.30	
			04-20-89	24.50	
			04-27-89	24.33	
394633084045300	GR-310	357BFLD	03-13-89	37.11	970
			03-19-89	28.55	
			03-21-89	27.26	
			03-28-89	24.57	
			04-12-89	23.46	
			04-20-89	23.54	
			04-27-89	23.09	
394706084045801	GR-312	361WTTR	03-28-89	11.88	975
			04-12-89	16.2	
			04-20-89	16.35	
			04-27-89	16.54	
394645084055200	GR-313	360ODVC	03-19-89	36.98	800
			03-21-89	37.09	
			03-28-89	37.01	
			04-12-89	36.43	
			04-20-89	35.98	
			04-27-89	35.51	
394929084015000	GR-314	360ODVC	12-20-88	21.29	820
			01-06-89	22.13	
			01-11-89	20.05	
			01-18-89	19.78	
			01-30-89	19.66	
			02-14-89	19.70	
			03-13-89	17.47	
			03-19-89	19.62	
			03-21-89	19.64	
			03-28-89	19.53	
394929084015000	GR-314	360ODVC	04-12-89	19.17	820
			04-20-89	19.05	
			04-27-89	18.31	
395032084023100	GR-315	360ODVC	01-18-89	259.35	820
			01-30-89	258.36	
			02-14-89	255.11	
			03-04-89	248.86	
			03-13-89	248.58	
			03-19-89	247.60	
			03-21-89	247.17	

GROUND-WATER LEVELS--Continued

	Local well number	AQUIFER CODE	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
			03-28-89	245.26	
			04-12-89	242.65	
			04-20-89	241.57	
			04-27-89	239.53	
394813084065500	MT-101	361RCMD	06-26-89	25.4	795
394847084054800	MT-102	357BFLD	06-26-89	22.40	930
394848084054600	MT-103	361RCMD	06-26-89	15.40	930
395139084034300	MT-105	112OTSH	06-27-89	16.38	835
395130084035300	MT-106	112OTSH	06-27-89	17.26	840
395036084043700	MT-107	361RCMD	06-26-89	34.40	900
395103084054300	MT-108	112TILL	06-26-89	6.80	940
395102084054300	MT-109	--	06-26-89	5.40	950
395204084052300	MT-110	112TILL	06-27-89	2.50	905
395213084032400	MT-111	112OTSH	06-27-89	20.95	850
395225084035900	MT-112	112TILL	06-27-89	21.86	875
395053084033400	MT-113	112OTSH	06-27-89	11.70	825
395138084050400	MT-114	112OTSH	06-27-89	18.13	910
395022084060000	MT-115	112TILL	06-26-89	25.20	940
395025084032300	MT-116	112OTSH	06-27-89	8.66	810
394856084075000	MT-118	112OTSH	06-26-89	54.65	845
394822084081200	MT-119	112TILL	06-26-89	49.80	805
394622084073900	MT-126	112OTSH	06-29-89	15.72	780.9
394617084072400	MT-129	112OTSH	06-29-89	18.10	785.5
394659084070100	MT-130	112OTSH	06-29-89	22.65	781.6
394704084065500	MT-131	112OTSH	06-29-89	23.55	783.1
394706084065100	MT-132	112OTSH	06-29-89	24.10	784.0
394623084064400	MT-133	360ODVC	03-30-89	71.99	790
			04-12-89	33.04	
			04-20-89	31.97	
			04-27-89	31.24	
394722084055100	MT-134	112OTSH	06-26-89	27.94	797.3
394723084061000	MT-135	112OTSH	06-26-89	23.15	790.3
394704084065300	MT-136	112OTSH	06-26-89	21.3	783.5
394638084070500	MT-137	112OTSH	06-26-89	26.25	786.4
394753084063800	MT-138	112OTSH	06-26-89	15.22	778.3
394743084071300	MT-139	112OTSH	06-26-89	31.56	774.4
394744084071100	MT-140	112OTSH	06-26-89	18.26	774.5
394706084072500	MT-141	112OTSH	06-26-89	31.44	767.3
394706084072600	MT-142	112OTSH	06-26-89	15.81	767.1
394657084074700	MT-143	112OTSH	06-26-89	14.11	767.0
394645084082100	MT-144	112OTSH	06-29-89	14.33	760.5
394730084075000	MT-145	112OTSH	06-26-89	16.73	771.1
394730084075100	MT-146	112OTSH	06-29-89	42.24	771.1
394720084081600	MT-147	112OTSH	06-26-89	17.39	770.8
394713084083100	MT-148	112OTSH	06-26-89	10.61	763.9
394712084083200	MT-149	112OTSH	06-26-89	13.31	763.8
394626084093000	MT-150	112OTSH	06-26-89	20.20	756.8
394627084093000	MT-151	112OTSH	06-26-89	19.90	756.4

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 ft 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, 5.80 ft below land-surface datum, September 2, 1989; lowest water-level measured 6.14 ft below land-surface datum, September 12, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	5.88
2	---	---	---	---	---	---	---	---	---	---	---	5.88
3	---	---	---	---	---	---	---	---	---	---	---	5.88
4	---	---	---	---	---	---	---	---	---	---	---	5.88
5	---	---	---	---	---	---	---	---	---	---	---	5.87
6	---	---	---	---	---	---	---	---	---	---	---	5.86
7	---	---	---	---	---	---	---	---	---	---	---	6.03
8	---	---	---	---	---	---	---	---	---	---	---	6.00
9	---	---	---	---	---	---	---	---	---	---	---	5.98
10	---	---	---	---	---	---	---	---	---	---	---	5.96
11	---	---	---	---	---	---	---	---	---	---	5.84	5.96
12	---	---	---	---	---	---	---	---	---	---	5.83	5.95
13	---	---	---	---	---	---	---	---	---	---	5.80	5.93
14	---	---	---	---	---	---	---	---	---	---	5.79	6.18
15	---	---	---	---	---	---	---	---	---	---	5.78	6.22
16	---	---	---	---	---	---	---	---	---	---	5.77	6.23
17	---	---	---	---	---	---	---	---	---	---	5.77	6.22
18	---	---	---	---	---	---	---	---	---	---	5.77	6.18
19	---	---	---	---	---	---	---	---	---	---	5.77	6.13
20	---	---	---	---	---	---	---	---	---	---	5.77	6.11
21	---	---	---	---	---	---	---	---	---	---	5.77	6.08
22	---	---	---	---	---	---	---	---	---	---	5.77	6.06
23	---	---	---	---	---	---	---	---	---	---	5.77	6.05
24	---	---	---	---	---	---	---	---	---	---	5.77	6.02
25	---	---	---	---	---	---	---	---	---	---	5.79	6.01
26	---	---	---	---	---	---	---	---	---	---	5.80	6.00
27	---	---	---	---	---	---	---	---	---	---	5.80	5.98
28	---	---	---	---	---	---	---	---	---	---	5.80	5.97
29	---	---	---	---	---	---	---	---	---	---	5.80	5.96
30	---	---	---	---	---	---	---	---	---	---	5.79	5.94
31	---	---	---	---	---	---	---	---	---	---	5.78	---
MAX	---	---	---	---	---	---	---	---	---	---	---	6.23

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 ft 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 above land-surface datum.
PERIOD OF RECORD.--August 10, 1989 to present.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 4.82 ft below land-surface datum, September 17, 1989; lowest water-level measured 5.06 ft below land-surface datum, September 30, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	4.96
2	---	---	---	---	---	---	---	---	---	---	---	4.85
3	---	---	---	---	---	---	---	---	---	---	---	4.87
4	---	---	---	---	---	---	---	---	---	---	---	4.89
5	---	---	---	---	---	---	---	---	---	---	---	4.91
6	---	---	---	---	---	---	---	---	---	---	---	4.93
7	---	---	---	---	---	---	---	---	---	---	---	4.96
8	---	---	---	---	---	---	---	---	---	---	---	4.98
9	---	---	---	---	---	---	---	---	---	---	---	5.01
10	---	---	---	---	---	---	---	---	---	---	4.83	5.00
11	---	---	---	---	---	---	---	---	---	---	4.85	5.02
12	---	---	---	---	---	---	---	---	---	---	4.88	5.03
13	---	---	---	---	---	---	---	---	---	---	4.90	5.04
14	---	---	---	---	---	---	---	---	---	---	4.92	5.04
15	---	---	---	---	---	---	---	---	---	---	4.94	4.77
16	---	---	---	---	---	---	---	---	---	---	4.96	4.77
17	---	---	---	---	---	---	---	---	---	---	4.97	4.82
18	---	---	---	---	---	---	---	---	---	---	4.98	4.85
19	---	---	---	---	---	---	---	---	---	---	4.98	4.88
20	---	---	---	---	---	---	---	---	---	---	4.98	4.90
21	---	---	---	---	---	---	---	---	---	---	4.98	4.92
22	---	---	---	---	---	---	---	---	---	---	4.98	4.93
23	---	---	---	---	---	---	---	---	---	---	4.96	4.97
24	---	---	---	---	---	---	---	---	---	---	4.95	4.98
25	---	---	---	---	---	---	---	---	---	---	4.91	4.99
26	---	---	---	---	---	---	---	---	---	---	4.91	5.02
27	---	---	---	---	---	---	---	---	---	---	4.93	5.03
28	---	---	---	---	---	---	---	---	---	---	4.94	5.03
29	---	---	---	---	---	---	---	---	---	---	4.95	5.05
30	---	---	---	---	---	---	---	---	---	---	4.95	5.06
31	---	---	---	---	---	---	---	---	---	---	4.96	---
MAX	---	---	---	---	---	---	---	---	---	---	---	5.06

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 ft 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, 4.34 ft below land-surface datum, June 23, 1989; lowest water-level measured 8.84 ft below land-surface datum, September 13, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	5.10	6.27	8.51
2	---	---	---	---	---	---	---	---	---	5.21	6.45	8.37
3	---	---	---	---	---	---	---	---	---	5.22	6.44	8.47
4	---	---	---	---	---	---	---	---	---	5.17	6.52	8.54
5	---	---	---	---	---	---	---	---	---	5.31	6.58	8.60
6	---	---	---	---	---	---	---	---	---	5.44	6.59	8.66
7	---	---	---	---	---	---	---	---	---	5.55	6.71	8.71
8	---	---	---	---	---	---	---	---	---	5.65	6.82	8.75
9	---	---	---	---	---	---	---	---	---	5.76	6.92	8.79
10	---	---	---	---	---	---	---	---	---	6.04	7.00	8.77
11	---	---	---	---	---	---	---	---	---	6.16	7.19	8.81
12	---	---	---	---	---	---	---	---	---	5.58	7.29	8.83
13	---	---	---	---	---	---	---	---	---	5.65	7.38	8.84
14	---	---	---	---	---	---	---	---	---	5.77	7.70	8.84
15	---	---	---	---	---	---	---	---	---	5.87	7.73	8.72
16	---	---	---	---	---	---	---	---	---	5.96	7.61	8.80
17	---	---	---	---	---	---	---	---	---	6.04	8.06	8.83
18	---	---	---	---	---	---	---	---	---	6.12	7.93	8.84
19	---	---	---	---	---	---	---	---	---	6.17	7.85	---
20	---	---	---	---	---	---	---	---	---	6.23	7.87	---
21	---	---	---	---	---	---	---	---	---	6.37	7.90	---
22	---	---	---	---	---	---	---	---	---	6.43	7.98	---
23	---	---	---	---	---	---	---	---	4.51	6.42	8.02	---
24	---	---	---	---	---	---	---	---	4.65	5.72	8.00	---
25	---	---	---	---	---	---	---	---	4.75	5.75	8.06	---
26	---	---	---	---	---	---	---	---	4.86	5.81	8.15	---
27	---	---	---	---	---	---	---	---	4.96	5.71	8.23	---
28	---	---	---	---	---	---	---	---	4.71	5.84	8.29	---
29	---	---	---	---	---	---	---	---	4.88	5.96	8.36	---
30	---	---	---	---	---	---	---	---	4.99	6.06	8.41	---
31	---	---	---	---	---	---	---	---	---	6.17	8.56	---
MAX	---	---	---	---	---	---	---	---	---	6.43	8.56	---

The following tables list the results of chemical analysis of samples collected from 21 drainage basins in eastern Ohio during the period October 1, 1988 through September 30, 1989. 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-89-1 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 1988 05...	0930	15	896	8.3	10.0	--	166
AUG 1989 15...	0915	29	874	8.2	19.5	--	149
03109500* L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)							
OCT 1988 05...	1045	38	896	8.4	12.0	--	147
AUG 1989 15...	1045	82	928	8.3	21.5	--	124
03110000* YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)							
OCT 1988 05...	0845	30	520	8.2	12.0	--	109
AUG 1989 15...	1315	16	640	8.3	23.0	--	88
03111465 SHORT C AT ADENA OH (LAT 40 13 09N LONG 080 52 22W)							
OCT 1988 05...	1700	7.3	3150	8.5	12.5	--	210
03111500* SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)							
OCT 1988 05...	1500	23	2700	8.6	10.5	--	212
AUG 1989 16...	0830	48	2310	8.0	19.5	--	121
03111548 WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)							
OCT 1988 06...	1130	12	2700	8.3	8.5	--	263
AUG 1989 14...	1630	36	2420	8.1	24.5	--	196
03113550 MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)							
OCT 1988 04...	1730	3.5	1300	8.1	16.0	--	154
AUG 1989 14...	1530	17	1020	8.2	25.0	--	144
03114000* CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)							
OCT 1988 04...	1525	4.0	880	8.5	20.0	--	142
AUG 1989 14...	1130	8.6	659	8.2	22.5	--	147
03114250 SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)							
OCT 1988 04...	1300	2.7	465	8.2	15.5	--	141
AUG 1989 14...	1300	3.1	415	8.3	27.0	--	131
03116950 NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)							
OCT 1988 05...	1500	2.9	840	8.2	12.0	--	240
AUG 1989 16...	1500	3.8	788	8.0	22.5	--	215

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 1988 05...	160	220	20	500	40	100	40
AUG 1989 15...	200	140	40	290	10	90	40
03109500*	L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)						
OCT 1988 05...	200	100	<10	170	30	50	20
AUG 1989 15...	270	90	40	150	20	50	20
03110000*	YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)						
OCT 1988 05...	140	100	10	160	20	40	10
AUG 1989 15...	200	170	80	300	<10	30	20
03111465	SHORT C AT ADENA OH (LAT 40 13 09N LONG 080 52 22W)						
OCT 1988 05...	1900	70	20	160	30	40	30
03111500*	SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)						
OCT 1988 05...	1500	200	100	340	20	30	30
AUG 1989 16...	1300	530	230	1300	10	80	50
03111548	WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)						
OCT 1988 06...	1400	390	80	870	30	120	120
AUG 1989 14...	1300	880	400	1600	10	100	80
03113550	MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)						
OCT 1988 04...	570	140	90	330	40	20	20
AUG 1989 14...	370	350	300	350	<10	30	30
03114000*	CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)						
OCT 1988 04...	270	110	20	160	30	10	<10
AUG 1989 14...	160	310	40	430	20	60	30
03114250	SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)						
OCT 1988 04...	54	110	20	200	10	20	<10
AUG 1989 14...	42	150	40	170	<10	30	20
03116950	NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)						
OCT 1988 05...	120	130	90	480	100	90	70
AUG 1989 16...	100	150	70	360	20	230	200

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
03117500*	SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)						
OCT 1988 05...	1200	69	460	7.6	13.0	--	88
AUG 1989 16...	1345	50	681	8.0	19.5	--	142
03123000	SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)						
OCT 1988 05...	1600	16	692	8.1	12.5	--	214
AUG 1989 16...	1630	20	680	7.9	23.0	--	197
03127500*	STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)						
OCT 1988 04...	1430	23	1020	7.9	17.5	--	136
AUG 1989 16...	0915	42	1200	8.4	21.5	--	145
03129100	WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)						
OCT 1988 04...	1215	1.6	446	7.5	13.5	--	98
AUG 1989 15...	1945	4.1	940	7.4	21.0	--	99
03140000 *	MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)						
OCT 1988 04...	1100	0.83	419	7.6	11.5	--	120
AUG 1989 15...	1820	2.0	368	7.5	21.5	--	116
03140700	BUFFALO F AT PLEASANT CITY OH (LAT 39 54 15N LONG 081 33 14W)						
OCT 1988 04...	1445	4.1	2350	7.8	15.0	--	258
03148400	MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)						
OCT 1988 04...	1100	9.9	2000	3.1	14.5	203	--
AUG 1989 15...	0830	27	1600	2.7	19.5	153	--
03149500	SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)						
OCT 1988 04...	1330	0.82	660	7.6	17.0	--	119
AUG 1989 14...	1600	4.4	645	7.8	24.0	--	122
03150250	MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)						
OCT 1988 05...	0945	0.99	2250	7.9	12.0	--	128
AUG 1989 14...	1430	25	1300	7.8	22.0	--	180
03156700	RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)						
OCT 1988 04...	1040	8.7	918	7.9	14.0	--	69
AUG 1989 14...	1030	58	540	8.0	22.0	--	107

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)
03117500* SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)							
OCT 1988 05...	77	50	20	200	30	130	120
AUG 1989 16...	150	110	40	290	20	250	240
03123000 SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)							
OCT 1988 05...	62	520	20	930	40	130	110
AUG 1989 16...	61	1100	30	2400	20	290	230
03127500* STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)							
OCT 1988 04...	370	210	30	380	30	510	540
AUG 1989 16...	520	250	70	380	10	460	350
03129100 WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)							
OCT 1988 04...	76	190	<10	2000	340	500	530
AUG 1989 15...	73	260	40	2200	70	720	730
03140000* MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)							
OCT 1988 04...	52	100	10	1000	550	150	150
AUG 1989 15...	50	160	40	1400	90	220	200
03140700 BUFFALO F AT PLEASANT CITY OH (LAT 39 54 15N LONG 081 33 14W)							
OCT 1988 04...	1300	570	80	610	100	240	190
03148400 MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)							
OCT 1988 04...	160	460	10	1300	60	730	580
AUG 1989 15...	1000	13000	13000	8900	7700	14000	13000
03149500 SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)							
OCT 1988 04...	110	510	130	1400	120	460	470
AUG 1989 14...	120	490	30	920	20	360	290
03150250 MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)							
OCT 1988 05...	1100	80	30	110	40	60	50
AUG 1989 14...	570	360	90	590	120	90	40
03156700 RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)							
OCT 1988 04...	330	340	20	990	<10	1700	1600
AUG 1989 14...	140	350	40	840	20	880	860

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)						
OCT 1988							
04...	1410	13	379	8.6	14.5	--	164
AUG 1989							
14...	1345	36	445	8.6	21.0	--	201
03158200	MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)						
OCT 1988							
04...	1655	3.5	1250	3.4	15.0	--	--
AUG 1989							
14...	1000	49	960	3.7	19.0	70	--
03160050	LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)						
OCT 1988							
05...	1630	0.07	890	7.7	14.0	--	113
AUG 1989							
16...	1030	57	325	7.4	20.5	--	34
03160105	CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)						
OCT 1988							
05...	1800	0.0	--	--	--	--	--
AUG 1989							
16...	0800	0.28	905	7.3	23.0	--	65
03201988	L RACCOON C NR VINTON,OH (LAT 38 57 11N LONG 082 21 56W)						
OCT 1988							
06...	1030	0.70	701	7.1	10.5	--	98
AUG 1989							
15...	1300	13	545	7.2	22.5	--	36
382715082242400	INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)						
OCT 1988							
06...	1420	0.41	540	7.6	12.5	--	132
AUG 1989							
15...	0845	3.5	450	8.1	22.5	--	101
383005082280600	SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)						
OCT 1988							
06...	1640	0.46	290	7.4	12.5	--	123
AUG 1989							
15...	1015	16	445	7.6	22.5	--	65
385826082201800	RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)						
OCT 1988							
06...	0835	0.58	1300	7.3	11.5	--	85
AUG 1989							
15...	1500	99	325	7.4	22.5	--	14
390941082212200	ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)						
OCT 1988							
05...	1445	0.02	625	7.1	12.0	--	51
AUG 1989							
14...	1630	4.3	375	7.8	21.0	--	43
392342082072000	SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)						
OCT 1988							
05...	1210	8.2	1880	2.8	13.5	--	--
AUG 1989							
14...	1100	34	940	6.2	19.0	94	11

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)							
OCT 1988 04...	29	320	150	850	50	90	30
AUG 1989 14...	37	110	20	310	320	50	60
03158200 MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)							
OCT 1988 04...	600	11000	12000	2000	2200	4200	4200
AUG 1989 14...	450	12000	10000	6500	1100	4100	3600
03160050 LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)							
OCT 1988 05...	110	190	20	340	110	1800	1600
AUG 1989 16...	91	8800	70	18000	70	600	50
03160105 CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)							
OCT 1988 05...	--	--	--	--	--	--	--
AUG 1989 16...	390	150	20	740	<10	2900	2900
03201988 L RACCOON C NR VINTON,OH (LAT 38 57 11N LONG 082 21 56W)							
OCT 1988 06...	270	70	10	710	210	280	310
AUG 1989 15...	240	60	20	420	50	2500	2500
382715082242400 INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)							
OCT 1988 06...	130	340	30	760	100	540	540
AUG 1989 15...	120	230	20	610	<10	340	290
383005082280600 SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)							
OCT 1988 06...	30	30	10	640	360	710	730
AUG 1989 15...	110	330	10	1500	<10	820	770
385826082201800 RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)							
OCT 1988 06...	560	110	20	780	120	810	820
AUG 1989 15...	120	230	10	930	10	1600	1400
390941082212200 ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)							
OCT 1988 05...	190	270	30	880	350	730	700
AUG 1989 14...	120	170	20	1400	60	870	870
392342082072000 SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)							
OCT 1988 05...	790	1300	1300	13000	12000	3400	3400
AUG 1989 14...	450	230	40	38000	34000	2200	2000

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
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1988							
04...	1000	4.0	1650	7.8	15.5	--	52
AUG 1989							
14...	1715	32	830	8.1	24.0	--	133
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1988							
04...	1200	19	1750	4.9	14.5	66	52
AUG 1989							
15...	1015	63	1200	6.7	21.5	--	16
395404081191100 BEAVER C AB SENECVLE LK N BATESVLE O (LAT 39 54 04N LONG 081 19 11W)							
OCT 1988							
04...	1030	0.14	730	8.2	13.5	--	229
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1988							
04...	1615	4.0	2380	7.9	15.5	--	250
AUG 1989							
15...	1200	12	2200	8.3	21.5	--	236
395444081273400 OPOSSUM RN NR SENECAVILLE OH (LAT 39 54 44N LONG 081 27 34W)							
OCT 1988							
05...	0815	0.05	550	7.7	11.5	--	169
395858081341500 CHAPMAN RN AT SR 209 NR BYESVILLE OH (LAT 39 58 58N LONG 081 34 15W)							
OCT 1988							
05...	1100	0.01	850	7.3	10.5	--	167
395923081294400 LEATHERWOOD C NR KIPLING OH (LAT 39 59 23N LONG 081 29 44W)							
OCT 1988							
05...	0930	0.63	1000	7.7	10.5	--	150
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1988							
05...	1200	0.39	810	7.4	12.0	--	164
AUG 1989							
15...	1330	1.7	720	8.1	25.0	--	148
400639080524400 JUG RN NR MAYNARD OH (LAT 40 06 39N LONG 080 52 44W)							
OCT 1988							
06...	1420	0.23	1150	8.1	10.0	--	181
400728080524300 WHEELING C AT MAYNARD OH (LAT 40 07 28N LONG 080 52 43W)							
OCT 1988							
06...	1600	31	2750	8.3	10.5	--	327
400859080424600 DEEP RN AT YORKVILLE OH (LAT 40 08 59N LONG 080 42 46W)							
OCT 1988							
06...	0945	0.23	2850	3.9	8.0	68	--
400912082014700 LITTLE WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1988							
05...	1500	2.0	1600	7.5	11.0	--	83
AUG 1989							
15...	1530	9.2	1250	8.0	22.0	--	79

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)
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1988 04...	560	130	70	160	20	2900	2900
AUG 1989 14...	240	520	140	600	30	2700	2200
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1988 04...	180	440	10	1700	30	740	620
AUG 1989 15...	610	1400	90	1300	40	6800	6800
395404081191100 BEAVER C AB SENECVLE LK NR BATESVLE O(LAT 39 54 04N LONG 081 19 11W)							
OCT 1988 04...	210	850	30	1300	<10	190	110
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1988 04...	1200	460	40	550	50	240	190
AUG 1989 15...	1300	560	70	680	20	240	190
395444081273400 OPOSSUM RN NR SENECAVILLE OH (LAT 39 54 44N LONG 081 27 34W)							
OCT 1988 05...	65	270	20	710	120	920	830
395858081341500 CHAPMAN RN AT SR 209 NR BYESVILLE OH (LAT 39 58 58N LONG 081 34 15W)							
OCT 1988 05...	1200	12000	12000	8000	8500	15000	16000
395923081294400 LEATHERWOOD C NR KIPLING OH (LAT 39 59 23N LONG 081 29 44W)							
OCT 1988 05...	390	300	30	450	60	200	130
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1988 05...	860	8400	7500	2000	290	8900	8900
AUG 1989 15...	180	610	20	970	20	270	210
400639080524400 JUG RN NR MAYNARD OH (LAT 40 06 39N LONG 080 52 44W)							
OCT 1988 06...	480	100	60	150	30	70	60
400728080524300 WHEELING C AT MAYNARD OH (LAT 40 07 28N LONG 080 52 43W)							
OCT 1988 06...	1400	100	60	170	20	30	20
400859080424600 DEEP RN AT YORKVILLE OH (LAT 40 08 59N LONG 080 42 46W)							
OCT 1988 06...	1800	5000	4700	17000	8700	960	1200
400912082014700 LITTLE WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1988 05...	920	100	<10	680	30	630	570
AUG 1989 15...	820	160	50	440	20	600	470

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 1988							
05...	1345	1.8	1050	7.5	11.5	--	97
AUG 1989							
15...	1500	4.2	1000	7.7	24.0	--	99
401158080484000 LONG RN NR DILLONVALE OH (LAT 40 11 58N LONG 080 48 40W)							
OCT 1988							
06...	0800	0.38	3000	8.1	5.5	--	122
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1988							
04...	1330	0.56	710	7.6	14.0	--	115
AUG 1989							
15...	1100	1.3	535	8.1	19.0	--	89
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1988							
05...	1320	1.6	2050	8.6	11.0	--	201
AUG 1989							
16...	0945	8.6	2270	8.1	21.0	--	135
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1988							
05...	1115	6.6	1550	8.6	10.5	--	159
AUG 1989							
15...	1500	23	1780	8.4	23.0	--	134
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1988							
04...	1000	0.48	1030	7.6	12.5	--	107
AUG 1989							
15...	1640	1.2	1280	7.6	21.5	--	112
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1988							
05...	1400	22	582	7.2	11.0	--	81
AUG 1989							
16...	1045	40	510	7.5	20.0	--	81
403823081213700 NIMISHILLEN CR AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1988							
05...	1315	54	1530	7.9	12.5	--	213
AUG 1989							
16...	1145	97	1380	7.8	21.0	--	207
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1988							
05...	1545	10	490	7.6	12.0	--	105
AUG 1989							
15...	1330	16	377	7.6	22.5	--	94

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 1988 05...	480	730	30	3000	140	890	810
AUG 1989 15...	530	250	40	930	20	800	720
401158080484000 LONG RN NR DILLONVALE OH (LAT 40 11 58N LONG 080 48 40W)							
OCT 1988 06...	1800	780	50	3700	200	160	170
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1988 04...	110	80	30	280	100	140	130
AUG 1989 15...	120	130	50	470	30	370	340
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1988 05...	1200	60	30	110	30	70	60
AUG 1989 16...	1300	220	150	220	20	120	80
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1988 05...	850	550	30	420	20	220	70
AUG 1989 15...	970	340	140	240	10	140	110
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1988 04...	500	240	30	550	20	290	290
AUG 1989 15...	630	270	50	590	10	270	200
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1988 05...	140	180	20	1400	120	1400	1400
AUG 1989 16...	130	290	40	1700	40	1400	1200
403823081213700 NIMISHILLEN CR AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1988 05...	190	70	20	240	70	40	20
AUG 1989 16...	190	140	50	460	40	90	70
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1988 05...	23	120	40	770	260	90	100
AUG 1989 15...	19	190	30	660	30	160	140

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)
394231082252100 F-14 C THOMAS NR BREMEN OH (LAT 39 42 31N LONG 082 25 21W)									
AUG 1989 31...	1330	8.73	785	7.4	14.5	0.9	380	26	100
394257082254000 F-15 SUPERIOR GLASS FIBERS INC AT BREMEN OH (LAT 39 42 57N LONG 082 25 40W)									
AUG 1989 31...	1545	13.59	660	7.4	16.0	0.5	310	63	83
394318082182700 PE-58 WATER WORKS AT JUNCTION CITY OH (LAT 39 43 18N LONG 082 18 27W)									
SEP 1989 01...	0915	25.63	1300	7.3	15.0	3.1	480	170	120
394326082202700 PE-57 FRED WOFTER NR JCT CITY OH (LAT 39 43 26N LONG 082 20 27W)									
AUG 1989 31...	1700	16.03	965	7.7	12.5	0.4	330	140	74
401211081433400 CS-152 G ROHRIG PLAINFIELD OH (LAT 40 12 11N LONG 081 43 34W)									
SEP 1989 01...	1640	--	520	7.0	16.5	8.1	220	150	67
401314081422400 CS-149 ROGER ART NR PLAINFIELD OH (LAT 40 13 14N LONG 081 42 24W)									
SEP 1989 01...	1230	--	440	7.8	14.5	0	170	0	46
401315081444400 CS-151 N MAPLE NR PLAINFIELD OH (LAT 40 13 15N LONG 081 44 44W)									
SEP 1989 01...	1500	--	775	7.5	15.5	0.4	330	16	74
401318081434400 CS-150 R MCCORMICK NR PLAINFIELD OH (LAT 40 13 18N LONG 081 43 44W)									
SEP 1989 01...	1400	--	305	7.7	15.5	--	140	0	45
403355081212500 TU-55 R NEWSOME AT SOMERDALE OH (LAT 40 33 55N LONG 081 21 25W)									
SEP 1989 05...	1250	29.55	540	7.8	13.5	0.6	190	0	53
403356081205000 TU-56 G MULLINS NR SOMERDALE OH (LAT 40 33 56N LONG 081 20 50W)									
SEP 1989 05...	1445	25.31	620	7.2	14.0	4.2	220	81	70
403402081213400 TU-54 WM MILLER AT SOMERDALE OH (LAT 40 34 02N LONG 081 21 34W)									
SEP 1989 05...	1100	40.40	510	7.8	14.5	1.6	240	0	66
403404081214000 TU-57 P HOGUE AT SOMERDALE OH (LAT 40 34 04N LONG 081 21 40W)									
SEP 1989 05...	1600	--	670	7.3	15.0	4.0	320	130	90

GROUND-WATER QUALITY DATA--Continued

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
394231082252100 F-14 C THOMAS NR BREMEN OH (LAT 39 42 31N LONG 082 25 21W)								
AUG 1989 31...	31	12	1.2	352	70	41	11	353
394257082254000 F-15 SUPERIOR GLASS FIBERS INC AT BREMEN OH (LAT 39 42 57N LONG 082 25 40W)								
AUG 1989 31...	24	17	1.2	244	49	43	12	326
394318082182700 PE-58 WATER WORKS AT JUNCTION CITY OH (LAT 39 43 18N LONG 082 18 27W)								
SEP 1989 01...	43	65	2.2	304	130	190	15	784
394326082202700 PE-57 FRED WOFTER NR JCT CITY OH (LAT 39 43 26N LONG 082 20 27W)								
AUG 1989 31...	36	58	1.4	197	46	170	9.2	480
401211081433400 CS-152 G ROHRIG PLAINFIELD OH (LAT 40 12 11N LONG 081 43 34W)								
SEP 1989 01...	12	8.7	3.3	67	51	29	9.9	318
401314081422400 CS-149 ROGER ART NR PLAINFIELD OH (LAT 40 13 14N LONG 081 42 24W)								
SEP 1989 01...	14	23	1.4	238	<1.0	2.5	7.1	237
401315081444400 CS-151 N MAPLE NR PLAINFIELD OH (LAT 40 13 15N LONG 081 44 44W)								
SEP 1989 01...	35	31	1.2	313	13	62	13	402
401318081434400 CS-150 R MCCORMICK NR PLAINFIELD OH (LAT 40 13 18N LONG 081 43 44W)								
SEP 1989 01...	7.0	3.8	0.80	154	5.0	2.1	10	151
403355081212500 TU-55 R NEWSOME AT SOMERDALE OH (LAT 40 33 55N LONG 081 21 25W)								
SEP 1989 05...	15	41	1.8	314	<1.0	4.4	6.6	264
403356081205000 TU-56 G MULLINS NR SOMERDALE OH (LAT 40 33 56N LONG 081 20 50W)								
SEP 1989 05...	11	34	2.0	139	96	50	13	364
403402081213400 TU-54 WM MILLER AT SOMERDALE OH (LAT 40 34 02N LONG 081 21 34W)								
SEP 1989 05...	19	15	1.7	288	10	4.6	7.0	226
403404081214000 TU-57 P HOGUE AT SOMERDALE OH (LAT 40 34 04N LONG 081 21 40W)								
SEP 1989 05...	24	9.6	1.3	190	140	23	14	397

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)
394231082252100 F-14 C THOMAS NR BREMEN OH (LAT 39 42 31N LONG 082 25 21W)								
AUG 1989 31...	479	50	<10	6600	1200	90	85	0.6
394257082254000 F-15 SUPERIOR GLASS FIBERS INC AT BREMEN OH (LAT 39 42 57N LONG 082 25 40W)								
AUG 1989 31...	376	<10	<10	190	150	150	170	0.9
394318082182700 PE-58 WATER WORKS AT JUNCTION CITY OH (LAT 39 43 18N LONG 082 18 27W)								
SEP 1989 01...	756	<10	30	9800	7900	90	92	1.9
394326082202700 PE-57 FRED WOFTER NR JCT CITY OH (LAT 39 43 26N LONG 082 20 27W)								
AUG 1989 31...	516	<10	20	4100	3700	70	44	1.3
401211081433400 CS-152 G ROHRIG PLAINFIELD OH (LAT 40 12 11N LONG 081 43 34W)								
SEP 1989 01...	221	<10	10	130	16	10	2	0.7
401314081422400 CS-149 ROGER ART NR PLAINFIELD OH (LAT 40 13 14N LONG 081 42 24W)								
SEP 1989 01...	--	40	<10	5000	4100	210	220	1.5
401315081444400 CS-151 N MAPLE NR PLAINFIELD OH (LAT 40 13 15N LONG 081 44 44W)								
SEP 1989 01...	421	10	<10	4800	4400	60	55	1.1
401318081434400 CS-150 R MCCORMICK NR PLAINFIELD OH (LAT 40 13 18N LONG 081 43 44W)								
SEP 1989 01...	168	10	<10	3200	1400	220	220	1.0
403355081212500 TU-55 R NEWSOME AT SOMERDALE OH (LAT 40 33 55N LONG 081 21 25W)								
SEP 1989 05...	--	250	<10	3300	2800	170	160	1.2
403356081205000 TU-56 G MULLINS NR SOMERDALE OH (LAT 40 33 56N LONG 081 20 50W)								
SEP 1989 05...	359	<10	20	270	10	20	1	0.6
403402081213400 TU-54 WM MILLER AT SOMERDALE OH (LAT 40 34 02N LONG 081 21 34W)								
SEP 1989 05...	298	20	<10	2300	1600	50	58	0.9
403404081214000 TU-57 P HOGUE AT SOMERDALE OH (LAT 40 34 04N LONG 081 21 40W)								
SEP 1989 05...	425	<10	20	8900	8700	330	340	1.0

The following tables contain ground water-level measurements and chemical analyses from observation wells located in a small watershed affected by coal mining. The data will be used to document ground-water flow and water quality during post-mining conditions.

JEFFERSON COUNTY

401011080521602. Local number, J11 P1-1.
LOCATION.--Lat 40°10'11", long 80°52'16", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 5 in., depth 39 ft, cased to 39 ft, bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,236.2 ft. Measuring point: Top of casing, 3.0 ft above land-surface datum.
PERIOD OF RECORD.--March 1981 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.65 ft below land-surface datum, Feb. 19, 1986; lowest, measured, 37.40 ft Dec. 28, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 10, 1988	34.22	Dec 12, 1988	34.87	Feb 14, 1989	34.14	Apr 28, 1989	30.68
Jul 10, 1989	29.73						

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
11...	0905	2520	6.4	12.5	1500	420	120	30

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989								
11...	3.6	242	1300	58	2220	<10	30	10000

401011080521603. Local number, J11 P2-2.
LOCATION.--Lat 40°10'11", long 80 52'16", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 187 ft, cased to 46 ft.
DATUM.--Altitude of land-surface datum is 1,236.2 ft. Measuring point: Top of casing, 2.7 ft above land-surface datum.
PERIOD OF RECORD.--March 1981 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 31.95 ft below land-suface datum, May 24, 1983; lowest, measured, 46.84 ft below land-surface datum, Aug 21, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	46.73	Dec 12, 1988	46.80	Feb 14, 1989	46.41	Apr 28, 1989	45.51
Jul 10, 1989	46.26						

401010080521801. Local number, J11 P3-1.
LOCATION.--Lat 40°10'10", long 80°52'18", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 35.5 ft.
DATUM.--Elevation of land-surface datum is 1,236.70 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.0 ft above land-surface datum.
PERIOD OF RECORD.--April 1981 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 30.80 ft below land-suface datum, February 19, 1986; lowest water level, dry many days.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	Dry	Dec 12, 1988	Dry	Feb 14, 1989	Dry	Apr 28, 1989	31.18
Jul 10, 1989	31.02						

JEFFERSON COUNTY--Continued

401010080521801. Local number, J11 P3-1--Continued.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 10...	1800	2470	6.5	14.0	1300	410	130	25

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 10...	4.0	320	1200	53	2080	20	140	570

401002080521800. Local number, W4-1.

LOCATION.--Lat 40°10'02", long 80°52'18", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 60 ft, cased to 18.00 ft.
DATUM.--Altitude of land-surface datum is 1251.37 ft. Measuring point: Top of casing, 1.2 ft above land-surface datum.
PERIOD OF RECORD.--May 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 42.88 ft below land-surface datum, May 29, 1979; lowest, measured, 55.60 ft below land-surface datum, July 21, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	53.27	Dec 12, 1988	53.64	Apr 28, 1989	46.71	Jul 10, 1989	46.54

401002080521801. Local number, J11 W5-3.

LOCATION.--Lat 40°10'02", long 80°52'18", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 280 ft, cased to 218 ft.
DATUM.--Altitude of land-surface datum is 1,251.74 ft. Measuring point: Top of casing, 1.76 ft.
REMARKS.--Dry since construction.
PERIOD OF RECORD.--June 1976 to July 1989.

401004080521900. Local number, J11 W6-1.

LOCATION.--Lat 40°10'04", long 80°52'19", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 46 ft, cased to 17.8 ft.
DATUM.--Altitude of land-surface datum is 1237.36 ft. Measuring point: Top of casing, 3.2 ft above land-surface datum.
PERIOD OF RECORD.--May 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 28.60 ft below land-surface datum, Feb. 26, 1979; lowest, 45.21 ft below land-surface datum, Aug. 3, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	39.44	Dec 12, 1988	40.18	Feb 14, 1989	39.02	Apr 28, 1989	32.96
Jul 10, 1989	32.73						

401004080521901. Local number, J11 W7-2.

LOCATION.--Lat 40°10'04", long 80°52'19", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 192 ft, cased to 53.8 ft.
DATUM.--Altitude of land-surface datum is 1237.25 ft. Measuring point: Top of casing, 3.0 ft above land-surface datum.
PERIOD OF RECORD.--May 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 60.45 ft below land-surface datum, Jan. 16, 1980; lowest, 170.11 ft below land-surface datum, Nov. 19, 1979.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	152.66	Dec 12, 1988	146.12	Feb 14, 1989	145.82	Apr 28, 1989	144.42

401007080522400. Local number, J11 W8-2.
LOCATION.--Lat 40°10'07", long 80°52'24", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 105 ft, cased to 20.43 ft.
INSTRUMENTATION.--Digital recorder--60 minute punch.
DATUM.--Altitude of land-surface datum is 1,156.67 ft. Measuring point: Top of casing, 0.57 ft above land-surface datum.
PERIOD OF RECORD.--May 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 24.45 ft below land-surface datum, July 13, 1986; lowest, 37.23 ft below land-surface datum, June 18, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	29.78	29.36	28.06	27.94	---	---	---	---	---	---	---
2	---	29.87	29.38	28.09	27.96	---	---	---	---	---	---	---
3	---	29.87	29.37	28.15	27.96	---	---	---	---	---	---	---
4	---	29.83	29.49	28.38	27.88	---	---	---	---	---	---	---
5	---	29.74	29.44	28.38	27.75	---	---	---	---	---	---	---
6	---	29.47	29.41	28.38	27.76	---	---	---	---	---	---	---
7	---	29.31	29.54	27.79	27.79	---	---	---	---	---	---	---
8	---	29.36	29.58	27.58	27.94	---	---	---	---	---	---	---
9	---	29.36	29.58	27.65	27.99	---	---	---	---	---	---	---
10	---	29.40	29.56	27.79	28.05	---	---	---	---	---	---	---
11	---	29.45	29.62	27.85	28.09	---	---	---	---	---	---	---
12	---	29.45	29.78	27.80	28.24	---	---	---	---	---	---	---
13	---	29.40	29.77	27.55	28.24	---	---	---	---	---	---	---
14	---	29.38	29.77	27.53	---	---	---	---	---	---	---	---
15	30.05	29.30	29.88	27.38	---	---	---	---	---	---	---	---
16	30.05	29.35	29.88	27.31	---	---	---	---	---	---	---	---
17	30.06	29.48	29.80	27.46	---	---	---	---	---	---	---	---
18	30.05	29.55	29.84	27.56	---	---	---	---	---	---	---	---
19	30.05	29.51	29.84	27.64	---	---	---	---	---	---	---	---
20	30.05	29.44	29.84	27.84	---	---	---	---	---	---	---	---
21	30.00	28.71	29.88	27.85	---	---	---	---	---	---	---	---
22	29.93	28.42	29.88	27.85	---	---	---	---	---	---	---	---
23	29.93	28.53	29.66	27.92	---	---	---	---	---	---	---	---
24	29.78	28.72	29.56	27.99	---	---	---	---	---	---	---	---
25	29.78	28.82	28.45	28.04	---	---	---	---	---	---	---	---
26	29.75	28.87	28.20	28.02	---	---	---	---	---	---	---	---
27	29.77	29.04	28.10	27.87	---	---	---	---	---	---	---	---
28	29.82	29.23	28.09	27.77	---	---	---	---	---	---	---	---
29	29.82	29.32	27.92	27.74	---	---	---	---	---	---	---	---
30	29.85	29.24	27.81	27.78	---	---	---	---	---	---	---	---
31	29.85	---	27.95	27.78	---	---	---	---	---	---	---	---
MAX	---	29.87	29.88	28.38	---	---	---	---	---	---	---	---

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	30.10	Feb 14, 1989	27.92	Jul 10, 1989	25.83

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
11...	1215	2100	6.5	12.5	1300	370	97	17

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989								
11...	2.9	478	810	30	1740	<10	40	5700

JEFFERSON COUNTY--Continued

401007080522401. Local number, J11 W9-3.
LOCATION.--Lat 40°10'07", long 80°52'24", Hydrologic Unit 05030106, near Harrisville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 122.3 ft cased to 120 ft.
DATUM.--Altitude of land-surface datum is 1,154.60 ft. Measuring point: Top of casing, 1.6 ft above land-surface datum.
REMARKS.--Dry since construction. Well caved, original depth, 189.40 ft.
PERIOD OF RECORD.--June 1976 to July 1989.

401009080521500. Local number, J11 P10-1.
LOCATION.--Lat 40°10'09", long 80°52'15", Hydrologic Unit 05010306, near Harrisville.
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 5 in, depth 39.3 ft, cased to 39.0 ft.
DATUM.--Altitude of land-surface datum is 1236.1 ft. Measuring point: Top of casing, 3.0 ft above land surface datum.
PERIOD OF RECORD.--March 1981 to August 1982, January 1984 to May 1984, Dec. 1985 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 29.92 ft below land-surface datum, Jan. 18, 1986, lowest measured, dry prior to January 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	35.80	35.24	---	---	---	---	---	---	---
2	---	---	---	35.80	35.21	---	---	---	---	---	---	---
3	---	---	---	35.80	35.21	---	---	---	---	---	---	---
4	---	---	---	35.79	35.21	---	---	---	---	---	---	---
5	---	---	---	35.79	35.21	---	---	---	---	---	---	---
6	---	---	---	35.79	35.20	---	---	---	---	---	---	---
7	---	---	---	35.79	35.17	---	---	---	---	---	---	---
8	---	---	---	35.77	35.15	---	---	---	---	---	---	---
9	---	---	---	35.76	35.13	---	---	---	---	---	---	---
10	---	---	---	35.76	35.13	---	---	---	---	---	---	---
11	---	---	---	35.76	35.13	---	---	---	---	---	---	---
12	---	---	---	35.74	35.08	---	----	---	---	---	---	---
13	---	---	35.75	35.71	35.08	---	---	---	---	---	---	---
14	---	---	35.74	35.70	---	---	---	---	---	---	---	---
15	34.89	---	35.76	35.65	---	---	---	---	---	---	---	---
16	34.89	---	35.77	35.61	---	---	---	---	---	---	---	---
17	34.90	---	35.77	35.60	---	---	---	---	---	---	---	---
18	---	---	35.77	35.59	---	---	---	---	---	---	---	---
19	---	---	35.78	35.50	---	---	---	---	---	---	---	---
20	---	---	35.79	35.50	---	---	---	---	---	---	---	---
21	---	---	35.79	35.45	---	---	---	---	---	---	---	---
22	---	---	35.79	35.45	---	---	---	---	---	---	---	---
23	---	---	35.79	35.43	---	---	---	---	---	---	---	---
24	---	---	35.79	35.40	---	---	---	---	---	---	---	---
25	---	---	35.79	35.40	---	---	---	---	---	---	---	---
26	---	---	35.80	35.37	---	---	---	---	---	---	---	---
27	---	---	35.80	35.32	---	---	---	---	---	---	---	---
28	---	---	35.80	35.32	---	---	---	---	---	---	---	---
29	---	---	35.80	35.30	---	---	---	---	---	---	---	---
30	---	---	35.80	35.26	---	---	---	---	---	---	---	---
31	---	---	35.80	35.24	---	---	---	---	---	---	---	---
MAX	---	---	---	35.80	---	---	---	---	---	---	---	---

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 14, 1988	34.89	Dec 12, 1988	35.74	Feb 14, 1989	35.06	Jul 10, 1989	30.41

JEFFERSON COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

401009080521500. Local number, J11 P10-1--Continued.

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
10...	1620	1620	6.5	15.5	900	250	68	21

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989								
10...	2.9	235	690	34	1270	<10	18	1600

401008080522900. Local number, J11 Stream.
LOCATION.--Lat 40°10'08", long 80°52'29", Hydrologic Unit 05030106, near Harrisville.
DRAINAGE AREA.--0.05 mi^2.
DATUM.--Altitude of land surface datum is 1,120 ft.
PERIOD OF RECORD.--May 1988 to July 1989.
REMARKS.--Stream sampled at old weir site at bottom of basin.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
11...	1030	2270	7.6	26.0	1400	360	130	24

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989								
11...	3.7	156	1300	43	2010	10	20	8100

401007080522000. Local number, J11 Seep.
LOCATION.--Lat 40°10'07", long 80°52'20", Hydrologic Unit 05030106, near Harrisville.
AQUIFER.--Overburden spoils, replaced after mining.
DATUM.--Altitude of land-surface datum is 1,160 ft.
PERIOD OF RECORD.--May 1984 to July 1989.
REMARKS.--Seep sampled at uppermost flowing site.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
11...	1300	2400	4.0	24.5	1400	330	140	21

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989								
11...	5.5	0	1500	37	2260	1400	32000	41000

The following tables contain ground water-level measurements, chemical analyses from observation wells located in a small watershed affected by coal mining. The data will be used to document ground-water flow and water quality during post-mining conditions.

MUSKINGUM COUNTY

394859081462802. Local number, MO9 P1-1.
LOCATION.--Lat 39°48'59", lo long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 65 in., depth 24 ft, cased to 24.0 ft, bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,038.46 ft. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.19 below land-surface datum, Feb. 20, 1986; lowest measured, dry many days.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	Dry	Dec 13, 1988	Dry	Feb 13, 1989	Dry	Apr 26, 1989	Dry
Jul 12, 1989	Dry						

394859081462803. Local number, MO9 P2-2.
LOCATION.--Lat 39°48'59", long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 117 ft, cased to 40.0 ft.
DATUM.--Altitude of land-surface datum is 1,038.56 ft. Measuring point: Top of casing, 3.0 ft above land-surface datum.
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 33.15 ft below land-surface datum, Dec 13, 1988; lowest, measured, 42.75 ft below land-surface datum, July 30, 1986.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	36.60	Dec 13, 1988	36.02	Feb 13, 1989	35.10	Apr 26, 1989	34.38
Jul 12, 1989	34.55						

394855081462702. Local number, MO9 P3-1.
LOCATION.--Lat 39°48'55", long 81°46'27", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 24 ft, cased to 24.0 ft, bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1023.06 ft. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.27 ft below land-surface datum, Feb. 20, 1986; lowest measured, dry many days.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	16.62	Dec 13, 1988	16.15	Feb 13, 1989	15.43	Apr 26, 1989	13.56
Jul 12, 1989	15.58						

394845081462600. Local number, MO9 W5-2.
LOCATION.--Lat 39°48'45", long 81°46'26", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 49 ft, cased to 17.3 ft.
DATUM.--Altitude of land-surface datum is 973.03 ft. Measuring point: Top of casing, 3.7 ft above land-surface datum.
PERIOD OF RECORD.--March 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.71 ft below land-surface datum, Apr 13, 1987; lowest, measured, 21.70 ft below land-surface datum, Jan. 4, 1977.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	14.07	Dec 13, 1988	14.22	Feb 13, 1989	13.46	Jul 12, 1989	12.57

MUSKINGUM COUNTY--Continued

394845081462601. Local number, MO9 P5-2a.
LOCATION.--Lat 39°48'45", long 81°46'26", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 50 ft., cased to 16.5 ft.
DATUM.--Altitude of land-surface datum is 974.17 ft. Measuring point: Top of casing, 3.0 ft.
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 3.91 ft below land-surface datum, Aug. 19, 1980; lowest measured, 9.48 ft below land-surface datum, Sept. 26, 1978.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	8.01	Dec 13, 1988	8.17	Feb 13, 1989	6.97	Jul 12, 1989	6.73

394845081462602. Local number, M09 P5-2b.
LOCATION.--Lat 39°48'45", long 81°46'26", Hydrologic Unit 05040004, near Chandlersville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 50 ft., cased to 17.5 ft.
DATUM.--Altitude of land-surface datum is 973.98 ft. Measuring point: Top of casing, 2.0 ft above land-surface datum
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.67 ft below land-surface datum, Feb. 20, 1986; lowest, 18.68 ft below land-surface datum, Sept. 26, 1978.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	_ DATE	WATER LEVEL
Oct 13, 1988	15.03	Dec 13, 1988	15.27	Feb 13, 1989	14.30	Jul 12, 1989	13.49

394855081461603. Local number, MO9 P6-1.
LOCATION.--Lat 39°48'55", long 81°46'16", Hydrologic Unit 05040004, near Chandlersville
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 56 ft, cased to 56.0 ft, bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1059.91 ft. Measuring point: Top of casing, 3.0 ft above land-surface datum
PERIOD OF RECORD.--October 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 45.87 ft below land-surface datum, Apr. 11, 1986; lowest measured, dry, prior to April 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	49.54	Nov 18, 1988	49.31	Feb 13, 1989	48.12	Apr 26, 1989	44.80
Jul 12, 1989	43.85						

394855081461604. Local number, MO9 P7-2.
LOCATION.--Lat 39°48'55", long 81°46'16", Hydrologic Unit 05030106, near Chandlersville
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in, depth 170 ft, cased to 72.0 ft.
DATUM.--Altitude of land-surface datum is 1,060.54 ft. Measuring point: Top of casing, 2.5 ft above land-surface datum
PERIOD OF RECORD.--November 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 94.80 ft below land-surface datum, Sept. 25 1980; lowest measured, 107.67 ft below land-surface datum, Dec 13, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	107.62	Dec 13, 1988	107.67	Feb 13, 1989	107.18	Apr 26, 1989	106.28
Jul 12, 1989	105.78						

MUSKINGUM COUNTY--Continued

394852081462002. Local number, MO9 P8-1
LOCATION.--Lat 39°48'52", long 81°46'20", Hydrologic Unit 05040004, near Chandlersville
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 37 ft. cased to 37.0 ft, bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,039.42 ft. Measuring point: Top of casing, 2.5 ft above land-surface datum.
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 32.25 ft below land-surface datum, Aug. 19, 1980; lowest measured, intermittently dry.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	29.30	29.29	29.24	28.57	---	---	---	---	---	---	---
2	29.14	29.27	29.37	29.23	28.59	---	---	---	---	---	---	---
3	29.18	29.27	29.34	29.22	28.75	---	---	---	---	---	---	---
4	29.19	29.22	29.46	29.32	28.75	---	---	---	---	---	---	---
5	29.29	29.10	29.43	29.30	28.70	---	---	---	---	---	---	---
6	29.37	29.14	29.32	29.19	28.69	---	---	---	---	---	---	---
7	29.34	29.29	29.29	29.14	28.69	---	---	---	---	---	---	---
8	29.33	29.39	29.39	29.13	28.75	---	---	---	---	---	---	---
9	29.25	29.45	29.39	29.18	28.77	---	---	---	---	---	---	---
10	29.20	29.39	29.34	29.18	28.69	---	---	---	---	---	---	---
11	29.19	29.49	29.39	29.19	28.60	---	---	---	---	---	---	---
12	29.29	29.49	29.39	29.09	28.59	---	---	---	---	---	---	---
13	29.39	29.39	29.35	29.17	---	---	---	---	---	---	---	---
14	29.35	29.45	29.35	29.17	---	---	---	---	---	---	---	---
15	29.30	29.46	29.49	28.90	---	---	---	---	---	---	---	---
16	29.30	29.37	29.49	28.86	---	---	---	---	---	---	---	---
17	29.26	29.47	29.39	28.80	---	---	---	---	---	---	---	---
18	29.23	29.56	29.39	28.70	---	---	---	---	---	---	---	---
19	29.26	29.52	29.38	28.64	---	---	---	---	---	---	---	---
20	29.29	29.39	29.38	28.69	---	---	---	---	---	---	---	---
21	29.25	29.31	29.56	28.79	---	---	---	---	---	---	---	---
22	29.18	29.32	29.56	28.74	---	---	---	---	---	---	---	---
23	29.18	29.30	29.39	28.71	---	---	---	---	---	---	---	---
24	29.13	29.20	29.39	28.71	---	---	---	---	---	---	---	---
25	29.19	29.20	29.38	28.76	---	---	---	---	---	---	---	---
26	29.26	29.16	29.49	28.70	---	---	---	---	---	---	---	---
27	29.29	29.09	29.40	28.69	---	---	---	---	---	---	---	---
28	29.37	29.24	29.44	28.69	---	---	---	---	---	---	---	---
29	29.39	29.29	29.45	28.69	---	---	---	---	---	---	---	---
30	29.45	29.22	29.40	28.61	---	---	---	---	---	---	---	---
31	29.44	---	29.31	28.59	---	---	---	---	---	---	---	---
MAX	---	29.56	29.56	29.32	---	---	---	---	---	---	---	---

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 12...	1545	2400	6.5	14.5	1500	490	77	8.4

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 12...	2.0	467	1100	1.2	2060	<10	30	2700

394852081462003. Local number, MO9 P9-2.
LOCATION.--LAT 39°48'52", long 81°46'20", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in, depth 119 ft, cased to 60.0 ft.
DATUM.--Altitude of land-surface datum is 1,039.24 ft. Measuring point: Top of casing, 3.0 ft above land surface datum.
PERIOD OF RECORD.--December 1978 TO July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 54.62 ft below land-surface datum, April 15, 1980; lowest measured,
70.36 ft below land-surface datum, Oct 13, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	70.36	Dec 13, 1988	62.61	Feb 13, 1989	59.01	Apr 26, 1989	57.75
Jul 12, 1989	57.52						

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 13...	1245	810	7.4	14.0	190	44	19	120

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 13...	2.0	305	160	1.9	519	<10	21	52

394841081463200. Local number, M09 W10-3.
LOCATION.--Lat 39°48'41", long 81°46'32", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in, depth 190 ft, cased to 41 ft. After Sept. 29, 1976, slotted casing from 140 ft to bottom of well.
DATUM.--Altitude of land-surface datum is 941.51 ft. Measuring point: Top of casing, 0.98 ft above land surface datum. Prior to Sept. 29, 1976, top of casing, 2.8 ft above land-surface datum
REMARKS.--Well redrilled September 29, 1976 because well collapsed.
PERIOD OF RECORD.--March 1976 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 7.92 ft below land-surface datum, Apr 13, 1987, lowest measured, 37.55 ft below land-surface datum, Dec. 21, 1976.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	15.38	Dec 12, 1988	20.79	Feb 13, 1989	11.74

394853081462803. Local number, M09 P11-2.
LOCATION.--Lat 39°48'53", long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in, depth 97 ft, cased to 26.8 ft.
DATUM.--Altitude of land-surface datum is 1,022.15 ft. Measuring point: Top of casing, 2.5 ft above land surface
PERIOD OF RECORD.--September 1978 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 22.16 ft below land-surface datum, Apr 26, 1989, lowest measured, 28.97 ft below land-surface datum, Sept. 27, 1978.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	25.28	Dec 13, 1988	24.06	Feb 13, 1989	23.37	Apr 26, 1989	22.16
Jul 12, 1989	22.71						

MUSKINGUM COUNTY--Continued

394858081462801. Local number, M09 P12-1.
LOCATION.--Lat 39°48'58", long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in, depth 62.2 ft, cased to 62.0 ft. bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,071.07 ft. Measuring point: Top of casing, 2.2 ft above land surface datum.
PERIOD OF RECORD.--August 1980 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 53.76 ft below land-surface datum, Jul. 20, 1986 and Jul. 12, 1989; lowest water level measured, 60.76 ft below land-surface datum, Jan. 15, 1982.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	59.30	Dec 13, 1988	59.26	Feb 13, 1989	57.97	Apr 26, 1989	54.93
Jul 12, 1989	53.76						

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989								
12...	1630	5080	6.4	14.0	4100	560	650	41

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1988								
12...	8.9	578	3500	0.6	5410	<10	690	1100

394855081462802. Local number, M09 P13-1.
LOCATION.--Lat 39°48'55", long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Sand, shales and coals of Middle Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in, depth 53.2 ft, cased to 53.2 ft. bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,059.98 ft. Measuring point: Top of casing, 3.0 ft above land surface datum.
PERIOD OF RECORD.--August 1980 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 43.70 ft below land-surface datum, July 23, 1986; lowest measured, 49.50 ft below land-surface datum, Jan. 15, 1982.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	48.35	Dec 13, 1988	48.20	Feb 13, 1989	46.88	Apr 26, 1989	43.88
Jul 12, 1989	42.17						

MUSKINGUM COUNTY--Continued

394851081462803. Local number, M09 P14-1.
LOCATION.--Lat 39°48'51", long 81°46'28", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Overburden spoils, replaced after mining.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in, depth 56.0 ft, cased to 56.0 ft. bottom 10 ft slotted.
DATUM.--Altitude of land-surface datum is 1,046.03 ft. Measuring point: Top of casing, 3.0 ft above land surface datum.
PERIOD OF RECORD.--August 1980 to July 1989.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 19.87 ft below land-surface datum, Feb. 25, 1981; lowest water level measured, 39.31 ft below land-surface datum, Oct. 16, 1985.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 13, 1988	31.34	Dec 13, 1988	30.70	Feb 13, 1989	30.09	Apr 26, 1989	28.57
Jul 12, 1989	28.78						

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 13...	0900	1385	6.4	14.0	750	210	54	14

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 13...	0.9	826	45	3.8	806	20	22000	2400

394839081463000. Local number, M09 Stream
LOCATION.--Lat 39°48'39", long 81°46'30", Hydrologic Unit 05040004, near Chandlersville.
DRAINAGE AREA.--0.06 mi .
DATUM.--Altitude of land-surface datum is 920 ft.
PERIOD OF RECORD.--July 1986 to July 1989.
REMARKS. --Stream sampled at old weir site near bottom of watershed.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 13...	1115	2720	7.8	21.0	2000	470	190	10

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 13...	1.7	257	1700	1.0	2650	<10	50	480

MUSKINGUM COUNTY--Continued

394846081463100. Local number, M09 Seep.
LOCATION.--Lat 39°48'46", long 81°46'31", Hydrologic Unit 05040004, near Chandlersville.
AQUIFER.--Overburden spoils, replaced after mining.
DATUM.--Altitude of land-surface datum is 985 ft.
PERIOD OF RECORD.--July 1986 to July 1989.
REMARKS.--Seep sampled at uppermost flowing site.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JUL 1989 13...	1015	3360	6.6	13.5	2600	640	250	14

DATE	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)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALUMINUM, DISSOLVED (UG/L AS AL)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 1989 13...	2.7	459	2153	1.1	3420	20	1000	5500

BACTERIOLOGICAL AND SELECTED WATER QUALITY DATA OF THE SCIOTO AND OLENTANGY RIVERS

The following tables list the results of bacteriological, chemical, and physical measurements collected at 10 sample-collection locations in the Scioto and Olentangy Rivers in Franklin and Delaware Counties, Ohio. Samples were collected and analyzed as part of a study to characterize the recreational quality of the Scioto and Olentangy Rivers at selected locations in the Greater Columbus metropolitan area, Ohio. The water-quality sample-collection site for the Scioto River at Town Street was changed to Rich Street on July 7, 1988 because of fencing placed on the Town Street brige that restricted access. The sample-collection location remained at Rich Street for the duration of the sample-collection phase of the project.

WATER-QUALITY DATA

03221000 - SCIOTO R BL O'SHAUGHNESSY DAM NR DUBLIN OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN DIS SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	1630	--	717	10.0	22.0	8.4	150	91
JUNE								
21	1000	--	721	3.6	22.5	7.4	29	31
JUL 1988								
19	0830	--	799	2.2	23.5	7.3	5100	2100
AUG 1988								
17	0700	--	726	2.6	27.0	7.6	150	88
SEP								
20	1130	--	780	6.5	21.0	7.5	270	350
MAY 1989								
18	1300	--	605	9.5	16.5	7.8	79	75
JUN								
22	0645	--	502	7.8	19.0	7.4	1900	1400
JUL								
11	0700	--	630	6.5	25.5	7.5	150	130

03222010 - SCIOTO R AT DUBLIN ROAD WTP AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN DIS SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PHEN, (STAND-ARD UNITS	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
04	1100	--	635	12.8	15.0	8.6	K20	K16
MAY								
09	0800	--	649	8.7	17.5	8.1	440	280
MAY								
17	0825	--	662	8.1	20.0	8.0	150	240
MAY								
23	0945	95	685	8.9	21.5	8.1	480	280
MAY								
24	0815	--	--	--	--	--	1600	940
MAY								
25	0815	--	--	--	--	--	440	250
MAY								
26	0815	--	--	--	--	--	64	46
MAY								
31	1000	--	674	8.9	25.0	8.1	64	K70
JUN								
07	0800	--	689	3.4	22.5	7.7	350	260
JUN								
14	0830	<1.0	624	--	23.0	8.2	85	72
JUN								
21	1145	--	623	10.5	27.5	8.5	>2700	>2900
JUN								
28	0810	--	677	3.4	22.0	7.5	160	110
JUL								
06	0820	--	712	2.7	25.0	7.2	28	K14
JUL								
JUL								
13	1500	<1.0	--	--	--	--	170	150
JUL								
14	0900	<1.0	--	--	--	--	180	150
JUL								
13	0825	--	663	1.9	26.0	7.3	290	230

WATER-QUALITY DATA--Continued

03222010 - SCIOTO R AT DUBLIN ROAD WTP AT COLUMBUS OH--Continued

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN DIS SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PHEN, (STAND-ARD UNITS	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
JUL 15	0900	<1.0	--	--	--	--	100	K120
JUL 19	0946	137	538	6.6	25.5	7.6	16000	17000
JUL 26	0750	--	--	9.7	26.0	7.7	610	440
AUG 02	0805	--	619	7.1	27.5	7.8	190	430
AUG 08	1015	--	633	8.2	28.0	8.0	120	K52
AUG 17	0845	20	666	6.5	28.5	7.9	37	20
AUG 23	0815	--	670	6.0	25.5	7.4	150	48
AUG 31	0800	--	594	6.4	21.0	7.0	270	170
SEP 07	0820	--	642	7.8	19.5	7.6	220	130
SEP 13	0700	40	--	--	--	--	72	54
SEP 19	1030	50	--	--	--	--	280	180
SEP 20	1030	51	660	7.9	22.0	7.6	150	88
SEP 28	0800	--	698	6.5	19.5	7.3	20	K16
MAY 1989 18	1400	--	621	9.8	15.5	7.7	85	100
JUN 22	0800	--	507	7.5	20.0	7.4	5800	5000
JUN 27	0700	--	--	--	--	--	70	42
JUN 28	0715	--	--	--	--	--	6700	11000
JUN 29	0700	--	--	--	--	--	5600	3500
JUN 30	0715	--	--	--	--	--	260	320
JUL 11	0830	--	617	7.2	27.5	7.8	63	66

03226800 - OLENTANGY R NR WORTHINGTON OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988 23	1430	--	566	11.3	23.5	8.6	900	770
JUN 21	1400	--	915	6.1	27.5	8.2	76	58
JUL 19	1200	--	777	5.7	25.0	7.8	2500	1900
AUG 17	0915	--	790	5.8	26.5	8.2	280	150
SEP 20	1215	--	670	7.6	20.5	7.8	1100	820
MAY 1989 18	1115	--	572	10.0	15.0	8.0	120	110
JUN 22	1410	--	473	9.1	21.5	7.2	970	1100
JUL 11	1300	--	684	7.6	28.0	7.9	190	200

WATER-QUALITY DATA--Continued

03226885 - OLENTANGY R AT HENDERSON RD AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	1400	--	493	10.2	23.5	8.5	12000	8700
JUN								
21	1315	--	939	6.5	28.5	7.8	320	200
JUL								
19	1135	--	674	5.8	25.0	7.7	27000	19000
AUG								
17	0930	--	740	6.1	26.0	8.0	600	470
SEP								
20	1300	--	689	7.9	21.0	7.8	1500	1200
MAY 1989								
18	1100	--	583	9.3	15.5	8.0	64	94
JUN								
22	1330	--	480	9.3	20.5	7.1	6000	2200
JUL								
11	1230	--	696	8.8	28.5	7.9	--	140

03227500 - SCIOTO R AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	0815	--	674	7.9	21.0	8.1	180	220
JUN								
21	1145	--	--	--	--	--	2900	4200
JUL								
19	1425	--	706	3.0	26.0	7.4	65000	35000
AUG								
17	1200	--	581	4.3	29.0	7.8	450	320
SEP								
20	0930	--	561	5.8	21.5	7.6	2700	1800
MAY 1989								
18	0745	--	597	--	14.5	--	3800	2300
JUN								
22	0930	--	472	--	20.0	7.1	450000	100000
JUL								
11	0930	--	651	7.6	28.0	7.9	410	320

395623082595800 - SCIOTO R AT GREENLAWN AVE AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	0730	136	675	8.9	21.5	8.1	130	97
JUN								
21	0730	30	774	0.2	25.0	7.3	2400000	K2900000
JUL								
19	1345	--	857	7.7	27.0	7.8	62000	31000
AUG								
17	1130	61	559	7.6	29.5	8.1	170	120
SEP								
20	0900	--	546	8.1	22.0	7.8	K520	530
MAY 1989								
18	0830	--	607	10.3	15.0	7.5	1600	1000
JUN								
22	1000	--	472	--	20.0	7.1	>53000	>53000
JUL								
11	1000	--	640	9.1	27.5	8.0	350	270

WATER-QUALITY DATA--Continued

395731083001400 - SCIOTO R AT TOWN ST AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
04	0945	--	668	14.3	15.5	8.6	K33	61
MAY								
09	0835	--	638	10.0	18.5	8.5	550	450
MAY								
17	0910	--	680	10.3	20.5	8.4	29	69
MAY								
23	0900	--	668	11.5	21.5	8.5	63	80
MAY								
24	0730	--	--	--	--	--	850	790
MAY								
25	0730	--	--	--	--	--	240	140
MAY								
26	0730	--	--	--	--	--	66	50
MAY								
31	1100	--	660	15.3	25.0	8.5	K20	K20
JUN								
07	0845	--	744	12.9	24.0	8.2	150	96
JUN								
14	0930	--	758	12.0	23.5	8.1	47	37
JUN								
21	0830	--	765	6.5	26.0	7.9	47	39
JUN								
28	0835	--	838	7.6	24.0	8.1	44	57
JUL								
06	0840	--	847	7.9	25.0	7.8	350	K150
JUL								
13	0915	--	868	7.7	26.5	7.9	1600	1600
JUL								
13	1530	--	--	--	--	--	10000	6700
JUL								
14	0945	--	--	--	--	--	910	270
JUL								
15	0945	--	--	--	--	--	150	K240
JUL								
19	1300	--	671	4.4	26.5	7.6	20000	26000
JUL								
26	0830	--	--	4.9	24.5	7.6	3000	1900
AUG								
02	0915	--	618	7.6	27.0	7.8	440	360
AUG								
08	0930	--	573	8.1	27.5	8.1	600	220
AUG								
17	1100	--	640	5.8	29.0	7.9	2000	700
AUG								
23	0900	--	610	4.7	24.0	7.6	2100	1100
AUG								
31	0820	--	617	7.8	22.0	7.8	310	170
SEP								
07	0845	--	552	6.8	19.0	7.8	210	140
SEP								
13	0745	--	--	--	--	--	69	77
SEP								
19	0810	--	--	--	--	--	1700	1300
SEP								
20	0810	--	481	5.4	21.0	7.7	600	540
SEP								
28	0845	--	765	6.8	19.5	7.7	190	240
MAY 1989								
18	0920	--	604	9.0	15.0	7.9	820	1000
JUN								
22	1030	--	471	--	20.0	7.1	12000	9100
JUN								
27	0845	--	--	--	--	--	5900	K5000
JUN								
28	0845	--	--	--	--	--	16000	21000
JUN								
29	0845	--	--	--	--	--	3100	2000
JUN								
30	0845	--	--	--	--	--	1700	1300
JUL								
11	1030	--	633	9.1	28.0	8.1	430	290

WATER-QUALITY DATA--Continued

395829083011200 - OLENTANGY R AT GOODALE AVE AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
04	0915	--	761	11.1	16.0	8.3	210	K170
MAY								
10	0930	--	645	9.1	19.0	8.7	670	320
MAY								
17	1005	--	701	9.0	20.0	8.4	250	140
MAY								
23	1230	215	637	10.4	23.5	8.3	6900	3800
MAY								
24	0900	--	--	--	--	--	380	330
MAY								
25	0900	--	--	--	--	--	700	670
MAY								
26	0900	--	--	--	--	--	450	580
MAY								
31	1030	--	762	5.2	23.0	7.6	390	210
JUN								
07	0915	--	926	4.6	24.0	7.5	320	510
JUN								
14	1030	--	923	6.1	23.5	7.7	400	340
JUN								
21	0910	19	876	3.2	26.0	7.6	1600	910
JUN								
28	0930	--	1200	6.6	22.0	7.3	K450	250
JUL								
06	0940	--	1030	6.4	24.5	7.5	670	620
JUL								
13	1030	--	1190	3.9	25.5	7.4	2400	1100
JUL								
13	1545	31	--	--	--	--	11000	10000
JUL								
14	1015	12	--	--	--	--	450	480
JUL								
15	1015	--	--	--	--	--	K300	K450
JUL								
19	1030	490	675	5.6	26.0	7.6	K15000	26000
JUL								
26	0900	--	--	3.5	24.0	7.2	4500	2600
AUG								
02	1015	--	635	7.8	27.0	7.4	1100	1300
AUG								
08	0900	--	586	4.6	25.5	7.4	>60000	>80000
AUG								
17	1030	32	862	3.3	27.5	7.7	180000	180000
AUG								
23	0900	--	609	3.6	23.5	7.5	36000	14000
AUG								
31	0950	--	693	6.4	20.0	7.6	850	540
SEP								
07	0950	--	599	7.0	17.5	7.7	1600	730
SEP								
13	0845	49	--	--	--	--	970	880
SEP								
19	0735	68	--	--	--	--	1600	1200
SEP								
20	0735	71	661	6.0	21.5	7.6	1800	1200
SEP								
28	0900	--	884	6.7	19.5	7.7	3400	3100
MAY 1989								
18	1015	561	590	9.5	16.0	7.8	19000	16000
JUN								
22	1115	1510	454	--	20.5	7.1	17000	15000
JUN								
27	0800	174	--	--	--	--	19000	12000
JUN								
28	0800	762	--	--	--	--	35000	24000
JUN								
29	0800	445	--	--	--	--	4200	3000
JUN								
30	0800	532	--	--	--	--	2900	4000
JUL								
11	1330	--	679	11.7	30.0	8.1	540	450

WATER-QUALITY DATA--Continued

400015083012100 - OLENTANGY R AT WOODY HAYES DR AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	1330	--	528	8.6	23.0	8.1	>18000	6800
JUN								
21	1230	--	714	9.9	28.5	8.3	330	150
JUL								
19	1100	--	640	4.9	25.5	7.4	>60000	>80000
AUG								
17	1000	--	707	4.9	28.0	8.0	5500	2900
SEP								
20	1400	--	663	7.3	21.5	7.8	3600	2500
MAY 1989								
18	1015	--	580	9.1	16.0	8.0	910	K1800
JUN								
22	1245	--	466	9.9	20.5	7.1	6100	5100
JUL								
11	1200	--	676	9.2	28.0	7.9	2500	1800

400048083053400 - SCIOTO R BL GRIGGS RE AT COLUMBUS OH

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)	TEMPER-ATURE WATER (DEG C)	PH (STAND-ARD UNITS)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML)
MAY 1988								
23	1600	--	680	9.4	21.0	8.3	140	210
JUN								
21	1115	--	663	7.4	25.5	8.0	21	19
JUL								
19	0920	--	694	6.2	27.0	7.8	180	310
AUG								
17	0745	--	675	5.3	29.5	8.2	33	28
SEP								
20	1100	--	670	8.8	21.5	7.7	61	85
MAY 1989								
18	1330	--	615	10.3	15.0	7.8	64	70
JUN								
22	0730	--	482	7.6	19.5	7.4	>3000	>3000
JUL								
11	0800	--	604	7.8	26.5	7.8	27	K33

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☆U.S. GOVERNMENT PRINTING OFFICE: 1990-750-156

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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