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Ohio
1988, v.2

Water Resources Data
Ohio
Water Year 1988

Volume 2. St. Lawrence River Basin
Statewide Project Data

U.S. GEOLOGICAL SURVEY
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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OH-88-2
Prepared in cooperation with the State of Ohio
and with other agencies

CALENDAR FOR WATER YEAR 1988

1987

OCTOBER

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1988

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SEPTEMBER

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Water Resources Data
Ohio
Water Year 1988

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-88-2
Prepared in cooperation with the State of Ohio
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., SECRETARY

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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

1989

PREFACE

This volume of the annual hydrologic data report of Ohio is one of the 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 2 volumes:

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

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

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16. Abstract (Limit: 200 words)

Water-resources data for the 1988 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 133 gaging stations, stage and contents at 9 lakes and reservoirs; water quality at 34 gaging stations, 59 wells, and 47 partial-record sites; and water levels at 450 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.

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(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) radio-chemical, (s) miscellaneous sediment measurements, (S) daily suspended-sediment data, (t) temperature.)

ST. LAWRENCE RIVER BASIN

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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

DISCONTINUED STATIONS--Continued

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

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

Well number	Local number	Location	Page
		CRAWFORD COUNTY	
404838082563100	CR-1	Bucyrus	94
		GEAUGA COUNTY	
412518081221500	GE-3A	Southeast of Chagrin Falls	95
		HANCOCK COUNTY	
405940083275500	HA-3	North of Vanlue	96
		HARDIN COUNTY	
404648083412600	HN-2A	Southeast of Dola	97
		HENRY COUNTY	
412123083574000	HY-2	Southwest of McClure	98
		LUCAS COUNTY	
413704083362200	LU-1	Toledo	99
		MEDINA COUNTY	
410142082005900	MD-1	Lodi	100
		OTTAWA COUNTY	
413434082494000	O-2	Catawba Island	101
		PORTAGE COUNTY	
410540081213600	PO-7	Brimfield	102
410920081192000	PO-6	East of Kent	103
		PUTNAM COUNTY	
405505084032900	PU-1	Columbus Grove	104
		RICHLAND COUNTY	
405753082360800	R-3	Shiloh	105
		SANDUSKY COUNTY	
411914083045300	S-3	Fremont	106
412703083213600	S-2	Woodville	107
		SENECA COUNTY	
410802083093900	SE-2	Tiffin	108
		SUMMIT COUNTY	
410330081282000	SU-6	Akron	109
410846081271600	SU-7	Cuyahoga Falls	110
		VAN WERT COUNTY	
405215084335400	VW-1	Van Wert	111
		WILLIAMS COUNTY	
412821084313600	WM-1	Bryan	112
412930084320900	WM-3	Bryan	113
413108084415300	WM-12	East of Blakeslee	114
		WYANDOT COUNTY	
405009083172600	WY-1	Upper Sandusky	115

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 133 streamflow-gaging stations, 89 miscellaneous sites; (2) stage and content records for 9 streams, lakes, and reservoirs; (3) water-quality data for 34 streamflow-gaging stations, 59 wells, and 47 partial-record sites; and (4) water levels for 450 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-88-2." 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; Director; 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; Wood County, F. G. Schutte, Sanitary Engineer; Sandusky County, K. W. Kerik, Health Commissioner; and City of Akron, K. Kostura, and A. Youngblood; City of Lima, A. Godsey, City Sanitary Engineer; Eastgate Development and Transportation Agency, J. Wells, Environment Project Manager; University of Cincinnati, J. Maynard, Department Head; Office Surface Mining, P. B. Schultz, Contracting Office; U.S. Air Force, Air Force Logistics Command; 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

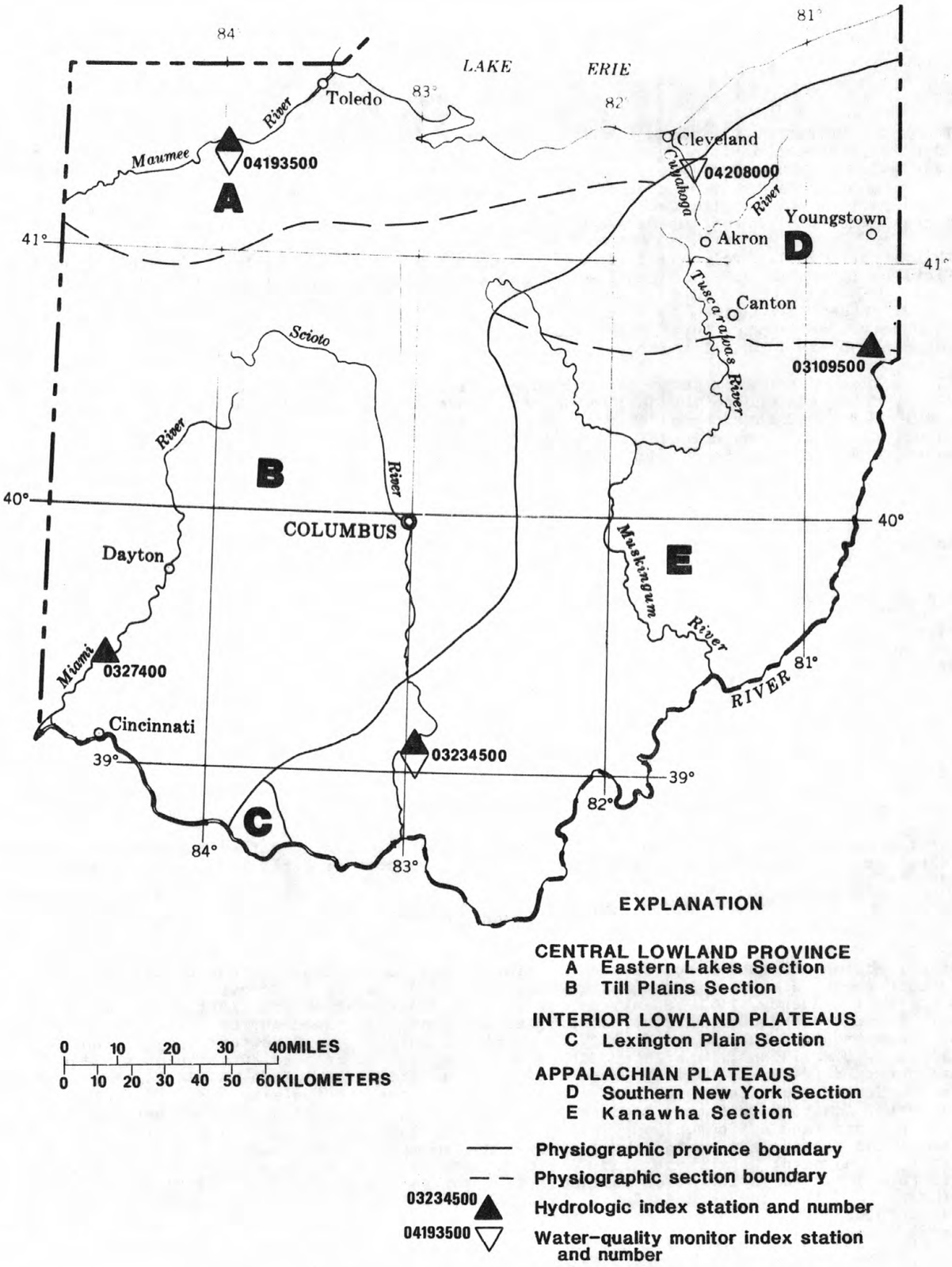

Figure 1.--Physiographic divisions and location of Hydrologic Index Stations.

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 1988 water year, streamflow was normal[1] throughout the State despite below-average rainfall during the previous 2 months. By November, the streamflow fell below normal throughout most of the State except for the northeast, where streamflow remained in the normal range. During December, streamflow remained below normal in the southern part of the State and rose to normal over the northern half of the State.

During January, streamflow dropped throughout the State and was either deficient or below normal for the entire State. Heavy rains in the beginning of February brought high flow, but flow was again in the below-normal range by the end of the month. Except for above-normal flow on intermittent days of heavy precipitation, flow continued in the below-normal range throughout the State from March through June.

Flow continued to decrease through July, but rose sharply in response to precipitation in mid-month; flow was higher at the end of the month as compared with the beginning of the month, but remained below normal. Flow dropped through August, except in the northern part of the State, where it increased slightly. Generally, flow was below normal throughout the State and was deficient in the southwestern corner.

Streamflow for September increased throughout most of Ohio, from slightly below normal in the western part to above normal in the central and eastern parts. This was the first time since February that above-normal flow was noted throughout most of the State.

In many parts of Ohio, drought or near-drought conditions were noted during the summer months. Some communities were forced to institute various water-saving practices. At some stations, flow was the lowest recorded since the 1930's.

Streamflow trends for the 1988 water year are reflected in graphical comparisons of monthly and annual mean discharges for 1988 and the 1951-80 reference period at four Hydrologic Index Stations (fig. 7; station locations are shown in fig. 1).

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

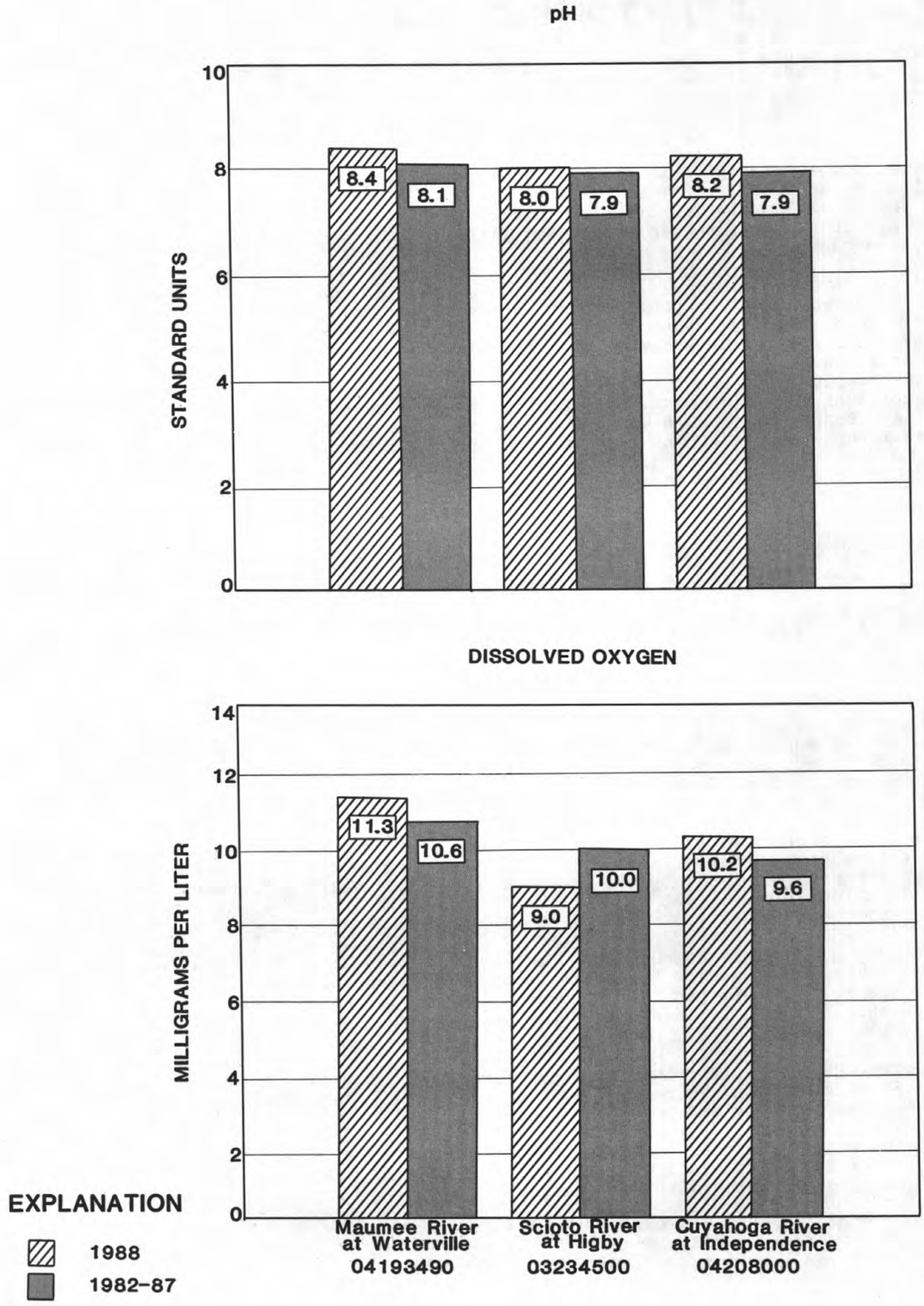
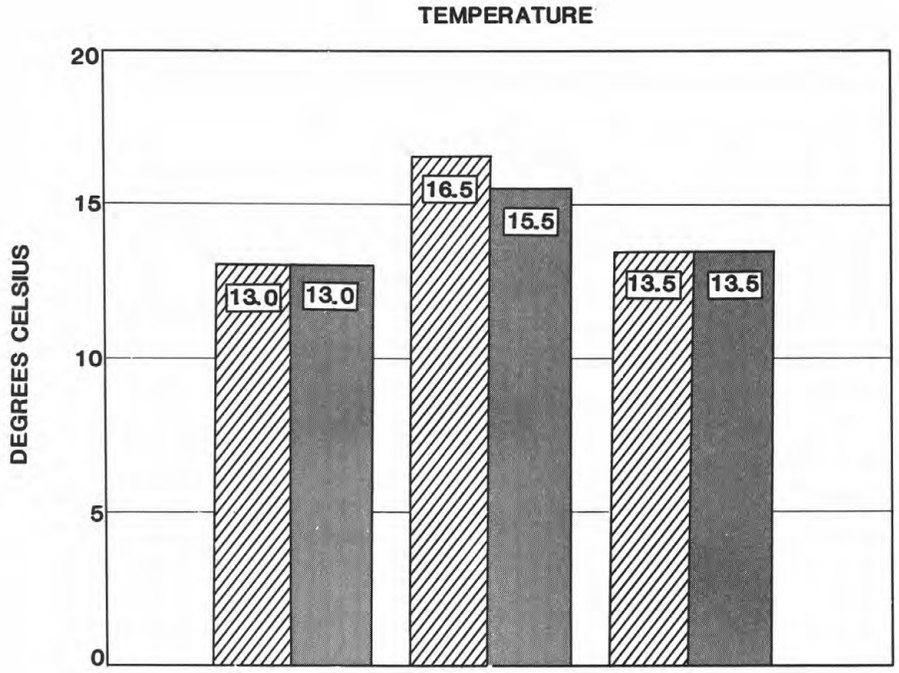


Figure 2.—Comparison of 1988 annual mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982-87 for three water-quality-monitor index stations in Ohio.



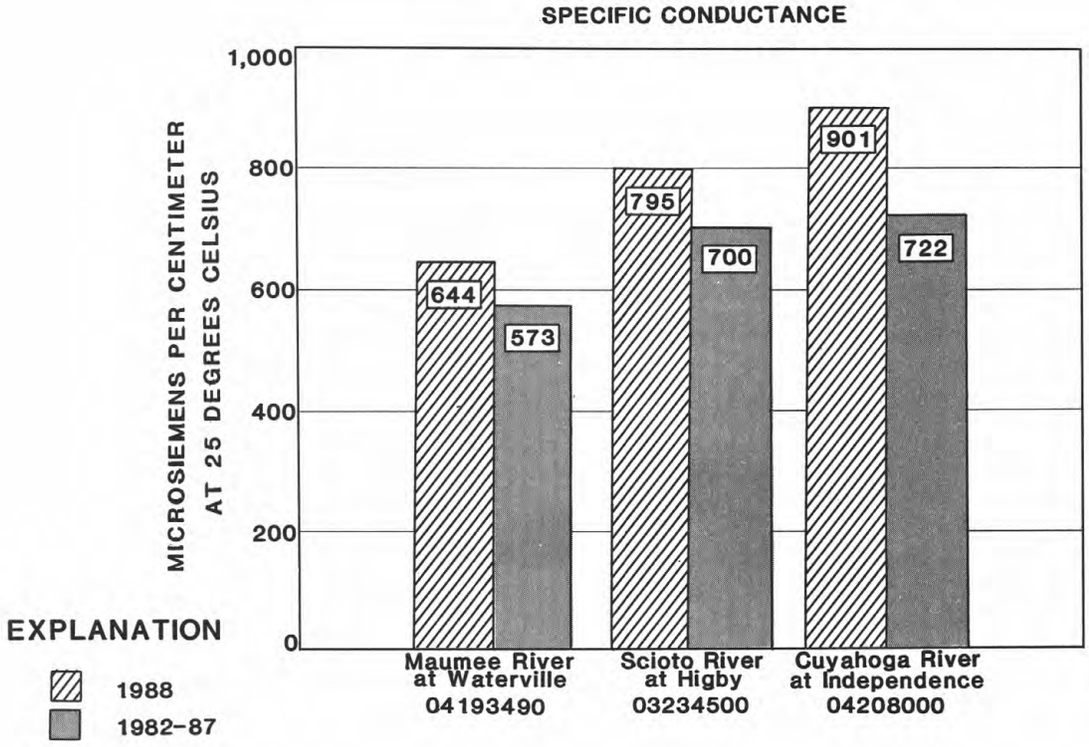


Figure 2.—Comparison of 1988 annual mean values of pH, dissolved oxygen, temperature, and specific conductance with the average of annual mean values for 1982-87 for three water-quality-monitor index stations in Ohio—Continued.

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.

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 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.

Precipitation at the end of the 1988 water year was 7.74 inches below normal statewide. As a result, mean annual discharges generally were below normal throughout the State (fig. 7). The low of precipitation and runoff is reflected in higher-than-average specific-conductance measurements in the 1988 water year. Specific conductance is directly related to the concentration of dissolved solids.

Data from the three water-quality monitors were used to calculate mean annual temperature, dissolved-oxygen concentration, pH, and specific conductance for the 1988 water year. These were compared with average annual means for the 1982-87 reference period (fig. 2). Annual mean specific conductances were significantly greater than average at all sites. Annual mean values of pH were slightly higher than average at all three sites. Annual mean dissolved-oxygen concentrations were slightly higher than average for the Cuyahoga and Maumee Rivers and lower than average for the Scioto River. The dissolved-oxygen concentration at the Cuyahoga River site remained above the State standard of 4 mg/L during the entire water year. Annual mean temperatures were about average for the Cuyahoga and Maumee Rivers, but slightly higher than average for the Scioto River.

Trace-element analyses of samples collected at NASQAN sites show that concentrations of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were considerably less than U.S. Environmental Protection Agency primary maximum contaminant levels for domestic water supply. Manganese concentrations equaled or exceeded 200 micrograms per liter in Hocking River below Athens on January 22, and June 1. Parts of Hocking River watershed are affected by abandoned coal mines.

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

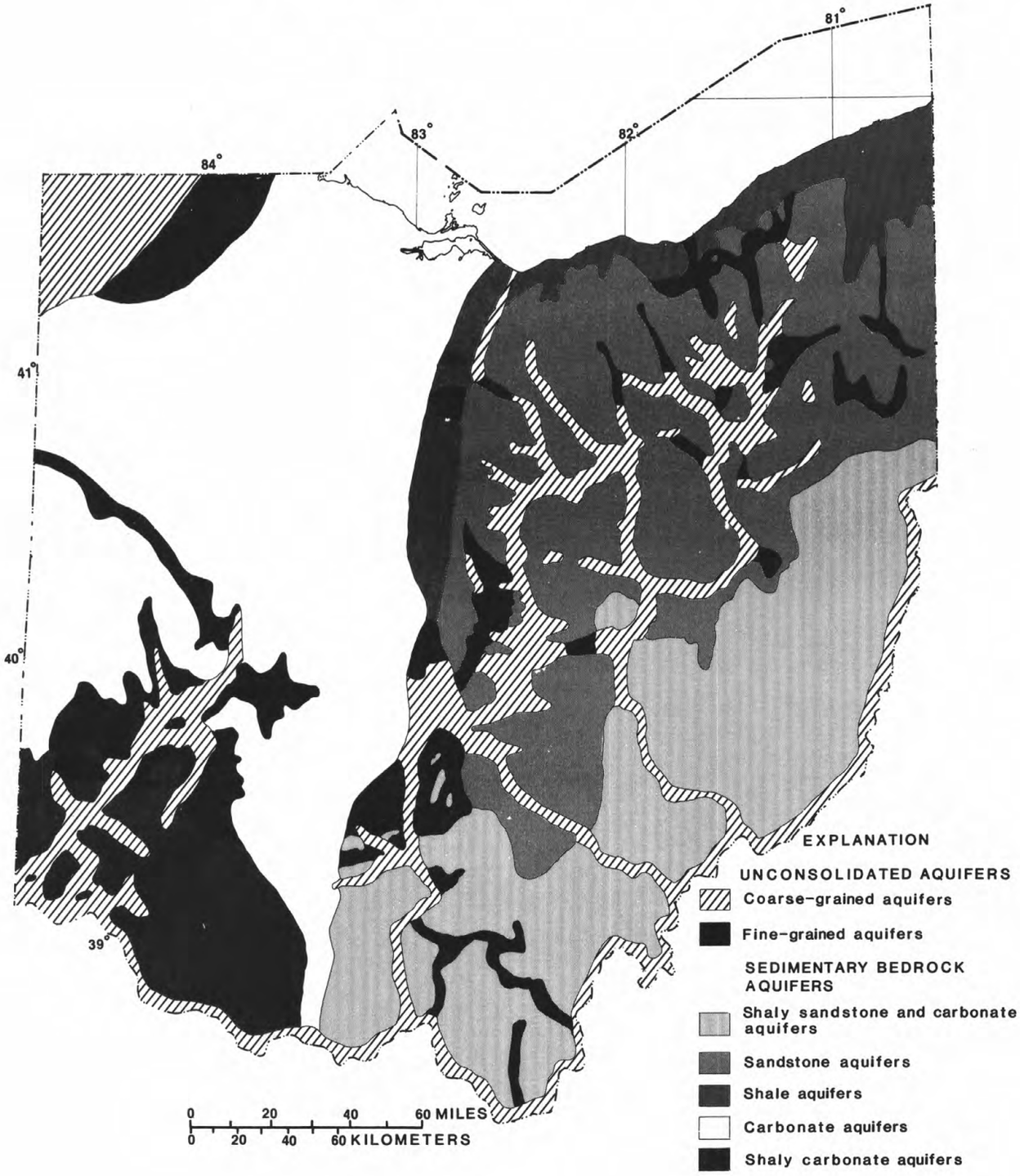


Figure 3.--Geographic distribution of principal aquifers in Ohio.

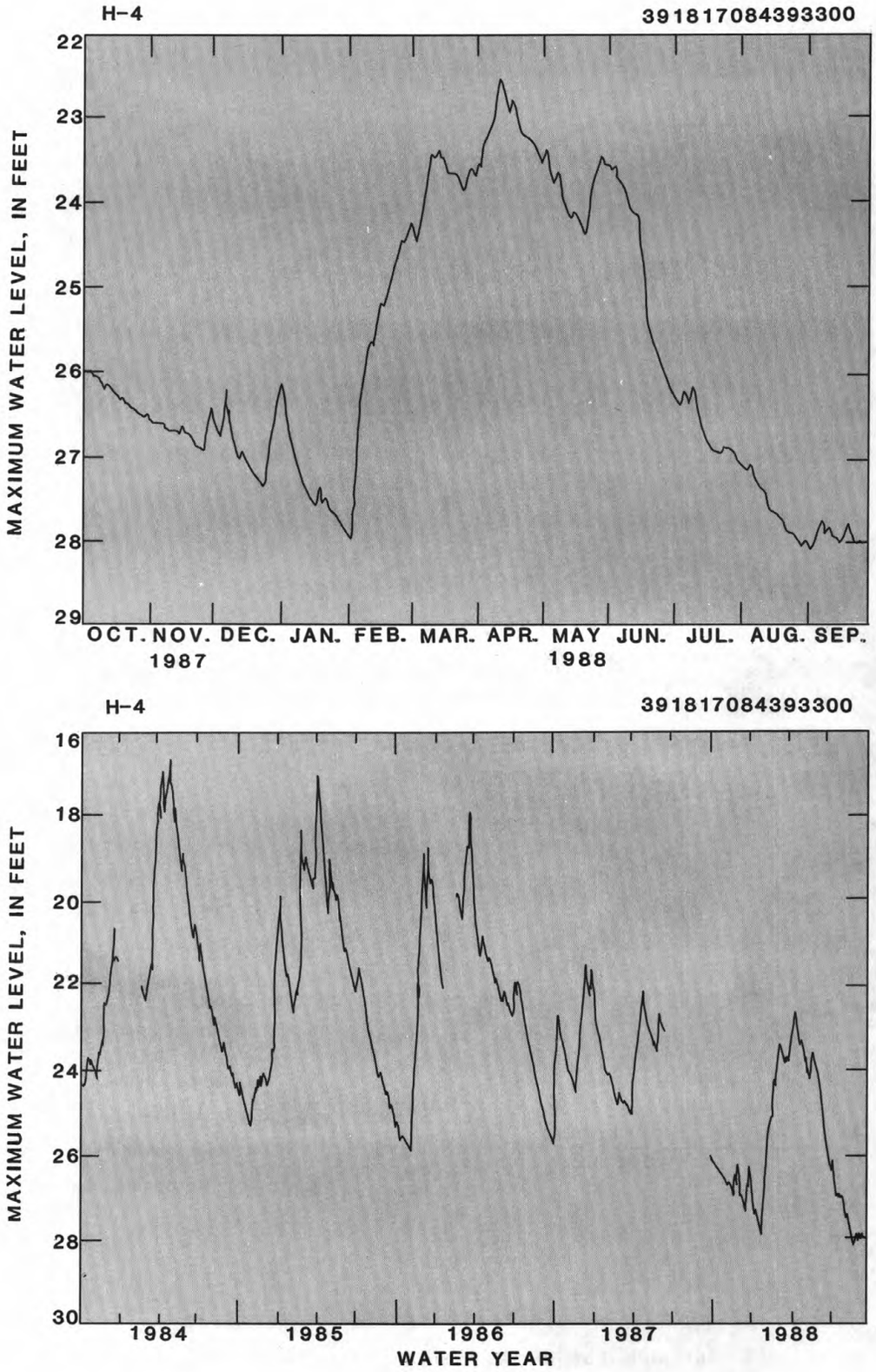


Figure 4.--Sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated aquifer.

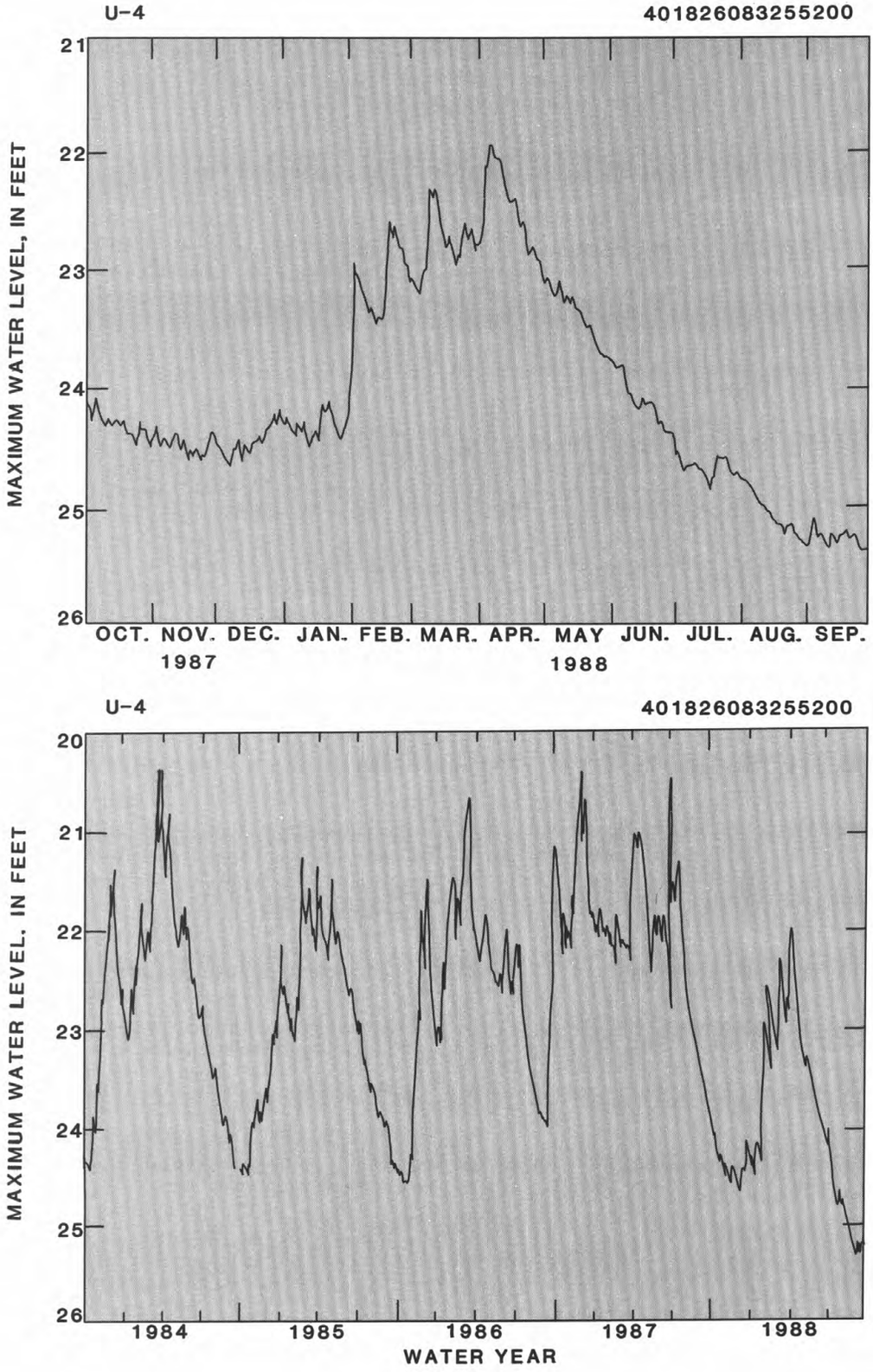


Figure 5.--Sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer.

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 feet.

For water year 1988, ground-water levels started low at the beginning of the year and continued to decline through the end of the calendar year. From October through December, ground-water levels were at near record lows in the southern part of the State. Slight improvements were noted in January, but rises averaged about half of normal[2]. Water-supply problems continued from the beginning the water year in the southeastern part of the State.

Generally, water levels rose significantly in most parts of the State in early February in response to heavy rains, but were still below normal. March water levels rose during the early part of the month and stabilized during the latter part of the month. April levels showed some response to recharge but remained below normal.

Steady declines, some caused as a result of below-average precipitation, were noted for the period May through August. Many of the observation wells continued to set new monthly lows and several reached all-time record lows. Mixed responses were observed throughout the State during September, but water levels generally stablized within the below-normal range.

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.

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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.

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.

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.)

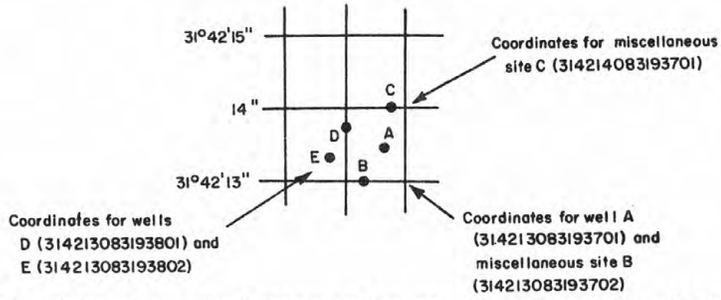


Figure 6.--System for numbering wells and miscellaneous sites (latitude and longitude)

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 con tinuous 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 corresesponding 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 laboraories 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.

Data Presentation

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptable range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organisms may be observed rather than counted)
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°C. In the laboratory, these bacteria are defined as the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C + 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Micrograms per gram (UG/G, 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 diffine production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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-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.

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. J. 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 and dispersion in streams by dye tracing, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 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-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 programed test 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. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 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 analysis of organic substances in water, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. Methods for collection and analysis of aquatic biological and microbiological samples, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 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.

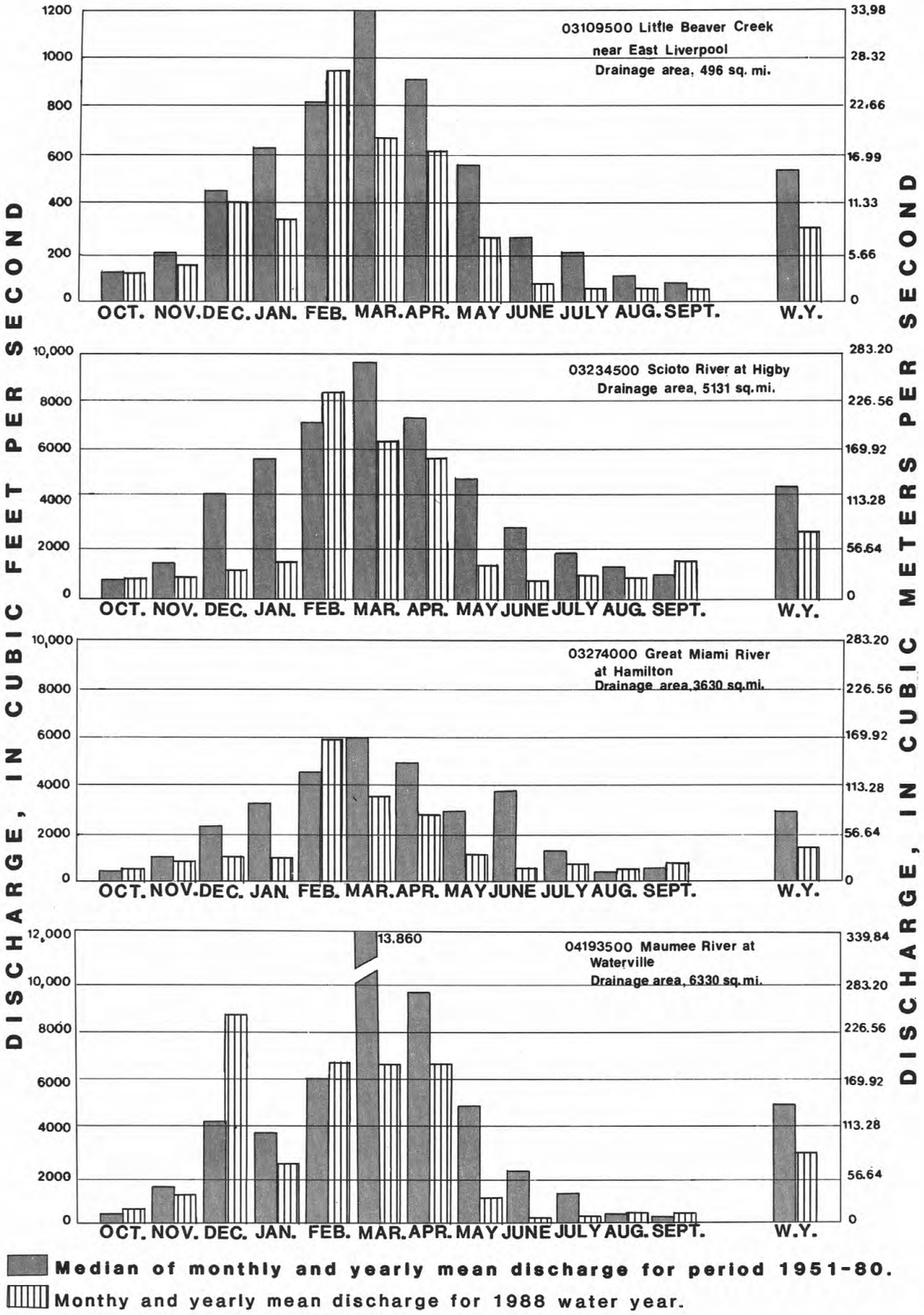
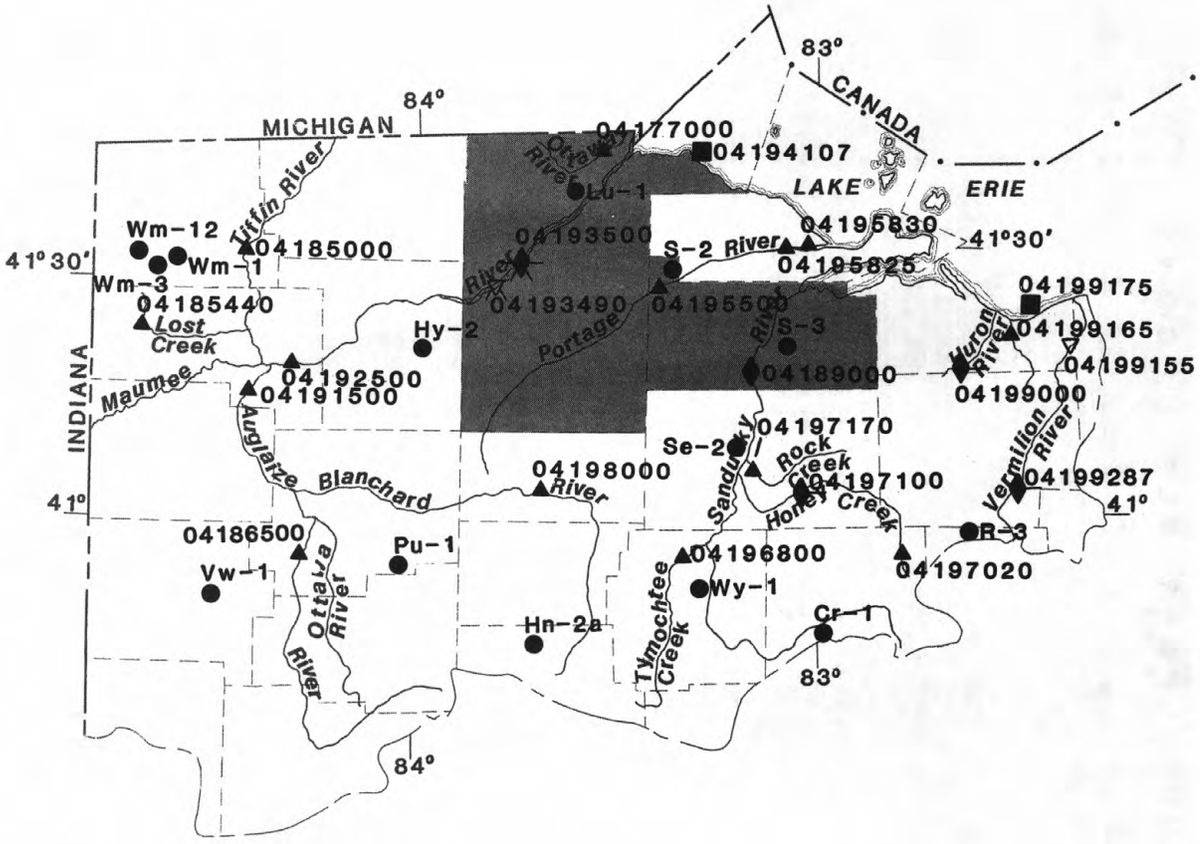


Figure 7.--Runoff during 1988 water year compared with median runoff for period 1951-1980 for four representative gaging stations.



EXPLANATION

- ▲ Daily discharge station
- ■ Stage station
- ▼ Water quality station
- ♦ Discharge and water quality station
- Chemical measurement site
- Temperature measurement site
- Biological measurement site
- Sediment measurement site
- ▽ Monitor
- ● Observation well
- ■ Project wells
  - Lucas: 8 chemical-GW
    26 radiological-GW
  - Sandusky: 30 radiological-GW
  - Wood: 1 water level
    29 radiological-GW

0 10 20 30 40 MILES

0 10 20 30 40 50 60 KILOMETERS

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

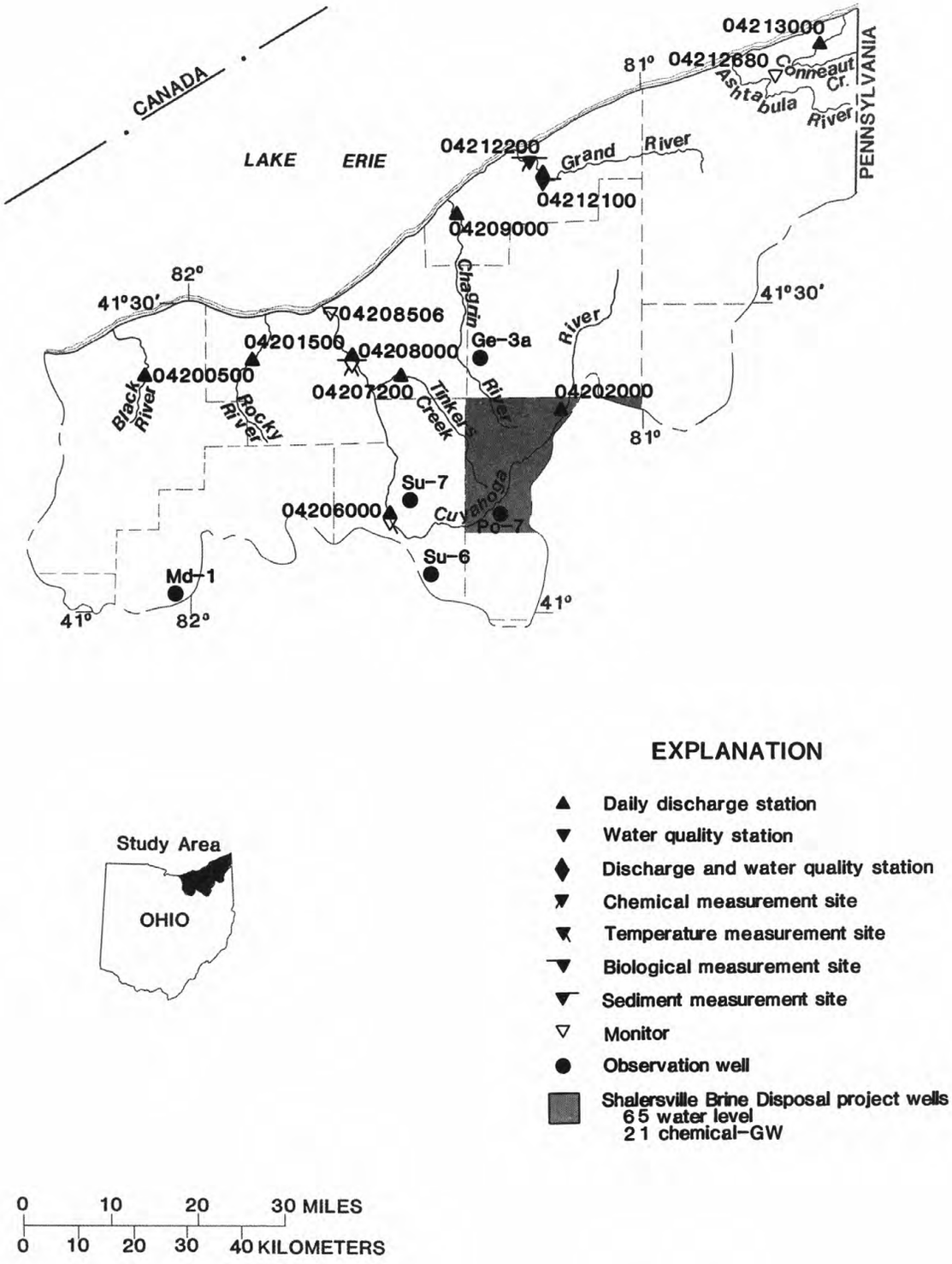


Figure 8b.—Location of data-collection stations.

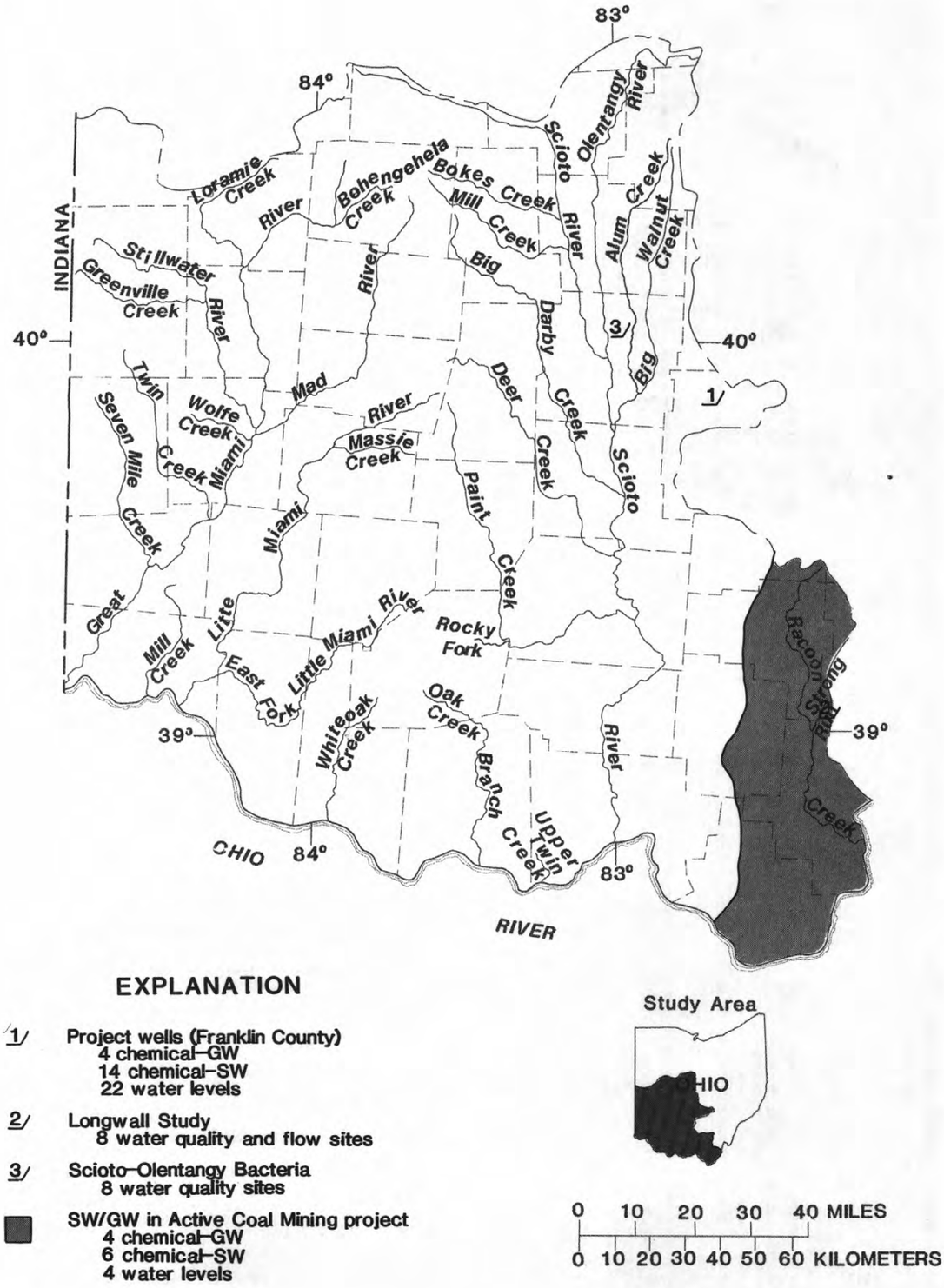


Figure 8c.--Location of data-collection stations for projects, Ohio River basin.

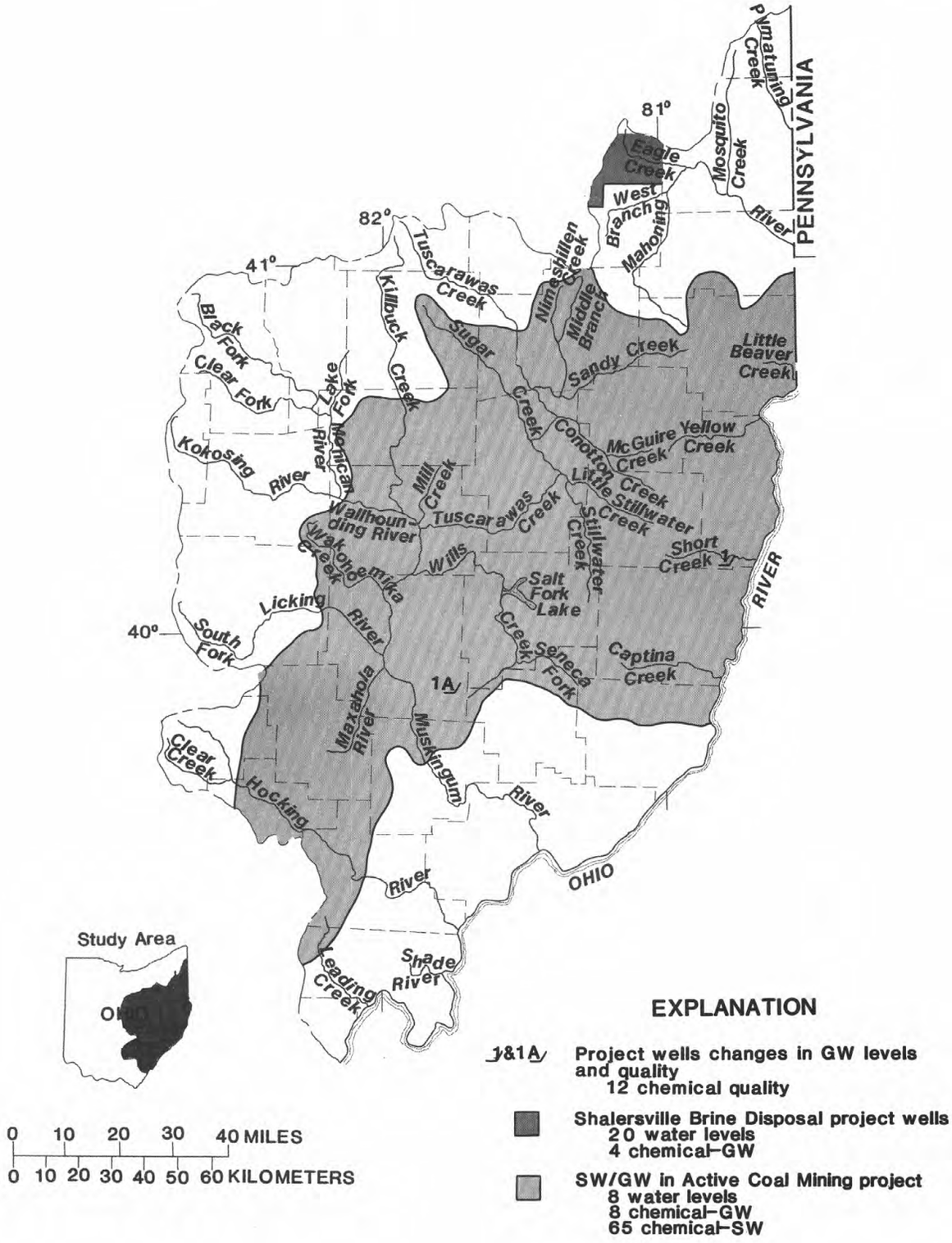


Figure 8D.—Location of data-collection stations for projects, Ohio River Basin.

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.--No estimated daily discharges. Records fair. Water-quality data collected at this site 1977.

AVERAGE DISCHARGE.--15 years(1946-48, 1977-88) 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)
Dec. 16	1600	*1,500	*10.16	No other peak greater than base discharge.			

Minimum daily discharge, 1.9 ft³/s Aug. 17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	38	186	116	635	92	70	23	12	3.9	6.2	7.4
2	12	33	220	174	706	93	69	20	23	3.8	6.1	7.7
3	11	34	180	102	339	105	92	18	14	4.0	4.2	18
4	8.1	31	148	78	143	84	186	16	10	3.4	2.8	41
5	8.5	31	121	83	127	71	172	16	9.4	2.8	2.3	22
6	13	30	107	47	144	64	140	16	9.1	3.9	17	14
7	8.6	29	101	39	142	62	325	16	8.3	4.9	3.8	15
8	6.1	32	127	45	81	64	457	16	7.6	3.9	2.1	13
9	10	46	554	36	65	86	204	29	6.1	4.5	2.1	11
10	13	32	838	35	60	141	131	29	5.9	7.2	3.5	10
11	15	31	402	32	60	122	99	19	6.0	16	15	9.9
12	6.2	30	343	33	66	142	79	19	7.0	6.3	6.4	21
13	4.6	27	275	35	54	245	68	17	8.0	5.4	2.4	21
14	5.6	26	151	31	49	204	61	15	7.5	5.2	3.8	11
15	9.0	24	695	30	83	124	55	15	6.3	5.0	3.5	8.6
16	9.7	23	1420	30	120	88	45	28	5.2	6.6	2.0	7.8
17	20	31	1040	110	128	73	38	15	5.3	21	1.9	9.2
18	9.9	43	410	263	152	69	39	14	5.5	4.7	91	9.8
19	5.9	30	237	198	252	68	36	14	5.3	16	50	14
20	6.5	8.8	470	161	315	71	33	17	5.3	11	23	36
21	9.8	25	796	208	271	67	32	16	5.7	13	20	16
22	7.2	33	359	93	256	59	29	15	5.5	5.2	17	9.9
23	7.0	36	201	69	509	58	29	14	11	56	55	24
24	24	36	151	60	403	267	27	34	6.5	25	23	19
25	21	222	203	52	193	861	27	77	4.3	8.2	14	11
26	14	482	231	88	132	554	24	45	3.8	22	15	8.9
27	76	364	153	51	116	261	24	25	3.5	5.3	14	8.3
28	124	159	131	42	88	148	38	18	3.8	3.4	23	7.2
29	91	184	129	43	87	112	28	16	4.8	3.1	11	6.7
30	65	240	89	97	---	100	26	15	5.0	40	8.5	7.1
31	53	---	104	323	---	80	---	15	---	31	7.6	---
TOTAL	687.7	2390.8	10572	2804	5776	4635	2683	662	220.7	351.7	457.2	425.5
MEAN	22.2	79.7	341	90.5	199	150	89.4	21.4	7.36	11.3	14.7	14.2
MAX	124	482	1420	323	706	861	457	77	23	56	91	41
MIN	4.6	8.8	89	30	49	58	24	14	3.5	2.8	1.9	6.7
CFSM	.15	.53	2.27	.60	1.33	1.00	.60	.14	.05	.08	.10	.09
IN.	.17	.59	2.62	.70	1.43	1.15	.67	.16	.05	.09	.11	.11

CAL YR 1987	TOTAL	40555.8	MEAN	111	MAX	1650	MIN	4.6	CFSM	.74	IN.	10.06
WTR YR 1988	TOTAL	31665.6	MEAN	86.5	MAX	1420	MIN	1.9	CFSM	.58	IN.	7.85

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: Nov. 10-24, Dec. 16-Jan. 15, Jan. 20-May 11. Records good except those from Nov. 10 to May 12 which are poor. Small diversion 12.5 mi upstream from gage for municipal supply of Archbold. Diversion averaged 2.48 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.--55 years, 324 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)
Dec. 17	--	2,120	--	Apr. 7	1900	*2,150	*12.20

Minimum daily discharge, 2.5 ft³/s July 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	65	243	210	580	290	450	170	54	6.2	82	33
2	24	62	176	160	960	265	420	170	49	6.4	48	30
3	24	62	224	130	820	250	560	170	48	6.2	27	44
4	22	59	158	115	600	230	1000	160	46	6.0	18	152
5	19	55	91	105	450	220	1210	160	43	5.9	14	221
6	18	54	134	100	300	220	1540	160	40	5.9	14	131
7	18	56	153	110	200	290	2090	150	36	4.4	13	76
8	17	55	221	120	210	345	2140	145	33	3.7	14	52
9	17	54	548	86	180	470	1900	160	29	3.6	12	41
10	18	50	787	74	165	600	1700	235	27	3.2	25	34
11	21	115	623	65	150	620	1480	195	28	3.2	40	32
12	21	130	877	60	140	560	1090	97	28	3.0	28	30
13	20	90	417	56	130	610	720	95	27	4.1	89	29
14	20	62	243	51	130	710	520	89	23	4.8	263	29
15	20	34	444	50	150	590	430	84	20	4.5	188	27
16	19	47	1100	115	190	450	360	79	19	3.7	133	26
17	17	35	2100	154	320	370	330	79	18	2.9	76	25
18	17	32	1400	468	440	340	300	77	17	2.5	46	26
19	20	30	1100	337	660	315	280	79	15	5.7	53	28
20	23	43	1300	540	860	300	260	79	15	14	175	33
21	25	38	1500	620	1000	290	250	79	14	12	169	44
22	27	31	1600	480	970	270	240	87	13	11	98	47
23	35	31	1200	410	1300	260	230	97	11	18	68	56
24	42	31	990	360	1600	690	220	124	11	18	77	57
25	46	201	850	270	900	1370	215	281	11	13	85	57
26	48	420	780	200	500	1650	210	168	13	18	64	66
27	76	422	720	150	400	1700	200	112	12	54	46	60
28	124	305	720	86	370	1400	195	89	9.6	47	39	50
29	117	312	840	94	330	990	185	78	7.4	32	43	45
30	90	364	920	120	---	610	175	69	6.6	28	46	41
31	74	---	300	220	---	480	---	62	---	74	40	---
TOTAL	1098	3345	22759	6116	15005	17755	20900	3879	723.6	424.9	2133	1622
MEAN	35.4	112	734	197	517	573	697	125	24.1	13.7	68.8	54.1
MAX	124	422	2100	620	1600	1700	2140	281	54	74	263	221
MIN	17	30	91	50	130	220	175	62	6.6	2.5	12	25

CAL YR 1987	TOTAL	66752	MEAN	183	MAX	2100	MIN	16
WTR YR 1988	TOTAL	95760.5	MEAN	262	MAX	2140	MIN	2.5

04185440 UNNAMED TRIBUTARY TO LOST CREEK NR FARMER, OH

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

DRAINAGE AREA.--4.23 mi².

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

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

REMARKS.--Estimated daily discharges: Dec. 16-19, Jan. 18-Mar. 9, 26-28. Records fair except those for estimated daily discharges and those for June 20-Sept. 30 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.

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)
Dec. 15	1100	313	4.34	Apr. 3	1915	*338	*4.45
Mar. 24	1415	183	3.66	Apr. 6	1430	221	3.88

Minimum daily discharge, 0.00 ft³/s many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.16	8.6	2.4	10	1.5	2.5	.49	.08	.00	.00	.00
2	.05	.12	6.2	1.2	20	1.4	3.5	.46	.10	.00	.00	.00
3	.04	.10	4.2	1.0	35	1.3	76	.43	.11	.00	.00	.40
4	.05	.09	6.4	.84	13	1.2	37	.40	.09	.00	.00	5.6
5	.04	.09	2.9	.57	9.0	1.2	10	.39	.09	.00	.00	.74
6	.07	.08	1.9	.56	4.5	5.0	73	.38	.08	.00	.00	.17
7	.08	.09	1.9	.49	3.5	10	71	.34	.08	.00	.00	.08
8	.07	.09	15	.46	2.7	30	12	.34	.07	.00	.00	.04
9	.08	.24	29	.40	2.2	8.0	6.9	.44	.08	.00	.00	.00
10	.09	.17	8.1	.29	1.8	4.9	4.1	.48	.08	.01	.00	.00
11	.17	.11	5.0	.23	1.5	3.5	2.9	.38	.08	.03	.00	.00
12	.12	.10	9.3	.33	1.2	5.8	2.3	.31	.07	.00	.00	.00
13	.09	.10	3.3	.33	1.0	7.0	2.0	.25	.06	.00	.00	.00
14	.08	.09	1.9	.19	.90	3.5	1.8	.22	.04	.00	.00	.00
15	.08	.09	116	.15	1.1	2.4	1.4	.20	.02	.00	.10	.00
16	.07	.09	60	.14	2.5	1.9	1.2	.19	.04	.00	.64	.00
17	.06	.10	40	.26	5.0	1.5	1.0	.18	.08	.00	.10	.00
18	.08	.11	30	6.0	15	1.7	.92	.18	.09	.00	.01	.02
19	.08	.10	50	18	25	1.5	.77	.18	.04	.04	.02	.02
20	.06	.09	82	4.5	45	1.3	.75	.21	.01	.13	.08	.19
21	.05	.09	40	2.5	54	1.2	.75	.19	.00	.01	.00	.08
22	.05	.09	5.7	1.5	25	1.2	.67	.19	.00	.00	.10	.03
23	.06	.09	3.9	1.2	18	1.2	.81	.18	.00	.00	1.2	.02
24	.08	.09	3.5	.90	20	88	.65	.17	.00	.00	1.1	.00
25	.21	35	5.5	.70	8.0	56	.60	.14	.00	.10	.14	.00
26	.10	14	3.6	.60	4.0	25	.59	.15	.00	.02	.04	.00
27	5.8	4.7	2.3	.50	3.0	10	.58	.13	.00	.01	.00	.00
28	1.4	4.7	2.2	.54	2.2	3.0	.66	.12	.00	.00	.00	.00
29	.46	25	3.0	.70	1.8	3.4	.57	.12	.00	.00	.00	.00
30	.26	12	2.0	1.0	---	4.1	.51	.11	.00	.00	.00	.00
31	.17	---	2.2	3.5	---	3.1	---	.10	---	.00	.00	---
TOTAL	10.17	97.97	555.6	51.98	335.90	290.8	317.43	8.05	1.39	.35	3.53	7.39
MEAN	.33	3.27	17.9	1.68	11.6	9.38	10.6	.26	.05	.01	.11	.25
MAX	5.8	35	116	18	54	88	76	.49	.11	.13	1.2	5.6
MIN	.04	.08	1.9	.14	.90	1.2	.51	.10	.00	.00	.00	.00
CFSM	.08	.77	4.23	.40	2.74	2.22	2.51	.06	.01	.00	.03	.06
IN.	.09	.86	4.89	.46	2.95	2.56	2.79	.07	.01	.00	.03	.06

CAL YR 1987	TOTAL	1283.85	MEAN	3.52	MAX	116	MIN	.00	CFSM	.83	IN.	11.29
WTR YR 1988	TOTAL	1680.56	MEAN	4.59	MAX	116	MIN	.00	CFSM	1.09	IN.	14.78

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: Jan. 3-20, 26-31, Feb. 5-18, 24, Mar. 1. Records good except for periods of estimated discharges, and periods of doubtful gage-height record, July 12-Aug. 22 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 3,291 mil gal, equivalent to a mean withdrawal of 13.9 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 telemeter at station.

AVERAGE DISCHARGE.--62 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)
Mar. 9	2230	*1,820	*8.94				

Minimum daily discharge, 1.4 ft³/s July 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	18	66	163	189	120	124	50	22	5.0	36	20
2	8.9	15	78	169	1000	120	191	46	21	3.9	37	15
3	5.9	16	91	120	1150	121	248	43	23	3.3	37	12
4	6.0	15	98	105	506	126	1150	42	22	2.7	28	13
5	7.7	13	113	93	240	122	1010	42	22	1.9	23	11
6	7.1	9.7	90	86	180	119	495	42	22	1.4	22	11
7	9.2	8.9	61	99	140	144	619	42	21	1.5	19	14
8	9.5	11	44	82	150	451	720	42	20	2.5	15	17
9	11	16	48	73	130	1490	486	44	18	3.0	14	17
10	15	23	50	63	115	1550	323	45	16	2.7	12	13
11	17	19	49	55	105	768	244	47	15	2.9	11	9.5
12	18	18	55	50	93	449	197	51	14	8.4	14	8.9
13	19	23	54	47	88	485	166	51	15	5.7	19	15
14	18	21	49	43	100	386	142	46	15	3.9	14	10
15	16	19	252	41	120	260	122	41	13	2.9	11	9.1
16	14	16	1120	49	150	215	107	39	11	2.3	12	20
17	11	17	627	64	230	189	95	37	11	2.3	12	14
18	12	17	231	76	530	168	90	35	10	2.8	9.4	12
19	13	15	135	99	596	179	84	35	9.4	6.2	8.5	9.3
20	7.6	15	351	160	1310	207	78	35	9.9	21	12	20
21	9.5	14	688	190	1790	184	73	35	10	72	12	18
22	8.1	14	400	171	1540	155	68	34	10	144	18	9.8
23	8.0	13	199	92	605	117	67	35	11	133	19	9.1
24	9.7	13	127	65	420	119	63	36	8.4	61	14	8.3
25	13	24	130	53	280	160	60	35	7.9	80	11	7.5
26	19	50	200	46	180	336	56	36	6.6	55	9.1	5.9
27	22	64	241	50	135	280	55	33	5.9	36	7.9	5.0
28	28	65	203	53	130	204	55	30	6.1	30	26	4.4
29	28	69	521	58	125	163	55	27	6.0	23	31	4.2
30	32	81	518	64	---	144	52	25	6.0	19	16	3.4
31	28	---	281	100	---	125	---	24	---	46	19	---
TOTAL	439.4	732.6	7170	2679	12327	9656	7295	1205	408.2	785.3	548.9	346.4
MEAN	14.2	24.4	231	86.4	425	311	243	38.9	13.6	25.3	17.7	11.5
MAX	32	81	1120	190	1790	1550	1150	51	23	144	37	20
MIN	5.9	8.9	41	41	88	117	52	24	5.9	1.4	7.9	3.4
CFSM	.04	.07	.70	.26	1.28	.94	.73	.12	.04	.08	.05	.03
IN.	.05	.08	.80	.30	1.38	1.08	.82	.14	.05	.09	.06	.04

CAL YR 1987	TOTAL	52339.1	MEAN	143	MAX	1700	MIN	5.9	CFSM	.43	IN.	5.86
WTR YR 1988	TOTAL	43592.8	MEAN	119	MAX	1790	MIN	1.4	CFSM	.36	IN.	4.88

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.--No estimated daily discharges. Records good except for Oct. 1 to Nov. 13, 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.--60 years, 253 ft³/s, 9.93 in/yr.

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

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

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	1700	*1,530	*5.35				

Minimum daily discharge, 11 ft³/s Sept. 25, 26.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	25	56	137	608	125	111	52	24	16	26	23
2	30	24	68	108	1080	124	110	50	28	17	23	21
3	29	24	68	117	776	135	309	47	27	17	17	22
4	29	25	101	95	388	129	716	46	25	17	26	19
5	27	26	85	58	200	107	537	45	24	19	35	16
6	27	23	67	40	129	113	359	46	24	22	50	15
7	37	22	59	45	119	176	401	43	22	31	22	16
8	32	23	73	43	118	468	617	41	18	26	19	16
9	28	38	94	41	88	1310	437	62	17	25	17	15
10	25	27	89	38	71	1370	278	51	17	21	17	16
11	25	22	77	36	56	771	209	47	15	25	17	15
12	24	20	114	37	46	482	167	45	15	22	21	15
13	23	21	91	41	41	491	138	42	16	24	26	18
14	23	21	72	36	37	431	115	38	17	20	22	16
15	24	20	433	34	84	281	95	34	16	19	18	15
16	24	21	506	35	147	207	78	39	18	18	19	14
17	33	21	271	47	171	171	68	35	17	17	16	14
18	27	24	156	60	310	166	66	31	16	34	13	13
19	22	21	122	65	589	181	60	29	15	38	77	15
20	22	19	393	143	1400	190	53	31	15	24	28	17
21	22	18	410	184	1110	160	52	30	16	46	20	14
22	21	18	254	130	710	143	46	28	16	42	17	13
23	19	19	169	92	1320	138	41	29	22	34	23	12
24	28	19	134	68	859	174	41	30	17	34	22	12
25	34	91	146	55	423	252	38	28	15	39	18	11
26	27	65	165	33	242	399	36	26	14	40	17	11
27	39	46	171	41	224	295	49	26	14	37	15	12
28	32	40	183	44	158	203	62	23	17	39	73	12
29	31	49	478	46	135	160	59	23	17	43	29	12
30	28	47	367	104	---	140	56	23	16	41	22	12
31	27	---	206	287	---	111	---	23	---	55	22	---
TOTAL	849	879	5678	2340	11639	9603	5404	1143	550	902	787	452
MEAN	27.4	29.3	183	75.5	401	310	180	36.9	18.3	29.1	25.4	15.1
MAX	39	91	506	287	1400	1370	716	62	28	55	77	23
MIN	19	18	56	33	37	107	36	23	14	16	13	11
CFSM	.08	.08	.53	.22	1.16	.90	.52	.11	.05	.08	.07	.04
IN.	.09	.09	.61	.25	1.25	1.03	.58	.12	.06	.10	.08	.05

CAL YR 1987	TOTAL	53235	MEAN	146	MAX	1880	MIN	15	CFSM	.42	IN.	5.72
WTR YR 1988	TOTAL	40226	MEAN	110	MAX	1400	MIN	11	CFSM	.32	IN.	4.32

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: Dec. 4-14, 17-24, Dec. 31-Jan. 6, Feb. 4-9 and June 21-Sept. 30. Records fair except those for periods of estimated record which are poor. 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.--73 years, 1,736 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, 10,900 ft³/s Feb. 23 gage height 12.78; minimum daily, 10 ft³/s June 19.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	52	1440	3000	1790	1080	1180	490	205	23	175	90
2	73	516	160	2500	4120	1560	1230	611	289	22	142	150
3	62	424	994	2000	7290	769	1960	603	287	23	103	200
4	73	331	1800	1600	8000	1510	6410	545	358	25	302	250
5	198	62	2000	1300	7000	2000	7450	289	440	23	200	280
6	283	283	1700	1200	5000	2000	5600	370	426	22	130	230
7	65	63	1500	1010	3500	1990	6210	370	72	22	90	200
8	60	57	1400	1040	1500	1690	6820	368	72	23	64	150
9	62	254	1300	1060	1000	5830	5020	398	64	28	74	80
10	57	57	1200	1060	766	9040	3940	459	22	30	50	150
11	57	905	1200	984	775	7470	2700	581	167	97	70	70
12	280	1910	1200	665	879	6080	1880	626	68	24	60	100
13	60	1040	1200	863	646	4780	1220	605	18	28	85	80
14	228	168	1300	485	391	4180	994	646	19	31	98	110
15	52	38	3010	177	587	2990	911	605	22	23	91	90
16	54	278	9210	146	640	2160	449	404	25	34	62	150
17	62	49	10000	1060	1490	1680	852	176	23	76	58	110
18	49	36	9000	1700	1780	1170	248	277	91	101	68	250
19	46	35	7600	1800	2460	1050	630	250	10	110	62	230
20	125	336	5000	773	5570	1570	308	352	15	408	57	200
21	359	445	3500	1780	8670	1480	414	61	20	139	51	290
22	50	240	2800	1780	7340	885	377	273	87	381	55	260
23	162	42	2200	610	9130	1050	352	385	20	337	100	230
24	46	29	1900	843	8290	2080	254	477	20	445	250	140
25	169	440	1720	1020	5730	5010	341	518	30	336	150	210
26	212	293	1670	456	3790	5520	284	511	20	196	110	150
27	365	770	1740	690	2850	5590	217	215	21	287	90	100
28	57	658	1780	91	1940	4140	248	62	22	356	150	88
29	552	610	2390	536	1510	3120	305	58	75	336	200	80
30	52	1240	3970	316	---	1690	295	210	24	320	150	100
31	51	---	3500	649	---	1110	---	115	---	36	100	---
TOTAL	4100	11661	89384	33194	104434	92274	59099	11910	3032	4342	3447	4818
MEAN	132	389	2883	1071	3601	2977	1970	384	101	140	111	161
MAX	552	1910	10000	3000	9130	9040	7450	646	440	445	302	290
MIN	46	29	160	91	391	769	217	58	10	22	50	70

CAL YR 1987	TOTAL	422226	MEAN	1157	MAX	11000	MIN	29
WTR YR 1988	TOTAL	421695	MEAN	1152	MAX	10000	MIN	10

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: Jan. 4-15, Feb. 9-13, 26-29, March 2-5. 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.--56 years, 4,231 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)
Apr. 8	0200	*24,600	*5.91	No other peaks greater than base discharge.			

Minimum daily discharge, 60 ft³/s July 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246	533	6480	5430	5210	4040	4680	1070	475	98	961	321
2	268	630	4490	4110	8580	3550	4300	912	384	97	1340	274
3	254	479	4460	2730	13000	3200	5330	871	287	95	623	324
4	265	576	4990	2050	10500	2900	14000	840	357	91	511	625
5	290	417	3980	1650	7450	2650	17500	790	385	86	282	696
6	377	384	3280	1400	3900	2540	14000	775	381	81	246	728
7	463	365	2990	1500	2260	3060	19600	648	318	76	182	623
8	301	780	2970	1600	2380	3260	23200	856	216	77	213	427
9	249	710	4250	1250	2250	7940	20600	803	229	79	248	266
10	254	620	5920	1050	1950	13100	17300	668	218	80	157	272
11	273	1230	6720	940	1750	12400	13300	951	302	89	199	217
12	349	1380	6300	850	1600	10100	10500	956	259	119	173	212
13	301	1020	5800	780	1450	9550	7930	892	203	79	361	212
14	368	538	5150	720	1380	9160	5970	730	211	77	348	235
15	311	349	10200	680	1530	7740	4400	763	197	63	291	161
16	258	471	21500	642	1910	5990	3220	820	160	60	308	215
17	263	379	19800	1150	3310	4690	2960	668	160	92	361	145
18	233	318	14800	2910	4420	3670	2260	686	214	118	214	167
19	223	300	10900	3370	5370	3000	2250	592	157	187	172	235
20	279	446	12000	4250	9200	3420	1840	551	119	890	252	453
21	291	360	16500	5690	13300	3320	1660	602	129	873	351	363
22	239	312	16000	6220	12700	2420	1660	673	169	642	433	574
23	258	320	12500	4730	17600	2500	1560	535	137	748	427	437
24	253	307	9600	4050	19300	5030	1380	693	120	1010	365	285
25	283	1240	8200	3620	15700	15600	1340	801	102	615	808	351
26	368	3330	7760	2450	8600	18500	1260	1140	76	488	415	248
27	752	4590	7220	1700	6200	15700	1120	955	99	516	281	283
28	719	4230	6660	1100	5000	12100	1110	631	106	468	407	237
29	1030	4120	7250	1350	4300	9380	1130	547	110	345	296	230
30	721	6260	9130	1630	---	7320	923	620	132	430	393	282
31	587	---	7760	2420	---	5630	---	448	---	345	404	---
TOTAL	11326	36994	265560	74022	192100	213460	208283	23487	6412	9114	12022	10098
MEAN	365	1233	8566	2388	6624	6886	6943	758	214	294	388	337
MAX	1030	6260	21500	6220	19300	18500	23200	1140	475	1010	1340	728
MIN	223	300	2970	642	1380	2420	923	448	76	60	157	145

CAL YR 1987	TOTAL	1011000	MEAN	2770	MAX	21500	MIN	172
WTR YR 1988	TOTAL	1062878	MEAN	2904	MAX	23200	MIN	60

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 mi^2.

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.

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, $\geq$20.0 mg/L several days in water years 1980, 1981 and 1987; minimum, 0.3 mg/L Nov. 10, 1965.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 946 microsiemens Aug. 3; minimum, 360 microsiemens, Feb. 24.
PH: Maximum, 9.3 units Oct. 3, 4, July 24, 27; minimum, 7.4 units on Feb. 28, 29.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 3; minimum, 0.0°C on many days during winter.
DISSOLVED OXYGEN: Maximum , $\geq$20.0 mg/L, May 1; minimum, 2.8 mg/L July 19.

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	546	522	536	718	696	700	666	658	662	623	600	614
2	546	522	537	726	698	719	676	640	656	646	604	630
3	544	524	535	744	720	730	678	656	668	640	616	630
4	546	520	536	746	720	735	676	640	655	642	606	636
5	544	520	537	764	726	741	640	600	612	658	644	648
6	558	536	548	766	760	763	644	600	629	662	644	653
7	566	558	563	776	760	766	664	640	648	666	662	665
8	586	560	575	778	760	773	666	640	654	678	660	664
9	598	580	584	778	762	767	684	656	672	700	676	685
10	606	600	605	786	760	769	704	680	690	722	700	711
11	606	600	603	806	778	793	698	642	678	738	720	729
12	606	600	603	806	800	804	646	600	627	744	736	740
13	616	600	605	806	800	803	664	640	652	746	740	744
14	616	604	608	816	800	805	666	636	653	766	740	758
15	620	600	613	818	800	806	636	484	554	782	760	770
16	606	600	603	806	800	802	522	404	479	780	760	769
17	604	576	598	800	776	788	444	400	424	766	746	760
18	602	564	591	804	778	798	446	416	438	746	720	737
19	600	576	586	806	766	799	444	404	435	766	756	762
20	600	564	584	786	764	775	---	---	---	766	698	747
21	600	576	584	786	762	784	482	456	476	726	680	711
22	606	600	603	782	762	774	484	442	474	664	600	635
23	626	604	613	786	766	779	484	466	476	658	560	606
24	626	604	620	786	762	776	486	444	466	578	560	570
25	626	602	622	780	760	768	524	480	494	578	560	566
26	626	622	624	862	760	803	538	520	525	558	520	542
27	662	620	635	920	856	893	542	526	539	524	464	490
28	664	640	648	844	760	793	562	520	539	476	462	468
29	684	644	663	804	600	699	578	560	566	498	478	487
30	698	680	685	686	620	662	596	560	573	506	486	499
31	704	684	700	---	---	---	626	564	599	486	442	467
MONTH	704	520	598	920	600	772	704	400	574	782	442	648

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	484	440	456	486	440	465	580	558	564	616	562	599
2	526	482	508	506	480	491	596	560	576	586	560	574
3	566	520	541	526	480	505	622	598	605	580	560	565
4	580	556	568	546	506	526	624	562	601	576	524	558
5	566	558	563	566	520	544	618	498	575	586	560	572
6	566	558	563	586	560	574	524	482	495	584	562	569
7	566	560	562	584	562	575	526	480	504	566	558	563
8	564	560	562	626	560	599	518	442	463	566	536	555
9	566	560	563	626	584	608	446	402	425	586	560	564
10	576	560	565	676	546	624	446	404	432	582	564	575
11	582	560	566	616	586	589	466	440	450	580	564	574
12	606	564	589	586	560	570	486	478	482	578	564	573
13	636	600	615	---	---	---	506	480	496	578	562	570
14	646	636	641	566	556	558	524	496	508	584	560	578
15	660	640	651	576	560	565	526	520	522	580	560	568
16	646	640	643	586	560	577	542	524	533	578	562	567
17	666	640	654	604	578	597	560	520	546	578	560	565
18	666	640	658	606	600	603	562	536	550	584	576	578
19	646	598	637	622	604	614	566	536	558	596	564	582
20	586	560	576	626	600	615	598	564	581	606	576	599
21	606	544	574	640	618	626	586	562	580	620	602	612
22	544	456	501	656	640	645	596	562	580	626	600	620
23	446	400	418	664	640	652	626	598	616	626	620	622
24	406	360	386	686	640	661	624	600	619	626	600	620
25	416	366	393	644	600	620	626	600	615	644	600	624
26	424	400	416	---	---	---	640	602	619	618	576	590
27	446	406	436	---	---	---	646	616	636	602	582	597
28	460	418	444	506	484	498	642	624	633	606	600	603
29	464	440	448	540	486	515	626	600	618	620	600	609
30	---	---	---	556	524	538	624	600	610	618	586	607
31	---	---	---	556	526	539	---	---	---	618	556	598
MONTH	666	360	541	686	440	575	646	402	553	644	524	585

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	606	560	590	746	720	734	882	846	874	684	660	678
2	616	596	603	746	696	733	924	898	902	680	642	670
3	622	600	613	738	684	720	946	920	935	666	642	658
4	626	600	615	738	686	719	---	---	---	682	646	670
5	644	600	616	744	720	728	---	---	---	684	678	681
6	664	618	641	740	696	724	---	---	---	682	640	667
7	666	604	651	724	686	716	---	---	---	666	640	654
8	676	640	659	726	680	707	860	844	856	664	660	662
9	666	640	660	724	680	703	866	840	856	666	640	653
10	680	642	662	736	696	720	866	840	855	666	642	655
11	680	646	664	746	720	736	846	844	849	664	640	654
12	686	680	683	746	716	730	844	820	833	664	640	646
13	698	680	686	744	720	736	838	800	823	646	600	634
14	704	680	695	746	720	735	836	802	823	662	600	617
15	716	700	704	746	720	734	836	802	825	626	600	620
16	720	704	716	746	720	737	836	802	822	626	598	618
17	722	698	717	746	722	738	826	800	817	622	600	608
18	724	718	722	746	720	736	840	806	822	606	600	604
19	726	720	723	758	720	736	822	800	816	616	600	605
20	726	720	723	760	736	753	818	802	810	620	616	618
21	738	724	734	766	738	760	806	780	798	626	600	617
22	740	720	734	766	760	761	806	784	800	636	604	621
23	746	720	730	766	760	764	806	796	802	636	602	617
24	744	720	733	766	760	763	800	762	786	640	600	622
25	744	720	734	784	762	776	786	762	779	638	600	621
26	746	720	733	784	760	779	786	762	777	640	600	623
27	746	720	734	786	760	776	766	736	761	636	600	623
28	746	720	737	806	764	790	758	722	733	642	616	638
29	746	726	738	822	800	807	722	696	706	640	618	637
30	760	720	736	840	804	824	706	680	697	640	618	627
31	---	---	---	862	840	844	698	666	681	---	---	---
MONTH	760	560	690	862	680	749	946	666	809	684	598	637

YEAR MAXIMUM 946 MINIMUM 360 MEAN 644

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.8	8.4	8.6	9.0	8.9	9.0	8.1	7.9	8.0	8.2	8.0	8.1
2	9.2	8.6	8.8	9.1	8.8	9.0	8.1	7.9	8.0	8.1	7.9	8.0
3	9.3	8.7	9.0	9.0	8.8	8.9	8.1	7.9	8.0	8.1	8.1	8.1
4	9.3	9.0	9.1	9.0	8.7	8.9	8.1	8.0	8.0	8.1	8.0	8.1
5	9.1	9.0	9.0	9.0	8.7	8.8	8.1	8.0	8.0	8.1	7.9	8.0
6	9.1	8.7	9.0	9.0	8.9	8.9	8.1	8.0	8.1	8.0	8.0	8.0
7	9.0	8.8	8.9	9.1	8.7	8.9	8.1	8.0	8.1	8.0	7.9	8.0
8	9.0	8.7	8.9	9.0	8.7	8.9	8.1	8.1	8.1	8.0	7.9	8.0
9	9.0	8.9	8.9	8.9	8.8	8.9	8.1	8.0	8.1	8.0	7.9	8.0
10	8.9	8.8	8.9	9.0	8.7	8.8	8.2	8.1	8.1	8.0	7.9	8.0
11	8.9	8.7	8.8	9.1	8.9	8.9	8.2	8.0	8.2	8.0	7.9	8.0
12	9.1	8.8	8.9	9.0	9.0	9.0	8.1	7.9	8.0	8.0	7.9	8.0
13	9.0	8.8	8.9	9.0	8.7	8.8	8.1	8.0	8.1	8.0	7.9	7.9
14	9.0	8.8	8.9	8.9	8.7	8.8	8.2	8.0	8.1	8.0	7.9	7.9
15	9.1	8.9	8.9	9.0	8.7	8.9	8.2	7.7	8.0	8.0	7.9	7.9
16	9.0	8.7	8.9	9.0	8.8	8.9	7.9	7.7	7.8	8.0	7.9	8.0
17	8.9	8.7	8.8	8.9	8.7	8.8	7.9	7.7	7.8	8.0	7.9	8.0
18	9.1	8.8	8.9	8.9	8.6	8.7	7.9	7.7	7.8	8.0	7.9	7.9
19	9.2	8.8	9.0	9.0	8.8	8.9	7.9	7.8	7.8	7.9	7.7	7.8
20	9.0	8.7	8.8	9.0	8.7	8.9	---	---	---	7.9	7.7	7.9
21	9.0	8.7	8.8	9.0	8.9	8.9	7.8	7.7	7.8	7.9	7.7	7.8
22	9.2	8.8	9.0	9.1	8.8	9.0	7.9	7.8	7.8	7.8	7.6	7.7
23	9.2	9.0	9.1	9.0	8.9	8.9	7.8	7.8	7.8	7.7	7.6	7.6
24	9.1	9.0	9.0	9.0	8.7	8.9	7.9	7.8	7.9	7.6	7.6	7.6
25	9.1	9.0	9.0	8.8	8.7	8.8	7.9	7.8	7.8	7.7	7.6	7.6
26	9.1	9.0	9.0	8.6	8.4	8.5	7.9	7.7	7.8	7.6	7.6	7.6
27	9.1	8.9	9.0	8.6	8.5	8.6	7.9	7.9	7.9	7.6	7.6	7.6
28	9.1	8.8	9.0	8.6	8.4	8.4	8.0	7.8	7.9	7.6	7.6	7.6
29	9.1	9.0	9.0	8.4	7.9	8.1	8.0	7.9	8.0	7.7	7.6	7.6
30	9.1	9.0	9.0	8.0	7.9	8.0	8.1	8.0	8.0	7.8	7.6	7.7
31	9.0	8.9	9.0	---	---	---	8.1	8.0	8.0	7.8	7.6	7.7
MONTH	9.3	8.4	8.9	9.1	7.9	8.8	8.2	7.7	8.0	8.2	7.6	7.9

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.1	7.8	8.5	9.1	8.6	8.9	8.9	8.7	8.9	9.0	8.5	8.7
2	8.3	7.9	8.1	9.2	8.7	8.9	8.9	8.7	8.9	9.0	8.6	8.7
3	8.8	8.0	8.3	9.1	8.6	8.8	9.1	8.5	8.7	8.7	8.2	8.4
4	9.2	8.4	8.8	9.1	8.4	8.8	---	---	---	8.7	8.1	8.4
5	9.2	8.5	8.8	9.0	8.4	8.7	---	---	---	8.7	8.4	8.5
6	9.0	8.3	8.7	9.0	8.4	8.8	---	---	---	9.0	7.7	8.6
7	8.9	8.2	8.6	9.0	8.4	8.7	---	---	---	9.0	8.3	8.6
8	8.6	7.9	8.3	9.1	8.3	8.8	8.9	8.8	8.9	9.0	8.6	8.8
9	8.8	8.3	8.6	9.0	8.2	8.7	8.7	8.4	8.6	9.1	8.5	8.8
10	9.0	8.5	8.8	9.0	8.0	8.5	8.8	8.2	8.5	9.0	8.4	8.7
11	9.0	8.6	8.8	9.0	8.3	8.6	8.8	8.7	8.7	8.7	8.3	8.5
12	8.9	8.4	8.7	9.1	8.4	8.8	9.0	8.3	8.7	8.8	8.1	8.5
13	8.9	8.5	8.7	9.0	8.2	8.7	8.9	8.2	8.6	9.2	8.4	8.7
14	8.9	8.4	8.6	9.1	8.6	8.8	8.8	8.6	8.7	9.0	8.2	8.7
15	8.7	8.3	8.5	9.1	8.4	8.8	9.1	8.6	8.8	8.8	8.2	8.4
16	8.6	8.0	8.2	9.0	8.5	8.7	9.1	8.4	8.8	9.0	8.5	8.7
17	8.7	8.0	8.3	9.2	8.5	8.8	9.1	8.6	8.8	8.9	8.3	8.6
18	8.8	8.0	8.4	8.8	8.4	8.6	8.6	8.3	8.5	8.9	8.3	8.6
19	8.8	8.4	8.6	9.2	8.2	8.7	8.3	7.9	8.2	8.7	8.4	8.5
20	8.8	8.4	8.6	8.7	8.4	8.5	8.6	7.9	8.2	8.4	8.1	8.3
21	8.9	8.2	8.6	9.1	8.3	8.6	8.8	8.3	8.5	8.4	7.8	8.1
22	8.8	8.4	8.6	8.8	8.5	8.6	8.9	8.0	8.5	8.4	7.9	8.1
23	8.7	8.2	8.4	9.1	8.6	8.8	8.7	8.4	8.5	8.5	8.0	8.3
24	9.0	8.2	8.6	9.3	9.0	9.1	8.7	8.3	8.4	8.5	7.9	8.2
25	8.8	8.4	8.6	9.2	8.8	8.9	8.8	8.3	8.5	8.7	7.9	8.3
26	8.9	8.3	8.6	9.1	8.8	8.9	9.0	8.5	8.7	8.6	8.1	8.3
27	9.1	8.4	8.8	9.3	8.7	9.0	8.9	8.6	8.8	8.9	8.1	8.6
28	9.0	8.4	8.7	9.2	8.8	9.0	9.0	8.5	8.7	8.6	8.4	8.5
29	9.1	8.6	8.8	9.2	8.8	9.0	9.1	8.5	8.8	8.5	8.1	8.5
30	9.0	7.8	8.7	9.1	8.8	9.0	9.0	8.5	8.8	8.9	8.1	8.6
31	---	---	---	9.0	8.6	8.8	9.0	8.5	8.7	---	---	---
MONTH	9.2	7.8	8.6	9.3	8.0	8.8	9.1	7.9	8.6	9.2	7.7	8.5

YEAR MAXIMUM 9.3 MINIMUM 7.4 MEAN 8.4

STREAMS TRIBUTARY TO LAKE ERIE

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.0	.5	1.0	.0	.5	8.0	7.5	8.0	15.0	13.0	14.0
2	1.0	.5	.5	1.5	.0	1.0	9.0	7.0	8.0	15.0	14.0	15.0
3	1.0	.0	.0	1.0	.0	.5	10.5	9.0	10.0	15.5	14.5	15.5
4	1.0	.0	.5	1.5	.0	.5	10.0	9.0	9.5	15.0	14.0	14.5
5	.5	.0	.5	2.0	.5	1.0	12.0	9.5	10.5	15.0	14.5	15.0
6	.5	.0	.5	3.0	1.0	2.0	11.5	11.0	11.0	17.5	14.5	15.5
7	.5	.5	.5	3.5	2.0	2.5	11.0	10.0	10.5	20.0	16.0	17.0
8	.5	.0	.5	5.5	2.5	3.5	11.0	9.0	10.0	18.5	17.0	17.5
9	.5	.0	.5	5.5	4.0	5.0	11.0	9.0	10.0	18.5	17.0	18.0
10	.5	.0	.5	6.0	3.5	4.5	11.5	10.0	10.5	18.0	16.5	17.0
11	.5	.0	.5	6.0	5.5	6.0	11.5	10.0	10.5	20.5	16.0	17.5
12	.5	.0	.5	6.5	5.0	6.0	12.5	10.0	11.0	18.5	17.0	17.5
13	.5	.0	.5	---	---	---	13.5	11.0	12.0	18.0	17.0	18.0
14	.5	.0	.5	3.5	2.5	3.5	13.5	12.0	12.5	18.5	16.5	17.5
15	.5	.0	.5	3.0	2.0	2.5	12.5	10.5	11.5	19.0	16.0	17.5
16	.5	.0	.5	3.0	2.0	2.5	12.0	9.5	10.5	21.0	18.0	19.5
17	.5	.0	.5	3.5	2.0	2.5	12.5	10.0	11.0	20.0	18.5	19.0
18	.5	.0	.0	3.5	2.5	3.0	12.5	11.0	12.0	20.0	17.0	18.5
19	.5	.0	.5	3.5	2.0	2.5	11.5	10.0	11.0	19.0	17.5	18.5
20	.5	.0	.5	3.5	1.5	2.5	11.0	9.5	10.0	18.0	17.0	17.5
21	.5	.0	.5	3.5	1.5	2.5	11.0	9.0	10.0	20.5	17.0	18.5
22	1.0	.5	.5	4.0	2.0	3.0	12.0	10.0	11.0	24.5	18.5	20.5
23	1.0	.0	.5	7.5	3.0	5.0	13.0	10.0	11.5	22.0	20.5	21.0
24	1.0	.0	.5	7.5	6.5	7.0	12.5	11.0	11.5	20.5	19.5	20.5
25	1.0	.0	.5	8.0	6.5	7.0	12.5	10.0	11.0	20.0	16.5	18.5
26	1.0	.0	.5	---	---	---	14.0	11.5	13.0	20.0	17.5	18.5
27	---	---	---	---	---	---	13.5	11.0	12.0	20.5	18.0	19.5
28	---	---	---	8.0	7.5	8.0	10.5	9.0	9.5	22.5	19.5	20.5
29	.5	.0	.5	8.5	7.0	8.0	11.0	9.0	10.0	24.5	21.0	22.5
30	---	---	---	9.5	8.0	8.5	13.5	10.5	12.0	26.5	23.0	24.5
31	---	---	---	8.5	7.5	8.0	---	---	---	28.5	23.5	25.5
MONTH	1.0	.0	.5	9.5	.0	4.0	14.0	7.0	10.5	28.5	13.0	18.5

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	28.0	24.0	26.0	23.5	21.0	22.2	28.0	26.0	27.0	25.5	21.5	22.5
2	25.1	21.4	23.0	27.0	21.0	23.5	30.5	29.5	30.0	23.5	22.0	22.5
3	21.1	19.0	20.0	28.6	22.6	25.3	32.0	28.5	30.0	22.5	22.0	22.0
4	21.1	18.0	19.5	28.9	23.0	25.4	---	---	---	22.5	21.0	21.5
5	25.0	19.5	21.8	30.0	23.1	26.0	---	---	---	21.5	19.5	20.5
6	27.5	21.0	23.9	30.6	24.1	27.1	---	---	---	20.0	18.5	19.5
7	27.5	22.1	24.5	31.4	26.0	28.5	---	---	---	21.0	18.0	19.0
8	23.6	21.5	23.0	31.5	27.1	29.0	30.0	28.5	30.0	20.0	18.5	19.5
9	21.5	18.1	20.0	31.1	27.0	29.1	28.5	27.0	28.0	22.5	19.0	20.5
10	21.0	18.9	19.7	29.5	27.1	28.1	29.0	27.0	28.0	22.5	19.5	21.0
11	23.4	19.0	20.7	28.6	26.5	27.5	29.5	28.5	29.0	22.0	20.0	21.0
12	23.6	20.0	21.6	30.4	26.1	27.9	30.5	27.5	28.5	21.5	20.0	21.0
13	24.6	21.4	22.9	28.6	26.1	27.4	29.5	27.0	28.5	23.0	21.0	22.0
14	26.1	22.4	24.4	30.0	26.0	27.5	29.0	28.0	28.5	24.5	20.5	22.0
15	26.1	23.9	25.0	30.5	26.0	28.0	30.0	27.0	28.0	21.5	20.0	20.5
16	25.1	23.9	24.5	29.0	26.5	28.0	29.5	26.5	28.0	23.5	19.0	20.5
17	25.4	22.9	23.8	30.5	27.0	28.5	31.0	27.0	28.5	22.0	19.0	20.5
18	26.1	22.4	24.1	28.0	27.0	27.5	28.5	27.0	28.0	23.0	21.0	22.0
19	26.6	23.5	25.0	29.5	26.0	27.5	27.0	25.0	26.0	22.5	22.0	22.0
20	26.5	24.0	25.1	27.0	25.5	26.5	26.0	24.0	25.0	21.5	19.5	20.5
21	30.5	24.5	26.9	27.0	24.0	25.0	25.5	24.0	24.5	19.5	18.0	18.5
22	27.6	25.0	26.5	26.0	20.0	25.0	25.5	23.0	24.0	18.5	17.5	18.0
23	27.1	25.0	26.0	27.0	25.0	25.5	23.5	22.5	23.5	20.0	18.0	19.0
24	29.4	24.1	26.4	27.5	25.0	26.0	24.5	22.0	23.0	19.0	18.0	18.5
25	27.5	24.0	25.9	26.0	25.0	25.5	23.5	22.0	22.5	19.5	17.5	18.5
26	25.6	23.0	24.4	26.0	24.5	25.0	24.0	21.5	22.5	19.5	18.0	18.5
27	26.1	22.9	24.2	29.5	24.0	26.0	22.5	22.0	22.5	20.0	18.0	19.0
28	24.1	22.4	23.0	28.5	25.0	26.5	22.5	21.0	22.0	19.5	18.5	19.0
29	25.6	21.1	22.9	29.0	26.0	27.5	24.0	21.0	22.0	18.5	17.0	18.5
30	23.4	21.0	22.4	28.0	27.0	27.5	24.0	21.0	22.0	20.0	17.0	18.5
31	---	---	---	27.5	26.0	26.5	24.0	21.0	22.0	---	---	---
MONTH	30.5	18.0	23.5	31.5	20.0	26.5	32.0	21.0	26.0	25.5	17.0	20.0

YEAR MAXIMUM 32.0 MINIMUM .0 MEAN 12.5

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.6	6.8	8.5	13.6	11.8	12.8	12.7	12.0	12.3	13.7	12.9	13.4
2	12.8	8.4	10.2	15.3	11.9	13.5	12.9	12.4	12.6	14.0	13.4	13.6
3	13.4	9.2	11.1	15.0	12.2	13.7	12.8	12.4	12.7	13.7	13.5	13.6
4	14.6	10.2	12.0	13.8	11.2	12.4	12.7	12.0	12.3	13.9	13.3	13.6
5	12.9	10.8	11.7	11.8	10.1	10.8	12.2	11.9	12.1	14.2	13.9	14.1
6	12.2	10.2	11.1	13.6	10.6	11.8	12.5	12.0	12.2	14.3	14.2	14.3
7	11.6	9.5	10.6	14.2	11.0	12.4	13.0	12.1	12.5	14.4	14.0	14.2
8	12.8	9.4	10.8	13.3	11.6	12.5	13.1	12.6	12.9	14.2	13.9	14.1
9	12.2	10.8	11.4	12.6	11.4	11.9	12.8	12.4	12.5	14.1	13.8	14.0
10	11.8	10.8	11.3	13.0	11.2	12.1	12.6	12.0	12.4	14.3	14.1	14.2
11	12.2	10.2	10.8	13.9	11.6	12.7	12.5	12.0	12.3	14.3	14.1	14.2
12	14.4	10.8	12.2	13.7	12.4	13.0	12.3	12.0	12.1	14.3	13.8	14.0
13	14.3	11.0	12.4	13.3	11.8	12.7	12.6	12.4	12.4	14.1	13.8	14.0
14	13.6	11.8	12.8	14.2	12.2	13.0	12.7	12.4	12.5	14.5	14.1	14.3
15	16.4	12.2	13.9	15.1	12.9	13.8	12.6	12.0	12.3	14.5	14.3	14.4
16	16.5	14.0	15.0	16.4	13.0	14.5	12.4	12.0	12.1	14.5	14.2	14.4
17	14.3	11.2	13.2	15.0	12.2	13.8	12.8	11.1	12.2	14.4	14.2	14.3
18	14.0	10.4	12.1	12.9	10.8	11.7	13.0	12.0	12.5	14.3	14.0	14.1
19	16.6	11.8	13.4	13.5	10.8	12.2	13.0	12.8	13.0	14.2	14.0	14.2
20	13.6	12.1	12.9	15.2	12.4	13.7	---	---	---	14.2	13.6	14.0
21	12.2	10.9	11.7	15.2	13.4	14.3	13.0	12.8	12.8	13.9	13.6	13.8
22	13.4	10.8	12.0	15.2	13.6	14.3	13.5	12.8	13.1	13.7	12.8	13.3
23	15.1	11.6	13.3	14.6	13.8	14.2	13.0	12.8	13.0	12.8	12.4	12.6
24	14.2	12.5	13.3	15.4	13.2	14.2	13.4	12.8	13.0	12.7	12.4	12.6
25	14.2	11.6	12.5	14.1	13.1	13.7	13.4	12.5	12.9	12.8	12.6	12.6
26	14.8	11.8	13.1	14.0	12.5	13.2	13.6	13.2	13.4	13.0	12.6	12.8
27	15.0	12.0	13.6	14.0	13.1	13.5	13.7	13.4	13.6	13.0	12.8	12.9
28	12.6	11.6	12.1	13.4	12.8	13.1	13.4	12.4	13.1	13.1	12.8	12.9
29	12.9	11.3	12.1	13.0	11.8	12.2	13.7	13.0	13.3	13.0	12.8	12.9
30	13.6	11.6	12.8	12.2	11.8	12.0	13.6	13.2	13.4	13.1	12.8	12.9
31	13.2	12.2	12.7	---	---	---	13.7	12.9	13.2	13.1	12.8	12.9
MONTH	16.6	6.8	12.1	16.4	10.1	13.0	13.7	11.1	12.7	14.5	12.4	13.7

04193490 MAUMEE RIVER NEAR WATERVILLE, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	12.4	12.7	11.8	11.2	11.4	10.4	10.0	10.2	20.0	15.2	18.3
2	13.2	12.8	13.0	13.2	11.2	11.9	10.7	10.0	10.3	19.9	14.8	17.1
3	16.0	13.2	13.8	15.4	12.0	14.2	10.3	9.6	10.0	18.6	15.2	17.1
4	16.8	13.0	14.6	15.7	11.8	14.4	9.8	9.4	9.7	16.4	13.2	15.1
5	17.2	15.1	16.4	15.6	11.7	13.7	9.7	8.8	9.4	15.4	13.5	14.3
6	17.6	11.6	16.1	15.6	15.2	15.5	8.9	8.4	8.6	16.6	13.6	15.0
7	17.5	10.7	13.2	15.4	11.6	14.1	9.4	8.8	9.2	17.6	13.0	15.3
8	16.8	12.4	14.1	14.0	11.2	11.9	9.3	9.0	9.2	15.6	12.2	13.8
9	15.4	14.0	14.2	13.1	10.6	12.3	9.4	8.8	9.1	13.5	10.2	11.3
10	16.8	13.8	14.7	14.0	11.0	12.6	9.4	8.8	9.2	11.9	8.4	10.1
11	13.8	13.6	13.7	14.8	11.6	12.2	9.4	9.0	9.2	13.8	9.6	11.4
12	13.7	13.2	13.4	14.7	12.8	13.6	9.6	9.2	9.3	13.0	11.3	12.0
13	13.4	13.2	13.2	---	---	---	9.5	8.9	9.1	12.6	10.2	11.2
14	13.4	13.2	13.3	15.6	12.8	14.8	9.3	8.4	8.9	12.8	10.6	11.5
15	13.2	12.5	12.8	12.8	12.2	12.5	10.6	8.8	9.7	13.0	11.4	12.1
16	12.9	12.6	12.8	12.9	11.6	12.4	11.6	10.4	10.9	13.0	10.4	11.5
17	12.8	12.4	12.6	14.2	12.0	13.0	11.4	10.4	10.9	12.0	7.8	10.4
18	12.6	12.4	12.5	13.0	11.0	12.2	11.7	10.0	10.7	10.0	7.6	9.1
19	12.4	12.0	12.2	14.2	12.2	13.1	12.4	10.1	11.2	8.4	5.9	7.5
20	12.1	12.0	12.0	14.6	14.0	14.3	12.2	10.8	11.5	8.8	5.0	6.4
21	12.5	12.0	12.1	14.6	12.0	13.8	13.3	10.4	11.8	11.8	5.6	7.7
22	13.3	12.4	12.7	14.6	12.8	13.6	13.1	11.2	12.3	12.6	7.0	9.1
23	13.6	11.5	12.8	14.4	12.4	13.6	12.7	10.6	11.7	9.4	6.2	8.1
24	14.9	12.8	13.6	12.8	11.2	11.9	12.2	10.0	10.9	9.2	4.6	7.0
25	15.8	13.8	14.6	13.8	10.3	11.4	14.1	10.8	12.4	12.6	6.6	9.0
26	15.7	13.8	14.8	---	---	---	14.4	11.2	13.1	11.0	6.2	8.6
27	14.1	12.6	13.6	---	---	---	14.0	11.0	12.0	10.6	6.1	8.4
28	12.6	11.1	11.5	12.3	10.3	11.6	13.8	11.0	12.1	14.0	6.4	9.5
29	12.7	11.2	12.1	11.5	10.1	10.7	17.1	13.8	15.3	15.0	7.8	11.2
30	---	---	---	10.5	10.0	10.1	19.0	14.4	16.6	14.7	8.2	11.3
31	---	---	---	10.6	9.7	10.1	---	---	---	19.5	7.2	11.4
MONTH	17.6	10.7	13.4	15.7	9.7	12.7	19.0	8.4	10.8	20.0	4.6	11.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.0	7.6	12.0	10.0	6.3	8.2	9.2	6.6	8.3	16.0	9.8	12.3
2	7.4	5.6	6.3	13.6	6.8	10.0	10.8	7.2	9.9	14.8	10.0	12.6
3	11.2	6.0	8.3	13.7	7.6	11.4	11.6	4.6	7.4	9.6	5.4	6.9
4	16.2	8.6	12.0	13.2	8.4	11.1	---	---	---	9.5	5.2	7.1
5	17.6	12.6	14.9	12.4	5.6	9.3	---	---	---	9.8	7.2	8.1
6	16.8	9.2	13.4	13.2	6.5	10.1	---	---	---	14.3	8.0	9.8
7	15.8	8.2	11.9	13.5	8.4	11.3	---	---	---	14.6	8.4	10.7
8	9.0	4.8	7.3	13.0	7.6	10.5	7.8	6.0	7.6	13.2	9.2	11.3
9	10.4	6.0	8.1	13.4	6.8	11.0	6.5	3.2	4.7	16.8	10.8	13.3
10	11.8	7.2	9.3	12.0	5.6	8.8	7.7	3.2	5.2	15.6	8.8	11.9
11	12.5	8.0	10.1	11.4	4.8	7.6	9.2	7.0	7.9	12.2	8.6	10.1
12	11.7	7.6	9.5	13.0	4.8	8.3	10.2	4.2	7.2	12.6	8.0	10.1
13	11.2	7.4	8.9	11.9	4.8	8.4	9.6	3.6	6.6	15.2	7.6	10.6
14	10.6	6.4	8.3	12.0	5.6	8.3	8.5	6.2	7.2	16.4	7.2	12.6
15	8.4	5.0	6.7	12.9	4.0	8.1	10.8	5.2	7.2	12.8	7.8	9.9
16	8.0	3.4	4.9	10.1	6.0	7.9	10.4	4.4	7.2	16.6	9.1	11.8
17	9.0	3.6	5.9	13.4	4.9	8.4	10.4	6.2	7.9	15.8	8.8	12.0
18	10.8	4.4	7.2	9.6	4.0	6.7	8.2	4.6	6.1	15.3	9.2	11.8
19	9.9	6.4	7.9	12.6	2.8	6.3	6.8	4.6	5.6	11.8	8.0	10.0
20	9.4	5.5	7.2	6.2	3.6	4.8	10.0	4.4	6.6	8.2	6.2	7.3
21	10.8	4.2	7.3	11.8	2.9	6.3	13.0	8.5	10.2	9.6	5.4	7.1
22	9.0	4.8	6.8	9.0	5.6	7.1	14.1	6.3	9.9	8.4	6.1	7.1
23	8.5	3.6	5.7	10.3	6.4	7.9	11.7	7.6	9.5	10.4	6.0	7.7
24	12.1	4.8	8.1	12.8	8.3	10.1	11.5	7.2	9.0	9.6	6.6	7.8
25	9.2	5.2	7.3	12.0	5.1	7.5	12.3	8.2	9.9	11.2	6.0	8.0
26	8.8	4.6	6.7	11.6	5.2	7.7	13.8	8.0	10.7	11.1	5.9	8.1
27	10.7	5.2	7.8	13.6	7.0	10.2	13.1	9.4	11.4	14.6	6.9	10.3
28	9.2	5.2	7.3	12.0	6.7	9.0	14.5	8.4	10.5	11.0	9.2	10.0
29	11.0	5.4	7.5	11.4	6.6	8.8	14.8	8.6	11.0	11.2	7.8	10.1
30	9.6	4.4	7.5	9.0	5.5	7.4	14.4	8.0	11.6	15.8	7.2	11.1
31	---	---	---	9.2	3.8	5.7	14.1	9.6	11.5	---	---	---
MONTH	17.6	3.4	8.4	13.7	2.8	8.5	14.8	3.2	8.4	16.8	5.2	9.9

YEAR MAXIMUM 20.0 MINIMUM 2.8 MEAN 11.3

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: Jan. 3-16, 25-28, Feb. 9-15, 21, 26-29, March 2-5, May 13, June 22-24, June 26-July 2, 16-18. Records good except for estimated daily discharges which are fair. Satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (1921-35, 1939-88), 4,928 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, 25,800 ft³/s Dec. 16 gage height, 8.23 ft; minimum daily, 17 ft³/s, June 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	737	6280	5860	5230	4210	4470	1170	564	40	645	531
2	369	654	5460	4330	8030	3650	4220	1300	419	70	1330	552
3	210	795	4230	3200	11700	3250	4520	1060	437	88	1120	808
4	182	576	5140	2700	9700	2950	9200	1230	370	91	726	931
5	260	736	4740	2250	7970	2700	17700	1200	479	88	575	1050
6	320	389	3680	2000	4790	2480	13500	1170	397	88	415	970
7	460	353	3170	2150	3460	2810	16500	1180	402	97	337	973
8	488	533	3160	2300	2880	2900	22900	1130	199	96	267	802
9	345	824	4310	1950	2550	5420	19900	1390	135	97	286	642
10	264	783	5560	1700	2300	10800	16700	1300	219	111	342	463
11	298	755	6460	1550	2100	11400	12400	1030	224	170	374	419
12	331	1470	6420	1400	1950	9670	9320	1520	292	113	369	423
13	380	1410	5810	1250	1850	8900	7300	1480	263	106	557	515
14	361	954	5110	1150	1750	8460	5750	1130	201	139	601	374
15	403	518	9240	1050	1700	7340	4250	1250	214	172	489	332
16	359	398	23500	950	2230	6020	3560	1250	215	50	420	280
17	403	548	22300	889	2800	4680	2730	991	114	90	479	420
18	300	588	15900	2120	4480	3930	2620	817	176	80	452	302
19	212	278	11200	3360	5260	3240	2050	861	257	167	401	261
20	243	301	11100	3720	7300	3040	2170	717	256	242	350	626
21	419	457	16300	4550	10500	3240	1760	631	191	1100	354	546
22	255	343	16100	6410	13300	2740	1770	654	130	889	455	578
23	241	393	12800	4890	17000	2730	2200	773	190	845	725	879
24	290	315	9520	3650	19000	3450	1490	2000	60	971	803	606
25	321	667	7880	2900	17000	14700	1520	1900	185	1080	670	504
26	307	3240	7370	2350	9100	19200	1610	1540	225	720	824	532
27	693	4200	6760	1900	6500	16100	1560	1420	50	590	532	452
28	1100	4620	6320	1600	5600	11900	1380	1090	37	642	566	327
29	940	4260	6130	1420	5000	8920	1430	780	25	604	593	356
30	1290	5140	7690	1720	---	7080	1270	710	17	535	492	409
31	741	---	7610	2590	---	5450	---	735	---	797	598	---
TOTAL	13048	37235	267250	79859	193030	203360	197750	35409	6943	10968	17147	16863
MEAN	421	1241	8621	2576	6656	6560	6592	1142	231	354	553	562
MAX	1290	5140	23500	6410	19000	19200	22900	2000	564	1100	1330	1050
MIN	182	278	3160	889	1700	2480	1270	631	17	40	267	261
CFSM	.07	.20	1.36	.41	1.05	1.04	1.04	.18	.04	.06	.09	.09
IN.	.08	.22	1.57	.47	1.13	1.20	1.16	.21	.04	.06	.10	.10

CAL YR 1987	TOTAL	1105614	MEAN	3029	MAX	23500	MIN	163	CFSM	.48	IN.	6.50
WTR YR 1988	TOTAL	1078862	MEAN	2948	MAX	23500	MIN	17	CFSM	.47	IN.	6.34

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: April 1950 to September 1984.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,240 mg/L Mar. 26, 1954; minimum daily mean, 1 mg/L on many days during 1953, 1955, and 1963.
SEDIMENT LOADS: Maximum daily, 208,000 tons Feb. 12, 1959; minimum daily, 0.26 ton Sept. 18, 1955.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	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											
11...	1100	6470	710	7.7	10.0	4.0	46	11.3	90	590	3800
MAR											
16...	0915	6110	540	8.3	2.0	3.0	40	12.7	97	640	1400
JUN											
15...	1045	207	710	8.5	29.0	24.0	9.6	6.2	76	260	50
JUL											
28...	1145	702	780	8.9	32.0	26.0	14	8.4	106	110	150

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 IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (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											
11...	320	160	88	23	21	4.3	185	0	148	82	44
MAR											
16...	260	120	72	19	13	2.6	173	0	141	74	31
JUN											
15...	270	110	59	30	42	4.7	193	0	160	120	65
JUL											
28...	270	110	56	32	60	6.6	168	17	168	120	89

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											
11...	0.3	8.2	401	0.05	9.70	0.17	0.15	1.8	0.14	0.07	0.06
MAR											
16...	0.2	6.9	312	0.04	8.30	0.16	0.14	1.3	0.15	0.07	0.05
JUN											
15...	0.4	0.73	429	<0.01	<0.10	0.02	0.05	1.2	0.08	0.05	0.02
JUL											
28...	0.5	1.1	477	<0.01	<0.10	0.02	0.02	1.0	0.24	0.11	0.09

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											
11...	10	<1	43	<0.5	<1	2	<3	6	32	<5	10
MAR											
16...	30	<1	33	<0.5	<1	1	<3	22	42	<5	5
JUN											
15...	<10	2	45	<0.5	<1	<1	<3	7	5	<5	11
JUL											
28...	20	5	54	<0.5	<1	1	<3	4	12	<5	11

04193500 MAUMEE RIVER AT WATERVILLE, OHIO--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)
DEC										
11...	9	<0.1	<10	2	<1	<1.0	720	<6	16	60
MAR										
16...	9	<0.1	<10	3	1	<1.0	510	<6	17	60
JUN										
15...	14	<0.1	10	3	<1	<1.0	1100	<6	8	43
JUL										
28...	4	<0.1	20	8	<1	1.0	1300	<6	11	--

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, 14.35 ft Dec. 15, minimum recorded gage height, 7.71 ft Dec. 15, Jan. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.75	11.87	11.40	10.09		---	11.86	12.13	12.09	11.68	11.38	11.86
2	10.93	11.86	10.67	10.96		---	12.05	12.23	12.73	11.67	11.41	11.68
3	12.09	11.58	11.46	11.32		---	11.85	12.43	12.30	11.67	11.46	11.75
4	11.61	11.41	11.45	9.92		---	11.60	12.34	12.12	11.75	11.41	11.58
5	11.51	10.79	11.30	---		---	11.97	12.18	11.93	11.69	11.26	11.47
6	11.42	10.89	11.61	---		---	11.99	12.18	12.06	11.65	11.14	11.44
7	11.42	11.11	11.90	---		---	12.03	12.22	12.10	11.60	11.42	11.49
8	11.60	11.31	11.74	---		---	12.08	12.25	12.56	11.59	11.36	11.43
9	11.35	11.55	11.02	---		---	12.05	11.97	12.37	11.51	11.22	11.21
10	11.92	11.97	11.54	---		---	12.12	12.03	12.15	11.45	11.43	11.37
11	11.95	11.61	11.53	---		11.72	12.25	12.16	11.87	11.41	11.34	11.68
12	11.72	10.86	10.34	---		11.71	12.24	12.19	11.88	11.51	11.30	11.51
13	11.89	11.06	10.87	---		10.54	12.11	12.04	11.97	11.72	11.25	11.22
14	11.69	11.49	11.60	---		11.06	11.85	12.37	11.92	11.18	10.85	11.33
15	11.76	11.72	10.75	---		11.38	11.86	12.11	11.84	11.63	10.84	11.87
16	11.84	11.62	9.46	---		11.26	11.84	12.15	12.06	11.49	11.25	11.74
17	11.15	11.46	11.32	---		11.51	11.67	12.29	12.04	11.55	11.07	11.15
18	11.47	10.19	11.41	---		11.30	11.84	12.48	12.04	11.69	11.40	11.29
19	11.73	10.40	11.21	---		11.19	11.82	12.42	11.83	11.58	11.48	11.47
20	11.61	10.98	10.79	---		11.49	11.53	12.25	11.73	11.86	11.23	10.22
21	10.79	10.93	10.67	---		11.68	12.01	12.26	11.95	11.58	11.36	11.03
22	11.38	11.15	11.42	---		12.08	12.31	12.33	11.60	11.63	11.41	11.31
23	11.20	10.99	11.28	---		11.44	12.08	12.28	12.06	11.71	11.12	---
24	11.35	11.00	11.72	---		11.75	11.60	12.43	12.03	11.51	11.15	---
25	11.52	11.80	11.58	---		11.63	12.09	12.20	11.50	11.47	11.05	---
26	11.76	11.91	11.68	---		11.39	12.21	12.21	11.94	11.45	11.53	---
27	11.40	12.38	11.57	---		11.11	11.76	12.10	11.81	11.50	11.88	---
28	11.44	12.00	12.62	---		11.99	11.79	12.15	11.55	11.38	11.71	---
29	11.55	11.42	11.79	---		11.91	11.86	12.21	11.87	11.37	11.90	---
30	11.40	10.50	11.69	---		11.53	12.13	12.15	11.86	11.21	11.90	---
31	11.93	---	10.70	---		11.88	---	12.13	---	11.50	11.80	---
MEAN	11.55	11.33	11.29	---		---	11.95	12.22	11.99	11.55	11.36	---
MAX	12.09	12.38	12.62	---		---	12.31	12.48	12.73	11.86	11.90	---
MIN	10.79	10.19	9.46	---		---	11.53	11.97	11.50	11.18	10.84	---

CAL YR 1987 MEAN 12.44 MAX 14.17 MIN 9.46

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: Jan. 5-30, Feb. 6-17, 23-March 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).--56 years, 323 ft³/s, 10.25 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. 4	1600	*2,620	*7.37				

Minimum daily discharge, 6.5 ft³/s June 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	13	61	198	927	195	203	60	9.6	7.8	55	37
2	6.7	11	72	232	1300	190	210	59	11	8.6	37	28
3	6.8	9.6	95	217	914	200	262	60	12	9.2	18	35
4	6.6	10	115	145	375	165	2050	61	17	10	17	131
5	7.0	10	154	100	273	150	1590	66	16	9.0	15	163
6	6.9	10	136	76	215	150	783	69	12	7.2	17	93
7	7.7	10	91	66	175	170	628	76	11	6.6	22	59
8	8.0	11	83	62	150	388	753	76	10	7.2	19	44
9	8.7	15	108	58	125	792	587	74	9.6	7.5	11	36
10	9.6	22	149	56	110	873	422	73	10	8.5	9.2	32
11	11	22	146	54	96	578	333	79	9.6	14	23	28
12	10	18	141	54	80	427	267	70	9.0	19	133	27
13	10	13	165	55	81	457	216	58	8.7	21	73	30
14	10	12	152	54	84	501	184	52	8.6	22	53	41
15	10	12	320	51	100	364	157	46	8.2	17	35	33
16	10	11	1350	47	160	274	130	38	8.1	13	28	25
17	10	11	792	48	270	220	111	31	8.2	14	26	22
18	9.9	9.9	342	54	382	200	105	30	8.0	15	32	20
19	10	9.6	214	61	629	214	104	27	8.5	16	63	18
20	10	10	347	69	1260	214	89	26	8.0	12	71	20
21	12	10	967	80	1540	183	82	26	7.4	20	45	23
22	12	10	544	71	1180	154	80	25	7.0	15	27	22
23	10	9.9	321	65	720	163	73	23	6.6	18	23	21
24	11	9.4	218	60	520	419	68	23	6.5	16	32	23
25	13	23	209	55	400	1710	64	18	7.9	22	41	20
26	19	74	272	51	330	1740	59	16	7.5	67	27	19
27	31	106	254	48	270	1010	58	14	7.3	54	19	19
28	28	76	207	45	250	555	63	13	8.0	21	45	18
29	28	63	256	46	230	399	67	12	8.7	13	121	17
30	27	59	316	49	---	328	64	10	8.6	15	97	19
31	18	---	258	188	---	248	---	10	---	35	54	---
TOTAL	384.7	690.4	8855	2515	13146	13631	9862	1321	278.6	540.6	1288.2	1123
MEAN	12.4	23.0	286	81.1	453	440	329	42.6	9.29	17.4	41.6	37.4
MAX	31	106	1350	232	1540	1740	2050	79	17	67	133	163
MIN	6.6	9.4	61	45	80	150	58	10	6.5	6.6	9.2	17
(+)	6.4	5.7	5.4	5.9	6.3	5.4	6.0	6.0	7.6	5.7	6.3	6.5
MEAN =	6.0	17.3	281	75.2	447	435	323	36.6	1.69	11.7	35.3	30.9
CFSM =	.01	.04	.66	.18	1.04	1.02	.75	.09	0.00	.03	.08	.07
IN =	.02	.04	.76	.20	1.13	1.17	.84	.10	0.00	.03	.10	.08

CAL YR 1987 TOTAL 62874.7 MEAN 172 MAX 2650 MIN 6.6 + 5.9 MEAN ≠ 166 CFSM ≠ .39 IN ≠ 5.27
WTR YR 1988 TOTAL 53635.5 MEAN 147 MAX 2050 MIN 6.5 + 6.1 MEAN ≠ 141 CFSM ≠ .33 IN ≠ 4.47

\+ 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 September 1988.

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

REMARKS.--Estimated daily discharges: Jan. 2-12, 21-31, Feb. 3-19, 21-23. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 20 ft³/s Feb. 20, 1988, gage height, 6.51 ft, minimum daily discharge, no flow many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5.0 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 9	1430	6.9	4.74	Feb. 20	0030	*20	*6.51
Dec. 15	1115	18	*6.51	Mar. 25	1315	12	5.56
Dec. 20	1200	9.1	5.04	Apr. 4	0100	5.6	4.48

Minimum daily discharge, no flow many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	1.9	3.2	3.8	2.5	.92	.05	.00	.00	.00	.00
2		---	2.9	2.0	3.4	2.2	.87	.02	.00	.00	.00	.00
3		---	1.9	1.5	2.4	2.2	1.3	.01	.00	.00	.00	.00
4		---	3.1	1.2	2.1	1.9	3.7	.01	.00	.00	.00	.00
5		---	2.6	1.0	1.7	1.6	1.9	.00	.00	.00	.00	.07
6		---	1.9	.94	1.5	1.7	1.6	.00	.00	.00	.00	.01
7		---	1.5	.90	1.3	1.8	2.8	.00	.00	.00	.00	.01
8		---	3.5	.85	1.2	2.2	2.3	.00	.00	.00	.00	.00
9		---	6.1	.80	1.1	3.1	1.6	.00	.00	.00	.00	.00
10		---	3.8	.75	1.1	2.7	1.2	.00	.00	.00	.00	.00
11		---	2.6	.72	1.0	2.3	.93	.00	.00	.00	.00	.00
12		.12	3.4	.95	1.0	2.2	.76	.00	.00	.00	.00	.00
13		.11	2.3	1.4	1.0	2.1	.65	.00	.00	.00	.00	.01
14		.10	1.8	.83	1.0	1.9	.57	.00	.00	.00	.00	.00
15		.10	11	.66	5.0	1.6	.47	.00	.00	.00	.00	.00
16		.10	6.4	.72	11	1.2	.38	.00	.00	.00	.00	.00
17		.10	3.4	1.2	6.4	1.1	.31	.00	.00	.00	.00	.00
18		.10	2.4	1.8	7.2	1.1	.32	.00	.00	.00	.00	.00
19		.09	2.1	1.6	10	1.2	.26	.00	.00	.00	.00	.00
20		.10	6.8	2.8	19	1.1	.22	.00	.00	.00	.00	.00
21		.09	4.2	1.5	11	.91	.20	.00	.00	.00	.00	.00
22		.09	2.9	1.2	6.0	.86	.17	.00	.00	.00	.00	.00
23		.10	2.3	1.0	13	1.1	.13	.00	.00	.00	.00	.00
24		.10	2.0	.94	8.6	6.6	.12	.00	.00	.00	.00	.00
25		1.4	2.9	.80	5.4	8.6	.10	.00	.00	.00	.00	.00
26		2.5	2.7	.90	4.3	4.7	.09	.00	.00	.00	.00	.00
27		1.3	2.3	.75	4.3	2.5	.09	.00	.00	.00	.00	.00
28		.90	2.5	.68	3.2	1.8	.09	.00	.00	.00	.02	.00
29		2.3	3.8	.64	3.0	1.6	.09	.00	.00	.00	.00	.00
30		1.9	2.9	.70	---	1.3	.08	.00	.00	.00	.00	.00
31		---	2.8	1.5	---	.98	---	.00	---	.00	.00	---
TOTAL		---	102.7	36.43	141.0	68.65	24.22	.09	.00	.00	.02	.10
MEAN		---	3.31	1.18	4.86	2.21	.81	.00	.00	.00	.00	.00
MAX		---	11	3.2	19	8.6	3.7	.05	.00	.00	.02	.07
MIN		---	1.5	.64	1.0	.86	.08	.00	.00	.00	.00	.00

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 September 1988.

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. 2-19, 21-29, Mar. 1-8, 11-23, Mar. 27-Apr. 2, Apr. 10-May 1. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 30 ft³/s Feb. 20, 1988, gage height, 5.08 ft, no flow many days in 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5.0 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 20	1030	11.0	3.38	Feb. 16	1145	24	4.64
Feb. 1	0330	5.0	2.52	Feb. 20	0100	*30	*5.08
Feb. 8	0945	5.5	2.60	Mar. 25	1530	16	3.98

Minimum daily discharge, no flow many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	2.4	4.9	2.5	3.0	.04	.00	.00	.00	.00
2			---	2.0	3.0	2.2	.88	.04	.00	.00	.00	.00
3			---	1.6	2.6	2.2	2.9	.03	.00	.00	.00	.00
4			---	1.4	2.1	2.0	3.8	.02	.00	.00	.00	.00
5			---	1.0	1.8	1.6	3.1	.02	.00	.00	.00	.05
6			---	.63	1.5	1.7	3.1	.01	.00	.00	.00	.01
7			---	.59	1.3	1.8	3.6	.01	.00	.00	.00	.00
8			---	.62	1.2	2.1	3.2	.01	.00	.00	.00	.00
9			---	.65	1.1	3.2	3.1	.00	.00	.00	.00	.00
10			---	.63	1.1	2.8	1.3	.00	.00	.00	.00	.00
11			---	.58	1.0	2.3	1.0	.00	.00	.00	.00	.00
12			---	.56	1.0	2.2	.80	.00	.00	.00	.00	.00
13			---	.59	1.0	2.1	.68	.00	.00	.00	.00	.00
14			---	.59	1.0	1.9	.58	.00	.00	.00	.00	.00
15			---	.53	2.5	1.6	.50	.00	.00	.00	.00	.00
16			---	.49	11	1.2	.39	.79	.00	.00	.00	.00
17			3.2	.49	8.0	1.1	.33	.75	.00	.00	.00	.00
18			3.2	.52	7.5	1.1	.32	.11	.00	.00	.00	.00
19			3.0	.54	9.0	1.2	.30	.01	.00	.00	.00	.00
20			8.5	1.6	27	1.1	.23	.02	.00	.00	.00	.00
21			4.3	3.1	10	.90	.20	.02	.00	.00	.00	.00
22			3.2	2.6	7.0	.88	.17	.01	.00	.00	.00	.00
23			3.0	1.9	4.0	2.5	.14	.01	.00	.00	.00	.00
24			2.7	1.3	3.5	6.4	.12	.00	.00	.00	.00	.00
25			2.5	1.0	3.0	11	.11	.00	.00	.00	.00	.00
26			2.5	.82	2.8	6.8	.09	.00	.00	.00	.00	.00
27			2.4	.79	2.7	2.5	.08	.00	.00	.00	.00	.00
28			2.6	.77	2.6	2.0	.07	.00	.00	.00	.03	.00
29			3.5	.72	2.5	1.6	.06	.00	.00	.00	.00	.00
30			3.1	.72	---	1.3	.05	.00	.00	.00	.00	.00
31			2.6	1.1	---	1.0	---	.00	---	.00	.00	---
TOTAL			---	32.83	127.7	74.78	34.20	1.90	.00	.00	.03	.06
MEAN			---	1.06	4.40	2.41	1.14	.06	.00	.00	.00	.00
MAX			---	3.1	27	11	3.8	.79	.00	.00	.03	.05
MIN			---	.49	1.0	.88	.05	.00	.00	.00	.00	.00

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: Jan. 15-Mar. 1. Records good except those for June 30-Sept. 30 which are fair, and those for estimated daily discharges, which are poor. Beginning Mar. 9, 1972 water is diverted at a point 29.4 mi upstream from station into Killdeer Reservoir. Storage is available for low-flow augmentation. During the year, there was low flow augmentation. Water released July 8-26 from Killdeer Reservoir. Water-quality data collected at this site 1968 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--24 years, 178 ft³/s.

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

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

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	2230	*1,490	*5.54				

Minimum daily discharge, 0.01 ft³/s June 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	5.8	1.8	104	600	70	76	17	5.0	.02	25	.83
2	1.9	5.0	7.9	121	800	66	64	17	4.7	.03	22	.35
3	1.8	4.4	9.3	62	700	67	72	17	3.9	.13	15	.30
4	1.4	3.8	12	48	450	69	201	14	2.4	.03	12	.64
5	1.1	2.3	8.4	82	250	67	457	13	1.7	.02	8.7	.57
6	1.1	1.3	11	39	150	72	271	14	2.4	.02	6.9	.56
7	1.3	1.2	12	34	130	81	237	16	4.7	.02	4.9	.79
8	1.7	1.8	14	25	120	242	423	17	4.0	.02	3.6	.79
9	1.7	3.9	13	19	90	1020	482	15	3.2	.02	2.4	.63
10	1.6	3.7	10	16	70	1380	269	14	2.1	.02	1.3	.34
11	2.2	3.0	8.5	16	60	1290	169	13	1.5	.02	1.1	.18
12	3.3	7.2	10	15	50	596	123	13	1.4	.31	.99	.40
13	2.8	6.7	11	16	45	420	96	16	1.7	13	1.1	1.3
14	3.2	5.8	13	23	40	321	79	14	2.6	13	.71	1.5
15	2.9	4.4	27	25	35	220	66	12	2.6	15	.39	1.1
16	2.0	4.3	38	35	50	159	53	12	1.9	12	.28	.75
17	2.3	4.3	66	45	150	123	45	11	1.8	9.6	.04	.94
18	1.8	3.1	66	58	200	111	51	12	1.4	7.9	.10	.90
19	1.4	2.2	30	64	500	115	48	9.0	1.2	12	.38	.61
20	1.6	1.8	25	110	1000	127	40	7.8	.99	13	.49	.47
21	1.1	1.8	42	180	1300	112	34	8.7	.68	13	.24	.27
22	1.0	1.6	69	150	900	92	27	11	.27	14	.08	.10
23	1.2	1.6	69	100	600	78	24	9.7	.22	17	.53	.09
24	1.7	1.4	40	70	780	71	23	9.4	.17	18	.87	.03
25	1.9	3.3	25	50	500	91	24	9.9	.38	17	.73	.02
26	2.0	2.7	24	35	250	324	22	8.0	.32	21	.52	.02
27	3.8	1.7	23	31	140	434	19	6.2	.17	28	.24	.03
28	5.8	2.0	40	28	100	251	18	5.9	.11	69	2.6	.08
29	15	2.5	142	27	80	157	19	6.9	.02	41	3.7	.10
30	11	1.4	183	70	---	116	19	7.1	.01	20	2.0	.13
31	6.7	---	132	300	---	97	---	5.4	---	24	1.2	---
TOTAL	91.6	96.0	1182.9	1998	10140	8439	3551	362.0	53.54	378.16	120.09	14.82
MEAN	2.95	3.20	38.2	64.5	350	272	118	11.7	1.78	12.2	3.87	.49
MAX	15	7.2	183	300	1300	1380	482	17	5.0	69	25	1.5
MIN	1.0	1.2	1.8	15	35	66	18	5.4	.01	.02	.04	.02

CAL YR 1987	TOTAL	50423.0	MEAN	138	MAX	3660	MIN	1.0
WTR YR 1988	TOTAL	26427.11	MEAN	72.2	MAX	1380	MIN	.01

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.

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

REMARKS.--Estimated daily discharges: Nov. 6-Dec. 13, Jan. 3-19, 22-28, Feb. 4-5, 7-17, Feb. 22-Mar. 3, Jun. 20, 21, 23, 24, Jul. 18-Aug. 10, Aug. 14-18, Aug. 27-28. Records are fair.

AVERAGE DISCHARGE.--9 years, 16.4 ft³/s, 13.10 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)
Feb. 19	2330	*204	*12.95				

Minimum daily discharge, no flow July 2-17, Sept. 9-12, Sept. 15-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.39	.49	9.3	112	7.9	8.9	2.5	.76	.14	2.7	.12
2	.56	.33	.62	8.0	116	7.9	8.4	2.4	1.1	.00	1.5	.02
3	.50	.31	.80	3.4	39	8.1	71	2.3	1.4	.00	.70	.07
4	.47	.31	1.1	1.9	16	8.8	58	2.2	1.1	.00	.46	.23
5	.42	.31	1.3	1.2	6.4	9.4	25	2.3	.90	.00	.28	.34
6	.40	.25	1.4	.95	3.4	9.7	19	2.3	.74	.00	.15	.09
7	.46	.20	1.2	.82	2.9	15	28	2.1	.83	.00	.11	.01
8	.54	.23	1.1	.74	2.8	63	35	1.9	.82	.00	.07	.01
9	.57	.27	2.2	.68	2.7	100	20	2.0	.76	.00	.04	.00
10	.67	.30	3.6	.76	2.7	52	15	2.3	1.0	.00	.03	.00
11	.77	.27	2.9	.86	2.9	27	12	2.1	1.2	.00	.53	.00
12	.78	.24	2.7	.86	3.1	22	10	1.7	1.1	.00	.66	.00
13	.79	.29	2.8	.80	3.7	26	8.2	1.7	1.3	.00	.64	.06
14	.80	.30	3.3	.74	3.9	18	7.3	1.6	1.3	.00	.10	.01
15	.77	.26	49	.69	5.4	14	5.9	1.6	1.3	.00	.03	.00
16	.69	.26	33	.66	12	12	5.0	1.9	1.5	.00	.03	.00
17	.67	.26	15	3.0	23	11	4.6	1.6	1.3	.00	.09	.00
18	.65	.22	11	9.0	47	12	4.7	1.6	.50	.07	1.0	.00
19	.69	.19	9.6	28	73	13	3.8	1.4	.42	.08	7.5	.00
20	.74	.17	38	71	114	12	3.4	1.4	.20	.06	2.4	.00
21	.69	.17	27	11	41	11	3.5	1.4	.32	.05	1.3	.00
22	.72	.15	16	4.5	23	12	3.1	1.4	.09	.06	.34	.00
23	.73	.13	12	2.4	19	22	3.3	1.2	.07	.03	.22	.00
24	.80	.13	9.9	1.9	14	17	3.1	1.2	.07	.02	.26	.00
25	.80	.17	11	1.6	11	36	2.7	.87	.16	.02	.05	.00
26	.82	.30	13	1.4	8.4	53	2.6	.82	.12	.06	.01	.00
27	1.5	.41	11	1.4	8.0	28	2.6	.81	.04	.03	.01	.00
28	2.2	.47	12	1.4	7.9	19	2.9	.84	.02	.03	.72	.00
29	1.1	.45	24	1.7	7.9	15	2.9	.93	.02	.14	1.5	.00
30	.64	.41	16	12	---	12	2.8	.94	.07	.11	1.0	.00
31	.49	---	12	36	---	9.5	---	.91	---	.10	.48	---
TOTAL	23.03	8.15	345.01	218.66	732.1	683.3	382.7	50.22	20.51	1.00	24.91	.96
MEAN	.74	.27	11.1	7.05	25.2	22.0	12.8	1.62	.68	.03	.80	.03
MAX	2.2	.47	49	71	116	100	71	2.5	1.5	.14	7.5	.34
MIN	.40	.13	.49	.66	2.7	7.9	2.6	.81	.02	.00	.01	.00
CFSM	.04	.02	.65	.41	1.48	1.29	.75	.10	.04	.00	.05	.00
IN.	.05	.02	.75	.48	1.60	1.50	.84	.11	.04	.00	.05	.00

CAL YR 1987	TOTAL	4575.25	MEAN	12.5	MAX	656	MIN	.13	CFSM	.74	IN.	10.01
WTR YR 1988	TOTAL	2490.55	MEAN	6.80	MAX	116	MIN	.00	CFSM	.40	IN.	5.45

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.

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: Jan. 4-18, 24-29, Feb. 6-17, 21-27. Records good except those for estimated daily discharges which are fair. Water-quality data collected at this site 1976 to 1977.

AVERAGE DISCHARGE.--12 years, 132 ft³/s, 12.03 in/yr.

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

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	0630	1,220	6.59				

Minimum daily discharge .07 ft³/s Sept. 28, 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	5.9	9.1	41	487	55	64	15	2.1	.29	25	4.6
2	1.6	4.7	11	62	750	53	58	13	2.1	.27	16	3.0
3	1.5	3.4	13	42	603	59	121	12	2.7	.35	8.1	3.9
4	1.5	2.6	18	18	286	60	531	12	2.5	.23	4.6	3.7
5	1.7	2.2	20	12	141	49	436	11	1.9	.17	2.7	2.5
6	1.5	1.7	21	9.0	56	51	210	11	1.7	.09	2.0	5.7
7	1.8	1.7	20	7.6	41	72	180	11	1.6	.09	1.5	7.1
8	1.9	1.7	19	6.6	29	247	290	11	1.2	.09	.70	4.4
9	1.5	2.6	32	6.2	24	506	216	10	.71	.09	.34	2.6
10	1.1	2.6	40	6.0	21	540	130	11	.94	.12	.19	1.6
11	1.3	2.3	34	7.2	20	319	95	12	1.2	.33	.18	.71
12	1.8	2.1	34	7.8	19	181	76	14	1.3	.36	.69	.57
13	1.7	2.5	49	6.8	19	189	63	12	1.3	.25	.85	.48
14	1.9	2.6	41	6.3	20	147	53	10	1.3	.24	.26	.31
15	2.1	2.3	57	6.1	22	102	45	8.7	1.1	.23	.20	.24
16	2.1	2.3	202	5.8	90	81	39	9.3	1.2	.19	.19	.37
17	1.7	2.3	162	6.2	170	71	35	8.6	1.1	.17	.60	.69
18	1.6	2.1	69	7.2	282	76	33	11	1.1	.53	2.5	.59
19	1.5	1.6	47	21	568	90	31	10	.86	1.1	4.4	.51
20	1.2	1.5	101	60	900	83	28	8.8	.73	.66	6.3	.41
21	1.1	1.5	233	117	450	73	26	7.4	.73	.83	20	.23
22	1.0	1.3	139	94	220	70	23	7.0	.64	.51	9.2	.18
23	1.5	1.1	75	42	170	91	21	6.5	.18	.44	6.4	.15
24	1.7	1.1	54	13	120	129	19	5.4	.14	.25	4.7	.12
25	2.6	2.4	47	8.2	90	378	17	3.9	.15	.37	3.5	.11
26	2.6	4.3	49	7.8	78	775	16	3.9	.18	.76	3.0	.09
27	3.8	4.9	49	7.8	62	412	15	3.5	.19	.37	2.3	.09
28	4.6	6.7	47	7.9	67	196	15	3.0	.19	.46	5.6	.07
29	4.2	7.1	70	10	58	124	16	2.7	.29	1.5	6.1	.07
30	7.8	7.3	85	33	---	96	18	2.5	.30	1.0	7.0	.08
31	7.1	---	62	119	---	76	---	2.3	---	1.8	6.1	---
TOTAL	70.7	88.4	1909.1	804.5	5863	5451	2920	269.5	31.63	14.14	151.20	45.17
MEAN	2.28	2.95	61.6	26.0	202	176	97.3	8.69	1.05	.46	4.88	1.51
MAX	7.8	7.3	233	119	900	775	531	15	2.7	1.8	25	7.1
MIN	1.0	1.1	9.1	5.8	19	49	15	2.3	.14	.09	.18	.07
CFSM	.02	.02	.41	.17	1.36	1.18	.65	.06	.01	.00	.03	.01
IN.	.02	.02	.48	.20	1.46	1.36	.73	.07	.01	.00	.04	.01

CAL YR 1987	TOTAL	26872.8	MEAN	73.6	MAX	1670	MIN	1.0	CFSM	.49	IN.	6.71
WTR YR 1988	TOTAL	17618.34	MEAN	48.1	MAX	900	MIN	.07	CFSM	.32	IN.	4.40

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 Heidelburg College, Tiffin, Ohio.

DRAINAGE AREA.--34.6 mi^2.

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: Oct. 24-Nov. 4, Jan. 5-19, Feb. 5-11, 22-Mar. 2, July 31-Aug. 9, Sept. 12. Records fair except those for estimated record, and flows below 10 ft^3/s, which are poor.

AVERAGE DISCHARGE.--5 years (1984-1988), 29.5 ft^3/s, 11.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,640 ft^3/s Feb. 23, 1985, gage height, 7.78 ft; minimum daily discharge 0.32 ft^3/s July 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 430 ft^3/s Mar. 26, gage height 5.57 ft; minimum daily discharge, 0.32 ft^3/s July 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.6	3.9	10	138	11	7.1	3.1	1.2	.73	7.0	2.8
2	2.0	2.6	3.9	9.4	168	12	6.2	3.1	1.5	.76	3.5	2.1
3	2.0	2.8	4.1	8.2	50	14	22	3.1	1.4	.69	1.9	2.1
4	2.0	3.0	4.5	7.3	21	15	168	3.1	1.3	.69	1.4	2.1
5	1.9	3.1	4.4	6.0	15	13	48	3.0	1.4	.69	1.2	2.0
6	1.8	3.1	4.3	5.4	11	12	21	3.1	1.4	.63	1.0	1.8
7	1.8	3.1	4.1	5.0	9.0	14	22	3.1	1.5	.62	.80	1.7
8	1.8	3.1	4.0	4.8	8.4	43	90	3.1	1.4	.61	.90	1.7
9	1.8	3.2	5.8	4.5	7.8	88	36	3.3	1.3	.62	1.0	1.7
10	1.8	3.1	6.7	4.3	7.2	88	19	2.8	1.4	.76	1.1	1.4
11	1.8	3.1	5.6	4.5	7.2	46	13	2.6	1.3	.57	1.1	1.5
12	1.7	3.1	5.4	5.4	7.1	28	9.8	2.6	1.3	.39	1.0	1.3
13	1.7	3.8	7.2	5.0	7.1	27	7.6	2.6	1.3	.37	.90	1.1
14	1.7	3.3	5.8	4.5	7.1	28	6.3	2.6	1.2	.37	.88	1.0
15	1.9	3.4	27	4.1	8.4	21	5.6	2.6	1.1	.37	.80	.97
16	2.2	3.5	58	3.9	16	16	4.9	2.7	1.2	.37	.80	.87
17	2.2	3.6	24	3.7	23	13	4.5	2.2	1.3	.37	.80	.80
18	2.2	3.6	12	4.5	38	12	4.2	2.2	1.1	.41	.79	.74
19	2.0	3.3	9.4	6.0	93	12	3.9	2.1	1.1	.39	1.2	.74
20	2.0	3.3	27	34	318	13	3.6	1.9	.98	.43	.90	.94
21	2.0	3.3	69	39	202	11	3.5	1.8	.82	.44	.90	.82
22	2.0	3.3	27	27	100	8.9	3.3	1.8	.80	.56	.86	.91
23	2.0	3.4	14	11	60	9.5	3.4	1.7	.79	.44	1.1	.94
24	3.5	3.6	10	8.3	35	12	3.4	1.6	.84	.39	.83	.87
25	7.0	4.8	9.6	7.0	24	89	3.3	1.4	.78	.52	.77	.91
26	6.0	4.2	9.8	6.6	17	282	3.3	1.4	.75	.48	.73	.94
27	5.0	3.9	9.5	6.5	15	55	3.1	1.3	.74	.35	.73	.89
28	4.0	3.9	9.7	6.2	14	22	3.3	1.2	.76	.33	5.1	.80
29	3.5	4.1	40	6.2	13	14	3.3	1.3	.75	.32	8.0	.77
30	3.1	3.9	30	10	---	10	3.1	1.4	.76	.34	10	.90
31	2.8	---	15	67	---	8.1	---	1.2	---	2.0	4.8	---
TOTAL	79.2	102.1	470.7	335.3	1440.3	1047.5	535.7	71.0	33.47	17.01	62.79	38.11
MEAN	2.55	3.40	15.2	10.8	49.7	33.8	17.9	2.29	1.12	.55	2.03	1.27
MAX	7.0	4.8	69	67	318	282	168	3.3	1.5	2.0	10	2.8
MIN	1.7	2.6	3.9	3.7	7.1	8.1	3.1	1.2	.74	.32	.73	.74
CFSM	.07	.10	.44	.31	1.44	.98	.52	.07	.03	.02	.06	.04
IN.	.09	.11	.51	.36	1.55	1.13	.58	.08	.04	.02	.07	.04

CAL YR 1987	TOTAL	5519.1	MEAN	15.1	MAX	300	MIN	1.2	CFSM	.44	IN.	5.93
WTR YR 1988	TOTAL	4233.18	MEAN	11.6	MAX	318	MIN	.32	CFSM	.34	IN.	4.55

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 at "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: Jan. 4-31, Feb. 22-Mar. 2. Records good except for Dec. 18-Mar. 2, which are poor.

AVERAGE DISCHARGE.--62 years (1923-35, 1938-88), 998 ft³/s, 10.84 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)
Feb 20	0330	*7,500	*(a)7.25				

Minimum daily discharge, 6.3 ft³/s July 9-18.

(a) Ice Jam

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	72	90	585	2010	490	566	174	61	21	130	89
2	27	66	95	3400	4930	450	511	171	59	14	92	80
3	33	60	101	3590	5500	445	518	167	60	10	98	93
4	34	56	130	2100	4400	465	2080	163	55	8.8	96	92
5	31	53	151	1300	2500	436	3340	167	52	8.4	87	95
6	31	50	142	920	1300	408	2270	181	52	7.4	88	91
7	34	46	125	680	740	439	1440	190	48	7.3	80	82
8	37	45	121	540	570	822	1850	205	44	6.4	65	73
9	37	50	144	440	500	2840	2010	220	41	6.3	49	82
10	39	51	165	380	430	5120	1620	244	39	6.3	42	79
11	48	49	178	440	400	4430	1060	245	37	6.3	39	65
12	43	48	180	510	370	2990	769	251	35	6.3	36	72
13	43	48	195	480	355	1950	624	250	35	6.3	31	82
14	43	60	201	440	365	1670	523	231	34	6.3	32	77
15	40	60	326	400	520	1300	448	229	33	6.3	41	59
16	40	54	851	380	1150	925	396	239	32	6.3	35	51
17	41	54	747	365	1800	719	350	227	31	6.3	29	46
18	40	43	647	355	3000	628	315	200	31	6.3	38	45
19	37	43	419	400	4800	619	301	178	36	12	60	44
20	35	50	436	700	7000	651	282	166	36	30	59	54
21	35	48	797	1200	3300	630	267	155	34	44	51	55
22	35	48	719	1400	2050	583	248	134	40	63	39	39
23	35	49	611	590	1450	572	237	114	47	80	35	36
24	38	52	473	410	1100	649	225	101	55	67	48	31
25	42	74	386	305	900	1030	210	90	61	60	48	28
26	46	80	348	250	760	3330	196	84	54	65	43	26
27	51	87	337	245	640	2930	190	79	48	68	40	27
28	62	89	339	240	560	2050	190	73	42	76	62	27
29	58	91	514	240	520	1240	188	68	38	87	216	27
30	59	90	678	450	---	860	181	63	32	118	161	26
31	66	---	676	1100	---	665	---	60	---	211	119	---
TOTAL	1270	1766	11322	24835	53920	42336	23405	5119	1302	1127.3	2089	1773
MEAN	41.0	58.9	365	801	1859	1366	780	165	43.4	36.4	67.4	59.1
MAX	66	91	851	3590	7000	5120	3340	251	61	211	216	95
MIN	27	43	90	240	355	408	181	60	31	6.3	29	26
CFSM	.03	.05	.29	.64	1.49	1.09	.62	.13	.03	.03	.05	.05
IN.	.04	.05	.34	.74	1.60	1.26	.70	.15	.04	.03	.06	.05

CAL YR 1987	TOTAL	254086	MEAN	696	MAX	9930	MIN	27	CFSM	.56	IN.	7.56
WTR YR 1988	TOTAL	170264.3	MEAN	465	MAX	7000	MIN	6.3	CFSM	.37	IN.	5.06

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

WATER-QUALITY ANALYSES

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

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: Water years 1951-1956, 1979 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
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.
SEDIMENT LOADS: Maximum daily, 124,000 tons June 14, 1981; minimum daily, less than 0.05 ton on several days during 1952 and 1954.

EXTREMES FOR CURRENT YEAR.--Sediment data unavailable - will be published in 1989 WDR.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	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)
NOV											
24...	1115	52	1000	8.5	10.0	6.0	1.8	12.7	105	K24	50
MAR											
16...	1440	883	625	8.3	1.0	4.0	18	12.8	101	230	560
JUN											
16...	0945	35	925	8.0	17.0	21.0	2.2	6.8	79	K210	180
AUG											
04...	1230	97	959	7.2	33.5	30.5	3.2	7.4	102	K160	190

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 IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (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)
NOV											
24...	480	460	120	43	41	6.9	--	12	266	230	53
MAR											
16...	290	150	79	23	13	2.7	171	0	139	94	32
JUN											
16...	400	210	84	44	38	6.2	225	0	188	200	61
AUG											
04...	420	290	87	47	45	6.9	154	0	118	290	59

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)
NOV											
24...	0.6	0.31	681	0.01	0.29	0.02	0.04	0.90	0.04	0.01	<0.01
MAR											
16...	0.3	6.9	369	0.03	7.90	0.09	0.10	0.80	0.08	0.05	0.04
JUN											
16...	0.4	2.7	609	0.01	<0.10	0.05	0.07	1.3	0.08	0.05	0.02
AUG											
04...	0.5	3.1	654	0.04	0.43	0.02	0.03	1.4	0.14	0.03	<0.01

04198000 SANDUSKY RIVER NEAR FREMONT, OH--Continued

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV											
24...	<10	1	60	<0.5	<1	<1	<3	6	12	<5	21
MAR											
16...	10	<1	38	<0.5	<1	1	<3	3	19	<5	4
JUN											
16...	10	3	68	<0.5	<1	<1	<3	4	10	<5	20
AUG											
04...	20	2	75	<0.5	<1	<1	<3	4	8	<5	22

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)
NOV										
24...	8	<0.1	<10	3	<1	<1.0	6400	<6	11	140
MAR										
16...	11	0.2	<10	<1	<1	<1.0	1100	<6	<3	24
JUN										
16...	79	<0.1	10	5	<1	<1.0	4900	<6	8	16
AUG										
04...	14	<0.1	10	3	<1	<1.0	5200	<6	11	21

K Results based on colony count outside the acceptable range

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 September 1988.

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: Dec. 22-24, Jan. 1-31 and Feb. 4-29. Records poor. Water-quality data collected at this site 1969 to 1974, 1978 to 1980, current year. Sediment data collected 1970 to 1974, current year.

AVERAGE DISCHARGE.--32 years, (1951-81, 1988) 297 ft³/s, 10.87 in/yr.

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

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 20	----	Ice Jam	*14.51	Mar. 26	0030	*3,040	12.56

Minimum daily discharge, 4.1 ft³/s July 9.

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	38	63	54	380	1270	170	173	70	41	5.6	187	23
2	35	64	58	310	1670	168	172	63	33	5.5	86	18
3	37	58	61	250	1560	181	687	59	17	5.1	48	27
4	37	55	82	200	800	191	2360	56	17	5.2	35	88
5	37	54	88	160	600	210	769	57	17	4.9	29	93
6	35	52	80	140	450	207	419	61	17	4.7	26	93
7	35	49	67	130	400	252	594	60	21	4.4	28	61
8	36	50	63	120	300	521	1260	57	20	4.7	21	41
9	35	54	97	110	250	715	635	60	19	4.1	17	43
10	35	49	117	110	200	737	516	74	18	4.7	13	26
11	43	48	90	120	180	476	320	70	20	11	13	21
12	42	49	93	130	170	311	207	65	17	8.0	45	20
13	41	49	134	120	170	310	164	61	16	8.4	22	21
14	41	47	106	110	170	271	138	55	17	5.9	11	21
15	39	47	309	105	170	218	124	52	15	5.7	9.0	20
16	38	46	1150	105	350	194	111	63	14	5.2	46	17
17	38	45	405	100	600	182	101	61	14	4.9	19	14
18	36	43	395	100	1000	202	101	66	13	5.8	17	14
19	73	47	395	150	1500	227	98	66	12	10	612	13
20	101	48	453	250	2000	224	91	61	13	14	232	14
21	99	42	742	400	1000	191	91	61	11	18	74	13
22	99	41	500	220	600	187	91	61	8.5	16	42	13
23	96	43	330	150	800	210	89	62	8.3	18	28	13
24	98	43	150	110	500	271	83	59	8.3	45	67	12
25	109	52	88	88	350	1020	77	54	8.6	34	33	12
26	99	63	89	80	250	3040	70	49	8.1	130	20	11
27	101	56	92	75	180	3040	67	48	8.3	54	12	10
28	87	55	100	72	175	2430	77	46	6.1	34	221	9.7
29	74	54	167	70	170	309	77	45	4.7	23	274	9.5
30	70	52	343	69	---	236	76	43	5.2	28	75	9.1
31	67	---	453	90	---	196	---	44	---	379	36	---
TOTAL	1851	1518	7351	4624	17835	17097	9838	1809	448.1	906.8	2398.0	800.3
MEAN	59.7	50.6	237	149	615	552	328	58.4	14.9	29.3	77.4	26.7
MAX	109	64	1150	400	2000	3040	2360	74	41	379	612	93
MIN	35	41	54	69	170	168	67	43	4.7	4.1	9.0	9.1
CFSM	.16	.14	.64	.40	1.66	1.49	.88	.16	.04	.08	.21	.07
IN.	.19	.15	.74	.46	1.79	1.71	.99	.18	.04	.09	.24	.08

WTR YR 1988 TOTAL 66476.2 MEAN 182 MAX 3040 MIN 4.1 CFSM .49 IN. 6.67

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 September 1988.

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

REMARKS.--Estimated daily discharges: Jan. 5-10, Feb. 5-13. Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 302 ft³/s Mar. 25, 1988, gage height 7.79 ft; minimum daily discharge, no flow many days in 1988.

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)
Dec. 15	1400	128	5.67	Mar. 25	2045	*302	*7.79
Feb. 15	2230	107	5.34	Apr. 3	1900	175	6.35
Feb. 20	0345	272	7.48	Apr. 7	1745	199	6.66
Feb. 23	0630	164	6.20				

Minimum daily discharge, no flow many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.67	6.0	28	58	13	11	4.9	.49	.00	.06	.00
2	.54	.66	9.8	15	56	14	11	4.3	.64	.00	.00	.00
3	1.2	.67	10	8.8	21	15	68	4.0	.75	.00	.00	.17
4	.93	.64	21	7.4	15	13	77	3.6	.76	.00	.00	.32
5	.86	.62	18	6.0	11	14	26	3.5	.65	.00	.00	.16
6	.71	.56	12	5.2	10	16	17	3.3	.51	.00	.00	.06
7	.76	.51	10	5.0	9.0	21	99	2.9	.36	.00	.00	.00
8	.77	.52	15	4.6	8.0	22	76	2.7	.28	.00	.00	.00
9	.77	.75	23	4.4	7.4	22	25	3.0	.21	.00	.00	.00
10	.73	.76	13	4.2	7.0	18	17	4.3	.15	.00	.00	.00
11	1.3	.72	10	4.1	6.8	13	13	3.2	.09	.00	.00	.00
12	1.2	.65	17	4.3	6.8	13	11	2.5	.06	.00	.00	.00
13	1.1	.62	12	4.9	7.0	13	9.6	2.3	.04	.00	.00	.00
14	.91	.60	8.6	4.0	8.7	12	8.1	1.9	.01	.00	.00	.00
15	.75	.59	62	3.6	62	11	7.0	1.7	.00	.00	.00	.00
16	.66	.58	33	3.8	73	10	6.7	2.2	.00	.00	.00	.00
17	.64	.60	16	4.8	46	12	6.4	1.9	.00	.00	.00	.00
18	.64	.65	12	7.2	59	21	6.4	1.7	.00	.00	.00	.00
19	.64	.60	11	6.5	87	20	5.6	1.6	.00	.00	.00	.00
20	.64	.60	37	28	172	15	4.9	1.8	.00	.00	.00	.00
21	.59	.61	25	14	52	14	4.5	1.6	.00	.00	.00	.00
22	.55	.58	14	7.7	36	15	4.1	1.4	.00	.00	.00	.00
23	.53	.62	11	6.8	110	19	4.0	1.2	.00	.00	.00	.00
24	.65	.68	9.9	6.4	36	27	3.7	1.2	.00	.00	.00	.00
25	1.0	1.5	11	5.9	22	130	3.4	1.0	.00	.00	.00	.00
26	.93	8.0	11	5.7	19	91	3.3	.97	.00	.00	.00	.00
27	1.4	6.3	8.9	6.1	15	34	3.2	.91	.00	.00	.00	.00
28	1.8	5.1	12	5.6	13	21	6.1	.76	.00	.00	1.8	.00
29	1.4	5.5	23	5.8	13	17	7.8	.70	.00	.00	.48	.00
30	1.1	5.7	14	10	---	14	6.0	.62	.00	.00	.12	.00
31	.80	---	13	15	---	11	---	.59	---	.35	.00	---
TOTAL	27.06	47.16	509.2	248.8	1046.7	701	551.8	68.25	5.00	.35	2.46	.71
MEAN	.87	1.57	16.4	8.03	36.1	22.6	18.4	2.20	.17	.01	.08	.02
MAX	1.8	8.0	62	28	172	130	99	4.9	.76	.35	1.8	.32
MIN	.53	.51	6.0	3.6	6.8	10	3.2	.59	.00	.00	.00	.00
CFSM	.04	.07	.74	.36	1.63	1.02	.83	.10	.01	.00	.00	.00
IN.	.05	.08	.86	.42	1.76	1.18	.93	.11	.01	.00	.00	.00

WTR YR 1988 TOTAL 3208.49 MEAN 8.77 MAX 172 MIN .00 CFSM .40 IN. 5.40

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 mi^2.

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, 22.20 ft Feb. 5 due to ice jam; minimum recorded gage height, 9.95 ft Dec. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.39	15.64	12.88	15.07	12.92	13.10	13.22	14.75	14.13	13.61	13.36	13.47
2	15.39	15.65	12.72	14.69	13.38	12.77	13.25	14.81	14.14	13.60	13.33	13.47
3	15.38	15.67	12.75	12.77	13.15	13.30	13.22	14.83	14.15	13.57	13.33	13.47
4	15.39	15.68	13.63	11.92	13.30	13.67	13.15	14.80	14.13	13.55	13.31	13.51
5	15.41	15.68	13.02	11.97	13.58	13.83	13.25	14.85	14.13	13.52	13.30	13.51
6	15.42	15.66	12.88	12.53	12.10	13.01	13.23	14.89	14.12	13.51	13.28	13.51
7	15.41	15.66	12.96	12.95	12.27	12.76	13.96	14.93	14.10	13.49	13.27	13.51
8	15.41	15.67	12.97	12.84	12.73	12.94	13.79	14.97	14.07	13.48	13.25	13.51
9	15.42	15.68	12.81	12.66	12.76	12.77	13.51	14.57	14.07	13.46	13.22	13.50
10	15.43	15.68	12.75	12.78	12.87	13.06	13.39	13.17	14.07	13.45	13.21	13.47
11	15.43	15.68	12.80	12.43	13.20	12.94	13.56	13.36	14.07	13.49	13.20	13.46
12	15.45	15.70	12.52	12.47	12.49	13.12	13.72	13.24	14.07	13.47	13.23	13.46
13	15.46	15.71	12.40	12.53	12.05	12.55	13.41	13.10	14.07	13.46	13.23	13.45
14	15.47	15.71	12.83	13.55	12.61	12.69	13.30	13.44	14.01	13.44	13.23	13.45
15	15.48	15.71	12.91	12.76	12.45	13.05	13.43	13.60	13.94	13.42	13.26	13.43
16	15.48	15.73	11.84	12.59	12.86	13.15	13.37	13.66	13.92	13.40	13.24	13.42
17	15.49	15.73	13.01	12.76	12.73	13.35	13.28	13.70	13.90	13.39	13.22	13.42
18	15.50	13.40	12.84	12.65	12.87	13.63	13.27	13.73	13.89	13.37	13.22	13.40
19	15.49	12.17	12.66	13.07	12.98	13.68	13.43	13.76	13.88	13.38	13.27	13.40
20	15.49	12.93	12.39	13.08	12.70	13.45	13.56	13.80	13.86	13.37	13.26	13.39
21	15.49	13.04	12.36	12.70	12.74	13.14	13.73	13.82	13.83	13.37	13.26	13.37
22	15.48	12.89	12.81	12.77	12.18	13.19	13.88	13.85	13.81	13.37	13.24	13.35
23	15.47	12.35	12.78	12.55	12.65	13.06	14.01	13.86	13.78	13.37	13.25	13.34
24	15.47	12.50	13.03	12.33	12.50	13.03	14.07	13.86	13.77	13.35	13.24	13.33
25	15.48	13.09	13.03	12.88	12.76	13.22	14.13	14.12	13.75	13.34	13.23	13.31
26	15.50	13.33	13.29	12.14	12.66	13.16	14.19	14.15	13.71	13.34	13.21	13.30
27	15.53	13.73	13.05	12.55	13.20	12.81	14.25	14.16	13.68	13.33	13.19	13.30
28	15.57	13.36	13.65	12.58	12.87	13.23	14.33	14.16	13.67	13.32	13.32	13.27
29	15.60	12.98	14.31	12.75	12.77	13.21	14.50	14.15	13.65	13.31	13.47	13.26
30	15.62	12.33	14.59	12.51	---	12.96	14.65	14.16	13.64	13.32	13.48	13.26
31	15.64	---	14.79	12.53	---	13.32	---	14.15	---	13.37	13.47	---
MEAN	15.47	14.49	13.01	12.79	12.77	13.13	13.67	14.08	13.93	13.43	13.28	13.41
MAX	15.64	15.73	14.79	15.07	13.58	13.83	14.65	14.97	14.15	13.61	13.48	13.51
MIN	15.38	12.17	11.84	11.92	12.05	12.55	13.15	13.10	13.64	13.31	13.19	13.26

CAL YR 1987 MEAN 14.59 MAX 16.18 MIN 11.84
WTR YR 1988 MEAN 13.62 MAX 15.73 MIN 11.84

04199175 LAKE ERIE AT RUGGLES BEACH, OH

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

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

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded gage height, 17.98 ft Jan. 19, 1987; minimum recorded gage height, 12.05 ft Jun. 5, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 15.34 ft Dec. 28, minimum recorded gage height, 12.05 ft Jan. 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.70	13.58	13.32	13.15	13.39			---	13.73		---	13.10
2	13.43	13.55	13.07	13.25	13.66			---	14.10		---	13.06
3	13.92	13.33	13.21	13.56	13.57			14.05	13.94		---	13.12
4	13.50	13.24	13.64	13.45	13.61			14.06	13.73		---	13.09
5	13.41	13.38	13.26	12.47	13.20			13.99	13.61		---	13.31
6	13.42	13.17	13.23	12.74	13.12			13.99	13.74		---	13.12
7	13.51	13.22	13.33	13.08	13.14			13.99	13.78		---	13.07
8	13.61	13.16	13.27	13.37	13.22			13.97	14.05		---	13.07
9	13.40	13.54	13.11	13.22	---			13.82	14.05		---	12.99
10	13.60	13.88	13.20	12.95	---			13.85	13.83		---	13.05
11	13.60	13.50	13.16	13.23	---			13.93	13.61		---	13.04
12	13.52	13.03	13.03	13.68	---			13.90	13.60		13.14	13.09
13	13.56	13.09	13.02	14.52	---			13.78	13.65		13.10	13.11
14	13.49	13.25	13.22	14.49	---			13.99	13.60		13.06	13.04
15	13.53	13.41	13.61	14.84	---			13.87	13.59		13.15	13.16
16	13.57	13.28	13.33	14.38	---			13.88	13.71		13.15	13.09
17	13.44	13.18	13.54	13.31	---			13.98	13.67		13.13	13.05
18	13.49	13.08	13.38	13.26	---			14.09	13.66		13.30	13.03
19	13.56	13.03	13.30	13.61	---			14.07	13.56		13.23	13.06
20	13.48	13.37	13.30	13.27	---			13.89	13.50		13.12	12.92
21	13.20	13.39	13.20	13.29	---			13.89	---		13.14	13.10
22	13.23	13.03	13.37	13.26	---			13.92	---		13.16	13.04
23	13.23	13.03	13.38	13.16	---			13.89	---		13.09	13.09
24	13.31	13.09	13.56	13.17	---			14.05	---		13.10	13.16
25	13.41	13.41	13.56	13.40	---			14.04	---		13.05	13.09
26	13.47	13.55	13.67	13.12	---			13.83	---		13.13	13.11
27	13.32	13.79	13.54	13.02	---			13.74	---		13.10	13.02
28	13.36	13.50	14.14	12.86	---			13.77	---		13.07	13.26
29	13.37	13.25	14.12	13.16	---			13.81	---		13.17	13.15
30	13.23	13.02	13.56	13.17	---			13.74	---		13.10	13.01
31	13.62	---	13.18	13.17	---			13.73	---		13.07	---
MEAN	13.47	13.31	13.38	13.37	---			---	---		---	13.09
MAX	13.92	13.88	14.14	14.84	---			---	---		---	13.31
MIN	13.20	13.02	13.02	12.47	---			---	---		---	12.92

CAL YR 1987 MEAN 14.37 MAX 16.24 MIN 13.02

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 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 7, 1987 to current year.

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

REMARKS.--Estimated daily discharges: Nov. 16-20, Dec. 31-Jan. 19, Jan. 22-30, Feb. 5-19. Records good except those above 2,000 ft^3/s and periods of estimated daily discharge which are fair.

EXTREMES FOR PERIOD.--Maximum discharge, 8,900 ft^3/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 2,460 ft^3/s Feb. 20, gage height 10.02 ft; minimum daily discharge no flow July 8-10 and 13-18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	11	14	32	886	57	60	24	2.9	.37	13	11
2	7.3	8.6	18	26	1050	59	56	19	2.7	.28	4.3	4.9
3	8.0	8.0	18	20	510	67	379	15	2.9	.30	2.1	2.7
4	12	8.0	26	16	307	66	687	13	2.9	.21	4.2	5.0
5	15	6.9	34	14	230	54	223	13	2.6	.11	3.8	32
6	26	4.3	31	12	200	62	137	17	2.6	.09	2.5	34
7	25	4.1	26	11	180	104	132	17	2.6	.04	3.2	16
8	21	4.1	34	11	160	379	306	13	2.1	.00	2.8	8.0
9	16	4.7	65	10	150	394	153	11	1.3	.00	1.6	4.7
10	12	5.0	60	10	140	364	100	12	1.1	.00	.61	3.2
11	17	6.8	35	9.8	140	150	76	16	.90	.02	.36	2.0
12	19	6.2	45	9.8	140	98	60	17	.93	.02	.19	1.8
13	15	5.6	60	12	140	111	48	15	.63	.00	.14	2.5
14	14	5.2	31	11	140	112	41	11	.60	.00	.10	4.2
15	12	5.0	242	10	150	80	35	8.9	.49	.00	.07	11
16	8.1	5.0	282	9.8	180	73	31	12	.57	.00	1.3	7.5
17	4.5	5.0	101	11	200	72	28	11	.42	.00	4.0	6.1
18	2.4	5.2	65	15	250	87	26	12	.31	.00	3.0	4.4
19	2.7	5.5	50	20	350	100	25	9.8	.47	.02	273	2.9
20	2.8	5.0	205	174	1570	85	21	9.2	.72	.07	100	2.1
21	3.0	4.9	251	191	760	80	20	8.5	.58	.18	31	1.5
22	5.4	4.4	107	60	138	79	21	8.3	.49	.20	13	1.6
23	8.1	4.1	71	43	428	100	19	7.4	.57	.47	7.6	2.0
24	9.8	4.1	56	35	260	129	25	6.9	.57	10	28	2.0
25	12	6.1	54	32	158	188	26	5.6	.85	3.9	13	1.9
26	26	13	65	30	94	835	20	4.5	.75	1.8	5.7	1.5
27	15	15	58	29	86	372	18	4.6	.59	2.3	3.3	1.8
28	27	16	48	28	71	163	17	4.0	.83	1.5	8.6	1.8
29	26	15	92	27	58	117	26	4.2	.65	1.1	54	1.7
30	27	14	72	45	---	92	31	3.8	.46	.68	67	1.6
31	15	---	45	235	---	71	---	3.6	---	51	27	---
TOTAL	417.9	215.8	2361	1199.4	9126	4800	2847	337.3	36.08	74.66	678.47	183.4
MEAN	13.5	7.19	76.2	38.7	315	155	94.9	10.9	1.20	2.41	21.9	6.11
MAX	27	16	282	235	1570	835	687	24	2.9	51	273	34
MIN	2.4	4.1	14	9.8	58	54	17	3.6	.31	.00	.07	1.5

WTR YR 1988 TOTAL 22277.01 MEAN 60.9 MAX 1570 MIN .00

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: Jan. 1-19, 26-31, Feb. 5-20, 25-29. 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.--44 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)
Feb. 20	----	3,230	ice jam	Mar. 26	1330	*3,370	*8,43

Minimum daily discharge, 4.3 ft³/s July 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	25	49	180	1360	193	202	231	19	4.5	17	30
2	14	26	63	150	2590	191	185	166	30	4.5	19	34
3	70	22	74	130	1930	191	646	112	22	4.3	11	38
4	53	23	151	110	709	206	2010	82	17	4.4	11	57
5	31	20	175	100	350	189	1270	80	16	4.8	39	69
6	22	18	164	80	300	191	547	87	14	4.8	121	83
7	25	18	134	60	260	342	390	142	16	4.9	123	72
8	30	17	160	52	220	552	519	108	14	5.8	45	53
9	23	30	372	47	200	700	505	104	13	5.5	26	36
10	18	20	326	45	170	668	331	87	11	5.6	17	24
11	38	22	243	50	160	487	239	79	8.7	12	41	18
12	42	22	214	52	150	299	193	90	7.9	6.1	50	20
13	28	22	187	50	150	237	167	89	7.7	4.9	24	16
14	22	21	164	48	200	250	134	75	7.6	5.0	17	13
15	16	21	409	45	350	252	100	65	7.8	5.7	12	30
16	14	22	670	45	550	215	100	64	8.0	5.0	8.5	55
17	15	21	459	54	800	226	96	59	10	4.6	5.7	39
18	11	21	255	70	1000	364	100	69	9.1	6.1	8.9	25
19	10	19	176	100	1420	479	92	74	8.8	12	19	18
20	10	20	639	278	2880	419	84	61	7.7	9.3	14	14
21	10	20	942	449	2480	338	80	51	7.3	20	15	11
22	10	21	581	383	977	336	76	48	8.3	7.5	11	9.8
23	12	24	304	203	1760	386	76	45	8.4	17	45	8.9
24	15	26	209	137	1500	392	76	40	7.6	9.3	39	8.1
25	19	42	184	108	450	838	85	34	5.9	9.9	36	6.7
26	16	54	180	80	300	3130	81	31	5.3	25	21	6.3
27	32	53	163	70	250	2100	68	29	5.8	16	14	6.4
28	34	56	161	66	200	746	82	25	5.3	10	58	5.5
29	31	56	264	62	190	447	117	22	4.8	11	41	6.3
30	32	49	264	60	---	324	291	21	4.9	22	32	5.0
31	24	---	216	80	---	245	---	21	---	29	29	---
TOTAL	740	831	8552	3444	23856	15933	8942	2291	318.9	296.5	970.1	818.0
MEAN	23.9	27.7	276	111	823	514	298	73.9	10.6	9.56	31.3	27.3
MAX	70	56	942	449	2880	3130	2010	231	30	29	123	83
MIN	10	17	49	45	150	189	68	21	4.8	4.3	5.7	5.0
CFSM	.06	.07	.70	.28	2.08	1.30	.75	.19	.03	.02	.08	.07
IN.	.07	.08	.80	.32	2.24	1.50	.84	.22	.03	.03	.09	.08

CAL YR 1987	TOTAL	107141	MEAN	294	MAX	8130	MIN	10	CFSM	.74	IN.	10.06
WTR YR 1988	TOTAL	66992.5	MEAN	183	MAX	3130	MIN	4.3	CFSM	.46	IN.	6.29

04201500 ROCKY RIVER NEAR BEREA, OH

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

DRAINAGE AREA.--267 mi².

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

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

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

REMARKS.--Estimated daily discharges: Jan. 1-20, 26-31, Feb. 5-16 and Sept. 16-21. Records good except those for periods of estimated record which are poor. Some regulation at low flow by small reservoirs on East Branch. Some inter-basin 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.--57 years, 271 ft³/s, 13.79 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)
Mar. 26	0300	*5,180	*5.17	No other peaks greater than base discharge.			

Minimum daily discharge, 19 ft³/s July 5-7,17.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	56	115	140	2060	178	189	291	30	21	53	46
2	52	53	168	120	2150	169	183	179	58	21	102	36
3	153	52	178	100	843	182	828	141	43	20	130	68
4	117	52	263	94	445	193	2110	121	34	20	74	365
5	83	50	254	87	280	176	674	129	33	19	94	344
6	58	49	206	84	220	199	369	200	29	19	312	184
7	89	49	164	80	190	322	368	158	27	19	111	88
8	137	47	284	78	180	365	519	123	25	20	57	56
9	91	85	754	76	170	391	329	115	25	20	40	44
10	66	77	520	76	170	462	235	159	24	20	44	37
11	245	71	232	90	170	273	193	177	23	47	44	32
12	217	60	240	120	170	214	162	132	21	33	35	32
13	117	56	216	100	170	267	140	102	21	34	27	46
14	76	54	138	90	230	279	126	91	22	27	25	65
15	60	51	446	85	300	226	120	87	21	21	28	48
16	53	50	688	95	400	227	141	306	26	20	25	39
17	59	52	282	150	551	251	152	216	28	19	23	40
18	71	56	200	220	728	445	179	120	25	34	32	38
19	54	51	174	350	869	431	163	104	23	53	81	37
20	53	66	1530	700	2620	369	125	103	22	28	63	35
21	48	61	1130	538	801	324	138	84	22	84	46	34
22	47	57	375	229	463	326	137	72	21	73	34	31
23	47	58	235	144	1390	414	121	61	22	60	57	31
24	52	57	202	116	685	548	201	56	21	42	78	30
25	110	79	195	97	330	1330	156	49	21	42	66	28
26	80	112	198	100	237	3900	113	47	21	92	45	27
27	120	115	152	98	225	969	99	43	20	80	37	26
28	130	82	139	95	169	516	163	40	22	41	143	25
29	109	86	352	90	183	352	519	36	22	28	195	25
30	79	104	228	88	---	288	474	32	20	63	139	25
31	63	---	163	150	---	221	---	31	---	89	72	---
TOTAL	2804	1948	10421	4680	17399	14807	9426	3605	772	1209	2312	1962
MEAN	90.5	64.9	336	151	600	478	314	116	25.7	39.0	74.6	65.4
MAX	245	115	1530	700	2620	3900	2110	306	58	92	312	365
MIN	47	47	115	76	169	169	99	31	20	19	23	25
CFSM	.34	.24	1.26	.57	2.25	1.79	1.18	.43	.10	.15	.28	.24
IN.	.39	.27	1.45	.65	2.42	2.06	1.31	.50	.11	.17	.32	.27

CAL YR 1987	TOTAL	105267	MEAN	288	MAX	6160	MIN	26	CFSM	1.08	IN.	14.67
WTR YR 1988	TOTAL	71345	MEAN	195	MAX	3900	MIN	19	CFSM	.73	IN.	9.94

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: Jan. 5-17, 27-31, Feb. 6-14. 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.--52 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, 761 ft³/s Mar. 28, gage height, 3.39 ft; minimum daily, 16 ft³/s Sept. 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	193	146	218	179	320	297	166	39	80	22	90
2	178	176	141	238	334	304	231	176	43	77	21	82
3	189	168	134	250	484	274	224	160	64	75	43	81
4	202	160	131	185	498	257	373	124	68	72	50	131
5	210	148	133	160	416	253	486	106	65	70	35	130
6	206	135	136	140	300	250	555	117	58	67	34	104
7	204	125	135	120	180	242	518	116	51	64	37	70
8	219	119	141	110	140	234	441	102	49	62	31	50
9	245	119	185	110	120	249	378	89	49	60	26	37
10	270	125	252	100	100	281	326	124	53	59	23	29
11	291	113	317	100	90	318	270	135	57	62	31	24
12	286	83	348	96	84	327	219	121	55	63	37	21
13	269	67	331	94	82	314	181	105	47	60	36	21
14	246	59	281	92	80	290	158	89	44	62	32	22
15	224	54	259	90	110	277	146	73	47	65	31	22
16	207	51	292	90	115	260	143	94	57	64	42	20
17	193	49	332	90	146	248	142	133	80	64	45	18
18	183	52	330	186	169	240	157	142	103	66	46	17
19	178	65	297	230	197	233	157	131	104	70	63	17
20	175	70	370	343	250	233	139	125	101	71	72	18
21	171	66	489	431	400	229	142	122	100	85	72	18
22	172	60	581	477	503	226	144	104	98	91	69	18
23	181	57	578	430	583	221	141	87	98	56	69	19
24	200	67	494	375	636	242	154	89	97	52	73	20
25	215	73	406	327	677	299	163	102	97	52	73	21
26	223	90	345	227	654	465	153	86	97	53	73	20
27	230	99	299	160	580	682	111	67	95	55	71	18
28	242	90	268	130	461	741	95	57	91	41	78	17
29	244	100	246	100	368	641	99	50	84	29	100	16
30	229	136	230	100	---	508	136	46	80	23	109	17
31	212	---	231	110	---	390	---	42	---	22	101	---
TOTAL	6661	2969	8858	5909	8936	10048	6879	3280	2171	1892	1645	1188
MEAN	215	99.0	286	191	308	324	229	106	72.4	61.0	53.1	39.6
MAX	291	193	581	477	677	741	555	176	104	91	109	131
MIN	167	49	131	90	80	221	95	42	39	22	21	16
CFSM	1.42	.66	1.89	1.26	2.04	2.15	1.52	.70	.48	.40	.35	.26
IN.	1.64	.73	2.18	1.46	2.20	2.48	1.69	.81	.53	.47	.41	.29

CAL YR 1987	TOTAL	77766	MEAN	213	MAX	2070	MIN	19	CFSM	1.41	IN.	19.16
WTR YR 1988	TOTAL	60436	MEAN	165	MAX	741	MIN	16	CFSM	1.09	IN.	14.89

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 71 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.--63 years, 428 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 mi 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, 3,580 ft³/s July 21, gage height, 9.34 ft; minimum daily, 46 ft³/s July 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	259	253	378	486	454	551	191	88	51	64	80
2	245	257	283	291	1120	427	471	187	95	53	130	72
3	261	244	258	283	1030	412	707	186	103	53	117	452
4	250	238	297	279	983	411	1100	197	98	52	71	1550
5	240	228	275	256	813	353	964	252	92	50	77	562
6	237	218	252	243	589	329	879	238	86	49	87	413
7	321	207	242	128	426	372	925	210	79	51	67	337
8	273	210	251	155	432	356	837	199	78	53	56	246
9	260	252	304	202	371	394	702	209	75	50	54	166
10	254	229	365	202	300	447	592	229	70	48	53	115
11	312	210	373	185	255	433	528	227	68	89	55	102
12	333	183	420	191	240	442	452	210	68	50	53	186
13	351	105	437	193	222	471	374	206	69	47	52	251
14	304	98	432	191	212	451	337	194	65	46	53	120
15	296	96	540	191	296	432	321	193	72	53	53	109
16	279	98	544	191	310	390	307	271	94	47	58	99
17	280	100	536	189	331	379	304	210	81	47	54	83
18	266	98	515	242	416	343	321	200	74	137	70	107
19	260	96	502	322	520	377	301	227	69	182	164	102
20	247	102	747	536	757	360	279	247	70	72	83	108
21	240	104	952	609	726	366	204	231	68	887	78	50
22	236	100	903	596	668	382	181	212	63	201	65	69
23	196	106	786	571	943	355	186	224	63	206	156	70
24	196	119	744	537	1010	377	186	196	59	158	89	70
25	207	128	669	489	866	621	182	157	55	121	71	68
26	198	137	576	401	804	836	180	152	63	106	88	68
27	240	120	504	313	756	847	175	148	54	77	60	66
28	258	125	474	253	628	888	197	139	51	69	257	68
29	278	222	468	239	523	930	214	133	52	73	241	69
30	278	241	403	257	---	823	215	130	49	77	154	65
31	278	---	335	263	---	667	---	123	---	73	98	---
TOTAL	8135	4930	14640	9376	17033	15125	13172	6128	2171	3328	2828	5923
MEAN	262	164	472	302	587	488	439	198	72.4	107	91.2	197
MAX	351	259	952	609	1120	930	1100	271	103	887	257	1550
MIN	196	96	242	128	212	329	175	123	49	46	52	50

CAL YR 1987	TOTAL	134994	MEAN	370	MAX	2790	MIN	76
WTR YR 1988	TOTAL	102789	MEAN	281	MAX	1550	MIN	46

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: Jan. 2-16, 26-29, Feb. 6-14. 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.--25 years (1963-88), 129 ft³/s, 20.89 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)
Mar. 25	2100	*1,820	*6.36	No other peak greater than base discharge.			

Minimum daily discharge, 12 ft³/s July 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	48	110	120	634	96	82	110	24	16	23	31
2	42	46	153	100	667	87	81	78	44	14	29	24
3	61	45	138	80	490	93	351	63	26	13	23	66
4	37	46	184	74	245	90	487	56	24	12	22	203
5	33	44	180	64	193	87	351	77	24	14	80	251
6	31	43	160	60	150	93	175	85	25	15	129	98
7	89	38	135	54	130	103	181	66	25	15	49	51
8	301	34	241	50	110	100	152	51	23	15	28	36
9	92	71	390	48	92	145	113	73	20	13	22	30
10	60	49	292	44	82	130	89	125	19	13	21	26
11	151	45	160	42	74	95	79	89	17	78	22	22
12	97	39	187	40	70	83	70	59	16	25	22	35
13	63	37	135	38	64	114	64	48	18	18	21	41
14	51	35	103	36	60	97	57	42	18	16	22	39
15	46	32	385	34	222	92	58	97	20	16	23	30
16	49	33	280	32	196	94	76	187	23	15	19	26
17	79	54	180	108	181	103	67	99	22	14	18	22
18	59	69	152	216	206	114	107	60	19	42	27	26
19	55	42	153	176	382	119	81	69	16	45	47	38
20	50	41	744	376	625	127	61	67	17	26	24	47
21	52	39	516	293	465	126	76	54	18	202	17	34
22	139	35	323	144	379	115	63	41	17	54	16	27
23	69	40	165	104	417	166	119	41	18	98	54	23
24	83	47	139	91	252	187	82	60	17	66	34	21
25	94	67	132	84	138	645	61	36	17	169	26	18
26	64	83	111	76	119	696	51	32	14	111	27	19
27	140	68	91	68	106	507	47	30	15	47	19	19
28	117	52	88	60	89	230	90	30	17	30	177	19
29	99	141	110	54	95	155	180	24	17	23	135	18
30	72	142	94	97	---	121	201	23	17	43	58	18
31	55	---	92	180	---	95	---	24	---	38	35	---
TOTAL	2484	1605	6323	3043	6933	5105	3752	1996	607	1316	1269	1358
MEAN	80.1	53.5	204	98.2	239	165	125	64.4	20.2	42.5	40.9	45.3
MAX	301	142	744	376	667	696	487	187	44	202	177	251
MIN	31	32	88	32	60	83	47	23	14	12	16	18
CFSM	.95	.64	2.43	1.17	2.85	1.97	1.49	.77	.24	.51	.49	.54
IN.	1.10	.71	2.80	1.35	3.07	2.26	1.66	.88	.27	.58	.56	.60

CAL YR 1987	TOTAL	43307	MEAN	119	MAX	1220	MIN	16	CFSM	1.42	IN.	19.20
WTR YR 1988	TOTAL	35791	MEAN	97.8	MAX	744	MIN	12	CFSM	1.17	IN.	15.87

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. 5, 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: June 26, 27. Records fair except for period of estimated daily discharge, which is 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.--57 years (1921-22, 1927-35, 1940-88), 832 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, 6,790 ft³/s Mar. 26, gage height, 13.14 ft; minimum daily, 83 ft³/s July 7.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	433	426	569	855	2700	928	1070	667	241	111	152	193
2	394	403	796	620	3490	852	961	471	264	109	139	157
3	503	398	724	561	2410	862	1760	391	257	109	453	229
4	444	381	886	527	1900	854	3070	368	260	98	190	2350
5	395	354	895	467	1540	797	2110	486	242	87	259	1600
6	372	373	774	533	1190	760	1610	594	227	87	552	889
7	600	355	691	448	1000	841	1640	447	224	83	254	622
8	892	346	827	324	866	884	1570	383	219	92	153	479
9	532	460	1370	495	817	962	1300	378	229	90	128	344
10	440	480	1140	488	712	1040	1120	763	229	96	119	260
11	792	451	932	477	622	899	1010	618	217	264	125	202
12	614	428	1010	382	616	843	907	465	215	172	117	205
13	615	362	887	355	544	1010	789	432	208	128	107	612
14	504	293	811	349	496	937	691	434	216	112	103	348
15	463	263	1590	340	987	893	661	437	210	115	105	229
16	434	255	1310	338	1110	881	692	1330	234	127	101	207
17	471	279	1080	428	953	839	667	744	313	121	107	176
18	480	397	993	948	1160	902	816	484	249	185	114	176
19	437	241	952	728	1540	923	715	474	224	621	357	219
20	430	242	3050	1870	3400	922	627	564	203	459	206	250
21	425	257	2220	1500	1930	913	609	483	227	1650	143	175
22	545	230	1830	1130	1390	928	478	419	212	985	124	140
23	392	224	1420	993	2430	1040	559	375	219	866	159	159
24	341	274	1300	946	1910	1110	622	661	199	772	398	162
25	487	281	1220	889	1510	2410	461	390	174	598	149	133
26	374	433	1080	774	1340	4270	417	327	170	592	184	128
27	557	331	959	633	1270	2400	382	307	180	301	135	135
28	629	282	884	530	1110	1730	512	293	174	184	640	130
29	577	495	1050	470	1020	1610	802	277	161	158	981	134
30	522	592	857	559	---	1460	1040	252	115	182	985	131
31	495	---	732	822	---	1230	---	253	---	227	578	---
TOTAL	15589	10586	34839	20779	41963	36930	29668	14967	6512	9781	8317	11174
MEAN	503	353	1124	670	1447	1191	989	483	217	316	268	372
MAX	892	592	3050	1870	3490	4270	3070	1330	313	1650	985	2350
MIN	341	224	569	324	496	760	382	252	115	83	101	128

CAL YR 1987	TOTAL	305492	MEAN	837	MAX	7360	MIN	169
WTR YR 1988	TOTAL	241105	MEAN	659	MAX	4270	MIN	83

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.
SUSPENDED SEDIMENT DISCHARGE: Water years 1950-74, December 1976 to September 1984.

INSTRUMENTATION.--Alcohol-actuated thermograph October 1956 to June 1965, water-quality monitor since July 1965.

REMARKS.--Interruptions in the water-quality record were due to malfunction of the instrument.

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.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,800 mg/L Aug. 21, 1960; minimum daily mean, 1 mg/L Sept. 4, 10, 1955.
SEDIMENT LOADS: Maximum daily, 97,000 tons Sept. 14, 1979; minimum daily, 0.25 ton Sept. 4, 1955.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 2.230 microsiemens Feb. 15; minimum, 429 microsiemens Sept. 4.
pH: Maximum 9.1 units, July 8, 9, 10; minimum, 7.5 units July 21, Sept. 4.
WATER TEMPERATURES: Maximum, 29.5°C Aug. 13,; minimum, 0.0°C Feb. 6, 7, 8.
DISSOLVED OXYGEN: Maximum, 15.5 mg/L July 8, 9; minimum, 4.1 mg/L July 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	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											
22...	1345	1790	625	7.70	3.0	2.5	16	11.7	89	K11000	4000
FEB											
24...	1000	1920	720	7.90	-4.0	2.5	24	14.0	105	>240	K16000
JUN											
07...	1145	228	678	8.00	-4.0	23.5	10	7.1	88	240	100
AUG											
10...	1145	120	915	7.80	32.0	30.0	17	7.1	97	M	230

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 IT-FLD (MG/L AS HCO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
DEC											
22...	180	75	52	11	58	4.4	122	99	55	89	0.2
FEB											
24...	170	56	49	11	72	3.5	137	111	59	130	0.2
JUN											
07...	270	100	78	19	90	6.1	207	173	100	150	0.6
AUG											
10...	260	110	75	18	94	6.1	185	153	100	140	0.4

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
DEC											
22...	7.1	337	0.02	1.1	0.26	0.26	0.9	0.23	0.06	0.04	20
FEB											
24...	6.6	402	0.02	1.0	<0.01	0.58	1.3	0.25	0.09	0.04	20
JUN											
07...	4.8	578	0.11	3.2	0.12	0.13	1.3	0.18	0.12	0.09	20
AUG											
10...	4.2	544	0.03	4.4	0.03	0.03	1.0	0.22	0.12	0.10	40

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC										
22...	<1	31	<0.5	<1	2	<3	6	69	<5	7
FEB										
24...	<1	31	<0.5	<1	<1	<3	4	58	<5	7
JUN										
07...	2	47	<0.5	<1	<1	<3	5	9	<5	16
AUG										
10...	3	45	<0.5	<1	<1	<3	4	10	<5	16

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										
22...	67	0.1	<10	3	<1	<1.0	140	<6	9	92
FEB										
24...	64	0.3	<10	<1	<1	2.0	180	<6	12	96
JUN										
07...	89	<0.1	<10	4	<1	1.0	230	<6	19	28
AUG										
10...	34	<0.1	<10	5	<1	<1.0	230	<6	11	39

K Results based on colony count outside the acceptable range

M Presence of material verified but not quantified

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	654	606	625	789	747	773	882	858	869	1170	1020	1110
2	678	615	633	756	720	736	1180	867	981	996	888	921
3	672	618	638	741	711	729	1170	1020	1070	921	858	874
4	651	624	638	765	720	738	1770	1080	1400	852	810	831
5	636	612	628	756	726	745	1790	1650	1720	924	807	840
6	660	627	643	774	741	752	1620	1390	1470	957	888	918
7	699	639	664	789	771	780	1390	1160	1260	885	837	854
8	702	456	568	777	753	767	1150	998	1070	924	870	888
9	663	600	629	774	744	760	998	834	907	927	879	903
10	675	657	661	759	735	746	879	831	858	897	873	885
11	---	---	---	765	747	753	852	807	829	879	849	865
12	---	---	---	822	756	779	828	780	800	---	---	---
13	---	---	---	840	762	802	774	747	756	---	---	---
14	690	681	683	813	774	798	750	729	738	885	864	870
15	687	663	674	861	816	839	825	672	729	918	873	894
16	711	669	684	846	822	837	825	729	782	912	894	904
17	705	681	694	843	825	835	---	---	---	1240	903	985
18	717	678	692	843	777	813	---	---	---	1300	1000	1080
19	690	660	673	846	783	819	---	---	---	999	912	978
20	702	678	691	876	828	854	---	---	---	894	744	793
21	702	678	690	897	855	876	714	669	702	768	750	756
22	711	654	680	918	897	909	675	612	638	759	714	740
23	726	669	694	1230	921	1040	699	630	672	732	714	723
24	741	720	730	1240	1120	1170	744	663	708	756	708	729
25	774	690	725	1130	1070	1090	687	663	679	783	747	764
26	762	702	726	1090	1020	1060	687	663	678	768	723	749
27	741	693	720	1010	915	959	672	648	662	834	735	781
28	711	684	696	945	924	936	846	642	695	1200	840	1030
29	777	684	725	969	930	942	1160	864	1060	1180	1100	1140
30	774	711	732	936	846	872	1090	1010	1050	1460	1130	1200
31	786	708	745	---	---	---	1120	942	990	1450	1210	1280
MONTH	786	456	678	1240	711	850	1790	612	918	1460	708	906

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1350	996	1100	831	762	799	696	672	688	846	828	833
2	990	786	874	780	759	770	735	687	715	867	849	855
3	783	705	744	849	771	816	768	666	719	879	867	874
4	963	702	814	1310	837	1020	648	594	611	882	867	876
5	1130	972	1070	1660	1300	1460	618	594	607	897	864	881
6	1230	1030	1070	1500	1210	1360	624	609	615	876	810	846
7	1030	897	975	1200	1000	1120	660	624	640	852	834	839
8	888	813	854	996	918	960	651	612	627	858	849	852
9	1000	786	870	1050	909	964	642	624	636	873	855	862
10	1080	1010	1030	945	855	911	660	633	651	882	786	834
11	1070	1020	1040	855	807	841	678	651	666	846	789	819
12	1310	1030	1170	810	792	803	711	660	694	852	810	824
13	1460	1260	1340	867	792	831	723	687	708	864	846	856
14	1520	1340	1420	813	804	808	744	711	736	870	855	863
15	2230	1440	1840	1210	804	938	---	---	---	876	795	855
16	1890	1630	1740	1410	1230	1310	---	---	---	837	633	710
17	1620	1420	1510	1340	1210	1270	---	---	---	756	681	721
18	1500	1250	1340	1240	1110	1150	---	---	---	828	762	792
19	1240	1070	1170	1150	1090	1110	---	---	---	861	825	838
20	993	807	849	1300	1080	1170	---	---	---	858	819	834
21	801	744	778	1470	1240	1350	936	924	934	840	798	808
22	867	744	775	1420	1140	1270	975	921	934	843	813	828
23	987	702	813	1170	1030	1120	951	843	912	843	822	837
24	732	621	669	1010	936	962	888	843	870	855	726	786
25	741	630	656	951	630	872	879	858	870	828	726	776
26	786	741	756	723	627	672	894	879	885	864	831	850
27	810	708	751	729	708	718	900	882	890	888	864	876
28	780	687	715	717	669	693	1050	876	914	894	879	887
29	807	735	782	672	645	659	912	867	899	915	891	898
30	---	---	---	657	639	650	888	807	839	921	909	916
31	---	---	---	669	651	664	---	---	---	936	915	921
MONTH	2230	621	1020	1660	627	969	1050	594	761	936	633	840

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	951	936	946	1040	1030	1040	1100	975	1030	1050	996	1030
2	1000	942	966	1050	1030	1040	1030	1000	1010	1010	990	1000
3	1020	954	988	1100	1040	1060	1030	663	846	1010	819	967
4	966	924	935	1160	1100	1130	876	759	844	921	429	647
5	1000	921	969	1170	1130	1150	924	792	872	690	627	656
6	1010	981	996	1160	1120	1140	858	750	821	687	666	675
7	1020	1010	1020	1150	1100	1120	894	828	855	705	672	694
8	1020	1010	1020	1200	1140	1160	954	900	936	738	678	705
9	1010	999	1010	1200	1140	1160	990	945	966	789	735	759
10	1010	996	1000	1160	1110	1130	1030	975	994	873	795	831
11	1010	1000	1000	1110	846	997	984	951	968	948	879	914
12	1020	1010	1010	1060	1040	1050	984	966	976	921	891	908
13	1020	1010	1010	1040	966	990	984	969	976	945	621	816
14	1030	1010	1020	984	951	961	981	963	972	852	678	719
15	1040	1020	1030	1020	987	996	969	954	964	867	819	836
16	1050	1030	1040	1040	1010	1020	978	969	973	882	852	873
17	1070	1040	1060	1050	1030	1040	987	966	976	942	885	915
18	1060	999	1040	1040	795	1000	1010	984	995	945	897	931
19	1010	969	985	1040	717	918	1050	888	983	936	891	921
20	1040	1010	1020	831	672	735	873	720	775	912	837	876
21	1040	1030	1040	909	450	688	981	750	845	921	891	905
22	1040	1030	1030	978	654	864	1110	987	1050	972	912	937
23	1040	1030	1030	1060	900	1020	1130	840	1070	1070	972	997
24	1030	1020	1020	975	801	857	1090	696	927	1080	978	1020
25	1030	1020	1020	948	699	904	879	696	789	1050	1010	1030
26	1030	1020	1030	912	702	840	969	837	906	1060	1020	1050
27	---	---	---	909	864	885	972	930	958	1070	1060	1060
28	---	---	---	912	894	909	930	642	826	1070	1050	1060
29	---	---	---	939	909	924	759	672	712	1150	1030	1080
30	1030	1030	1030	942	882	928	918	723	836	1180	1120	1160
31	---	---	---	966	744	889	1040	918	985	---	---	---
MONTH	1070	921	1010	1200	450	985	1130	642	924	1180	429	899

YEAR MAXIMUM 2230 MINIMUM 429 MEAN 899

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

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

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

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

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

YEAR MAXIMUM 9.1 MINIMUM 7.5 MEAN 8.2

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5.5	5.0	5.0	5.5	4.0	4.5	11.0	10.5	11.0	16.0	11.5	13.5
2	4.5	3.0	4.0	5.0	4.5	5.0	12.5	10.5	11.5	15.5	13.0	14.0
3	3.0	2.0	3.0	5.0	3.5	4.5	13.0	12.5	12.5	15.5	12.5	14.0
4	2.0	1.5	2.0	4.0	3.0	3.0	13.5	11.5	12.5	15.0	13.0	14.0
5	2.0	.5	1.5	4.5	2.0	3.5	15.0	11.5	13.5	15.0	14.0	14.5
6	.5	.0	.0	5.5	3.0	4.0	14.5	13.5	14.0	17.5	13.5	15.5
7	.0	.0	.0	5.5	4.0	5.0	13.5	10.5	12.0	18.5	15.5	17.0
8	1.5	.0	1.0	8.0	5.0	6.5	10.5	10.0	10.5	19.5	16.0	17.5
9	2.0	1.0	1.5	8.0	7.0	7.5	11.5	9.0	10.0	20.0	18.5	19.0
10	3.0	2.0	2.5	8.0	6.0	7.0	12.0	10.0	11.0	18.5	17.0	18.0
11	3.0	2.0	2.5	8.0	6.0	7.0	12.5	10.5	11.5	19.5	17.0	18.0
12	3.0	2.0	2.5	7.5	6.5	7.0	14.0	11.0	12.5	19.0	16.5	18.0
13	2.0	.5	1.5	7.0	5.0	6.0	14.5	12.5	13.5	18.5	17.5	18.0
14	2.0	.5	1.0	5.0	4.0	4.5	14.5	13.0	13.5	19.0	16.0	17.5
15	2.5	1.5	2.5	4.5	3.5	4.0	13.0	10.0	11.5	20.5	17.0	18.5
16	2.5	2.0	2.5	4.5	4.0	4.5	10.0	9.0	9.5	20.0	18.0	19.0
17	4.0	2.0	3.0	6.0	4.0	5.0	12.5	8.5	10.5	19.5	18.0	18.5
18	4.0	2.5	3.0	5.5	5.0	5.5	12.5	10.5	11.5	18.0	17.0	17.5
19	3.0	2.5	3.0	6.0	4.5	5.0	11.5	9.0	10.0	17.0	16.5	16.5
20	3.0	2.0	2.5	5.0	3.5	4.0	11.0	9.0	10.0	18.0	16.5	17.5
21	2.0	1.0	1.5	5.0	3.0	4.0	12.0	9.5	10.5	19.5	17.0	18.0
22	4.0	1.0	2.0	5.5	3.0	4.0	13.0	9.5	11.0	21.5	18.0	20.0
23	4.5	3.5	4.0	9.5	5.0	7.0	15.0	11.5	13.0	21.5	20.0	21.0
24	3.5	2.0	3.0	9.5	9.0	9.5	14.0	11.5	12.5	21.5	19.0	20.5
25	2.5	1.5	2.0	10.5	9.0	9.5	13.5	10.0	12.0	18.5	15.5	17.0
26	4.0	2.0	3.0	10.0	8.5	9.5	15.0	11.5	13.0	18.0	14.0	16.0
27	3.5	2.5	3.0	9.0	7.0	8.0	14.5	12.5	13.5	21.0	17.0	19.0
28	4.0	2.0	3.0	8.5	6.0	7.0	12.5	10.5	11.5	22.0	18.5	20.5
29	4.5	3.0	4.0	11.5	8.0	9.5	10.0	9.0	9.5	23.5	19.5	21.5
30	---	---	---	11.5	10.0	11.0	13.5	8.5	11.0	24.5	21.0	23.0
31	---	---	---	11.5	9.5	10.5	---	---	---	25.0	22.0	23.5
MONTH	5.5	.0	2.5	11.5	2.0	6.0	15.0	8.5	11.5	25.0	11.5	18.0

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.0	22.5	24.0	21.5	19.0	20.5	27.0	24.0	25.5	22.0	19.0	20.5
2	24.0	21.5	22.5	22.0	19.0	20.5	28.0	26.0	27.0	22.0	20.0	21.5
3	21.5	19.0	20.5	23.5	19.5	21.5	27.0	24.5	25.5	22.0	21.0	21.5
4	20.0	17.0	18.5	25.0	21.0	23.0	29.0	26.0	27.5	21.0	20.5	21.0
5	21.0	17.5	19.5	26.0	22.0	24.0	28.5	26.0	27.5	20.5	18.5	19.0
6	24.0	20.5	22.0	26.5	23.0	25.0	26.0	24.5	25.0	18.5	17.5	18.0
7	25.5	23.0	24.0	27.0	24.0	26.0	26.5	24.0	25.0	18.5	16.5	17.5
8	25.0	22.5	24.0	28.0	25.0	26.5	26.5	24.0	25.5	19.0	17.0	18.0
9	22.0	20.0	21.0	28.5	25.5	27.0	26.5	24.5	25.5	20.0	18.0	19.0
10	20.0	18.5	19.5	27.5	26.0	27.0	27.0	25.5	26.5	21.0	19.0	20.0
11	20.5	17.5	19.0	26.5	23.5	25.5	28.5	26.0	27.0	21.0	19.0	20.0
12	22.0	19.0	20.5	26.0	24.0	25.0	28.5	26.5	27.5	20.5	19.0	19.5
13	24.0	20.5	22.5	25.5	23.5	24.5	29.5	27.5	28.0	20.5	19.5	20.0
14	25.5	22.5	24.0	27.5	24.5	26.0	29.0	27.5	28.5	20.0	18.0	19.0
15	26.0	24.0	25.0	27.5	25.0	26.5	28.5	27.0	27.5	20.0	18.0	19.0
16	25.5	22.0	24.0	28.0	25.5	27.0	27.0	25.5	26.5	19.5	17.0	18.5
17	23.0	20.5	21.5	27.5	26.5	27.0	27.5	25.0	26.5	21.0	19.5	20.0
18	23.5	20.5	22.0	27.0	25.0	26.0	27.0	25.5	26.5	22.5	20.5	21.5
19	24.5	22.0	23.5	26.0	24.5	25.0	25.5	23.5	24.0	22.5	22.0	22.5
20	25.5	23.0	24.5	25.5	24.0	24.5	24.5	22.5	23.5	22.0	21.0	21.5
21	27.0	24.5	25.5	24.0	21.0	22.5	24.0	22.0	23.0	21.0	19.0	20.0
22	27.5	25.5	26.5	25.0	22.5	23.5	23.5	21.0	22.5	19.0	18.0	18.5
23	27.0	25.0	26.0	24.5	23.0	24.0	22.0	20.5	21.5	19.5	18.5	19.0
24	25.5	23.0	24.5	24.5	21.5	23.0	22.5	20.5	21.5	19.0	17.5	18.5
25	26.5	23.0	24.5	24.5	22.5	23.5	23.5	21.0	22.5	19.0	16.5	18.0
26	25.5	23.5	24.0	24.5	22.0	23.0	23.0	21.5	22.0	18.5	16.5	17.5
27	---	---	---	25.5	22.5	24.0	22.5	20.5	21.5	19.0	16.5	18.0
28	---	---	---	25.5	23.5	24.5	22.0	20.5	21.0	19.5	18.0	18.5
29	---	---	---	27.0	24.5	26.0	21.0	20.0	20.5	19.0	17.5	18.0
30	22.0	20.5	21.0	27.0	25.5	26.5	21.0	19.0	20.0	20.0	18.0	19.0
31	---	---	---	27.0	24.5	25.5	21.0	18.5	20.0	---	---	---
MONTH	27.5	17.0	22.5	28.5	19.0	24.5	29.5	18.5	24.5	22.5	16.5	19.5

YEAR MAXIMUM 29.5 MINIMUM .0 MEAN 13.5

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.8	8.0	9.2	---	---	---	10.1	9.5	9.8	12.8	12.4	12.5
2	10.3	8.7	9.3	---	---	---	10.4	9.6	9.9	13.7	12.9	13.1
3	10.6	9.2	9.8	---	---	---	10.6	10.1	10.3	13.3	12.9	13.2
4	11.5	9.9	10.5	---	---	---	10.8	10.0	10.4	13.1	12.7	12.9
5	11.4	10.1	10.7	---	---	---	10.9	10.3	10.6	14.3	13.0	13.3
6	10.9	9.7	10.2	---	---	---	11.7	10.9	11.2	13.3	13.2	13.3
7	9.8	9.1	9.5	---	---	---	12.2	11.2	11.6	13.2	13.1	13.1
8	10.3	8.8	9.9	---	---	---	11.6	10.8	11.2	13.1	12.7	12.9
9	10.9	10.1	10.4	---	---	---	10.3	10.1	10.5	12.7	12.5	12.5
10	10.3	10.0	10.0	---	---	---	10.4	9.5	10.0	12.7	12.3	12.5
11	---	---	---	---	---	---	10.5	10.2	10.3	12.9	12.5	12.7
12	---	---	---	---	---	---	10.6	10.2	10.4	---	---	---
13	---	---	---	---	---	---	11.8	10.4	11.2	---	---	---
14	10.3	9.4	10.0	---	---	---	12.3	11.4	11.7	13.9	12.8	13.1
15	10.2	9.1	9.5	---	---	---	11.6	11.1	11.4	14.3	13.6	14.0
16	10.2	8.9	9.4	---	---	---	12.0	11.2	11.7	14.3	13.8	14.0
17	9.7	8.6	9.1	---	---	---	---	---	---	13.8	13.1	13.4
18	10.2	9.2	9.6	---	---	---	---	---	---	13.6	13.3	13.4
19	11.0	9.4	10.1	11.2	9.0	10.1	---	---	---	14.0	13.5	13.7
20	9.8	9.1	9.5	11.4	9.8	10.7	---	---	---	13.9	12.8	13.3
21	10.2	9.0	9.6	12.5	10.8	11.7	12.1	11.7	11.8	13.7	13.3	13.5
22	10.6	9.5	10.0	11.8	10.6	11.2	12.3	12.0	12.2	13.9	13.7	13.8
23	11.0	9.6	10.2	12.2	10.3	11.3	12.4	12.0	12.2	14.0	13.7	13.9
24	10.8	9.8	10.2	12.2	10.2	11.3	12.5	12.2	12.3	13.8	13.5	13.7
25	11.1	9.7	10.4	10.6	8.4	9.3	12.2	11.8	11.9	14.2	12.6	13.3
26	10.9	9.6	10.1	8.2	7.6	7.9	12.3	11.9	12.1	13.0	12.4	12.7
27	10.5	9.0	9.8	10.2	7.8	9.1	12.6	12.2	12.4	13.3	12.7	13.0
28	10.8	9.3	10.1	10.1	8.8	9.4	12.3	11.9	12.2	13.4	12.7	13.0
29	11.3	9.9	10.5	9.2	8.4	8.8	12.6	11.5	12.1	13.3	12.6	12.9
30	11.1	9.1	10.2	10.1	8.3	9.3	13.0	12.6	12.7	12.7	12.0	12.4
31	9.6	8.0	8.9	---	---	---	12.7	12.3	12.5	12.2	11.7	11.9
MONTH	11.5	8.0	9.9	12.5	7.6	10.0	13.0	9.5	11.4	14.3	11.7	13.1

YEAR MAXIMUM 15.5 MINIMUM 4.1 MEAN 10.2

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OH--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	11.9	11.7	11.8	12.4	11.7	12.0	11.0	9.8	10.3	14.0	9.5	11.4
2	12.2	11.7	11.9	12.3	11.5	11.8	11.1	9.8	10.3	14.0	9.3	11.3
3	12.5	12.2	12.4	12.3	11.5	11.9	9.7	9.1	9.5	15.1	9.3	11.8
4	12.6	12.3	12.5	13.1	11.9	12.4	9.6	8.7	9.4	13.7	9.2	11.2
5	12.8	12.5	12.6	12.9	12.1	12.5	9.6	9.1	9.4	10.2	8.6	9.3
6	13.3	12.8	13.0	13.3	11.9	12.5	9.5	8.7	9.1	13.5	8.3	10.4
7	13.3	12.9	13.2	13.2	11.7	12.4	9.8	9.1	9.5	14.3	8.1	10.7
8	13.1	12.7	12.9	13.3	11.5	12.2	10.6	9.5	10.1	13.6	7.8	10.4
9	12.9	12.6	12.8	11.4	10.6	11.0	11.0	10.1	10.5	11.4	7.2	8.9
10	13.0	12.5	12.7	12.9	10.6	11.7	11.1	9.9	10.4	8.7	7.0	7.8
11	13.0	12.5	12.7	13.7	11.2	12.2	11.2	9.7	10.4	12.4	7.3	9.3
12	12.8	12.2	12.5	12.4	10.8	11.6	11.1	9.6	10.2	12.3	7.6	9.7
13	13.2	12.5	12.8	12.2	10.8	11.4	11.5	9.1	10.1	11.5	7.6	9.5
14	13.3	12.8	13.1	14.0	11.5	12.5	11.4	8.9	10.0	13.2	7.9	10.3
15	12.9	12.2	12.5	14.3	11.8	12.8	11.9	9.3	10.5	12.5	7.2	9.6
16	12.7	12.0	12.4	13.3	11.7	12.4	12.8	10.2	11.3	7.5	6.0	7.0
17	12.9	12.4	12.6	14.8	11.7	13.0	13.2	10.4	11.6	9.7	7.3	8.2
18	12.8	12.2	12.5	13.5	11.4	12.4	12.2	9.4	10.6	10.0	7.8	8.8
19	12.4	12.2	12.3	14.2	11.5	12.6	13.2	10.0	11.5	9.8	8.0	8.7
20	12.3	11.9	12.1	14.6	11.5	12.9	13.3	10.2	11.6	9.4	8.0	8.6
21	12.8	12.3	12.5	15.0	12.0	13.3	14.1	9.9	11.7	10.2	7.9	8.9
22	12.7	12.0	12.5	15.1	12.2	13.4	14.6	10.2	12.1	9.9	7.5	8.5
23	12.0	11.6	11.8	14.6	11.1	12.6	13.4	9.1	11.0	9.2	7.0	8.0
24	12.1	11.8	11.9	11.9	10.1	11.0	12.2	9.1	10.3	7.5	7.1	7.3
25	12.3	11.9	12.1	11.0	9.7	10.5	14.8	10.1	12.2	9.2	7.2	8.2
26	12.2	11.9	12.0	10.5	9.5	10.1	15.2	10.0	12.3	9.5	8.6	9.1
27	11.9	11.4	11.6	11.2	10.5	10.9	12.2	9.4	10.9	8.8	7.9	8.3
28	11.9	11.7	11.8	11.6	11.1	11.4	11.7	9.5	10.5	8.3	7.4	7.9
29	12.5	11.7	12.1	11.1	10.3	10.9	10.5	9.8	10.2	8.2	7.2	7.7
30	---	---	---	11.0	9.9	10.4	11.7	10.1	10.7	8.0	7.0	7.5
31	---	---	---	11.3	10.2	10.6	---	---	---	8.1	6.8	7.4
MONTH	13.3	11.4	12.4	15.1	9.5	11.9	15.2	8.7	10.6	15.1	6.0	9.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.5	6.8	7.5	10.4	8.1	9.1	10.5	7.5	8.8	8.7	7.7	8.2
2	8.0	6.7	7.3	10.7	8.2	9.2	10.8	7.6	8.7	8.7	7.6	8.1
3	8.5	7.1	7.7	10.9	8.0	9.2	7.8	7.1	7.3	8.0	7.2	7.6
4	9.2	7.6	8.4	11.5	7.8	9.3	9.2	6.7	7.7	7.5	4.3	6.4
5	9.3	7.9	8.5	12.4	7.7	9.7	9.1	7.0	7.7	7.7	7.0	7.4
6	8.8	7.3	8.0	13.8	7.8	10.4	7.6	6.6	7.3	8.1	7.6	7.9
7	9.2	6.8	7.9	14.6	8.2	11.1	8.3	7.1	7.6	8.4	8.0	8.1
8	9.7	6.7	8.1	15.5	8.6	11.8	8.6	7.3	7.9	8.6	6.8	8.1
9	9.9	7.3	8.5	15.5	8.9	11.9	9.4	7.3	8.3	8.6	7.8	8.2
10	10.2	8.0	9.0	14.2	8.6	11.3	9.5	7.5	8.4	8.5	7.6	8.1
11	10.3	8.3	9.3	9.6	5.0	7.9	9.8	7.3	8.4	8.7	7.6	8.2
12	10.3	8.2	9.1	12.0	6.4	8.9	9.9	7.3	8.5	8.6	7.8	8.2
13	10.7	8.0	9.2	13.2	8.0	10.6	10.4	7.4	8.7	8.0	6.4	7.1
14	11.0	7.5	9.2	13.6	8.0	10.5	10.6	7.6	8.9	8.8	7.1	8.0
15	10.9	7.5	9.0	13.2	7.8	10.3	11.1	7.6	9.1	9.0	7.7	8.4
16	8.4	7.0	7.5	12.6	7.9	10.1	11.2	8.1	9.6	9.2	7.9	8.6
17	9.9	7.0	8.3	11.9	7.7	9.4	11.6	8.1	9.7	8.6	7.7	8.1
18	10.6	7.4	8.8	11.8	7.5	9.2	10.0	7.3	8.6	8.7	7.4	8.0
19	10.5	7.6	9.0	7.6	5.8	6.7	9.8	7.4	8.5	8.4	7.1	7.8
20	10.3	7.4	8.8	7.7	5.9	6.7	10.3	7.0	8.6	8.4	7.0	7.7
21	10.4	7.3	8.7	7.5	4.1	6.4	10.8	7.8	9.2	8.1	7.2	7.6
22	10.7	6.9	8.6	7.7	6.4	7.1	10.8	8.3	9.5	8.8	7.6	8.2
23	13.2	7.3	9.8	7.6	6.9	7.2	9.2	7.1	8.0	8.4	7.6	7.9
24	10.9	7.5	9.2	7.7	7.3	7.5	8.0	7.0	7.5	9.3	7.8	8.4
25	12.0	7.6	9.5	8.0	7.4	7.7	8.9	6.8	7.6	9.5	8.2	8.7
26	---	---	---	8.1	7.6	7.8	8.8	7.0	7.8	9.7	8.2	8.8
27	---	---	---	8.1	7.6	7.8	8.6	7.3	7.9	9.9	8.3	9.0
28	---	---	---	8.3	7.5	7.8	7.7	6.7	7.3	9.7	8.1	8.9
29	---	---	---	8.9	7.2	8.0	7.5	6.7	7.2	9.9	8.3	9.1
30	10.6	8.7	9.4	9.0	7.3	7.9	8.3	7.1	7.7	10.0	8.2	9.0
31	---	---	---	9.3	6.7	7.9	8.6	7.7	8.1	---	---	---
MONTH	13.2	6.7	8.6	15.5	4.1	8.9	11.6	6.6	8.3	10.0	4.3	8.1

YEAR MAXIMUM 15.5 MINIMUM 4.1 MEAN 10.2

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 mi .

PERIOD OF RECORD.--July 1925 to November 1935, October 1939 to 1984, March 25, 1988 to Sept 30, 1988 [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.--Records poor. Water diverted 200 ft upstream from station for municipal supply of city of Willoughby. Water-quality data collected at this site 1965 to 1977. Sediment data collected at this site 1969 to 1981.

AVERAGE DISCHARGE.--55 years, 336 ft /s, 18.55 in/yr, adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft /s Mar. 22, 1948, gage height, 17.95 ft (from high-water mark in well), from rating curve extended above 14,000 ft /s on basis of contracted-opening measurements of peak flow; minimum daily, 3.0 ft /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 ft /s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft /s and maximum (*):

Date	Time	Discharge (ft /s)	Gage height (ft)	Date	Time	Discharge (ft /s)	Gage height (ft)
Mar. 25	2130	*6,130	*8.69				

Minimum daily discharge, 22 ft /s July 7-9, Aug. 22.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	438	318	57	26	49	48
2						---	429	216	99	29	42	36
3						---	936	176	80	26	88	41
4						---	1690	153	66	29	64	223
5						---	814	166	62	25	48	383
6						---	639	231	56	23	133	203
7						---	677	188	51	22	95	95
8						---	705	149	49	22	54	63
9						---	571	145	48	22	40	49
10						---	496	287	47	23	35	43
11						---	425	225	47	44	32	40
12						---	375	164	47	56	30	42
13						---	882	137	47	45	30	74
14						---	433	122	47	34	35	61
15						---	268	362	48	33	39	49
16						---	284	1320	59	32	28	40
17						---	300	341	56	33	23	42
18						---	329	188	54	36	30	40
19						---	386	167	50	73	41	40
20						---	283	248	44	66	40	46
21						---	322	180	41	196	28	49
22						---	307	138	39	117	22	34
23						---	226	114	56	131	31	58
24						---	483	129	43	224	62	50
25						3620	358	101	37	89	41	40
26						2740	214	86	34	317	30	34
27						1040	145	78	30	97	28	36
28						736	153	70	29	60	132	33
29						634	244	64	29	44	267	35
30						568	635	60	28	43	142	36
31						479	---	56	---	77	69	---
TOTAL						---	14447	6379	1480	2094	1828	2063
MEAN						---	482	206	49.3	67.5	59.0	68.8
MAX						---	1690	1320	99	317	267	383
MIN						---	145	56	28	22	22	33
MEAN +							499	225	73.3	91.4	80.2	85.8
CFSM +							2.03	0.91	0.30	0.37	0.33	0.35
IN. +							2.26	1.06	0.33	0.43	0.38	0.39

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. 3-17, 27-30, Feb. 4-19, and Mar. 5-28. Records fair except periods of estimated record, which are poor.

AVERAGE DISCHARGE.--14 years, 1,030 ft³/s, 20.41 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)
Feb. 17	1700	ice jam	*8.17	Feb. 21	0230	*7,050	7.46

Minimum daily discharge, 6.0 ft³/s Aug. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	726	1480	650	2750	772	627	1200	85	11	216	33
2	265	687	1390	693	4350	837	550	731	123	11	114	32
3	659	657	1240	460	3110	945	929	475	132	9.8	49	30
4	686	596	1230	340	1500	847	3920	338	105	8.4	27	39
5	555	524	1310	300	1100	640	3920	268	86	7.5	19	579
6	424	460	1300	270	880	600	2260	258	71	7.2	28	962
7	757	412	1220	260	720	640	2250	271	62	7.7	25	653
8	2580	383	1290	240	600	720	2200	287	50	9.7	14	351
9	2490	439	2600	230	520	1000	1400	292	44	7.0	10	189
10	1410	499	3620	220	450	1300	923	364	35	7.0	9.2	109
11	1120	490	2330	210	410	900	668	448	32	7.3	7.8	65
12	990	437	1740	210	380	700	503	453	24	7.4	6.9	44
13	798	391	1370	200	350	800	402	354	23	7.1	6.0	40
14	631	347	1090	190	330	1100	365	267	22	7.0	6.8	34
15	481	313	1600	190	320	900	334	213	22	7.0	9.5	30
16	371	292	2920	180	1300	840	320	1640	24	7.0	8.7	25
17	295	276	2260	180	1100	780	317	1550	24	6.7	8.0	22
18	256	430	1630	1600	1300	740	324	1030	22	6.6	8.6	20
19	227	364	1370	2920	1600	740	317	712	20	7.0	10	19
20	202	287	3870	4530	2930	780	279	614	19	8.0	11	20
21	198	259	5580	5290	5840	760	320	675	16	16	8.9	24
22	555	280	3640	2720	4260	640	304	783	16	18	7.4	24
23	828	280	2370	1470	5050	740	276	738	22	39	7.4	34
24	741	320	1940	1070	4450	2500	383	560	24	146	7.7	43
25	989	574	1500	810	2540	2300	555	401	21	57	7.8	30
26	775	667	1120	641	1750	4500	488	304	18	60	7.8	28
27	760	719	855	520	1190	2400	355	241	16	44	7.4	25
28	1040	591	723	430	818	1640	292	188	13	36	15	21
29	2040	693	661	370	746	1340	265	155	12	28	31	18
30	1510	1350	600	440	---	1010	931	135	11	30	28	16
31	966	---	589	1560	---	769	---	103	---	328	33	---
TOTAL	25792	14743	56438	29394	52644	35180	26977	16048	1194	959.4	755.9	3559
MEAN	832	491	1821	948	1815	1135	899	518	39.8	30.9	24.4	119
MAX	2580	1350	5580	5290	5840	4500	3920	1640	132	328	216	962
MIN	193	259	589	180	320	600	265	103	11	6.6	6.0	16
CFSM	1.21	.72	2.66	1.38	2.65	1.66	1.31	.76	.06	.05	.04	.17
IN.	1.40	.80	3.06	1.60	2.86	1.91	1.47	.87	.06	.05	.04	.19

CAL YR 1987	TOTAL	342230	MEAN	938	MAX	12300	MIN	26	CFSM	1.37	IN.	18.59
WTR YR 1988	TOTAL	263684.3	MEAN	720	MAX	5840	MIN	6.0	CFSM	1.05	IN.	14.32

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 mi^2.

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 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (FTU)	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											
22...	1045	3490	232	7.30	0.0	1.5	26	12.4	92	900	480
FEB											
24...	1245	4620	260	7.60	-0.5	1.0	51	14.1	102	330	5700
MAY											
12...	1045	605	600	8.10	20.0	17.5	4.3	9.1	98	88	110
AUG											
09...	1230	11	1800	7.80	32.0	30.0	2.8	6.1	84	300	110

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 IT-FLD (MG/L AS HCO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
DEC											
22...	77	0	22	5.3	14	3.2	106	87	24	25	0.2
FEB											
24...	72	40	21	4.7	18	2.2	39	34	26	34	0.2
MAY											
12...	180	94	57	9.5	40	2.4	107	88	40	100	0.3
AUG											
09...	500	380	180	13	150	4.6	156	128	67	470	0.3

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
DEC											
22...	5.5	125	<0.01	0.29	0.08	0.06	0.70	0.04	0.02	0.01	40
FEB											
24...	5.0	147	<0.01	0.44	0.08	0.04	0.70	0.06	0.02	<0.01	90
MAY											
12...	0.76	345	<0.01	<0.10	0.02	0.01	0.80	0.02	0.01	<0.01	20
AUG											
09...	2.0	1460	0.02	0.50	0.07	0.08	0.90	0.05	0.02	<0.01	30

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
DEC										
22...	<1	18	<0.5	<1	2	<3	5	210	<5	<4
FEB										
24...	<1	18	<0.5	1	4	<3	3	190	<5	<4
MAY										
12...	1	33	<0.5	<1	4	<3	3	34	<5	8
AUG										
09...	1	86	<0.5	<1	6	<3	4	9	<5	21

04212200 GRAND RIVER AT PAINESVILLE, OH

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										
22...	33	<0.1	<10	4	<1	<1.0	64	<6	9	76
FEB										
24...	30	<0.1	<10	<1	<1	<1.0	62	<6	11	137
MAY										
12...	23	<0.1	<10	4	<1	<1.0	160	<6	8	19
AUG										
09...	16	<0.1	10	1	<1	<1.0	460	<6	4	20

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 mi^2.

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.

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, 9.6 units Feb. 24, 1984; 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, 18,900 microsiemens Jan. 17; minimum, 980 microsiemens Oct. 22.
pH: Maximum, 8.8 units May 31; minimum, 6.5 units on Mar. 11.
WATER TEMPERATURES: Maximum, 34.0°C on Aug. 4, 12, 13; minimum, 2.0°C Feb. 21.
DISSOLVED OXYGEN: Maximum, 14.3 mg/L Mar. 22; minimum, 5.4 mg/L Aug. 6.

04212680 FIELDS BROOK AT ASHTABULA, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	5320	4160	4720	5380	3520	3880	3100	1720	2050	3860	2680	3000
2	5680	3880	4240	7040	3260	3640	2540	1760	1950	3580	2780	2930
3	6620	4180	5210	17100	3040	5030	2620	1940	2150	2940	2600	2810
4	6640	5380	5780	4720	3940	4210	2220	1580	1820	4140	2580	2850
5	6880	4920	5450	10400	4420	5150	4900	1900	2600	4180	2800	3020
6	5740	4520	4810	5120	4440	4760	4100	2740	2990	4980	2840	3250
7	5300	2400	3650	5320	4280	4520	4100	2620	3020	4440	3100	3380
8	3240	1980	2450	5180	4400	4790	2760	2400	2530	5920	3160	3750
9	4220	2920	3450	5520	3980	4210	5300	2420	2810	8180	3280	4050
10	4900	3860	4220	4840	3900	4210	5000	2600	3080	4960	3800	4050
11	4500	3680	4070	4800	3800	4100	4820	2760	3130	10600	3820	4890
12	5120	4400	4560	4520	3580	4080	2940	2400	2670	4740	3640	4080
13	12800	4580	5510	6060	4040	4360	5880	2340	3100	5820	3720	3990
14	5580	4000	5130	5040	4180	4520	4240	3060	3420	16100	4040	6270
15	6200	3880	4770	5140	4220	4630	3900	2240	2710	7220	3300	4180
16	5480	3740	4180	5560	3880	4230	3540	2340	2770	4620	3500	3860
17	10100	4580	5590	4780	3320	3870	4840	3000	3410	18900	2520	5090
18	7440	5180	5560	3440	2820	3250	4700	3640	3950	3080	1880	2150
19	7200	5320	5660	4100	3020	3350	5020	3100	4010	2400	1660	2040
20	7480	4520	5380	5020	4120	4560	2820	1620	2010	1660	1260	1410
21	6900	1220	3320	5240	4240	4650	3060	1820	2400	2740	1580	2160
22	1940	980	1320	5180	4360	4590	3580	2900	3240	4000	2800	3230
23	3960	1940	2510	6960	4220	4850	4760	3440	3700	3600	3340	3420
24	4160	2720	3410	4180	3180	3830	4620	2980	3320	7900	3660	4080
25	3920	2580	3050	4320	2960	3440	4040	2940	3290	6680	3780	4250
26	4360	3500	3740	3720	3020	3220	3620	2980	3290	4700	3600	3750
27	4560	2380	3140	4460	3300	3560	5820	3240	3710	4900	3800	4060
28	4260	1800	2780	4280	3600	3780	5560	3360	3890	5220	3360	4100
29	2220	1200	1400	4260	2760	3250	4060	2880	3580	4120	2400	3160
30	3100	1580	2190	8520	2140	3310	3820	2800	3030	4240	2660	3120
31	4100	2700	3300	---	---	---	3200	2640	2930	3280	2400	2680
MONTH	12800	980	4020	17100	2140	4130	5880	1580	2990	18900	1260	3520

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3020	1860	2350	5940	2800	3550	4840	2900	3470	7940	3200	4720
2	3060	1880	2380	6220	2580	3620	4900	3100	3530	6380	3960	4370
3	3960	2700	3140	8000	2400	3020	4640	1700	3060	5480	3940	4370
4	6780	3380	3920	4240	2540	2880	6200	1440	2340	6220	4300	4710
5	9520	3440	3920	8000	2620	3330	4020	2480	2960	7200	2680	3980
6	5300	3600	3880	7500	3260	3730	3500	2700	3090	5260	2880	3950
7	7400	3640	4320	3920	2900	3230	3520	2460	2780	5960	4060	4290
8	9660	3440	4300	9600	3200	3880	4760	2880	3260	10400	3780	5100
9	4880	3280	3820	13200	3000	4120	6020	3360	3790	5820	3180	3790
10	4760	3540	3860	9400	2340	3380	14800	3320	4970	5820	3440	4010
11	4980	2880	3620	8740	2340	3390	6960	3560	4070	7340	3660	4500
12	5880	2960	3910	7220	2900	3390	5480	2200	3460	5680	3600	4110
13	12400	3760	4650	13200	3020	4290	4940	2160	2600	4600	3020	3710
14	8000	3520	4470	5480	2960	3330	7340	2600	3610	9520	2820	3980
15	5360	2520	3500	4500	3000	3270	5360	3700	4040	10600	4200	5070
16	6660	2340	3130	7940	3080	3730	9740	3580	4730	4220	2280	2910
17	3340	1960	2700	4520	2820	3100	6480	4020	4880	4720	2600	3100
18	5040	2200	2620	6060	2780	3390	5980	3620	4020	4200	3220	3540
19	3400	1280	2150	6660	2740	3360	5620	3400	3880	6980	3360	4100
20	2820	1000	1170	5740	2920	3540	6220	3440	4010	5680	3220	3750
21	5920	1380	2170	5200	2800	3420	5020	3300	4010	8620	3820	4830
22	5380	1540	2750	8100	3000	3710	8000	3160	4120	9020	3820	4810
23	2560	1060	1510	5200	2560	3250	6060	3640	4310	5420	3100	4320
24	3520	1980	2510	6460	2520	3260	5040	3600	3870	3200	1020	1800
25	7880	2360	3220	3100	1140	2490	5140	3820	4210	4880	1500	2920
26	3780	2300	2930	2780	1200	1720	4340	3320	3630	5720	3260	3850
27	11400	2880	4000	3220	2180	2460	6740	3760	4540	7600	3800	4490
28	6140	3000	3730	4940	2400	2820	10600	3700	5030	7720	4120	4990
29	7740	2640	3490	4920	1860	2560	7240	3820	4450	11400	4400	5900
30	---	---	---	7300	2280	2880	4900	3500	3950	6180	4360	4950
31	---	---	---	7900	2860	3790	---	---	---	6220	2140	3580
MONTH	12400	1000	3250	13200	1140	3290	14800	1440	3820	11400	1020	4150

YEAR MAXIMUM 18900 MINIMUM 980 MEAN 4090

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7220	2000	3690	8000	3080	4220	7160	4860	5430	7280	4400	5070
2	5980	2200	3080	11000	3960	4920	5600	4460	4650	5940	4480	5000
3	8060	2600	3850	12600	4160	6180	6040	3680	4600	6820	4520	5300
4	5800	2900	4080	7080	3580	4570	7380	4200	5100	8600	4000	4840
5	12700	4040	6170	9800	4200	5630	8140	4100	5430	5420	2000	4010
6	5560	4680	5060	8620	4140	4950	11700	3980	6040	5720	3820	4540
7	9160	4600	5350	8920	4020	5250	9120	4580	5490	8060	4620	5200
8	10000	4680	5590	5700	4300	4840	7260	4080	4950	5640	3180	4060
9	11600	3900	5560	5800	3980	4910	10600	3760	5080	10200	2600	3810
10	8420	3900	4760	5080	3500	4020	16800	3820	6050	11600	3620	5390
11	6960	4560	5490	5520	4160	4520	6940	2960	4050	9480	4880	5510
12	12000	4720	6230	6580	4420	4910	9140	2720	3880	5800	3900	5080
13	7660	4960	5570	6700	4140	5070	7760	3800	4470	6700	4980	5460
14	7580	4020	5120	6220	4400	4800	11600	4200	5290	8960	5100	5730
15	6700	4100	4930	6940	4420	5300	6760	4180	4730	6880	4680	5280
16	7740	3340	4680	9680	4760	6060	6900	4200	4820	7020	4940	5230
17	4720	3120	3760	11000	4600	5930	10100	4480	5880	7400	5180	5660
18	7100	3600	4920	5180	3280	4310	5720	4320	4970	8400	5800	6410
19	11900	3220	4570	9120	3320	4660	6200	4360	4890	---	---	---
20	9380	3080	4600	6960	4320	4880	10400	4340	5330	---	---	---
21	6720	3680	4100	9520	4400	5560	8100	4100	5030	---	---	---
22	10800	3740	4860	8260	4580	5140	6920	4000	4900	5460	2680	---
23	7100	3660	4710	8260	2700	4950	10900	3880	5510	5180	2000	4070
24	9880	3920	5130	9820	4380	5900	12400	3720	5160	6960	3900	4850
25	12800	4480	6290	16100	4600	6680	4960	2820	3980	12900	5040	6350
26	8620	3880	5450	6200	4160	4730	12400	3540	5220	5340	4160	4580
27	8900	4000	5020	7520	4260	4940	8300	4680	5310	6740	4380	5270
28	9060	4620	6050	5520	3340	4390	7560	4480	5540	6880	3080	4780
29	8800	4280	5110	9080	3420	4580	7420	3700	4780	5640	4020	4660
30	6480	3200	4340	6200	2520	4450	8140	4000	4750	7300	4220	4730
31	---	---	---	11400	4200	5440	6000	4520	4910	---	---	---
MONTH	12800	2000	4940	16100	2520	5050	16800	2720	5040	12900	2000	5030

YEAR MAXIMUM 18900 MINIMUM 980 MEAN 4090

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.7	7.8	7.6	7.6	7.6	7.8	7.5	7.6	7.8	7.5	7.7
2	7.9	7.6	7.8	7.8	7.4	7.7	8.1	7.6	7.9	7.8	7.6	7.7
3	7.8	7.6	7.7	7.8	7.6	7.7	7.9	7.5	7.7	7.9	7.7	7.7
4	7.8	7.6	7.7	7.8	7.7	7.7	7.5	7.3	7.4	7.9	7.7	7.8
5	7.9	7.6	7.7	7.7	7.6	7.7	7.7	7.3	7.5	8.0	7.7	7.8
6	7.9	7.6	7.7	7.8	7.6	7.7	7.7	7.6	7.7	7.9	7.7	7.8
7	7.6	6.9	7.5	7.9	7.7	7.7	7.8	7.5	7.6	8.4	7.6	7.8
8	7.5	7.3	7.4	7.8	7.6	7.7	7.9	7.7	7.8	7.9	7.6	7.8
9	7.8	7.5	7.6	7.7	7.6	7.6	7.9	7.8	7.8	7.9	7.8	7.9
10	7.8	7.7	7.7	7.7	7.6	7.6	7.9	7.8	7.8	7.9	7.7	7.8
11	7.8	7.5	7.7	7.9	7.6	7.7	7.9	7.7	7.8	7.8	7.6	7.7
12	7.8	7.7	7.7	7.8	7.6	7.7	7.8	7.7	7.7	8.0	7.6	7.7
13	7.9	7.7	7.7	7.9	7.6	7.7	7.8	7.7	7.7	7.7	7.6	7.6
14	7.8	7.6	7.7	7.9	7.6	7.8	7.8	7.7	7.7	7.9	7.6	7.7
15	7.9	7.6	7.7	8.0	7.7	7.8	7.7	7.5	7.6	7.8	7.4	7.6
16	8.0	7.7	7.8	8.0	7.5	7.7	7.7	7.6	7.6	7.9	7.7	7.8
17	7.8	7.7	7.7	7.8	7.5	7.7	8.0	7.5	7.6	7.7	7.5	7.6
18	7.8	7.7	7.7	7.8	7.6	7.7	7.9	7.5	7.7	7.6	7.4	7.5
19	7.9	7.6	7.7	7.9	7.1	7.6	7.8	7.1	7.7	7.6	7.5	7.6
20	7.9	7.6	7.7	7.7	7.6	7.6	8.2	7.8	8.0	7.6	7.0	7.5
21	7.7	7.1	7.5	7.8	7.6	7.6	8.2	7.6	7.9	7.6	6.9	7.5
22	7.4	7.1	7.2	7.8	7.6	7.7	7.8	7.1	7.6	7.7	7.2	7.6
23	7.6	7.3	7.5	7.8	7.6	7.6	8.2	7.7	8.0	7.8	7.6	7.7
24	7.7	7.3	7.6	7.9	7.6	7.7	8.4	7.2	8.2	7.7	7.6	7.6
25	7.6	7.4	7.6	7.7	7.3	7.6	8.4	7.8	8.1	7.8	7.5	7.7
26	7.7	7.5	7.6	7.7	6.7	7.6	7.9	7.7	7.7	7.8	7.6	7.7
27	7.7	7.5	7.6	7.8	7.6	7.7	7.9	7.7	7.7	7.9	7.7	7.8
28	7.6	7.4	7.6	7.9	7.7	7.7	7.8	7.5	7.7	7.8	7.6	7.7
29	7.4	7.3	7.3	7.7	7.5	7.6	7.7	7.5	7.6	8.0	7.6	7.7
30	7.6	7.3	7.5	7.7	7.5	7.6	7.8	7.6	7.7	7.7	7.5	7.6
31	7.7	7.6	7.6	---	---	---	7.8	7.6	7.7	7.6	7.4	7.5
MONTH	8.0	6.9	7.6	8.0	6.7	7.7	8.4	7.1	7.7	8.4	6.9	7.7

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.6	7.4	7.5	8.1	7.8	7.9	8.4	8.0	8.2	8.7	7.8	8.2
2	8.5	7.4	7.6	8.2	7.9	8.0	8.4	8.0	8.1	8.6	7.7	8.1
3	7.8	7.6	7.7	8.1	7.8	7.9	8.1	7.8	8.0	8.6	7.7	8.1
4	8.1	7.6	7.7	8.7	7.7	8.1	8.0	7.4	7.9	8.5	7.7	8.0
5	7.7	7.6	7.7	8.1	7.9	8.0	8.1	7.9	8.0	8.5	7.6	7.9
6	7.8	7.5	7.6	8.2	7.9	8.0	8.1	7.7	7.9	8.5	7.7	8.0
7	7.7	7.6	7.6	8.2	7.3	7.9	7.8	7.7	7.8	8.4	7.7	8.0
8	7.7	7.0	7.5	8.1	7.7	7.9	8.3	7.8	7.9	8.4	7.6	8.0
9	7.6	7.3	7.4	7.9	7.6	7.7	8.2	7.9	8.0	8.2	7.5	7.8
10	7.6	7.4	7.5	7.9	6.9	7.6	8.3	7.8	8.0	8.1	7.5	7.8
11	7.5	7.3	7.4	8.0	6.5	7.8	8.3	7.9	8.0	8.5	7.6	7.9
12	7.4	7.4	7.4	7.9	7.7	7.8	8.4	7.9	8.1	8.5	7.9	8.1
13	7.4	7.2	7.4	7.9	7.7	7.8	8.4	8.0	8.1	8.3	7.8	8.0
14	7.5	7.3	7.4	7.9	7.7	7.8	8.2	7.9	8.0	8.6	7.9	8.1
15	7.4	7.3	7.4	7.9	7.7	7.8	8.3	7.9	8.1	8.4	7.8	8.0
16	7.4	7.3	7.3	8.5	7.6	7.9	8.4	8.0	8.2	8.2	7.3	7.9
17	7.4	7.3	7.4	8.4	7.9	8.1	8.4	7.8	8.2	8.3	7.9	8.0
18	7.4	7.4	7.4	8.4	8.0	8.2	8.4	8.1	8.2	8.2	7.9	8.0
19	7.5	7.3	7.4	8.5	8.0	8.1	8.5	8.1	8.3	8.1	7.9	7.9
20	7.6	7.4	7.5	8.3	8.0	8.1	8.5	8.1	8.3	8.2	7.8	8.0
21	7.4	7.4	7.4	8.4	8.0	8.1	8.6	8.2	8.4	8.2	7.8	7.9
22	7.5	7.3	7.4	8.5	8.0	8.2	8.7	8.3	8.5	8.3	7.8	8.0
23	7.5	7.4	7.5	8.6	8.0	8.4	8.6	8.3	8.4	8.3	7.7	7.9
24	7.4	7.3	7.4	8.2	7.9	8.0	8.6	8.3	8.4	7.9	7.5	7.7
25	7.5	7.4	7.4	8.3	7.9	8.1	8.6	7.7	8.3	8.0	7.6	7.8
26	7.5	7.4	7.5	8.0	7.8	7.9	8.6	7.7	8.1	8.0	7.7	7.9
27	7.5	7.4	7.4	8.1	7.9	8.0	8.5	7.7	8.0	8.2	7.9	8.0
28	7.5	7.4	7.5	8.4	8.0	8.1	8.6	7.8	8.1	8.2	7.9	8.0
29	7.9	7.4	7.6	8.5	8.1	8.2	8.1	7.7	7.9	8.4	7.9	8.1
30	---	---	---	8.5	8.1	8.2	8.7	7.6	8.2	8.4	7.9	8.1
31	---	---	---	8.5	8.1	8.3	---	---	---	8.8	7.9	8.3
MONTH	8.5	7.0	7.5	8.7	6.5	8.0	8.7	7.4	8.1	8.8	7.3	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.5	7.9	8.1	8.4	7.9	8.1	8.0	7.8	7.9	7.9	7.7	7.8
2	8.5	7.8	8.1	8.3	8.0	8.1	8.2	7.9	8.0	8.0	7.8	7.9
3	8.5	7.9	8.1	8.2	8.0	8.0	8.4	7.9	8.1	7.9	7.7	7.8
4	8.4	7.8	8.0	8.3	7.9	8.1	8.3	7.9	8.1	7.9	7.5	7.7
5	8.3	7.9	8.0	8.4	7.9	8.1	8.4	7.7	8.1	7.8	7.4	7.7
6	8.4	7.9	8.1	8.3	7.9	8.1	8.1	7.7	7.9	7.9	7.6	7.8
7	8.4	7.9	8.1	8.3	7.9	8.1	8.1	7.7	7.9	7.9	7.7	7.8
8	8.4	7.9	8.1	8.2	7.9	8.0	8.2	7.9	8.0	8.1	7.8	7.9
9	8.4	7.9	8.1	8.2	7.9	8.0	8.4	7.9	8.1	8.1	7.9	8.0
10	8.2	7.1	8.0	8.3	8.0	8.1	8.4	8.0	8.1	8.0	7.8	7.9
11	8.3	7.9	8.1	8.2	7.9	8.0	8.5	8.0	8.2	7.9	7.7	7.8
12	8.2	7.9	8.1	8.2	7.9	8.0	8.5	8.0	8.2	8.0	7.4	7.8
13	8.2	7.9	8.0	8.2	7.9	8.0	8.5	8.0	8.1	7.9	7.7	7.8
14	8.3	7.9	8.1	8.2	8.0	8.1	8.3	8.0	8.0	8.1	7.8	7.9
15	8.3	7.9	8.0	8.1	7.9	8.0	8.2	8.0	8.0	8.0	7.8	7.8
16	8.2	7.9	8.0	8.2	7.9	8.0	8.2	7.9	8.0	8.0	7.7	7.8
17	8.3	7.9	8.1	8.1	7.8	7.9	8.2	7.9	8.0	7.9	7.7	7.8
18	8.1	7.9	7.9	8.2	7.8	8.0	8.1	7.9	8.0	7.8	7.7	7.7
19	8.3	7.8	8.0	8.3	8.0	8.1	8.1	7.9	8.0	---	---	---
20	8.4	7.9	8.1	8.3	8.0	8.1	8.2	8.0	8.0	---	---	---
21	8.4	7.9	8.1	8.2	7.9	8.0	8.2	8.0	8.1	---	---	---
22	8.3	7.9	8.1	8.2	7.7	8.0	8.2	8.0	8.0	8.2	8.1	8.1
23	8.2	7.1	7.9	8.1	7.3	7.9	8.0	7.9	8.0	8.1	7.6	7.8
24	8.3	8.0	8.1	8.2	8.0	8.1	8.2	7.6	8.0	7.9	7.7	7.8
25	8.3	7.9	8.1	8.2	8.0	8.1	8.3	7.9	8.1	7.7	7.5	7.7
26	8.3	7.9	8.0	8.3	8.1	8.2	8.1	7.8	8.0	7.9	7.7	7.8
27	8.3	8.0	8.1	8.3	8.1	8.1	8.1	7.9	8.0	8.0	7.8	7.9
28	8.2	7.9	8.0	8.3	7.9	8.1	8.0	7.8	7.9	7.9	7.8	7.8
29	8.2	8.0	8.1	8.4	8.0	8.2	8.1	8.0	8.0	7.9	7.7	7.9
30	8.3	7.9	8.1	8.3	7.5	8.0	8.1	8.0	8.0	8.0	7.8	7.9
31	---	---	---	8.2	7.7	8.0	8.1	7.8	7.9	---	---	---
MONTH	8.5	7.1	8.1	8.4	7.3	8.1	8.5	7.6	8.0	8.2	7.4	7.8

YEAR MAXIMUM 8.8 MINIMUM 6.5 MEAN 7.9

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.5	8.5	9.0	9.5	7.0	8.0	14.5	13.0	13.5	20.5	14.5	17.5
2	8.0	7.0	7.5	10.0	7.5	8.5	16.0	13.5	14.5	20.0	16.0	18.0
3	9.0	7.5	8.0	8.0	6.5	7.0	15.5	13.0	15.0	20.5	16.0	18.0
4	9.5	7.0	8.0	8.0	6.0	7.0	14.5	11.5	13.0	21.0	16.0	18.5
5	7.0	5.5	7.0	11.0	7.0	8.5	19.0	13.5	16.0	19.0	17.5	18.0
6	6.0	5.0	5.5	11.5	8.0	9.5	18.5	15.0	17.0	22.0	17.0	19.0
7	6.0	4.5	5.0	12.0	8.5	10.0	15.0	12.0	13.5	22.0	17.0	19.0
8	7.0	5.5	6.0	13.0	9.0	11.0	13.5	11.5	12.0	23.0	17.0	20.0
9	8.0	6.0	7.0	11.5	9.5	11.0	15.5	11.0	13.0	22.5	18.5	20.0
10	8.5	6.5	7.5	12.0	9.5	10.0	17.0	12.0	14.0	22.0	18.0	20.0
11	9.0	7.5	8.0	13.0	9.5	11.0	17.0	12.5	14.5	22.0	18.0	20.0
12	8.5	7.0	8.0	11.5	10.0	10.5	17.5	13.0	15.0	22.0	18.0	20.0
13	7.0	5.5	6.5	10.5	8.5	9.5	18.0	13.5	15.5	21.0	18.5	20.0
14	8.0	5.0	6.5	8.0	6.5	7.5	16.5	14.5	15.5	22.5	17.5	19.5
15	8.0	4.5	6.0	9.5	7.5	8.0	15.0	13.5	14.0	24.0	18.0	20.5
16	6.5	5.5	6.0	9.5	7.5	8.5	14.0	12.5	13.5	22.0	18.5	20.0
17	8.5	6.0	7.0	11.0	7.5	9.0	18.5	12.5	15.0	21.0	19.5	20.0
18	9.0	6.5	7.0	10.0	8.5	9.0	16.0	13.5	14.5	19.5	18.5	19.0
19	7.5	4.0	6.5	10.5	7.0	8.5	17.0	12.5	14.5	20.5	18.5	19.5
20	4.0	2.5	3.5	8.5	6.5	7.5	17.0	13.5	15.0	23.0	19.5	21.0
21	4.0	2.0	3.0	10.0	6.5	8.0	17.0	12.5	14.5	23.0	20.0	21.5
22	7.0	3.5	5.0	11.5	7.5	9.5	18.5	13.5	15.5	25.0	20.5	22.5
23	5.0	2.5	4.0	12.5	9.5	11.0	18.5	14.5	16.5	23.0	20.0	21.5
24	6.5	4.5	5.0	12.5	11.5	12.0	16.5	14.5	15.0	21.0	16.0	17.5
25	7.5	5.0	6.0	14.5	10.5	12.5	19.5	14.5	16.5	17.5	14.5	16.0
26	8.5	6.0	7.0	13.0	9.5	11.0	17.5	14.5	16.0	21.5	15.5	18.5
27	8.5	7.0	8.0	11.0	9.5	10.0	17.0	15.5	16.0	24.0	19.0	21.0
28	10.0	6.5	8.5	12.5	9.0	10.5	18.0	15.0	16.0	25.5	20.5	23.0
29	10.5	8.0	9.0	16.5	12.0	14.0	15.5	13.5	15.0	26.5	21.5	24.0
30	---	---	---	15.5	13.0	14.5	18.5	13.5	16.0	28.0	23.0	25.5
31	---	---	---	16.0	12.5	14.0	---	---	---	27.5	23.5	25.5
MONTH	10.5	2.0	6.5	16.5	6.0	10.0	19.5	11.0	15.0	28.0	14.5	20.0

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	22.5	24.5	26.5	23.5	25.0	31.0	28.0	29.5	29.0	26.0	27.0
2	24.0	20.5	22.0	27.5	23.0	25.5	33.5	30.0	31.5	29.5	25.5	27.5
3	24.0	19.5	21.5	28.5	24.5	26.5	33.0	29.5	31.5	27.5	26.0	27.0
4	24.5	20.0	22.0	29.5	24.5	27.0	34.0	30.5	32.0	27.5	25.0	26.0
5	24.5	20.0	22.5	30.0	25.5	27.5	32.5	30.0	31.0	23.0	19.5	22.0
6	27.0	22.0	24.5	30.0	25.5	28.0	31.0	28.0	30.0	24.0	22.5	23.0
7	27.5	24.0	25.5	31.0	26.5	28.5	31.5	28.5	30.0	25.5	23.0	24.0
8	24.5	21.5	23.0	31.0	27.5	29.0	33.0	28.5	30.5	26.0	23.0	24.5
9	24.5	20.5	22.5	32.0	28.5	30.0	32.0	30.0	31.0	26.5	23.5	25.0
10	24.5	20.5	22.0	31.5	28.5	30.0	32.5	30.0	31.0	27.5	24.5	26.0
11	25.5	20.5	23.0	31.5	29.0	30.0	33.0	30.0	31.5	27.0	24.5	25.5
12	26.5	22.0	24.0	31.5	29.0	30.0	34.0	30.5	32.0	26.5	24.0	25.0
13	27.5	23.0	25.0	31.5	28.0	30.0	34.0	31.0	32.5	26.0	24.5	25.5
14	28.5	24.5	26.5	32.0	29.0	30.5	33.5	31.5	32.5	26.5	24.0	25.0
15	28.5	25.0	27.0	32.0	29.0	30.5	32.5	30.5	31.5	26.0	24.0	25.0
16	26.5	24.5	25.5	33.0	29.0	30.5	32.0	29.5	31.0	26.0	23.0	24.5
17	27.5	23.5	25.5	32.0	29.0	30.5	33.0	30.5	31.5	27.0	25.0	26.0
18	28.0	23.0	25.5	32.0	29.0	30.0	31.5	29.0	30.5	26.0	25.5	26.0
19	29.0	24.0	26.5	31.5	29.5	30.0	31.0	28.0	29.0	---	---	---
20	29.0	25.0	27.0	30.5	28.5	29.5	30.5	27.0	28.5	---	---	---
21	29.5	26.0	27.5	30.5	27.5	29.0	30.0	27.5	28.5	---	---	---
22	29.5	27.0	28.0	31.5	28.0	29.5	29.5	25.5	27.5	24.0	23.0	24.0
23	29.0	26.0	27.5	29.5	24.0	27.5	27.0	26.5	27.0	23.5	20.5	22.5
24	29.0	25.5	27.0	30.5	26.0	28.0	28.0	26.5	27.0	24.5	22.5	23.5
25	30.5	25.5	28.0	29.5	27.0	28.5	28.0	26.5	27.0	25.5	22.5	24.0
26	27.5	25.0	26.0	30.5	27.5	29.0	28.0	25.5	26.5	25.5	23.0	24.0
27	28.5	24.5	26.5	31.5	28.0	29.5	28.5	25.5	27.0	26.5	23.5	25.0
28	27.5	24.5	26.0	32.0	28.5	30.0	27.5	25.5	26.5	25.0	22.5	24.0
29	27.5	25.0	26.0	33.0	29.0	31.0	26.5	25.0	25.5	25.0	22.0	23.5
30	27.0	24.0	25.5	32.5	26.0	30.0	28.0	25.0	26.5	26.5	23.0	24.5
31	---	---	---	31.5	27.5	29.5	28.5	25.0	26.5	---	---	---
MONTH	30.5	19.5	25.0	33.0	23.0	29.0	34.0	25.0	29.5	29.5	19.5	25.0

YEAR MAXIMUM 34.0 MINIMUM 2.0 MEAN 17.0

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.5	7.5	7.9	9.5	9.2	9.3	9.8	9.1	9.3	11.7	11.2	11.5
2	8.3	7.8	8.0	9.3	8.2	8.8	10.1	9.7	9.8	11.7	11.4	11.5
3	9.1	8.4	8.7	8.3	7.8	8.0	10.4	9.9	10.2	11.7	11.4	11.5
4	9.1	8.2	8.6	8.1	7.5	7.8	11.7	10.2	11.0	11.8	11.4	11.5
5	8.9	7.9	8.3	8.5	7.6	8.2	11.7	11.3	11.5	12.0	11.2	11.6
6	8.7	7.8	8.1	9.8	8.5	9.1	11.6	11.2	11.4	12.0	11.4	11.6
7	9.1	7.9	8.6	9.8	8.8	9.3	11.8	11.0	11.4	12.0	10.9	11.4
8	9.5	9.1	9.3	9.4	8.3	8.8	11.4	9.8	10.7	11.2	10.4	10.7
9	9.5	8.9	9.2	10.5	8.3	9.2	10.2	9.8	9.9	11.1	10.4	10.6
10	9.1	8.5	8.8	11.2	10.5	10.7	10.5	9.9	10.1	11.5	10.6	10.8
11	9.4	8.5	8.9	11.4	10.7	10.9	10.8	10.0	10.3	11.2	10.2	10.7
12	9.0	8.4	8.6	11.2	10.2	10.6	10.8	10.1	10.5	10.8	9.6	10.2
13	8.8	8.0	8.4	11.2	9.9	10.4	11.1	10.6	10.9	10.8	9.5	10.1
14	9.3	8.2	8.4	11.0	9.8	10.2	11.3	10.6	10.9	10.6	10	10.3
15	9.0	8.0	8.4	11.2	9.4	10.2	11.2	10.6	11.0	10.9	9.6	10.1
16	9.0	7.9	8.4	10.7	8.6	9.5	11.4	11.1	11.3	10.2	9.2	9.6
17	8.7	8.0	8.2	9.4	8.0	8.8	11.3	10.7	11.1	9.9	9.1	9.4
18	8.7	8.0	8.3	9.9	8.5	9.3	11.7	10.7	11.2	11.1	9.9	10.6
19	8.9	7.6	8.1	10.4	9.0	9.5	11.7	11.3	11.5	11.2	10.4	10.8
20	8.5	7.5	7.8	10.3	9.1	9.6	12.1	11.3	11.6	11.7	10.6	11.1
21	11.9	7.6	9.6	11.6	10	10.7	11.4	11.1	11.3	11.9	11.4	11.6
22	12.0	10.7	11.5	12.0	10.9	11.2	11.2	10.4	10.9	11.6	10.8	11.2
23	10.6	9.5	10.2	11.6	9.8	10.8	10.7	10.4	10.5	11.2	10.4	10.8
24	9.7	8.9	9.4	10.5	8.9	9.8	11.4	10.4	10.6	10.9	10.4	10.6
25	9.8	9.2	9.6	9.0	8.6	8.8	10.7	10.4	10.6	11.6	10.4	10.9
26	9.5	8.7	9.3	9.5	8.8	9.2	11.2	10.6	10.8	11.2	10.2	10.6
27	9.7	9.1	9.4	10.0	9.1	9.4	11.2	10.8	10.9	11.2	10.3	10.6
28	10.3	9.5	9.8	9.9	8.8	9.2	11.0	10.7	10.9	11.3	9.8	10.5
29	11.3	10.3	10.9	9.4	8.9	9.1	11.2	10.7	11.0	11.0	9.6	10.3
30	11.0	9.7	10.5	9.5	9.0	9.2	11.7	11.3	11.4	10.3	9.6	9.9
31	10.1	9.3	9.7	---	---	---	11.5	11.2	11.3	10.4	9.0	9.9
MONTH	12.0	7.5	9.0	12.0	7.5	9.5	12.1	9.1	10.8	12.0	9.0	10.7

STREAMS TRIBUTARY TO LAKE ERIE

04212680 FIELDS BROOK AT ASHTABULA, OH

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	10.9	8.8	9.8	11.9	10.9	11.3	11.8	10.2	10.7	9.7	7.0	8.2
2	11.8	10.9	11.3	11.6	10.6	11.0	11.8	9.8	10.5	11.0	7.3	9.0
3	11.7	10.9	11.3	12.1	11.1	11.5	10.2	9.7	9.9	9.8	7.6	8.8
4	11.9	11.0	11.3	12.2	11.1	11.5	10.9	10.1	10.5	10.5	8.6	9.5
5	12.2	11.4	11.7	12.7	10.0	11.2	11.1	9.1	10.2	11.2	8.1	10.1
6	12.7	11.9	12.2	12.8	10.3	11.1	10.2	9.0	9.5	10.9	8.5	10.0
7	12.7	11.8	12.1	13.1	10.4	11.2	11.6	9.8	10.7	11.4	9.5	10.8
8	12.6	11.6	12.0	13.4	9.8	11.1	12.5	10.7	11.4	12.3	7.8	10.9
9	12.2	11.5	11.7	10.9	9.8	10.1	12.6	10.2	11.3	13.8	11.5	12.9
10	12.4	11.2	11.7	11.0	10.2	10.5	12.1	9.8	10.8	12.8	9.5	11.7
11	12.1	10.8	11.3	11.1	9.9	10.5	11.8	9.4	10.5	12.0	8.5	10.3
12	11.6	10.6	11.0	10.8	10.0	10.3	11.7	9.2	10.3	11.9	7.6	9.6
13	11.5	10.7	11.1	11.2	10.2	10.7	11.5	8.7	9.9	11.1	9.6	10.1
14	11.3	9.6	10.6	11.9	10.9	11.2	10.7	8.5	9.2	10.5	8.6	9.7
15	10.3	9.5	9.9	11.9	10.9	11.3	10.8	8.6	9.4	11.4	8.8	9.9
16	10.0	9.2	9.8	12.4	10.9	11.4	10.8	8.6	9.4	11.8	10.6	11.2
17	9.3	8.5	8.9	12.4	11.1	11.6	10.4	7.8	9.1	11.3	10.4	11.0
18	8.4	7.7	8.1	12.2	11.1	11.5	10.7	7.8	9.1	11.2	10.5	10.9
19	7.8	7.5	7.7	13.8	11.2	11.9	11.0	8.5	9.5	11.1	9.8	10.7
20	8.3	7.8	8.1	12.9	11.4	12.0	11.2	8.4	9.5	---	---	---
21	8.3	8.0	8.2	14.1	11.4	12.3	11.6	8.4	9.7	---	---	---
22	8.1	7.6	7.8	14.3	10.7	12.1	12.2	7.8	9.7	---	---	---
23	9.1	8.1	8.6	13.5	10.6	11.4	11.1	7.8	8.7	---	---	---
24	9.7	9.0	9.3	11.5	10.4	10.8	11.5	8.0	9.2	---	---	---
25	10.2	9.8	10	11.3	10.2	10.6	12.0	8.4	10.3	9.7	8.9	9.3
26	11.3	9.9	10.4	11.2	10.6	10.9	12.5	10.4	11.6	11.9	9.6	10.8
27	10.4	9.9	10.2	11.8	10.8	11.4	11.6	9.2	10.5	11.6	10.1	10.9
28	11.3	9.8	10.4	12.3	10.8	11.5	10.4	7.3	9.7	12.0	9.8	10.9
29	11.1	9.8	10.4	11.8	9.9	10.8	8.9	7.3	8.3	11.2	9.4	10.2
30	---	---	---	11.8	10.0	10.6	9.6	8.3	8.8	11.2	9.1	10.0
31	---	---	---	13.1	10.2	11.2	---	---	---	11.5	8.6	10.0
MONTH	12.7	7.5	10.2	14.3	9.8	11.2	12.6	7.3	9.9	13.8	7.0	10.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.7	9.2	9.7	9.2	7.9	8.4	8.6	7.6	7.9	7.5	7.0	7.3
2	11.9	8.8	10.7	8.4	7.3	7.9	8.6	7.4	7.8	7.5	6.7	7.0
3	12.1	8.9	10.7	8.3	7.4	7.7	8.6	6.2	7.4	7.1	6.7	6.9
4	12.2	10.0	10.9	8.8	7.5	8.1	7.5	6.1	6.6	7.2	6.9	7.1
5	11.5	9.3	10.4	8.9	7.2	8.0	7.5	5.5	6.4	7.6	7.0	7.4
6	11.1	8.3	9.9	8.4	7.2	7.7	6.7	5.4	6.1	7.7	7.5	7.6
7	11.1	9.1	9.8	8.4	6.3	7.6	6.8	6.0	6.3	7.7	7.2	7.5
8	11.1	9.2	9.9	8.4	6.3	7.3	6.8	6.0	6.3	7.7	7.2	7.4
9	10.8	9.1	9.9	8.0	6.9	7.3	7.2	6.0	6.5	7.8	6.9	7.4
10	10.3	8.4	9.3	8.2	6.9	7.4	7.4	6.1	6.5	7.6	7.0	7.2
11	9.7	8.2	8.7	8.1	6.8	7.3	7.4	6.0	6.6	7.8	7.0	7.3
12	9.3	7.9	8.5	8.0	7.0	7.4	7.2	6.0	6.4	7.8	6.6	7.3
13	9.0	7.5	8.2	8.0	7.1	7.5	7.2	5.9	6.4	7.6	6.9	7.1
14	9.2	7.6	8.1	8.2	7.2	7.6	6.9	5.9	6.3	8.5	7.1	7.4
15	9.3	7.5	8.0	8.2	7.3	7.7	6.8	6.0	6.3	8.1	7.4	7.6
16	8.0	7.4	7.6	8.3	7.1	7.7	7.0	6.2	6.5	8.3	7.0	7.7
17	8.2	7.3	7.7	8.1	6.0	7.4	6.8	6.2	6.5	7.8	7.1	7.3
18	8.0	7.1	7.6	8.0	7.2	7.6	6.9	6.3	6.6	7.2	7.1	7.2
19	8.0	7.0	7.5	8.1	7.4	7.5	7.1	6.7	6.9	---	---	---
20	8.0	7.2	7.6	8.0	6.8	7.5	7.2	6.8	6.9	---	---	---
21	9.0	7.3	7.7	9.8	7.2	8.4	7.1	6.8	6.9	---	---	---
22	8.7	7.3	7.9	8.8	7.7	8.2	7.4	6.9	7.1	8.0	7.3	7.8
23	8.4	7.3	7.8	9.2	6.8	8.1	7.2	6.9	7.1	7.9	7.2	7.6
24	8.6	7.6	8.0	8.2	7.8	8.0	7.2	7.0	7.1	8.1	7.4	7.7
25	8.7	7.2	7.9	8.4	7.8	8.0	7.2	7.0	7.0	8.0	7.1	7.5
26	8.7	7.3	7.9	8.5	7.8	8.1	7.4	7.0	7.1	8.1	6.3	7.2
27	8.7	7.5	8.0	8.5	7.2	8.0	7.4	6.8	7.1	6.9	5.9	6.4
28	8.6	7.6	8.0	8.6	7.1	8.0	7.1	6.7	7.0	6.7	6.0	6.4
29	8.7	7.6	8.0	8.7	7.5	8.0	7.4	7.1	7.3	6.9	6.0	6.5
30	8.9	7.7	8.2	9.0	6.9	7.9	7.4	7.0	7.2	6.6	5.7	6.2
31	---	---	---	8.2	7.4	7.7	7.4	6.5	7.2	---	---	---
MONTH	12.2	7.0	8.7	9.8	6.0	7.8	8.6	5.4	6.8	8.5	5.7	7.2

YEAR MAXIMUM 14.3 MINIMUM 5.4 MEAN 9.4

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: Jan. 4-17, 28-30, Feb. 6-24, June 25 to Sept. 30. Records good except for estimated daily discharges, which are poor. Water-quality data collected at this site 1965 to 1977. Sediment data collected 1970 to 1974.

AVERAGE DISCHARGE.--51 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)
Dec. 21	1800	*2,840	*6.10	Feb. 16	2200	ice jam	6.41
Feb. 6	2000	ice jam	6.41				

Minimum daily discharge, 5.2 ft³/s Aug. 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	277	580	196	999	191	134	671	39	9.6	56	19
2	126	237	404	216	1560	203	125	263	52	9.6	30	17
3	283	241	366	125	724	257	182	163	64	8.2	16	16
4	248	207	344	110	340	244	1190	121	56	7.2	9.0	45
5	139	186	350	98	242	175	1120	101	43	6.4	8.0	130
6	107	168	329	96	220	160	357	98	37	6.0	8.6	400
7	555	139	318	90	180	172	310	119	34	7.4	8.4	190
8	1690	121	339	86	160	206	354	100	31	9.2	7.0	120
9	1590	141	706	82	140	258	277	81	29	8.0	6.2	80
10	512	248	1480	80	130	364	201	108	26	7.0	5.8	60
11	319	199	694	78	120	277	159	211	24	6.6	5.6	40
12	325	147	378	76	110	187	129	132	23	6.4	5.4	27
13	241	122	414	74	100	212	111	92	22	6.2	5.2	21
14	171	107	302	72	100	298	100	75	21	6.0	6.0	17
15	129	95	338	70	96	239	92	71	20	5.8	9.0	15
16	105	85	740	68	360	224	88	308	22	5.6	7.6	14
17	91	80	441	66	300	210	90	682	21	5.4	6.4	13
18	79	82	307	371	350	194	94	259	19	5.4	8.6	12
19	79	121	288	1080	410	199	88	157	18	5.5	11	11
20	75	129	771	1100	800	214	79	171	17	5.6	14	12
21	152	119	2360	1860	1800	207	88	192	15	6.6	10	14
22	475	120	969	590	1300	170	105	131	14	9.0	9.0	14
23	906	113	356	285	1500	220	116	103	20	30	8.4	20
24	539	199	285	207	1100	735	133	330	17	70	8.0	26
25	402	400	285	184	432	645	187	180	15	20	8.0	18
26	380	405	324	162	285	973	128	94	13	22	8.0	15
27	284	412	249	97	231	744	96	71	12	13	7.8	13
28	571	248	196	90	190	433	82	59	11	11	12	11
29	1550	222	179	80	181	286	87	51	10	9.0	17	10
30	1050	712	151	78	---	209	765	46	9.6	10	16	9.0
31	442	---	148	369	---	160	---	41	---	120	19	---
TOTAL	13809	6082	15391	8236	14460	9266	7067	5281	754.6	457.7	357.0	1409.0
MEAN	445	203	496	266	499	299	236	170	25.2	14.8	11.5	47.0
MAX	1690	712	2360	1860	1800	973	1190	682	64	120	56	400
MIN	75	80	148	66	96	160	79	41	9.6	5.4	5.2	9.0
CFSM	2.54	1.16	2.83	1.52	2.85	1.71	1.35	.97	.14	.08	.07	.27
IN.	2.94	1.29	3.27	1.75	3.07	1.97	1.50	1.12	.16	.10	.08	.30

CAL YR 1987	TOTAL	95031	MEAN	260	MAX	2970	MIN	13	CFSM	1.49	IN.	20.20
WTR YR 1988	TOTAL	82570.3	MEAN	226	MAX	2360	MIN	5.2	CFSM	1.29	IN.	17.55

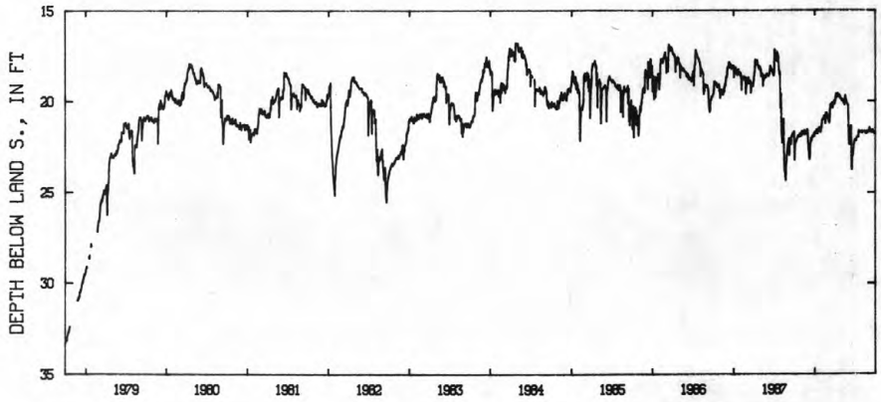
CRAWFORD COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.25	21.86	21.91	21.83	21.41	20.97	20.06	19.94	20.71	22.15	21.73	21.69
2	23.05	21.92	22.19	21.84	21.26	20.98	20.03	19.96	21.34	22.13	21.74	21.64
3	23.24	21.78	22.29	21.71	21.11	21.00	19.92	19.97	21.80	22.09	21.69	21.57
4	22.85	21.67	22.54	21.74	21.04	21.12	19.80	19.91	22.12	22.12	21.66	21.44
5	22.47	21.83	22.68	21.79	21.04	21.16	19.74	19.94	22.38	22.18	21.65	21.59
6	22.23	21.85	22.74	21.79	21.04	21.13	19.61	20.01	22.34	22.16	21.66	21.64
7	22.24	21.76	22.92	21.80	20.99	21.21	19.78	20.03	21.73	22.10	21.67	21.66
8	22.30	21.72	23.20	21.62	20.98	21.10	19.81	19.99	21.66	22.01	21.65	21.62
9	22.22	21.82	23.19	21.69	20.93	20.69	19.79	19.93	21.59	21.98	21.64	21.64
10	22.23	21.80	23.18	21.75	20.99	20.41	19.68	20.03	21.52	21.97	21.67	21.70
11	22.15	21.76	22.88	21.66	20.92	20.42	19.60	20.12	21.42	21.97	21.68	21.71
12	22.05	21.68	22.39	21.56	20.82	20.19	19.58	20.10	21.35	21.96	21.69	21.67
13	22.08	21.64	22.32	21.78	20.93	20.22	19.63	20.10	21.36	21.96	21.70	21.60
14	22.05	21.77	22.24	21.81	20.92	20.18	19.66	20.12	22.24	21.94	21.64	21.63
15	22.00	21.83	22.03	21.64	20.81	20.29	19.71	20.21	23.02	21.98	21.70	21.71
16	21.95	21.76	22.16	21.59	20.89	20.33	19.74	19.94	23.58	21.94	21.73	21.68
17	21.98	21.61	22.21	21.59	20.86	20.37	19.66	19.78	23.75	21.75	21.71	21.61
18	21.97	21.83	22.18	21.68	21.23	20.21	19.64	19.70	23.27	21.62	21.75	21.61
19	21.90	21.81	22.05	21.65	21.01	20.10	19.71	19.82	22.85	21.61	21.78	21.57
20	21.89	21.69	22.04	21.48	20.67	20.29	19.71	19.90	22.79	21.64	21.74	21.65
21	21.95	21.78	22.03	21.61	20.71	20.37	19.73	19.94	22.74	21.67	21.75	21.70
22	21.96	21.75	21.92	21.59	20.75	20.35	19.75	19.97	22.95	21.70	21.77	21.64
23	21.93	21.73	22.00	21.44	20.72	20.14	19.68	19.98	22.70	21.70	21.67	21.66
24	21.97	21.82	21.91	21.56	20.66	20.17	19.82	20.09	22.58	21.70	21.64	21.68
25	21.97	21.75	21.91	21.55	20.69	20.06	19.85	20.15	22.40	21.69	21.63	21.73
26	21.83	21.80	21.96	21.65	20.69	20.06	19.79	20.17	22.34	21.67	21.70	21.76
27	21.79	21.73	21.91	21.70	20.85	20.14	19.78	20.18	22.32	21.70	21.69	21.71
28	21.80	21.65	21.79	21.71	20.84	20.19	19.86	20.16	22.24	21.72	21.69	21.79
29	21.81	21.57	21.95	21.63	20.91	19.98	19.88	20.18	22.19	21.72	21.64	21.77
30	21.83	21.60	21.91	21.51	---	20.18	19.93	20.22	22.14	21.66	21.67	21.79
31	21.92	---	21.73	21.50	---	20.14	---	20.23	---	21.63	21.69	---
MAX	23.24	21.92	23.20	21.84	21.41	21.21	20.06	20.23	23.75	22.18	21.78	21.79

CAL YR 1987 LOW 24.36
WTR YR 1988 LOW 23.75



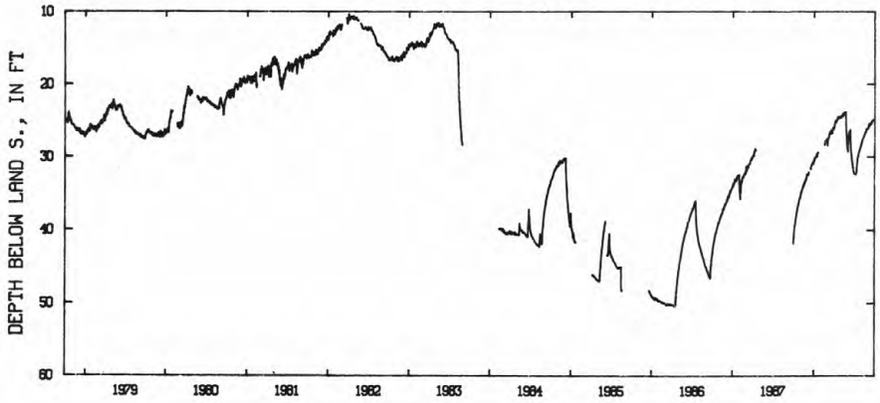
—— 404838082563100 CR-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.83	35.44	32.46	30.54	---	28.46	25.80	24.63	29.10	32.31	28.25	26.07
2	41.11	35.25	32.59	30.54	---	27.70	25.74	24.59	29.24	32.23	28.18	25.96
3	40.92	35.01	32.50	30.51	---	27.48	25.50	24.58	28.10	32.30	27.99	25.76
4	40.55	34.80	32.44	30.12	---	27.45	25.29	24.40	27.66	32.31	27.89	25.45
5	40.07	34.86	32.41	30.08	---	27.55	25.31	24.30	27.33	32.29	27.74	25.66
6	39.67	34.86	32.47	30.09	---	27.42	25.08	24.35	26.97	32.24	27.62	25.69
7	39.40	34.66	32.40	30.19	---	27.28	25.17	24.39	26.75	32.28	27.59	25.69
8	39.34	34.53	32.12	30.02	---	27.28	25.27	24.33	26.52	32.38	27.51	25.63
9	39.17	34.49	---	30.07	---	26.85	25.28	24.09	26.53	32.29	27.41	25.48
10	38.89	34.48	---	30.09	---	26.87	25.17	24.14	26.57	32.16	27.35	25.53
11	38.61	34.30	---	30.04	---	26.94	25.00	24.38	26.46	31.91	27.31	25.58
12	38.36	34.08	---	29.86	---	26.70	24.89	24.38	26.27	31.40	27.22	25.46
13	38.16	33.92	---	29.58	---	26.53	24.88	24.24	27.84	30.96	27.16	25.29
14	38.03	34.06	---	29.89	---	26.53	24.78	24.27	28.61	30.53	27.03	25.35
15	37.80	34.07	---	29.89	---	26.67	24.86	24.13	28.94	30.39	26.92	25.46
16	37.60	33.88	31.55	29.67	---	26.75	24.89	23.89	29.37	30.14	26.95	25.42
17	37.31	33.61	31.69	29.56	28.36	26.81	24.83	24.05	29.71	29.95	26.78	25.17
18	37.26	33.78	31.66	29.40	28.36	26.67	24.49	24.05	30.04	29.90	26.69	25.14
19	37.04	33.74	31.29	---	28.23	26.34	24.66	23.93	30.25	29.63	26.66	25.08
20	36.83	33.29	31.09	---	27.78	26.57	24.66	23.93	30.47	29.60	26.53	25.03
21	36.75	33.44	31.12	---	27.98	26.75	24.64	23.93	30.68	29.35	26.60	25.09
22	36.73	33.40	31.04	---	27.90	26.75	24.69	23.90	30.88	29.29	26.60	25.04
23	36.45	33.19	31.13	---	27.78	26.42	24.56	23.80	31.34	29.21	26.41	24.91
24	36.42	33.34	31.06	---	27.78	26.28	24.66	25.35	31.38	29.03	26.19	24.96
25	36.29	33.09	30.82	---	27.78	26.17	24.71	26.42	31.42	28.95	26.14	24.93
26	36.06	33.12	30.92	---	27.78	25.98	24.57	26.97	31.78	28.83	26.22	24.99
27	35.79	33.00	30.91	---	27.66	26.10	24.45	27.47	31.89	28.77	26.23	24.88
28	35.77	32.81	30.73	---	27.66	26.21	24.48	27.93	31.99	28.69	26.14	24.90
29	35.65	32.56	30.88	---	27.48	25.97	24.49	28.38	32.10	28.59	26.12	24.87
30	35.59	32.41	30.88	---	---	26.05	24.65	28.75	32.29	28.42	26.07	24.79
31	35.61	---	30.46	---	---	26.05	---	28.94	---	28.29	26.08	---
MAX	41.83	35.44	32.59	30.54	28.36	28.46	25.80	28.94	32.29	32.38	28.25	26.07

CAL YR 1987 LOW 41.83
WTR YR 1988 LOW 41.83



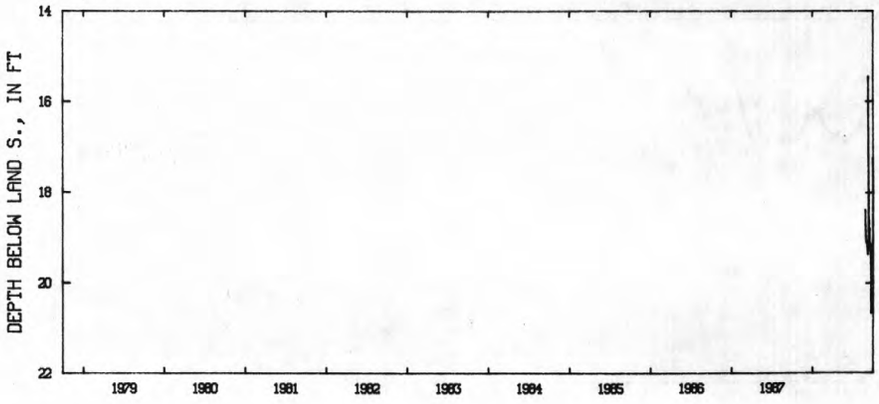
—— 412518081221500 GE-3A CHAGRIN FALLS W DPT NR CHAGRIN FALLS OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

405940083275500. Local number, HA-3.
LOCATION.--Lat 40°59'40", long 83°27'55", Hydrologic Unit 04100008, 2 miles north of Vanlue.
Owner: City of Findlay.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled artesian well, diameter 10 in., diameter 6 in. below 55 ft., depth 240 ft, cased to 55 ft.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 815 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 1.40 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--May 1947 to October 1972 and August 1988 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 20.67 ft below land-surface datum, Sept. 22, 1988; minimum daily low, 4.06 ft below land-surface datum, June 8, 1947.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	19.11
2	---	---	---	---	---	---	---	---	---	---	---	19.12
3	---	---	---	---	---	---	---	---	---	---	---	19.11
4	---	---	---	---	---	---	---	---	---	---	---	19.20
5	---	---	---	---	---	---	---	---	---	---	---	19.28
6	---	---	---	---	---	---	---	---	---	---	---	19.36
7	---	---	---	---	---	---	---	---	---	---	---	19.29
8	---	---	---	---	---	---	---	---	---	---	---	19.28
9	---	---	---	---	---	---	---	---	---	---	---	15.45
10	---	---	---	---	---	---	---	---	---	---	---	17.95
11	---	---	---	---	---	---	---	---	---	---	---	18.61
12	---	---	---	---	---	---	---	---	---	---	---	18.83
13	---	---	---	---	---	---	---	---	---	---	---	18.90
14	---	---	---	---	---	---	---	---	---	---	---	18.79
15	---	---	---	---	---	---	---	---	---	---	---	19.10
16	---	---	---	---	---	---	---	---	---	---	---	19.14
17	---	---	---	---	---	---	---	---	---	---	---	19.20
18	---	---	---	---	---	---	---	---	---	---	---	19.23
19	---	---	---	---	---	---	---	---	---	---	---	19.35
20	---	---	---	---	---	---	---	---	---	---	---	19.57
21	---	---	---	---	---	---	---	---	---	---	---	20.37
22	---	---	---	---	---	---	---	---	---	---	---	20.67
23	---	---	---	---	---	---	---	---	---	---	---	19.20
24	---	---	---	---	---	---	---	---	---	---	---	19.18
25	---	---	---	---	---	---	---	---	---	---	18.38	19.15
26	---	---	---	---	---	---	---	---	---	---	18.70	19.32
27	---	---	---	---	---	---	---	---	---	---	18.82	19.14
28	---	---	---	---	---	---	---	---	---	---	18.95	19.15
29	---	---	---	---	---	---	---	---	---	---	19.03	17.24
30	---	---	---	---	---	---	---	---	---	---	19.08	17.65
31	---	---	---	---	---	---	---	---	---	---	19.08	---
MAX	---	---	---	---	---	---	---	---	---	---	19.08	20.67

WTR YR 1988 LOW 20.67



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

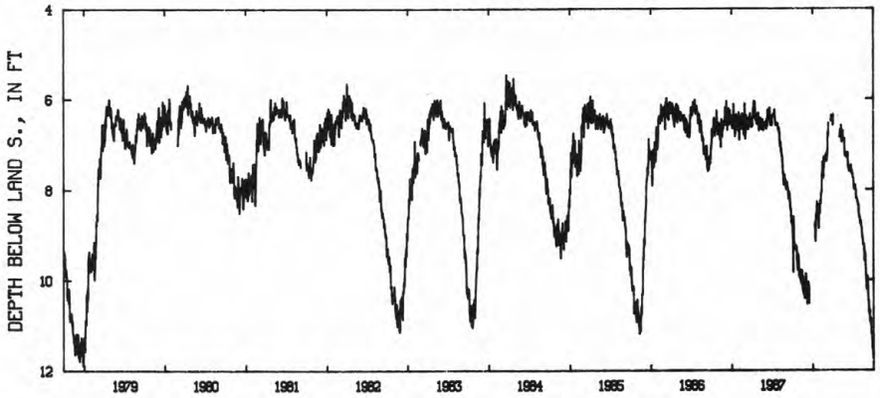
HARDIN COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.66	9.92	9.94	---	8.37	7.34	6.58	---	7.23	7.75	8.64	10.20
2	8.73	9.92	10.16	---	8.53	7.25	6.54	6.84	7.19	7.75	8.74	10.20
3	9.02	9.80	10.16	---	8.51	7.20	6.35	6.81	7.24	7.75	8.76	10.14
4	9.02	9.77	10.30	---	8.26	7.27	---	6.72	7.30	7.88	8.75	9.92
5	9.83	9.89	10.39	---	8.30	7.38	---	6.68	7.30	7.97	8.70	10.15
6	8.60	10.00	10.53	---	8.32	7.27	6.12	6.80	7.27	7.99	8.75	10.31
7	8.83	9.94	10.53	---	8.32	7.21	---	6.86	7.19	7.99	8.80	10.46
8	9.13	9.85	10.40	---	8.13	7.20	---	6.81	7.20	7.98	8.85	10.44
9	9.18	10.07	10.15	---	8.10	6.75	---	6.58	7.39	7.92	8.85	10.48
10	9.34	10.07	10.15	---	8.07	6.75	---	6.75	7.51	7.90	8.96	10.66
11	9.32	10.07	10.05	8.82	8.04	6.82	---	6.95	7.51	7.92	9.01	10.73
12	9.26	9.97	10.07	8.73	7.66	6.53	6.24	6.95	7.51	7.97	9.06	10.73
13	9.30	9.79	10.49	9.05	7.74	---	---	6.89	7.56	8.01	9.10	10.67
14	9.34	10.06	10.52	9.15	7.74	---	---	6.92	7.60	8.01	9.10	10.85
15	9.34	10.21	10.18	8.95	7.40	---	---	6.85	7.58	8.20	9.20	10.93
16	9.28	10.20	---	8.65	7.65	---	---	6.70	7.50	8.15	9.23	10.93
17	9.25	9.93	---	8.55	7.71	---	6.31	6.90	7.50	8.20	9.21	10.87
18	9.30	10.30	---	8.60	7.75	---	---	6.91	7.55	8.20	9.22	10.87
19	9.27	10.30	---	8.64	7.70	6.40	---	6.88	7.57	8.20	9.22	10.85
20	9.30	10.09	---	8.27	7.28	---	---	6.88	7.55	8.25	9.30	10.95
21	9.51	10.29	---	8.44	7.53	---	---	6.90	7.52	8.25	9.52	11.19
22	9.55	10.28	---	8.55	7.43	---	---	6.90	7.46	8.29	9.57	11.16
23	9.53	10.20	---	8.40	7.35	6.46	---	6.87	7.63	8.30	9.49	11.18
24	9.71	10.40	---	8.34	7.38	6.49	---	7.08	7.64	8.36	9.39	11.25
25	9.78	10.31	---	8.38	7.38	6.36	---	7.22	7.57	8.36	9.47	11.45
26	9.67	10.40	---	8.57	7.39	6.38	---	7.25	7.60	8.35	9.67	11.52
27	9.43	10.38	---	8.80	7.30	---	---	7.25	7.65	8.50	9.69	11.51
28	9.50	10.19	---	8.86	7.33	---	---	7.23	7.64	8.62	9.87	11.61
29	9.56	9.96	---	8.86	7.25	6.45	---	7.22	7.65	8.62	9.93	11.64
30	9.74	9.86	---	8.55	---	---	---	7.25	7.69	8.61	10.07	11.75
31	9.92	---	---	8.44	---	---	---	7.28	---	8.59	10.16	---
MAX	9.92	10.40	10.53	9.15	8.53	7.38	6.58	7.28	7.69	8.62	10.16	11.75

CAL YR 1987 LOW 10.53
WTR YR 1988 LOW 11.75



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

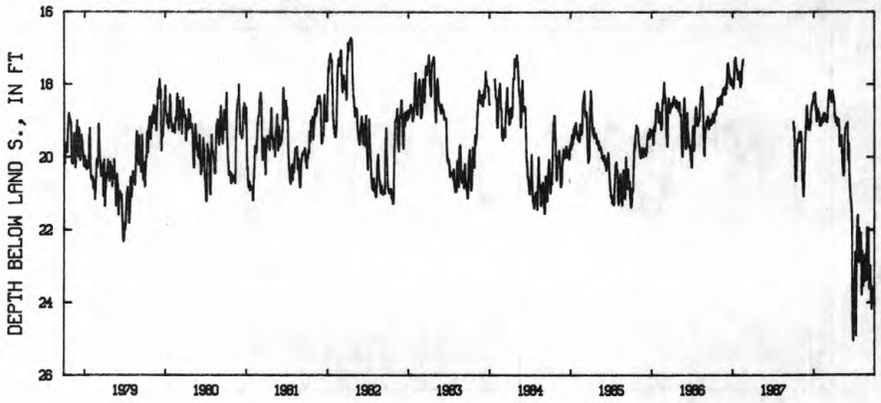
HENRY COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.03	19.54	18.59	18.45	18.94	19.04	18.49	19.58	19.05	24.08	22.08	22.93
2	19.06	19.53	18.76	18.45	19.13	18.95	18.52	19.54	19.04	23.56	22.38	22.37
3	19.27	19.44	18.76	18.37	19.13	18.89	18.48	19.50	19.55	23.25	22.82	22.55
4	19.26	19.30	19.00	18.24	18.97	18.66	18.75	19.40	19.90	23.09	23.57	22.48
5	19.18	19.45	19.13	18.25	19.05	18.62	18.88	19.41	20.07	23.05	23.77	21.94
6	19.49	19.46	19.22	18.24	19.05	18.50	18.81	19.53	19.95	22.86	23.18	23.15
7	19.94	19.58	19.24	18.22	19.03	18.38	18.92	19.89	19.66	22.60	22.57	23.61
8	20.27	19.90	19.17	18.29	18.92	18.34	18.97	19.86	19.63	23.78	22.88	23.14
9	20.42	20.39	19.05	18.61	18.96	18.16	19.04	19.77	20.11	24.55	23.15	23.24
10	20.60	20.59	19.05	18.71	19.05	18.25	19.00	20.09	20.45	24.91	23.26	23.51
11	20.65	20.65	18.97	18.70	19.01	18.26	18.96	20.29	20.65	24.49	23.15	23.40
12	20.66	20.64	18.97	18.58	18.83	18.16	18.92	20.33	20.79	23.58	23.54	23.59
13	20.58	20.70	19.25	18.96	18.93	18.21	18.91	20.42	20.93	22.83	23.23	22.97
14	20.31	20.95	19.26	19.02	18.92	18.20	18.92	20.51	21.05	22.27	22.71	23.49
15	20.07	21.08	19.15	18.95	18.80	18.31	19.04	20.45	21.15	22.00	23.44	23.49
16	19.90	21.08	19.03	18.83	18.92	18.39	19.13	20.43	21.17	21.79	23.38	23.92
17	19.68	20.83	19.07	18.81	18.99	18.41	19.07	20.39	21.17	21.64	23.39	23.67
18	19.62	20.44	19.06	18.92	19.00	18.38	18.94	20.10	21.26	21.67	23.29	24.17
19	19.60	20.43	18.85	18.92	18.94	18.24	18.99	19.75	21.37	21.59	23.18	23.92
20	19.51	20.11	18.69	18.66	18.81	18.36	18.97	19.46	21.46	22.12	23.18	23.79
21	19.56	20.05	18.70	18.85	18.89	18.48	19.04	19.38	21.58	22.76	22.67	23.88
22	19.56	19.88	18.66	18.87	18.81	18.47	19.03	19.32	21.85	22.89	23.22	24.01
23	19.52	19.54	18.59	18.76	18.91	18.31	18.96	19.21	23.59	22.85	23.39	23.75
24	19.56	19.44	18.59	18.82	18.96	18.28	19.12	19.17	24.33	22.30	22.87	24.01
25	19.59	19.33	18.51	18.82	19.01	18.17	19.14	19.19	24.58	21.94	22.99	23.58
26	19.51	19.18	18.58	18.94	18.99	18.19	19.53	19.19	24.82	22.20	23.00	23.56
27	19.31	19.16	18.57	19.05	19.00	18.39	19.70	19.12	24.99	22.33	22.60	24.03
28	19.33	18.97	18.46	19.14	19.00	18.39	19.70	19.09	25.04	22.72	22.16	23.66
29	19.36	18.71	18.52	19.11	19.04	18.30	19.66	19.07	24.89	22.50	21.93	23.65
30	19.39	18.61	18.52	18.95	---	18.40	19.59	19.15	24.64	22.56	23.09	24.00
31	19.57	---	18.28	18.95	---	18.42	---	19.12	---	22.42	23.36	---
MAX	20.66	21.08	19.26	19.14	19.13	19.04	19.70	20.51	25.04	24.91	23.77	24.17

CAL YR 1987 LOW 21.08
WTR YR 1988 LOW 25.04



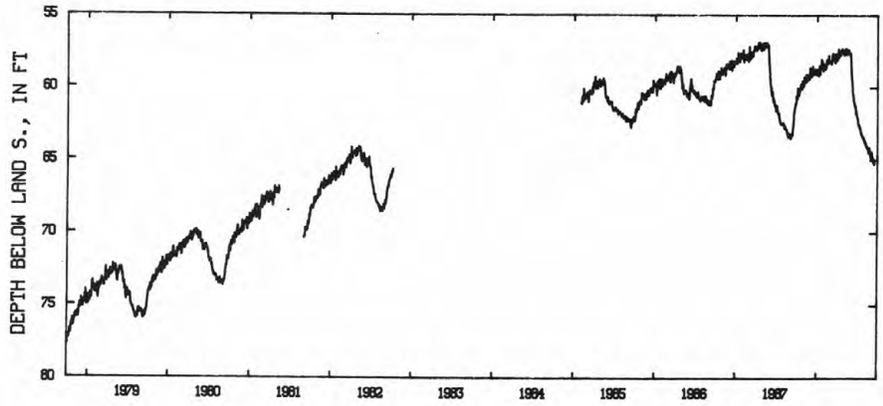
—— 412123083574000 HY-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60.62	59.85	58.68	59.08	58.42	58.31	57.99	57.70	57.86	62.07	63.59	64.90
2	60.60	59.80	58.86	59.10	58.68	58.18	57.87	57.74	58.32	62.12	63.73	64.83
3	60.81	59.54	58.85	58.95	58.66	58.18	57.61	57.72	58.76	62.17	63.78	64.69
4	60.73	59.28	58.97	58.82	58.55	58.31	57.59	57.60	59.05	62.40	63.76	64.43
5	60.37	59.54	59.10	59.02	58.66	58.38	57.59	57.52	59.24	62.54	63.67	64.65
6	60.02	59.63	59.22	59.14	58.74	58.15	57.33	57.61	59.38	62.59	63.76	64.80
7	60.23	59.49	59.24	59.19	58.64	58.17	57.70	57.65	59.46	62.60	63.82	64.90
8	60.42	59.38	59.05	58.74	58.63	58.13	57.85	57.54	59.79	62.62	63.87	64.86
9	60.43	59.64	58.73	58.86	58.54	57.75	57.90	57.29	60.16	62.56	63.86	64.87
10	60.56	59.65	58.78	58.96	58.65	57.93	57.80	57.50	60.39	62.57	64.00	65.04
11	60.49	59.61	58.58	58.79	58.54	57.97	57.70	57.70	60.48	62.59	64.05	65.12
12	60.29	59.35	58.53	58.49	58.11	57.63	57.60	57.65	60.57	62.74	64.07	65.06
13	60.31	59.09	58.98	58.98	58.30	57.70	57.60	57.63	60.77	62.75	64.12	64.94
14	60.30	59.43	59.04	59.08	58.24	57.69	57.60	57.69	60.91	62.81	64.03	65.11
15	60.22	59.56	58.73	58.78	58.04	57.96	57.70	57.54	60.91	62.93	64.11	65.27
16	60.09	59.44	58.81	58.51	58.14	58.11	57.75	57.33	61.02	62.87	64.23	65.27
17	59.93	59.12	59.10	58.45	58.29	58.16	57.57	57.54	61.08	63.01	64.13	65.08
18	59.97	59.49	59.11	58.62	58.36	57.92	57.39	57.58	61.19	63.00	64.16	65.07
19	59.85	59.48	58.86	58.62	58.08	57.74	57.49	57.49	61.26	63.13	64.17	---
20	59.76	59.22	58.74	58.04	58.09	58.02	57.45	57.46	61.24	63.21	64.15	---
21	59.94	59.40	58.79	58.44	58.17	58.26	57.45	57.47	61.35	63.21	64.41	---
22	59.97	59.36	58.72	58.44	57.78	58.27	57.51	57.46	61.26	63.30	64.50	---
23	59.91	59.17	58.89	58.14	58.10	57.86	57.32	57.40	61.65	63.34	64.34	---
24	60.00	59.44	58.83	58.32	58.16	57.90	57.58	57.56	61.71	63.40	64.19	---
25	60.09	59.31	58.79	58.29	58.24	57.67	57.62	57.70	61.57	63.41	64.15	---
26	59.86	59.43	58.98	58.57	58.18	57.72	57.45	57.69	61.73	63.35	64.38	---
27	59.53	59.36	58.96	58.76	58.26	58.04	57.35	57.66	61.85	63.35	64.40	---
28	59.60	59.16	58.87	58.84	58.20	58.08	57.49	57.62	61.85	63.45	64.58	---
29	59.63	58.79	59.13	58.80	58.23	57.77	57.54	57.58	61.91	63.55	64.64	---
30	59.68	58.63	59.14	58.38	---	58.12	57.64	57.63	61.98	63.47	64.71	---
31	59.93	---	58.74	58.36	---	58.14	---	57.65	---	63.56	64.81	---
MAX	60.81	59.85	59.24	59.19	58.74	58.38	57.99	57.74	61.98	63.56	64.81	65.27

CAL YR 1987 LOW 63.52
WTR YR 1988 LOW 65.27



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

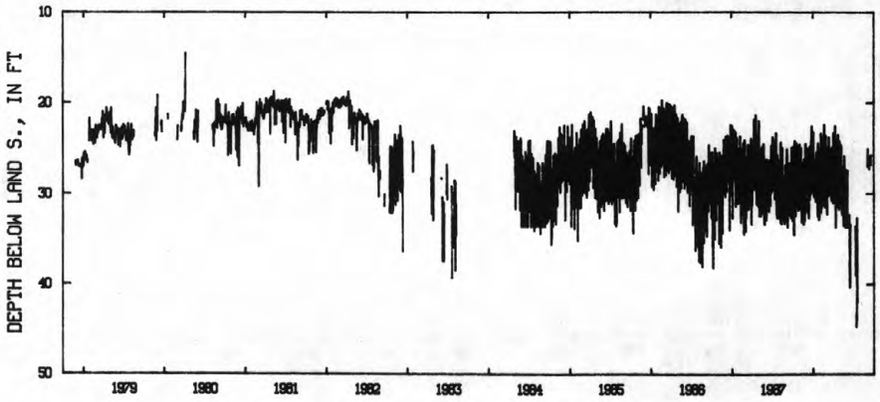
MEDINA COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.00	24.59	31.39	24.37	31.70	30.16	31.04	24.66	33.68	---	---	---
2	30.70	28.37	31.31	24.23	31.76	29.45	26.42	29.49	33.07	---	---	---
3	27.06	31.80	31.41	23.19	32.06	31.33	23.30	30.76	33.68	---	---	27.02
4	24.86	30.97	31.87	29.93	27.34	32.26	29.41	31.05	30.27	---	---	25.10
5	29.27	28.35	25.00	29.93	32.09	24.94	30.88	30.45	27.46	---	---	---
6	34.45	31.03	25.57	30.36	23.35	25.95	26.66	29.80	---	---	---	---
7	34.52	27.76	31.98	30.12	24.68	29.53	26.83	24.66	---	---	---	---
8	30.90	24.95	29.01	30.16	31.59	26.62	29.15	25.03	---	45.21	---	---
9	31.65	31.28	31.94	27.76	30.67	29.97	24.37	31.87	---	---	---	---
10	25.14	31.00	32.15	26.21	27.06	30.26	22.52	31.92	---	33.61	---	27.30
11	24.17	33.15	32.00	29.91	28.22	28.97	27.98	32.24	33.42	38.98	---	25.92
12	31.88	30.27	25.16	29.88	30.65	25.94	33.68	30.95	32.30	---	---	---
13	28.57	32.06	32.67	30.56	24.60	23.78	31.29	32.33	38.02	44.67	---	---
14	32.46	26.61	29.64	30.89	23.91	29.75	31.10	27.06	40.33	43.24	---	---
15	29.03	26.65	29.34	30.32	30.78	28.51	31.53	27.77	40.20	44.05	---	---
16	29.63	32.93	28.95	26.48	30.21	29.76	24.28	32.28	35.53	39.60	---	---
17	25.07	31.92	30.65	25.44	30.70	29.87	25.08	31.98	33.41	32.64	---	26.82
18	24.41	29.35	30.19	30.17	31.31	26.78	31.17	33.53	---	42.03	---	25.77
19	30.51	33.38	24.79	30.48	28.70	25.15	28.54	33.21	---	---	---	---
20	28.02	32.33	26.78	29.19	23.66	25.74	31.15	32.61	---	---	---	---
21	30.65	27.59	26.67	30.85	22.34	30.22	29.89	25.87	---	---	---	---
22	31.13	26.24	29.24	32.50	30.68	30.07	30.46	27.02	---	---	---	---
23	28.89	33.02	30.03	25.60	30.05	30.08	23.94	33.15	---	---	---	---
24	25.91	30.56	29.64	24.42	28.13	30.80	23.50	31.45	---	---	---	---
25	24.77	32.20	24.21	32.07	31.53	29.38	29.09	33.68	---	---	---	26.53
26	31.84	26.11	25.41	28.72	31.38	25.90	30.11	32.70	---	---	---	---
27	30.12	29.55	22.56	32.88	25.24	24.91	31.75	33.68	---	---	---	---
28	28.51	24.71	28.70	31.77	23.58	30.48	29.83	28.77	---	---	---	---
29	30.78	24.50	27.37	32.71	31.37	29.41	30.52	27.46	---	---	---	---
30	28.27	31.55	29.36	28.21	---	29.13	24.19	27.37	---	---	---	---
31	24.84	---	29.84	25.05	---	30.95	---	33.48	---	---	---	---
MAX	34.52	33.38	32.67	32.88	32.09	32.26	33.68	33.68	40.33	45.21	---	27.30

CAL YR 1987 LOW 34.52
WTR YR 1988 LOW 45.21



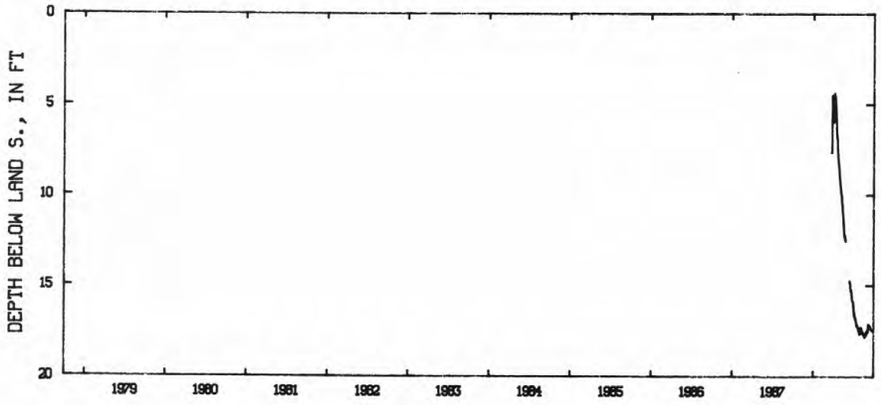
410142082005900 MD-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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, 17.80 ft below land-surface datum, Aug. 21-22,1988; minimum daily low, 4.38 ft below land-surface datum, Apr. 5, 1988.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	5.90	9.23	---	16.06	17.41	17.47
2	---	---	---	---	---	---	5.95	9.41	---	16.17	17.30	17.49
3	---	---	---	---	---	---	5.95	9.44	---	16.31	17.27	17.53
4	---	---	---	---	---	---	5.30	9.51	---	16.60	17.35	17.53
5	---	---	---	---	---	---	4.38	9.69	---	16.60	17.40	17.37
6	---	---	---	---	---	---	4.57	9.81	---	16.49	17.31	17.25
7	---	---	---	---	---	---	4.71	9.93	---	16.70	17.36	17.11
8	---	---	---	---	---	---	4.56	9.95	---	16.65	17.51	17.12
9	---	---	---	---	---	---	4.75	10.02	---	16.73	17.48	17.12
10	---	---	---	---	---	---	4.95	10.26	---	16.82	17.51	17.21
11	---	---	---	---	---	---	5.18	10.40	---	16.76	17.52	17.23
12	---	---	---	---	---	---	5.50	10.53	---	16.84	17.63	17.26
13	---	---	---	---	---	---	5.74	10.68	---	16.93	17.56	17.23
14	---	---	---	---	---	---	5.95	10.85	14.80	17.01	17.68	17.21
15	---	---	---	---	---	---	6.32	10.96	14.74	17.09	17.61	17.24
16	---	---	---	---	---	---	6.58	11.15	14.84	17.17	17.60	17.28
17	---	---	---	---	---	---	6.69	11.36	14.90	17.20	17.65	17.35
18	---	---	---	---	---	---	6.81	11.54	15.07	17.18	17.72	17.37
19	---	---	---	---	---	---	7.09	11.67	15.19	17.14	17.65	17.37
20	---	---	---	---	---	---	7.30	11.94	15.30	17.24	17.65	17.39
21	---	---	---	---	---	---	7.57	12.14	15.23	17.24	17.80	17.43
22	---	---	---	---	---	---	7.73	12.27	15.32	17.27	17.80	17.44
23	---	---	---	---	---	7.64	7.92	12.18	15.35	17.27	17.70	17.45
24	---	---	---	---	---	7.60	8.15	12.27	15.45	17.39	17.62	17.46
25	---	---	---	---	---	6.12	8.25	12.45	15.72	17.49	17.60	17.47
26	---	---	---	---	---	4.50	8.26	12.49	15.75	17.46	17.61	---
27	---	---	---	---	---	4.65	8.47	12.52	15.83	17.50	17.69	---
28	---	---	---	---	---	4.90	8.67	---	15.84	17.51	17.72	---
29	---	---	---	---	---	5.02	8.83	---	15.85	17.65	17.60	---
30	---	---	---	---	---	5.58	9.01	---	15.87	17.65	17.50	---
31	---	---	---	---	---	5.75	---	---	---	17.60	17.54	---
MAX	---	---	---	---	---	7.64	9.01	12.52	15.87	17.65	17.80	17.53

WTR YR 1988 LOW 17.80



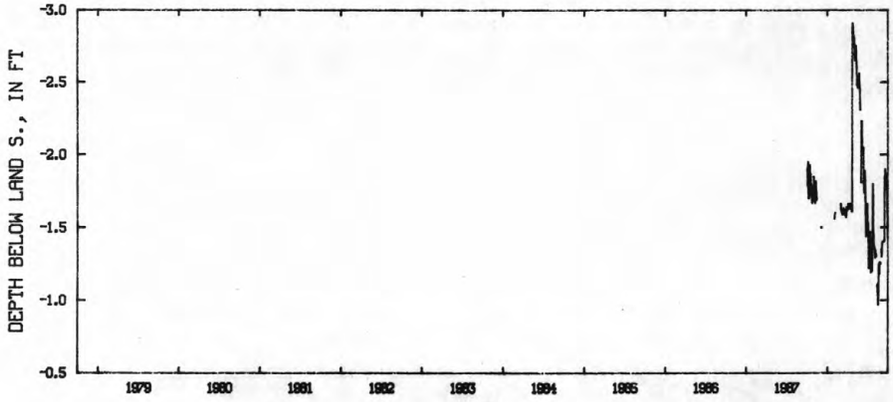
—— 413434082494000 O-2 W WILLIAMS NR PORT CLINTON OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

410540081213600. Local number, PO-7.
LOCATION.--Lat 41°05'40", long 81°21'36", Hydrologic Unit 04110002, Sunnybrook golf course near Brimfield.
Owner: City of Talmidge.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 101 ft cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 1065 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 7.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--March 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 0.97 ft above land-surface datum, Aug. 17-18, 1988; minimum daily low, 3.94 ft above land-surface datum, Mar. 15-16, 1986.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-1.91	-1.71	---	---	-1.56	-1.66	-1.62	-2.81	---	-1.53	-1.36	-1.35
2	-1.79	-1.75	-1.50	---	-1.58	-1.62	-1.63	-2.76	-1.81	-1.50	-1.35	-1.30
3	-1.80	-1.71	-1.50	---	-1.58	-1.63	-1.63	-2.68	-2.15	-1.53	-1.32	-1.32
4	-1.95	-1.68	-1.50	---	-1.60	-1.61	-1.66	-2.65	-2.23	-1.46	-1.29	-1.37
5	-1.90	-1.70	-1.50	---	---	-1.62	-1.64	-2.65	-2.23	-1.46	-1.34	-1.40
6	-1.75	-1.67	---	---	---	-1.62	-1.63	-2.68	-2.14	-1.22	---	-1.40
7	-1.70	-1.72	---	---	---	-1.61	-1.63	-2.73	-2.09	-1.22	---	-1.40
8	-1.70	-1.76	---	---	---	-1.59	-1.63	-2.74	-2.01	-1.24	-1.32	-1.40
9	-1.74	-1.82	---	---	---	-1.59	-1.65	-2.75	-2.01	-1.30	-1.30	-1.40
10	-1.82	-1.76	---	---	---	-1.60	-1.66	-2.71	-2.02	-1.36	---	-1.40
11	-1.88	-1.74	---	---	---	-1.59	-1.66	-2.65	-2.04	-1.44	---	-1.40
12	-1.93	-1.69	---	---	---	-1.62	-1.66	-2.64	-2.05	-1.47	---	-1.41
13	-1.86	-1.70	---	---	---	-1.62	-1.65	-2.61	-1.80	-1.47	-1.10	-1.41
14	-1.80	---	---	---	---	-1.63	-1.66	-2.48	-1.82	-1.38	-1.11	-1.41
15	-1.82	---	---	---	---	-1.62	-1.63	-2.48	-1.74	-1.32	-1.06	-1.41
16	-1.87	---	---	---	---	-1.62	-1.63	-2.50	-1.75	-1.19	-1.04	-1.85
17	-1.72	---	---	---	---	-1.62	-1.63	-2.50	-1.79	-1.24	-.97	-1.85
18	-1.75	---	---	---	---	-1.62	-1.64	-2.46	-1.89	-1.26	-.97	-1.90
19	-1.78	---	---	---	---	-1.61	-1.62	-2.49	-1.85	-1.27	-1.06	-1.89
20	-1.80	---	---	---	---	-1.62	-1.61	-2.48	-1.80	-1.25	-1.23	-1.82
21	-1.75	---	---	---	---	-1.60	-1.62	-2.49	-1.70	-1.20	-1.25	-1.80
22	-1.71	---	---	---	---	-1.58	-1.61	-2.52	-1.60	-1.28	-1.18	-1.80
23	-1.67	---	---	---	---	-1.58	-2.87	-2.55	-1.57	-1.47	-1.18	-1.87
24	-1.67	---	---	---	---	-1.58	-2.91	-2.56	-1.44	-1.70	-1.26	-1.76
25	-1.75	---	---	---	---	-1.57	-2.90	-2.50	-1.44	-1.80	-1.26	-1.76
26	-1.75	---	---	---	---	-1.60	-2.89	-2.48	-1.49	-1.69	-1.25	-1.76
27	---	---	---	---	---	-1.64	-2.85	-2.45	-1.51	-1.47	-1.26	-1.63
28	---	---	---	---	---	-1.64	-2.83	-2.36	-1.65	-1.45	-1.25	-1.51
29	---	---	---	---	---	-1.62	-2.83	-2.31	-1.61	-1.38	---	-1.43
30	-1.85	---	---	---	---	-1.62	-2.74	-2.31	-1.66	-1.37	---	---
31	-1.72	---	-1.61	---	---	-1.63	---	---	---	-1.37	---	---
MAX	-1.67	-1.67	-1.50	---	-1.56	-1.57	-1.61	-2.31	-1.44	-1.19	-.97	-1.30

WTR YR 1988 LOW -.97



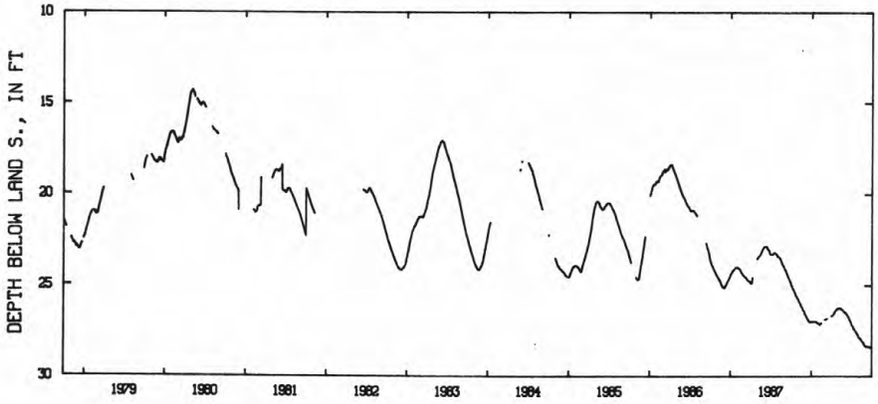
—— 410540081213600 PO-7 CITY OF TALMIDGE NR BRIMFIELD OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

410920081192000. Local number, PO-6.
LOCATION.--Lat 41°09'20", long 81°19'20", Hydrologic Unit 04110002, State Rt 59, east of Kent.
Owner: Testa Bros.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 72 ft, cased.
INSTRUMENTATION.--Type F continuous recorder.
DATUM.--Elevation of land-surface datum is 1040 ft above National Geodetic Vetical Datum of 1929, from topographic map. Measuring point: Top of platform 4.50 ft below land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--April 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 28.41 ft below land-surface datum, Sept. 28-30, 1988; minimum daily low, 14.28 ft below-land surface datum, May 5, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.89	25.73	26.48	26.97	27.09	26.87	26.66	26.25	26.46	27.15	27.79	28.32
2	24.98	25.74	26.57	26.97	27.09	26.86	26.65	26.24	26.49	27.16	27.84	28.31
3	25.00	25.76	26.57	26.97	27.09	26.86	26.65	26.24	26.51	27.19	27.82	28.32
4	25.00	25.78	26.60	26.97	27.09	26.85	26.64	26.23	26.51	27.21	27.84	28.32
5	25.01	25.83	26.61	26.98	27.10	26.85	26.63	26.23	26.51	27.22	27.88	28.36
6	25.03	25.87	26.63	26.99	27.10	26.84	26.63	26.23	26.52	27.23	27.86	28.36
7	25.07	25.88	26.65	26.99	27.10	26.83	26.60	26.23	26.53	27.25	27.87	28.35
8	25.13	25.91	26.67	26.99	27.13	26.83	26.60	26.23	26.55	27.26	27.89	28.35
9	25.16	25.95	26.71	26.99	27.13	26.81	26.59	26.25	26.59	27.27	27.90	28.35
10	25.18	25.97	26.71	26.99	27.10	26.81	26.59	26.25	26.60	27.35	27.92	28.35
11	25.20	25.99	26.73	26.99	27.10	26.81	26.58	26.25	26.61	27.35	27.94	28.35
12	25.22	26.00	26.78	26.99	27.07	26.80	26.50	26.25	26.64	27.37	27.95	28.35
13	25.26	26.03	26.81	26.99	27.07	---	26.49	26.27	26.66	27.39	27.96	28.36
14	25.27	26.06	26.83	26.99	27.07	---	26.47	26.27	26.68	27.40	27.98	28.36
15	25.30	26.10	26.84	26.97	27.06	---	26.46	26.27	26.69	27.42	28.01	28.36
16	25.32	26.12	26.88	26.98	---	---	26.46	26.30	26.71	27.44	28.04	28.36
17	25.36	26.14	26.90	26.97	---	---	26.42	26.30	26.73	27.47	28.04	28.36
18	25.37	26.17	26.90	26.99	---	---	26.38	26.31	26.77	27.48	28.05	28.36
19	25.40	26.17	26.92	26.99	---	---	26.37	26.31	26.79	27.50	28.07	28.36
20	25.43	26.22	26.95	26.99	---	---	26.37	26.32	26.80	27.52	28.08	28.37
21	25.46	26.25	26.95	26.99	---	---	26.34	26.34	26.86	27.54	28.11	28.39
22	25.50	26.25	26.95	27.00	---	---	26.34	26.35	26.89	27.56	28.13	28.39
23	25.52	26.30	27.00	27.00	---	---	26.33	26.35	26.91	27.59	28.13	28.39
24	25.57	26.34	27.00	27.00	---	---	26.30	26.38	26.92	27.59	28.14	28.40
25	25.57	26.36	27.00	27.00	---	---	26.30	26.41	26.94	27.63	28.16	28.40
26	25.57	26.38	27.00	27.03	---	---	26.28	26.42	26.98	27.64	28.19	28.40
27	25.62	26.39	27.00	27.05	---	---	26.27	26.42	27.00	27.65	28.21	28.40
28	25.63	26.40	27.00	27.05	---	---	26.27	26.43	27.01	27.70	28.25	28.41
29	25.65	26.42	27.00	27.05	---	---	26.26	26.44	27.04	27.70	28.25	28.41
30	25.70	26.44	27.00	27.05	---	---	26.25	26.45	27.06	27.73	28.29	28.41
31	25.72	---	26.99	27.05	---	26.66	---	26.45	---	27.75	28.30	---
MAX	25.72	26.44	27.00	27.05	27.13	26.87	26.66	26.45	27.06	27.75	28.30	28.41

CAL YR 1987 LOW 27.00
WTR YR 1988 LOW 28.41



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

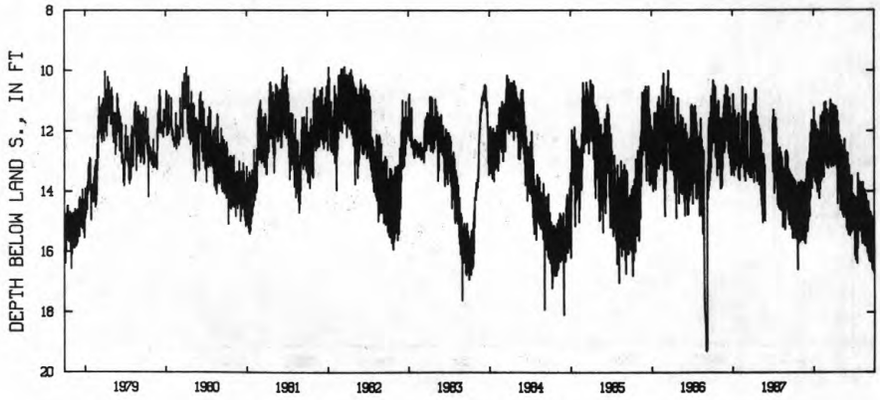
PUTNAM COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.57	15.07	13.20	13.14	13.31	12.77	13.17	13.08	15.28	14.71	14.07	16.04
2	15.32	15.65	15.29	13.19	13.37	12.77	11.15	14.62	14.28	14.91	15.11	14.36
3	13.77	15.45	13.04	13.29	11.84	11.30	12.84	13.74	14.06	14.98	13.72	15.95
4	15.54	15.56	14.66	11.23	11.51	13.21	12.65	14.23	12.74	14.17	15.24	14.34
5	13.74	13.67	15.32	13.12	13.36	11.44	12.96	12.32	14.67	16.12	13.74	16.16
6	15.14	15.60	15.05	13.43	11.55	12.99	12.02	14.37	13.89	15.86	15.51	14.58
7	13.64	13.72	14.64	13.33	13.63	13.04	12.61	14.60	15.43	16.14	15.24	16.26
8	15.52	15.54	14.97	11.67	13.34	13.24	12.44	14.64	13.28	15.30	15.71	14.70
9	13.73	15.10	12.94	13.66	13.53	12.77	13.12	13.88	14.89	16.26	14.61	16.31
10	15.37	15.52	14.17	11.73	13.25	13.13	12.46	14.25	13.15	15.78	15.43	14.81
11	13.69	15.11	14.08	13.71	13.28	12.66	12.81	12.49	15.15	15.31	13.70	16.25
12	15.43	15.60	14.41	11.79	11.39	12.79	11.19	14.78	14.71	15.57	15.42	16.27
13	14.61	13.70	14.09	13.61	13.48	12.55	13.12	13.25	15.45	16.03	14.06	16.26
14	15.54	15.58	14.82	12.09	13.30	12.87	12.70	14.64	14.79	14.21	15.32	14.69
15	13.84	15.31	12.72	13.73	13.51	12.46	12.90	12.59	15.39	16.38	13.95	16.23
16	15.56	15.54	14.26	11.97	13.38	12.97	11.35	14.86	13.65	15.77	15.46	16.34
17	15.23	15.38	12.41	13.80	13.52	11.25	13.25	12.61	14.94	15.65	13.94	16.29
18	15.54	15.46	14.19	13.17	11.79	12.88	11.34	14.70	13.51	15.88	15.78	14.83
19	15.58	13.74	12.08	14.02	12.68	10.97	13.13	14.01	14.87	15.40	13.96	16.34
20	13.82	15.66	13.70	13.43	11.08	12.99	14.41	13.90	13.75	13.41	15.68	14.99
21	16.58	13.81	13.59	13.53	12.99	12.62	13.38	12.28	15.33	14.94	15.44	16.55
22	14.07	15.57	13.62	11.97	12.18	13.20	13.66	14.43	13.50	14.77	15.54	14.84
23	15.56	13.88	12.03	13.94	12.87	12.59	11.68	13.93	15.29	14.81	15.81	16.59
24	14.95	15.73	13.72	12.08	11.50	12.76	13.67	14.11	14.66	13.68	15.35	15.03
25	15.72	14.64	11.64	13.77	13.05	11.12	13.28	12.66	15.24	14.86	14.12	16.23
26	13.71	15.51	13.90	12.20	11.04	12.89	13.75	14.69	14.99	14.31	15.60	16.47
27	15.48	13.61	13.03	14.24	12.99	12.67	12.14	14.89	15.16	15.04	14.28	16.65
28	14.96	15.25	13.38	12.45	12.84	13.07	13.56	14.84	14.10	13.70	15.81	15.09
29	15.13	14.57	13.54	13.77	13.14	11.26	12.15	13.02	15.27	15.31	14.34	16.69
30	13.76	14.91	12.91	12.16	---	13.00	14.05	15.20	14.70	13.74	15.74	15.01
31	15.55	---	12.09	13.92	---	12.57	---	13.01	---	14.86	15.95	---
MAX	16.58	15.73	15.32	14.24	13.63	13.24	14.41	15.20	15.45	16.38	15.95	16.69

CAL YR 1987 LOW 16.58
WTR YR 1988 LOW 16.69



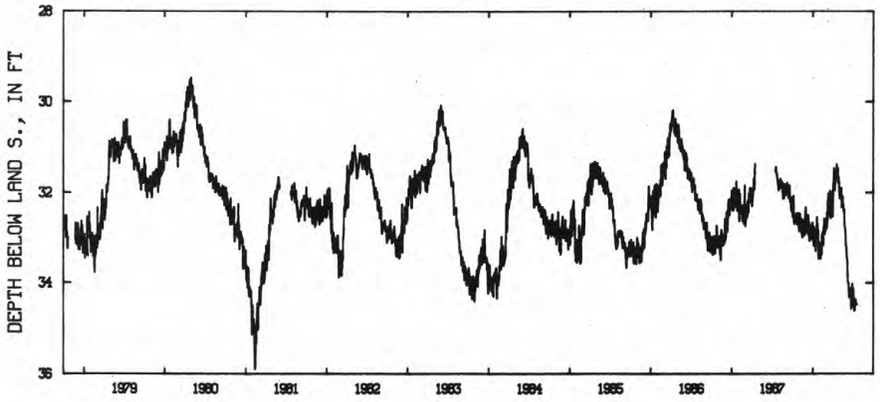
—— 405505084032900 PU-1
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.13	32.81	32.38	32.95	33.11	32.81	32.21	32.05	33.18	34.14	---	---
2	32.24	32.69	32.58	32.97	33.37	32.57	32.03	32.13	33.21	34.12	---	---
3	32.54	32.60	32.55	32.84	33.27	32.59	31.79	32.09	33.33	34.17	---	---
4	32.45	32.46	32.65	32.75	33.25	32.66	31.84	31.93	33.44	34.39	---	---
5	32.22	32.67	32.80	32.99	33.34	32.77	31.84	31.92	33.45	34.48	---	---
6	32.07	32.67	32.89	33.18	33.47	32.44	31.46	32.05	33.50	34.58	---	---
7	32.31	32.68	32.86	33.18	33.25	32.62	31.80	32.09	33.54	34.61	---	---
8	32.59	32.58	32.79	32.85	33.36	32.51	31.94	31.99	33.79	34.60	---	---
9	32.59	32.85	32.62	33.00	33.32	32.17	31.95	31.90	33.96	34.52	---	---
10	32.69	32.87	32.60	33.08	33.38	32.35	31.79	32.11	34.01	34.45	---	---
11	32.60	32.86	32.49	32.95	33.17	32.40	31.69	32.32	34.01	34.36	---	---
12	32.52	32.70	32.51	32.80	32.93	32.02	31.64	32.26	34.01	34.37	---	---
13	32.63	32.59	32.94	33.18	33.16	32.15	31.61	32.25	34.27	34.39	---	---
14	32.59	32.95	32.94	33.30	33.01	32.09	31.59	32.25	34.32	34.42	---	---
15	32.57	32.99	32.65	33.02	32.87	32.34	31.64	32.09	34.31	34.48	---	---
16	32.52	32.97	32.77	32.85	33.08	32.44	31.69	32.08	34.26	34.45	---	---
17	32.47	32.71	33.07	32.80	33.14	32.51	31.56	32.27	34.12	34.48	---	---
18	32.47	32.97	33.05	33.02	33.17	32.18	31.37	32.24	34.15	34.47	---	---
19	32.47	32.94	32.77	32.94	32.78	31.96	31.56	32.25	34.21	---	---	---
20	32.47	32.62	32.73	32.54	32.80	32.30	31.51	32.35	34.24	---	---	---
21	32.62	32.88	32.77	32.88	32.86	32.56	31.56	32.41	34.24	---	---	---
22	32.69	32.81	32.73	32.84	32.57	32.52	31.55	32.41	34.22	---	---	---
23	32.58	32.70	32.88	32.69	32.90	32.17	31.46	32.37	34.57	---	---	---
24	32.52	32.93	32.75	32.87	32.89	32.25	31.76	32.63	34.51	---	---	---
25	32.71	32.77	32.73	32.83	32.92	32.00	31.78	32.74	34.39	---	---	---
26	32.65	32.94	32.93	33.14	32.77	32.00	31.72	32.77	34.23	---	---	---
27	32.45	32.87	32.84	33.39	32.84	32.23	31.66	32.79	34.17	---	---	---
28	32.52	32.70	32.76	33.47	32.69	32.31	31.77	32.85	34.09	---	---	---
29	32.61	32.46	33.05	33.36	32.74	32.01	31.79	32.92	34.02	---	---	---
30	32.60	32.32	33.05	33.18	---	32.53	31.98	33.08	34.12	---	---	---
31	32.85	---	32.66	33.12	---	32.52	---	33.20	---	---	---	---
MAX	32.85	32.99	33.07	33.47	33.47	32.81	32.21	33.20	34.57	34.61	---	---

CAL YR 1987 LOW 33.07
WTR YR 1988 LOW 34.61



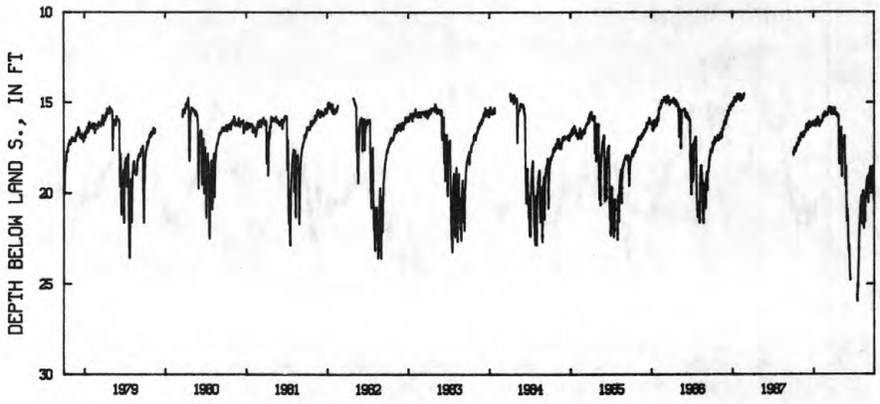
—— 405753082360800 R-3
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

411914083045300. Local number, S-3.
LOCATION.--Lat 41°19'14", long 83°04'53", Hydrologic Unit 04100011, 2.6 mi southeast of Fremont Post Office.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled test artesian well, diameter 12 in., depth 121 ft, cased to 93 ft.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 627 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.
PERIOD OF RECORD.--December 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 25.97 ft below land-surface datum, July 17, 1988; minimum daily low, 14.02 ft below land-surface datum, Mar. 24, 1975.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.80	17.06	16.22	16.27	16.07	15.73	15.60	16.71	21.04	---	20.52	19.08
2	17.71	17.01	16.35	16.26	16.17	15.59	15.56	17.09	20.88	---	20.38	19.83
3	17.90	16.85	16.31	16.19	16.16	15.61	15.46	16.75	21.36	---	20.27	20.42
4	17.84	16.71	16.36	16.14	16.03	15.59	15.49	16.49	21.40	---	20.13	20.52
5	17.66	16.86	16.44	16.21	16.05	15.71	15.50	16.37	22.02	---	20.94	19.55
6	17.50	16.88	16.52	16.27	16.10	15.57	15.30	17.00	22.53	---	21.36	19.41
7	17.58	16.84	16.54	16.31	16.07	15.58	15.53	18.28	22.88	---	21.71	19.22
8	17.71	16.75	16.40	16.05	16.03	15.53	15.64	18.91	23.15	---	20.89	19.02
9	17.69	16.84	16.20	16.12	15.91	15.33	15.69	19.08	23.18	---	20.38	18.88
10	17.72	16.88	16.22	16.21	16.02	15.43	15.62	18.13	22.85	---	20.12	18.88
11	17.67	16.83	16.10	16.13	15.92	15.44	15.61	17.71	23.48	---	19.96	18.84
12	17.57	16.69	16.07	15.96	15.68	15.25	15.58	17.50	23.92	---	19.88	18.75
13	17.59	16.66	16.33	16.25	15.81	15.33	15.63	17.23	24.39	---	20.91	18.56
14	17.61	16.83	16.37	16.32	15.78	15.33	15.62	17.22	24.63	---	21.58	19.32
15	17.54	16.92	16.12	16.16	15.68	15.45	15.69	17.10	24.77	25.62	21.94	19.79
16	17.47	16.89	16.20	16.04	15.74	15.50	15.78	16.97	---	25.92	21.39	19.23
17	17.31	16.67	16.38	16.02	15.78	15.55	15.66	17.06	---	25.97	21.41	18.80
18	17.38	16.84	16.35	16.18	15.82	15.45	15.63	17.01	---	25.09	21.61	19.57
19	17.32	16.83	16.18	16.17	15.67	15.32	15.73	16.88	---	24.94	21.33	19.99
20	17.23	16.63	16.15	15.81	15.56	15.50	15.72	16.84	---	25.26	21.58	19.16
21	17.33	16.72	16.15	16.01	15.70	15.66	15.75	16.86	---	24.53	20.80	18.99
22	17.34	16.71	16.13	16.05	15.52	15.67	15.82	18.26	---	23.76	20.42	18.81
23	17.29	16.60	16.17	15.89	15.66	15.43	15.71	19.11	---	23.09	20.05	18.54
24	17.32	16.69	16.15	16.01	15.69	15.44	15.92	19.56	---	22.62	19.92	18.56
25	17.36	16.62	16.11	15.99	15.74	15.30	17.18	19.12	---	22.26	20.29	18.55
26	17.26	16.65	16.24	16.16	15.71	15.34	18.06	18.49	---	21.86	19.77	19.40
27	16.95	16.61	16.19	16.30	15.74	15.52	18.39	18.58	---	21.60	19.60	19.76
28	17.02	16.45	16.09	16.33	15.71	15.57	17.63	19.89	---	21.37	19.41	20.13
29	16.99	16.27	16.30	16.26	15.69	15.43	17.06	20.60	---	21.17	19.29	20.45
30	16.94	16.20	16.26	16.07	---	15.66	16.81	21.27	---	20.95	19.20	19.92
31	17.13	---	16.06	16.05	---	15.66	---	21.54	---	20.67	19.12	---
MAX	17.90	17.06	16.54	16.33	16.17	15.73	18.39	21.54	24.77	25.97	21.94	20.52

CAL YR 1987 LOW 17.90
WTR YR 1988 LOW 25.97



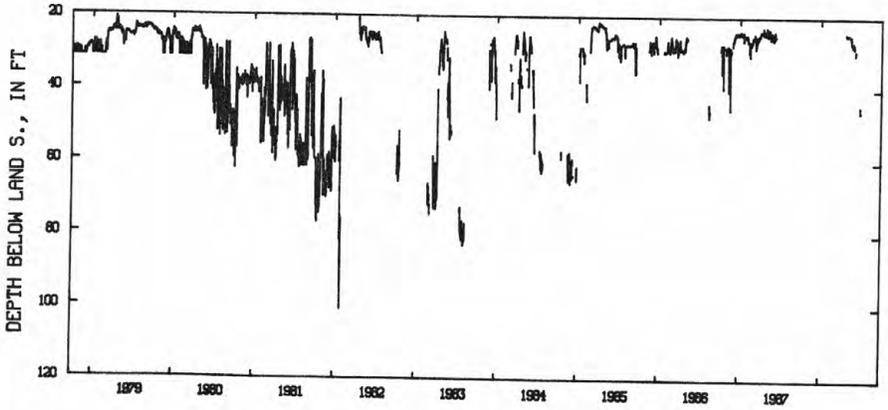
—— 411914083045300 S-3 H KEISER COLE RD SE OF FREMONT OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	24.65	---	---	---	---
2	---	---	---	---	---	---	---	24.70	---	---	---	---
3	---	---	---	---	---	---	---	24.83	30.03	---	---	---
4	---	---	---	---	---	---	---	24.73	29.00	---	---	---
5	---	---	---	---	---	---	---	24.67	---	---	---	---
6	---	---	---	---	---	---	---	24.70	---	---	---	---
7	---	---	---	---	---	---	---	24.67	---	---	---	---
8	---	---	---	---	---	---	---	24.61	---	---	---	---
9	---	---	---	---	---	---	---	24.84	37.49	---	---	---
10	---	---	---	---	---	---	---	24.99	---	---	---	---
11	---	---	---	---	---	---	---	25.00	30.60	---	---	---
12	---	---	---	---	---	---	---	24.91	---	---	---	---
13	---	---	---	---	---	---	---	25.01	---	---	---	---
14	---	---	---	---	---	---	---	25.72	41.65	---	---	---
15	---	---	---	---	---	---	---	25.56	---	---	---	---
16	---	---	---	---	---	---	---	26.97	---	---	---	---
17	---	---	---	---	---	---	---	26.96	---	---	---	---
18	---	---	---	---	---	---	---	27.13	---	---	---	---
19	---	---	---	---	---	---	---	27.16	---	---	---	---
20	---	---	---	---	---	---	---	27.09	---	---	---	---
21	---	---	---	---	---	---	24.25	27.82	---	---	---	---
22	---	---	---	---	---	---	24.35	27.62	41.89	---	---	---
23	---	---	---	---	---	---	24.57	27.15	---	---	---	---
24	---	---	---	---	---	---	24.84	26.69	---	---	---	---
25	---	---	---	---	---	---	24.66	27.00	---	---	---	---
26	---	---	---	---	---	---	24.54	27.03	44.40	---	---	---
27	---	---	---	---	---	---	24.46	27.14	45.98	---	---	---
28	---	---	---	---	---	---	24.78	27.62	45.79	---	---	---
29	---	---	---	---	---	---	24.52	28.30	---	---	---	---
30	---	---	---	---	---	---	24.59	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	24.84	28.30	45.98	---	---	---

CAL YR 1987 LOW 30.68
WTR YR 1988 LOW 45.98



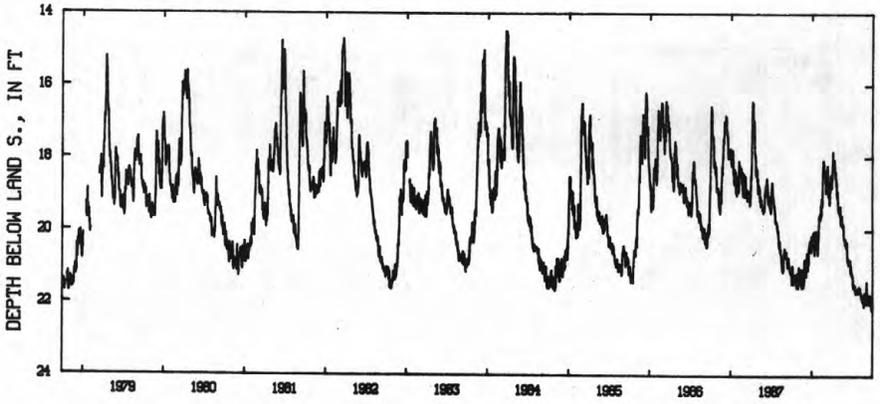
412703083213600 S-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

410802083093900. Local number, SE-2.
LOCATION.--Lat 41°08'02", long 83°09'39", Hydrologic Unit 04100011, Tiffin State Hospital, Tiffin.
Owner: State of Ohio.
AQUIFER.--Limestone of Silurian Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 250 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 740 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 0.50 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--July 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 23.76 ft below land-surface datum, Nov. 22, 1964; minimum daily low, 14.48 ft below land-surface datum, Mar. 22, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.15	21.45	20.99	20.40	20.09	18.64	18.64	19.44	20.23	21.25	21.53	21.89
2	21.22	21.35	21.15	20.40	19.91	18.57	18.58	19.49	20.32	21.25	21.62	21.81
3	21.46	21.15	21.10	20.25	19.88	18.61	18.37	19.46	20.35	21.24	21.65	21.64
4	21.38	21.00	21.19	20.22	19.59	18.84	18.26	19.34	20.44	21.40	21.64	21.40
5	21.09	21.39	21.24	20.32	19.68	18.96	18.17	19.39	20.39	21.54	21.57	21.68
6	20.96	21.40	21.25	20.36	19.72	18.78	17.82	19.50	20.37	21.55	21.63	21.84
7	21.24	21.32	21.24	20.43	19.72	18.84	18.16	19.56	20.30	21.52	21.68	21.89
8	21.43	21.22	21.00	20.05	19.63	18.80	18.30	19.48	20.40	21.52	21.70	21.80
9	21.42	21.44	20.77	20.23	19.52	18.31	18.29	19.33	20.66	21.46	21.69	21.76
10	21.46	21.45	20.81	20.33	19.65	18.44	18.15	19.61	20.82	21.50	21.78	21.91
11	21.41	21.37	20.61	20.23	19.58	18.51	18.04	19.82	20.79	21.53	21.82	21.96
12	21.26	21.16	20.72	20.03	19.28	18.21	18.06	19.77	20.75	21.59	21.84	21.88
13	21.31	21.06	21.07	20.57	19.57	18.47	18.13	19.75	20.87	21.56	21.84	21.76
14	21.35	21.38	21.07	20.65	19.56	18.54	18.27	19.84	20.93	21.51	21.77	21.85
15	21.31	21.51	20.60	20.39	19.11	18.84	18.44	19.68	20.82	21.67	21.86	22.00
16	21.24	21.36	20.79	20.18	19.29	19.00	18.53	19.58	20.82	21.58	21.94	21.99
17	21.20	21.07	20.92	20.18	19.33	19.05	18.42	19.84	20.79	21.71	21.83	21.78
18	21.28	21.57	20.88	20.50	19.31	18.90	18.37	19.88	20.84	21.68	21.89	21.79
19	21.20	21.53	20.50	20.48	19.00	18.67	18.58	19.78	20.84	21.70	21.86	21.76
20	21.23	21.36	20.49	20.01	18.36	19.04	18.59	19.82	20.84	21.71	21.78	21.80
21	21.45	21.48	20.50	20.31	18.43	19.27	18.68	19.82	20.87	21.62	21.97	22.01
22	21.45	21.46	20.37	20.32	18.08	19.22	18.76	19.84	20.80	21.67	22.07	21.88
23	21.44	21.41	20.40	20.03	18.07	18.85	18.67	19.85	21.08	21.65	21.86	21.88
24	21.55	21.54	20.35	20.22	18.07	18.90	19.03	20.04	21.13	21.64	21.75	22.02
25	21.56	21.40	20.28	20.23	18.19	18.68	19.08	20.20	20.95	21.62	21.70	22.13
26	21.37	21.46	20.46	20.47	18.18	18.48	18.97	20.22	21.07	21.58	21.91	22.17
27	21.17	21.36	20.42	20.65	18.41	18.71	18.92	20.21	21.19	21.65	21.92	22.11
28	21.22	21.13	20.26	20.65	18.39	18.78	19.17	20.20	21.11	21.70	21.98	22.15
29	21.27	20.87	20.58	20.59	18.51	18.46	19.22	20.24	21.19	21.70	21.93	22.14
30	21.32	20.79	20.54	20.24	---	18.82	19.36	20.34	21.17	21.55	21.87	22.08
31	21.56	---	20.14	20.22	---	18.80	---	20.37	---	21.59	21.84	---
MAX	21.56	21.57	21.25	20.65	20.09	19.27	19.36	20.37	21.19	21.71	22.07	22.17

CAL YR 1987 LOW 21.57
WTR YR 1988 LOW 22.17



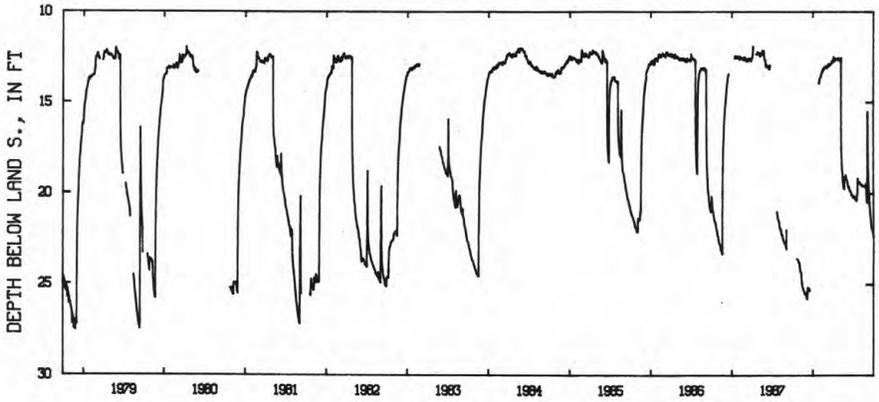
410802083093900 SE-2
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

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, 11.92 ft below land-surface datum, April 7, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.79	25.59	---	13.71	13.01	12.75	12.64	19.15	20.20	19.37	20.36
2	---	23.93	25.63	---	13.67	13.00	12.72	12.58	19.18	20.21	19.43	20.49
3	---	24.07	25.67	---	13.59	13.01	12.62	12.59	19.27	20.18	19.50	19.56
4	---	24.16	25.72	---	13.59	13.10	12.49	12.69	19.30	20.12	19.52	15.77
5	---	24.25	25.78	---	13.59	13.10	12.54	12.62	19.30	20.16	19.53	15.50
6	---	24.30	25.78	---	13.59	12.99	12.59	12.69	19.34	20.20	19.52	17.90
7	---	24.33	25.48	---	13.55	12.95	12.68	12.59	19.42	20.25	19.50	18.76
8	---	24.32	25.17	---	13.41	12.95	12.70	12.53	19.53	20.27	19.49	19.27
9	---	24.33	25.20	---	13.40	12.98	12.68	16.42	19.59	20.27	19.53	19.58
10	---	24.52	25.22	---	13.40	13.01	12.61	17.39	19.65	20.22	19.55	19.87
11	---	24.71	25.24	---	13.34	13.01	12.57	17.94	19.66	20.18	19.58	20.01
12	---	24.86	25.24	---	13.29	12.96	12.59	18.29	19.62	20.25	19.61	20.19
13	---	24.98	25.22	---	13.30	12.90	12.60	18.55	19.67	20.31	19.61	20.49
14	---	25.07	25.20	---	13.28	12.86	12.63	18.74	19.75	20.36	19.59	20.74
15	---	25.10	25.29	---	13.16	12.93	12.63	18.83	19.78	20.38	19.55	20.96
16	---	25.13	25.33	---	13.19	12.95	12.63	19.05	19.81	20.40	19.57	21.15
17	---	25.20	25.31	---	13.21	12.95	12.58	19.20	19.88	20.39	19.58	21.28
18	---	25.28	25.31	---	13.21	12.93	12.57	19.36	19.88	20.32	19.60	21.33
19	---	25.26	---	---	13.18	12.87	12.62	19.52	19.88	20.05	19.60	21.47
20	---	25.31	---	---	13.14	12.86	12.62	19.65	19.88	20.05	19.58	21.66
21	23.58	25.36	---	---	13.13	12.88	12.60	19.73	19.89	20.07	19.57	21.80
22	23.61	25.37	---	---	13.04	12.88	12.62	19.75	19.92	19.17	19.58	21.93
23	23.62	25.39	---	---	13.10	12.85	12.61	19.76	20.01	19.31	19.58	21.97
24	23.63	25.44	---	---	13.10	12.85	12.57	19.24	20.07	19.32	19.57	21.95
25	23.62	25.51	---	---	13.03	12.83	12.54	19.11	20.09	19.36	19.63	21.95
26	23.63	25.53	---	---	13.02	12.74	12.56	19.11	20.09	19.41	19.67	21.99
27	23.68	25.52	---	---	13.09	12.72	12.59	19.13	20.07	19.43	19.67	22.09
28	23.72	25.48	---	13.94	13.04	12.70	12.64	19.12	20.11	19.39	19.66	22.20
29	23.77	25.46	---	13.94	12.98	12.68	12.68	19.07	20.15	19.41	19.46	22.31
30	23.80	25.52	---	13.85	---	12.77	12.68	18.99	20.17	19.42	19.60	22.38
31	23.80	---	---	13.80	---	12.76	---	19.07	---	19.42	19.95	---
MAX	23.80	25.53	25.78	13.94	13.71	13.10	12.75	19.76	20.17	20.40	19.95	22.38

CAL YR 1987 LOW 25.78
WTR YR 1988 LOW 25.78



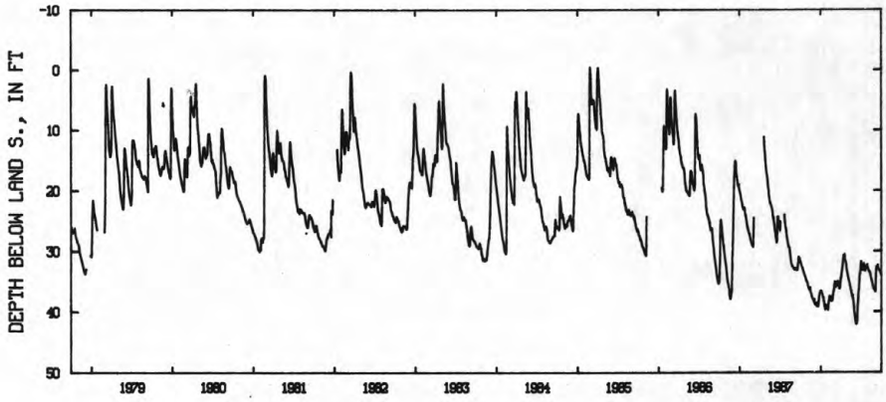
410330081282000 SU-6
MAXIMUM DAILY DEPTH BELOW LAND S. (FT)

410846081271600. Local number, SU-7.
LOCATION.--Lat 41°08'46", long 81°27'16", Hydrologic Unit 04110002, Monroe Falls Road, Cuyahoga Falls.
Owner: Cuyahoga Falls Water Department.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table, diameter 6 in., depth 100 ft, cased.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 994 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Floor of instrument shelter 5.00 ft above land-surface datum.
REMARKS.--Station operated by Ohio Department of Natural Resources, Division of Water.
PERIOD OF RECORD.--August 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Maximum daily low, 44.19 ft below land-surface datum, Sept. 7, 1971; minimum daily low, 0.45 ft above land-surface datum, Feb. 27, 1985.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31.69	35.22	38.38	36.58	39.54	36.25	34.56	33.69	40.06	31.75	32.97	36.43
2	31.93	35.27	38.36	36.51	39.69	35.56	34.35	34.03	40.16	31.78	33.03	36.64
3	31.94	35.56	37.93	36.68	39.73	35.90	34.14	34.15	40.64	32.32	33.09	36.71
4	32.02	35.71	38.62	36.69	39.44	35.76	33.72	34.32	40.51	32.70	33.18	36.67
5	32.23	35.86	38.69	36.70	38.71	35.07	33.49	34.47	41.16	33.05	33.33	35.45
6	32.32	35.95	38.67	36.93	38.67	35.70	33.19	34.68	41.50	33.17	33.33	34.20
7	32.52	35.99	38.75	37.01	38.19	35.80	32.95	34.75	41.75	33.12	33.30	33.30
8	32.68	35.94	38.82	37.13	38.01	35.81	32.66	34.93	41.91	33.14	33.33	32.71
9	32.69	36.23	38.79	37.32	37.46	35.92	32.30	35.06	42.05	33.13	33.60	32.57
10	32.79	36.29	38.93	37.48	37.87	35.85	31.92	35.17	42.11	32.98	33.60	32.55
11	32.92	36.40	38.66	37.57	37.81	35.74	31.58	35.38	41.98	32.73	33.56	32.67
12	33.02	36.48	38.92	37.80	37.97	35.75	31.41	35.58	41.98	32.39	33.82	32.85
13	33.17	36.37	39.05	37.84	37.98	35.69	30.86	35.83	41.71	32.23	34.09	32.90
14	33.32	36.39	38.56	37.72	38.06	35.07	30.67	35.96	41.49	32.04	34.21	32.98
15	33.46	36.00	38.54	38.23	37.51	35.04	30.67	36.13	40.44	32.36	34.52	32.30
16	33.47	36.73	39.06	38.43	38.04	35.59	31.12	36.32	38.82	32.80	34.64	32.98
17	33.61	36.91	38.98	38.71	38.16	35.61	31.14	36.50	38.62	33.09	34.75	33.02
18	33.71	36.98	39.12	39.08	38.28	35.53	30.54	36.63	38.19	33.25	34.88	33.06
19	33.83	37.20	39.17	39.15	38.17	35.04	31.20	36.49	37.47	33.31	34.98	33.06
20	33.86	37.37	39.03	38.83	38.24	35.55	31.42	36.96	36.57	33.27	35.13	33.17
21	34.07	37.43	38.81	39.64	38.17	35.76	31.59	37.18	36.56	33.11	35.33	33.19
22	34.17	37.59	38.52	39.50	38.15	35.72	31.68	37.40	36.03	32.82	35.60	33.21
23	34.23	37.64	38.32	39.55	38.07	35.84	31.82	37.58	35.39	32.71	35.71	33.37
24	34.32	37.74	37.84	38.89	37.74	36.17	31.91	37.65	34.72	32.61	35.84	33.44
25	34.48	37.81	37.39	39.30	37.40	35.97	32.13	37.26	34.03	32.48	35.91	33.54
26	34.63	37.91	37.38	39.23	37.21	36.13	32.30	37.93	33.76	32.39	36.09	33.60
27	34.74	37.98	36.97	39.22	36.88	36.13	32.81	37.91	33.78	32.39	36.20	33.73
28	34.90	38.05	36.94	39.06	36.75	35.89	33.10	38.32	33.62	32.34	36.34	33.73
29	34.98	38.11	36.79	39.25	36.50	35.31	33.17	38.65	33.14	32.24	36.32	33.85
30	35.13	38.26	36.62	39.37	---	35.02	33.49	39.04	32.44	32.55	36.28	33.96
31	35.18	---	36.57	39.53	---	34.44	---	39.20	---	32.71	36.26	---
MAX	35.18	38.26	39.17	39.64	39.73	36.25	34.56	39.20	42.11	33.31	36.34	36.71

CAL YR 1987 LOW 39.17
WTR YR 1988 LOW 42.11



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

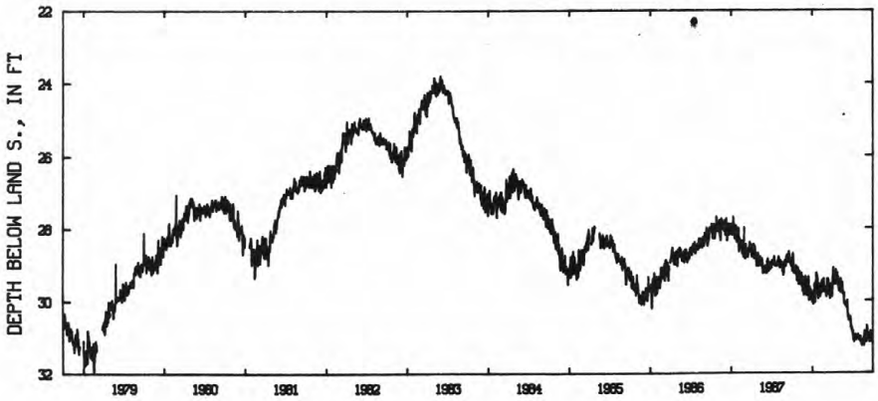
VAN WERT COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.90	29.55	29.35	30.05	29.55	29.80	29.70	29.70	---	30.90	31.00	31.15
2	29.00	29.50	29.50	30.05	29.75	29.65	29.60	29.75	---	30.90	31.05	31.00
3	29.20	29.35	29.50	29.90	29.75	29.65	29.35	29.70	30.10	30.85	31.10	30.95
4	29.15	29.20	29.70	29.90	29.70	29.80	29.35	29.60	30.20	31.00	31.10	30.70
5	28.90	29.40	29.80	30.05	29.85	29.90	29.30	29.60	30.15	31.10	31.00	30.80
6	28.70	29.50	29.85	30.10	29.90	29.75	29.10	29.60	30.15	31.10	31.05	30.95
7	28.95	29.40	29.85	30.10	29.85	29.70	29.35	29.65	30.05	31.10	31.15	31.05
8	29.10	29.30	29.70	29.75	29.80	29.70	29.50	29.60	30.00	31.15	31.15	30.95
9	29.20	29.55	29.55	29.85	29.75	29.40	29.55	29.40	30.20	31.00	31.10	30.90
10	29.25	29.55	29.55	29.95	29.80	29.50	29.50	29.50	30.45	31.00	31.20	31.05
11	29.25	29.55	29.40	29.80	29.80	29.55	29.40	29.80	30.45	31.00	31.20	31.00
12	29.15	29.40	29.50	29.55	29.50	29.40	29.35	29.75	30.40	31.05	31.25	31.05
13	29.20	29.25	29.80	29.95	29.65	29.40	29.35	29.65	30.45	31.05	31.15	30.95
14	29.25	29.50	29.85	30.05	29.65	29.45	29.30	29.75	30.55	30.95	31.10	31.05
15	29.20	29.60	29.35	29.80	29.45	29.55	29.45	29.65	30.50	31.05	31.15	31.15
16	29.15	29.55	29.75	29.60	29.55	29.75	29.55	29.50	30.50	31.00	31.15	31.15
17	29.10	29.35	30.00	29.50	29.70	29.85	29.40	29.65	30.50	31.10	31.10	31.00
18	29.15	29.75	29.95	29.65	29.75	29.80	29.15	29.80	30.50	31.05	31.10	30.95
19	29.05	29.75	29.75	29.65	29.55	29.55	29.30	29.75	30.50	31.00	31.05	30.90
20	29.05	29.55	29.75	29.25	29.50	29.75	29.30	29.80	30.50	31.05	31.05	30.85
21	29.25	29.70	29.75	29.50	29.60	29.95	29.35	29.85	30.45	31.00	31.15	31.05
22	29.30	29.70	29.65	29.50	29.40	29.95	29.30	29.85	30.45	31.05	31.25	31.00
23	29.30	29.60	29.80	29.30	29.60	29.85	29.25	29.80	30.60	31.00	31.10	30.90
24	29.45	29.85	29.70	29.45	29.65	29.65	29.40	29.80	30.75	31.00	30.95	30.95
25	29.45	29.70	29.70	29.40	29.75	29.60	29.45	30.10	30.70	30.95	30.85	31.05
26	29.30	29.80	29.90	29.70	29.70	29.55	29.35	30.10	30.70	30.95	31.00	31.15
27	29.10	29.80	29.90	29.85	29.75	29.70	29.35	30.10	30.80	31.00	31.00	31.05
28	29.15	29.60	29.75	29.95	29.75	29.80	29.55	30.05	30.75	31.05	31.05	31.15
29	29.25	29.35	30.00	29.85	29.70	29.80	29.60	30.05	30.80	31.10	31.05	31.15
30	29.30	29.50	30.00	29.55	---	29.85	29.70	30.10	30.80	31.00	31.10	31.15
31	29.55	---	29.80	29.55	---	29.90	---	30.15	---	31.00	31.10	---
MAX	29.55	29.85	30.00	30.10	29.90	29.95	29.70	30.15	30.80	31.15	31.25	31.15

CAL YR 1987 LOW 30.00
WTR YR 1988 LOW 31.25



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

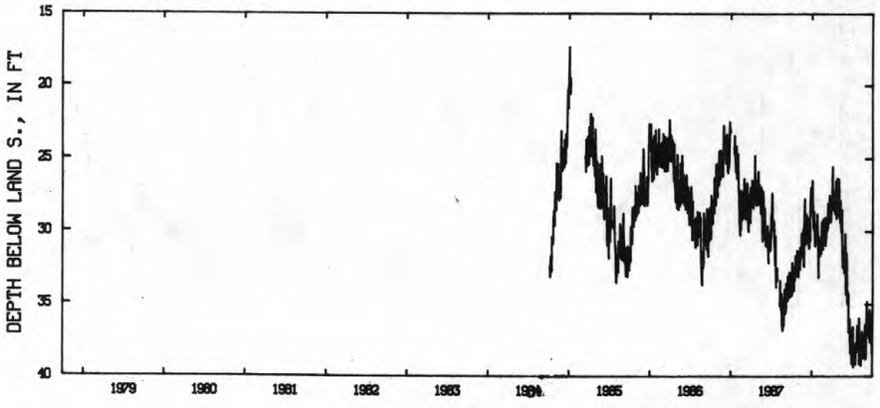
WILLIAMS COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.20	31.35	29.75	27.15	30.70	30.95	27.30	26.40	33.75	39.15	35.95	38.65
2	33.90	32.35	30.10	26.80	30.90	30.60	26.35	27.20	34.30	38.40	37.30	38.35
3	32.15	32.35	30.25	26.50	30.70	30.20	25.55	28.70	33.30	37.10	39.15	36.80
4	32.15	32.35	30.85	28.20	31.35	30.45	27.45	29.05	33.15	36.55	39.15	35.50
5	33.65	32.45	29.35	28.85	31.65	29.05	27.65	28.70	31.45	37.10	38.40	34.80
6	34.05	32.60	28.80	29.00	31.00	29.05	27.80	28.65	32.00	38.25	38.20	36.40
7	34.05	32.60	30.55	29.70	30.75	29.85	28.30	29.35	33.45	39.35	---	---
8	34.00	31.10	30.40	29.70	30.65	29.95	28.55	27.85	34.95	---	37.85	---
9	34.05	32.00	30.40	29.85	31.10	29.60	28.55	28.90	34.10	---	38.45	---
10	34.05	31.85	30.50	28.60	31.50	29.80	27.30	29.35	34.80	---	39.25	36.40
11	32.40	31.55	30.25	29.70	30.70	29.70	28.20	29.60	34.80	---	38.15	35.65
12	33.10	31.25	29.00	29.80	30.55	29.70	28.45	29.75	34.45	37.95	38.10	36.25
13	33.35	31.45	29.00	30.05	30.20	28.05	28.30	30.05	34.25	38.55	38.10	36.55
14	33.05	31.65	30.40	30.95	29.35	28.95	28.60	29.00	36.00	38.55	37.60	36.90
15	33.20	30.40	30.15	31.00	29.80	29.35	28.80	28.50	36.95	38.75	36.90	37.10
16	33.15	30.10	30.70	29.90	30.55	29.20	27.25	30.30	36.85	39.20	37.45	37.35
17	33.15	31.45	31.00	29.60	30.70	29.40	27.25	31.35	36.85	38.65	37.65	36.05
18	31.65	31.30	31.15	29.40	31.10	29.15	26.55	31.90	36.35	37.70	38.75	35.35
19	32.50	31.65	31.05	30.15	31.20	28.30	28.20	32.45	36.00	38.15	38.55	35.70
20	32.70	31.50	29.10	29.75	29.15	27.50	29.10	32.45	36.20	38.15	38.20	35.70
21	32.85	31.70	30.20	30.15	29.20	28.70	28.85	31.20	37.45	37.95	37.35	37.65
22	32.75	30.85	30.65	30.15	29.85	29.00	28.20	31.20	37.55	38.30	37.45	36.00
23	32.95	29.80	30.55	29.90	30.55	29.25	26.95	31.00	38.40	38.25	37.45	---
24	32.95	31.55	28.70	28.80	30.15	29.20	26.35	31.80	38.40	37.40	37.85	---
25	31.30	32.40	27.90	29.80	30.50	29.30	27.90	32.20	37.40	36.45	37.55	---
26	31.30	30.00	27.65	30.20	30.55	28.80	28.10	32.85	37.40	37.10	37.70	36.55
27	32.20	29.05	27.00	30.90	29.70	27.90	27.80	32.25	36.70	37.00	37.95	37.20
28	32.45	28.25	28.30	30.25	29.05	28.35	28.25	32.40	38.15	37.15	37.20	37.70
29	33.00	27.75	28.45	32.30	30.25	28.45	28.30	32.00	38.20	37.25	36.40	38.15
30	33.10	29.60	28.50	33.15	---	27.80	27.15	30.15	39.10	37.60	37.85	38.50
31	32.90	---	27.65	30.35	---	28.20	---	31.10	---	37.05	38.80	---
MAX	34.20	32.60	31.15	33.15	31.65	30.95	29.10	32.85	39.10	39.35	39.25	38.65

WTR YR 1988 LOW 39.35



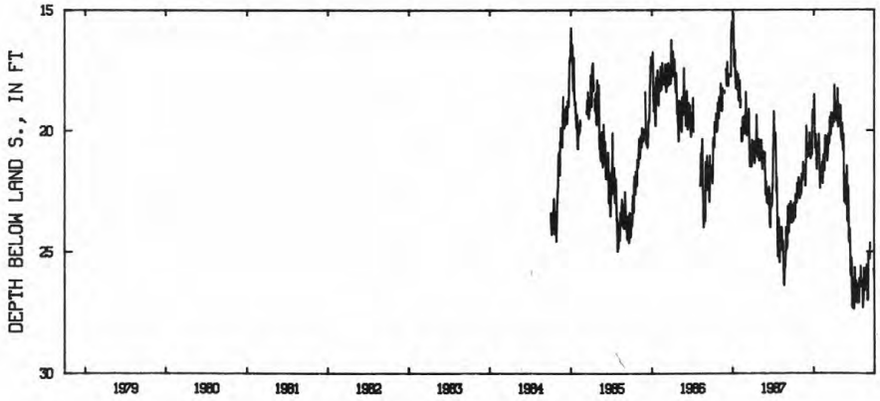
—— 412821084313600 WM-1 CITY OF BRYAN AT BRYAN OH
MAXIMUM DAILY DEPTH BELOW LAND S. (FT), DEPTH TO WATER BL. LSD

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.75	22.10	20.60	19.10	21.55	21.10	19.25	19.15	23.70	27.35	26.00	27.00
2	23.65	22.10	20.85	18.80	21.70	21.25	19.65	18.95	23.75	27.00	26.40	26.95
3	23.70	22.65	20.85	18.50	21.65	21.20	18.10	19.75	23.40	26.20	---	26.15
4	23.15	22.65	21.10	19.30	21.70	20.95	18.40	20.15	23.20	25.65	---	25.05
5	23.00	22.65	21.05	20.05	22.05	20.90	18.60	20.30	22.30	26.00	---	---
6	23.50	22.60	20.55	20.20	22.00	20.30	18.80	20.35	22.75	26.35	---	---
7	23.55	22.45	20.75	20.70	21.50	20.15	19.15	20.40	23.60	27.00	---	---
8	23.60	21.80	21.00	20.65	21.30	20.50	19.30	19.80	24.45	27.05	26.15	---
9	23.60	21.90	20.95	20.70	21.80	20.55	19.20	19.70	24.60	26.90	26.75	---
10	23.60	22.10	21.00	20.15	22.20	20.50	18.80	20.20	24.50	26.80	27.30	25.30
11	22.85	22.05	20.95	20.20	21.95	20.50	18.90	20.55	24.50	26.20	27.10	25.05
12	22.65	21.85	20.80	20.55	21.65	20.40	19.40	20.65	24.05	26.50	26.90	24.65
13	23.00	21.90	20.10	20.80	21.35	19.60	19.50	20.80	24.40	26.65	26.85	---
14	23.00	21.90	20.45	21.35	21.00	19.45	19.55	20.80	24.90	27.05	26.45	---
15	23.00	21.30	20.65	21.60	21.10	20.10	19.60	20.15	25.80	27.10	25.70	---
16	22.95	21.40	20.90	21.45	21.50	20.10	19.60	20.70	25.90	26.85	25.95	---
17	22.95	21.65	21.10	21.00	21.45	20.20	19.00	21.75	26.00	26.60	26.20	---
18	22.20	21.80	21.15	20.50	21.50	20.15	18.25	22.40	25.80	26.35	26.60	---
19	22.25	21.75	21.15	20.85	21.65	19.95	18.75	22.95	25.25	26.50	26.50	---
20	22.45	21.85	20.50	20.80	20.90	19.25	19.60	22.95	25.50	26.65	26.30	---
21	22.55	21.80	20.40	20.90	20.35	19.50	19.85	22.60	26.40	27.00	25.75	---
22	22.55	21.45	20.85	20.90	20.20	19.75	19.80	22.00	26.50	27.10	25.70	---
23	22.65	21.55	21.00	20.75	20.80	19.80	19.60	21.85	27.25	26.80	26.05	---
24	22.55	22.30	21.00	20.15	20.85	19.85	18.90	22.50	27.30	26.20	26.15	---
25	22.00	22.30	20.20	20.45	20.85	19.85	18.95	23.05	26.85	26.10	26.00	---
26	21.95	22.10	19.50	20.90	20.85	19.80	19.35	23.05	26.45	26.15	26.20	---
27	22.40	21.25	19.20	21.65	20.70	19.35	19.35	22.85	26.10	26.20	25.90	---
28	22.40	20.45	19.15	21.60	20.25	19.30	19.50	22.85	27.00	26.30	25.55	25.70
29	22.80	19.80	19.60	21.95	20.35	19.35	19.60	22.35	27.25	26.45	25.80	25.85
30	22.80	20.10	19.65	22.40	---	19.35	19.55	21.45	27.35	26.35	26.55	26.05
31	22.80	---	19.40	22.00	---	19.30	---	22.35	---	25.60	27.00	---
MAX	23.75	22.65	21.15	22.40	22.20	21.25	19.85	23.05	27.35	27.35	27.30	27.00

WTR YR 1988 LOW 27.35



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

413108084415300. Local number, WM-12.
LOCATION.--Lat 41°31'08", long 84°41'53", Hydrologic Unit 04100003, 1.7 mi east of Blakeslee.
Owner: State of Ohio.
AQUIFER.--Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled test artesian well, diameter 10 in., depth 115 ft, cased to 115 ft, screened 85 ft to 115 ft.
INSTRUMENTATION.--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, 1987	10.49	Apr. 21, 1988	8.07

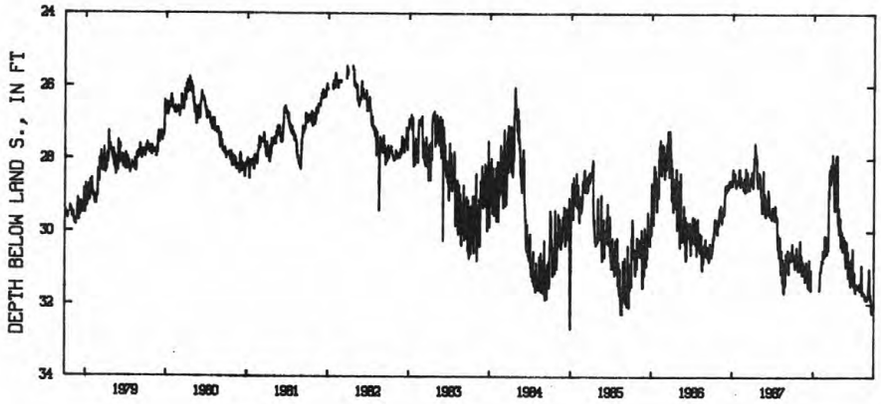
WYANDOT COUNTY

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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.77	30.46	30.96	---	31.10	30.61	28.12	29.61	30.62	31.49	31.46	31.76
2	30.75	30.25	31.10	---	31.12	30.61	28.65	29.93	30.61	31.49	31.41	31.82
3	30.75	30.66	31.10	---	31.12	30.32	28.89	30.39	30.52	31.11	31.49	31.82
4	30.64	30.67	31.22	---	31.05	30.30	29.40	30.40	30.56	31.13	31.50	31.80
5	30.65	30.63	31.22	---	31.03	30.30	29.40	30.38	30.56	31.43	31.01	31.66
6	30.72	30.86	31.04	---	30.93	30.30	29.27	30.10	31.14	31.58	30.92	31.59
7	30.81	30.86	31.39	---	30.92	30.35	29.14	30.10	31.26	31.58	31.46	31.38
8	30.81	30.68	31.53	---	30.79	30.50	29.40	30.00	31.26	31.67	31.73	31.38
9	31.02	30.98	31.54	---	30.79	29.91	29.40	30.12	31.03	31.67	31.73	31.02
10	31.02	31.19	31.30	---	30.84	28.84	28.41	30.28	31.02	31.55	31.71	31.28
11	30.73	31.19	31.30	---	30.85	29.05	27.99	30.48	30.90	31.47	31.71	31.62
12	30.65	31.19	31.19	---	30.85	29.06	27.99	30.53	30.81	31.47	31.65	31.76
13	30.87	31.09	30.78	---	30.60	28.43	27.90	30.48	31.10	31.47	31.73	31.76
14	30.89	30.94	31.51	---	30.51	28.28	27.93	30.30	31.18	31.44	31.73	31.73
15	30.87	30.83	31.58	---	30.56	28.30	27.97	30.12	31.32	31.46	31.72	31.77
16	30.61	31.03	31.57	---	30.71	28.40	27.96	30.13	31.49	31.48	31.72	31.89
17	30.49	31.10	31.58	---	30.71	28.68	27.89	30.29	31.49	31.48	31.72	31.89
18	30.44	31.18	31.58	---	30.68	28.68	28.24	30.25	31.47	31.57	31.72	31.86
19	30.76	31.18	31.58	---	30.63	28.61	28.66	30.22	30.83	31.57	31.78	32.16
20	30.76	31.16	31.05	---	30.44	28.15	29.54	30.40	30.76	31.52	31.78	32.15
21	30.85	31.07	31.61	---	30.12	28.18	29.66	30.40	31.19	31.52	31.74	32.24
22	30.91	30.92	---	---	30.12	28.24	29.81	30.23	31.26	31.52	31.87	32.24
23	31.08	31.17	---	---	30.31	28.35	29.80	30.52	31.31	31.46	31.87	31.99
24	31.05	31.37	---	---	30.42	28.53	29.34	30.68	31.45	31.46	31.79	31.99
25	30.67	31.37	---	---	30.64	28.48	29.75	30.76	31.45	31.50	31.79	31.94
26	30.91	31.28	---	---	30.64	28.11	30.06	30.97	31.15	31.50	31.83	32.07
27	30.91	31.04	---	31.61	30.35	27.87	30.06	30.97	30.46	31.43	31.89	32.07
28	30.91	31.05	---	31.61	30.13	28.51	29.83	30.73	31.14	31.46	31.89	32.01
29	31.07	30.84	---	31.55	30.31	28.51	29.63	30.49	31.24	31.62	31.86	32.01
30	31.08	30.88	---	31.51	---	28.34	29.62	30.27	31.36	31.62	31.86	32.06
31	30.97	---	---	31.08	---	28.34	---	30.57	---	31.53	31.78	---
MAX	31.08	31.37	31.61	31.61	31.12	30.61	30.06	30.97	31.49	31.67	31.89	32.24

CAL YR 1987 LOW 31.70
WTR YR 1988 LOW 32.24



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

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

The following data were collected as part of a 5-year study of the effects of underground longwall coal mining in Meigs, Gallia, and Vinton Counties. The study is being done in cooperation with the Ohio Department of Natural Resources.

Water-Quality and stream-discharge data were collected at 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	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)							
MAY 1988							
26...	1.7	525	7.90	12.5	8.2	158	87
03201929 ZINNS RN NR RADCLIFF OH (LAT 39 07 39N LONG 082 21 08W)							
MAY 1988							
25...	0.49	260	7.30	13.0	9.3	42	50
03201947 STRONGS RN NR EWINGTON OH (LAT 39 01 35N LONG 082 20 16W)							
MAY 1988							
26...	3.0	215	7.50	14.0	8.8	41	68
390222082092200 051 LEADING C (12-2) NR LANGSVILLE OH (LAT 39 02 22N LONG 082 09 22W)							
OCT 1987							
08...	0.04	1850	7.88	10.0	--	122	550
MAY 1988							
26...	16	440	7.80	16.0	9.1	73	48
390248082204100 FLATLICK RN NR WILKESVILLE OH (LAT 39 02 48N LONG 082 20 41W)							
OCT 1987							
08...	0.01	156	7.17	9.5	--	36	19
MAY 1988							
26...	1.9	220	7.20	12.5	9.2	33	87
390413082180900 STRONGS RN NR WILKESVILLE OH (LAT 39 04 13N LONG 082 18 09W)							
MAY 1988							
25...	2.6	180	7.30	14.0	10.5	24	110
390545082135300 DEXTER RN NR DEXTER OH (LAT 39 05 45N LONG 082 13 53W)							
MAY 1988							
25...	3.0	295	7.52	16.0	10.0	59	49
390759082155100 UNNAMED TR TO OGDEN RN NR CARPENTER OH (LAT 39 07 59N LONG 082 15 51W)							
MAY 1988							
25...	0.40	380	8.00	18.5	9.5	85	53

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)						
MAY 1988						
26...	20	20	1300	80	490	430
03201929 ZINNS RN NR RADCLIFF OH (LAT 39 07 39N LONG 082 21 08W)						
MAY 1988						
25...	160	40	550	160	150	140
03201947 STRONGS RN NR EWINGTON OH (LAT 39 01 35N LONG 082 20 16W)						
MAY 1988						
26...	190	30	600	60	180	160
390222082092200 051 LEADING C (12-2) NR LANGSVILLE OH (LAT 39 02 22N LONG 082 09 22W)						
OCT 1987						
08...	170	<10	450	120	670	690
MAY 1988						
26...	140	50	510	110	150	140
390248082204100 FLATLICK RN NR WILKESVILLE OH (LAT 39 02 48N LONG 082 20 41W)						
OCT 1987						
08...	130	<10	940	160	210	100
MAY 1988						
26...	130	30	300	40	40	30
390413082180900 STRONGS RN NR WILKESVILLE OH (LAT 39 04 13N LONG 082 18 09W)						
MAY 1988						
25...	650	20	80	40	230	180
390545082135300 DEXTER RN NR DEXTER OH (LAT 39 05 45N LONG 082 13 53W)						
MAY 1988						
25...	180	<10	910	130	210	200
390759082155100 UNNAMED TR TO OGDEN RN NR CARPENTER OH (LAT 39 07 59N LONG 082 15 51W)						
MAY 1988						
25...	150	10	1000	190	850	830

INSTANTANEOUS DISCHARGE AT MISCELLANEOOUS SITES

Site number	Name	Drainage Area (mi^2)	Date	Discharge ft^3/s
890545082135300	Dexter Run near Dexter	7.60	Mar 25, 1988	3.02
			June 23, 1988	Dry
			July 13, 1988	Dry
390248082204100	Flatlick Run near Wilksville	7.00	May 26, 1988	1.89
			June 22, 1988	<0.10
			July 13, 1988	Dry
39022082092200	Leading Creek near Langsville	80.8	May 26, 1988	15.9
			June 23, 1988	0.26
			July 13, 1988	<0.10
390413082180900	Strongs Run near Wilksville	5.60	May 25, 1988	2.63
			June 22, 1988	Dry
			July 13, 1988	Dry
390759082155100	Unnamed Tributary to Ogden Run near Carpenter	2.04	May 26, 1988	0.40
			June 22, 1988	Dry
			July 13, 1988	Dry

The following tables contain ground-water-level measurements from a network of water-supply and monitoring wells near Wright-Patterson Air Force Base, Ohio. The data was collected as part of a cooperative study with Air Force Logistics Command, 2750 Air Base Wing/Environmental Management. The purpose of the study is to evaluate ground-water resources near Wright-Patterson Air Force Base, Ohio.

GROUND-WATER LEVELS

SITE-ID	LOCAL WELL NUMBER	GEOLOGIC UNIT	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
395105084011800	CL-101	361RCMD	10-21-87	10.48	835
			03-21-88	9.24	
395123084011800	CL-102	112OTSH	10-21-87	13.23	830
			03-21-88	12.76	
395114083592100	CL-103	112OTSH	10-21-87	3.70	840
			03-21-88	3.60	
395103083590600	CL-104	361RCMD	10-21-87	65.77	910
			03-21-88	65.55	
395103083590500	CL-105	112OTSH	10-21-87	65.77	910
			03-21-88	65.57	
395103083582400	CL-106	112OTSH	10-21-87	19.83	960
			03-21-88	18.63	
395104083582500	CL-107	--	10-21-87	19.79	960
			03-21-88	17.08	
395136083572800	CL-108	112OTSH	10-22-87	26.22	875
			03-21-88	24.69	
395220084021400	CL-110	112OTSH	10-22-87	21.67	845
			03-21-88	20.40	
395226084013200	CL-111	112OTSH	10-22-87	21.90	850
			03-21-88	20.86	
395225084021000	CL-112	112OTSH	10-22-87	25.57	845
			03-21-88	24.31	
395207084011200	CL-113	112OTSH	10-22-87	1.34	835
			03-21-88	0.79	
395101084021500	CL-114	112OTSH	11-24-87	15.70	820
			03-21-88	14.85	
395102084020900	CL-115	112OTSH	11-24-87	17.91	820
395102084020600	CL-116	112OTSH	11-24-87	13.35	820
395104084020900	CL-117	112OTSH	11-24-87	16.34	820
			03-21-88	16.06	
394904084011200	GR-100	112OTSH	10-20-87	24.37	840
			03-21-88	22.33	
394841084011200	GR-101	--	10-20-87	12.85	840
			03-22-88	10.43	
394929083585400	GR-102	357BFLD	10-22-87	5.27	875
			03-22-88	4.03	
394900083585500	GR-103	--	10-22-87	16.43	900
			03-22-88	17.40	
395019083594400	GR-104	--	10-22-87	33.84	860
			03-21-88	20.73	
395023083594300	GR-105	--	10-22-87	13.62	855
			03-21-88	12.35	
394758084014200	GR-106	--	10-23-87	2.46	910
			03-22-88	2.50	
394640084023900	GR-107	112OTSH	10-23-87	87.50	920
			03-22-88	88.25	
394642084023900	GR-108	--	10-23-87	71.08	920
			03-22-88	72.00	
394746084011900	GR-109	112OTSH	10-27-87	85.70	925
394615084031700	GR-110	--	10-27-87	61.00	975
			03-22-88	3.55	
394614084031700	GR-111	361RCMD	10-28-87	82.18	975
			03-22-88	90.02	
394518084031400	GR-112	361RCMD	10-28-87	90.70	985
			03-22-88	89.23	
394521084014500	GR-113	361RCMD	10-28-87	50.05	970
			03-22-88	50.25	
394539084045200	GR-114	--	10-28-87	25.14	945
			03-22-88	23.78	
394601084043000	GR-115	357BFLD	10-28-87	18.15	1015
			03-22-88	13.63	
394554084052300	GR-116	361RCMD	10-28-87	41.86	925
			03-22-88	41.71	
394601084050900	GR-117	361RCMD	10-29-87	31.58	935
			03-22-88	30.14	
394619084043200	GR-118	361RCMD	10-29-87	49.20	995
			03-22-88	46.70	
394707084044100	GR-119	112TILL	10-29-87	28.81	970
			03-22-88	26.60	
394657084035000	GR-120	361RCMD	10-29-87	121.78	955
			03-22-88	119.53	

GROUND-WATER LEVELS--Continued

SITE-ID	LOCAL WELL NUMBER	GEOLOGIC UNIT	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394600084023400	GR-121	--	10-29-87	93.19	965
			03-22-88	93.87	
394601084023500	GR-122	361RCMD	10-29-87	103.40	965
			03-22-88	104.75	
394551084020000	GR-123	112OTSH	10-29-87	108.16	975
			03-22-88	104.56	
394843083594400	GR-124	357BFLD	11-12-87	27.62	935
			03-21-88	19.59	
395019083594500	GR-125	112OTSH	11-12-87	18.92	860
			03-21-88	16.83	
395031083591800	GR-126	112OTSH	11-12-87	12.23	855
			03-21-88	10.79	
394856083564500	GR-127	--	11-12-87	23.70	1025
394908083564300	GR-128	--	11-20-87	40.75	1020
			03-21-88	28.50	
394934084045800	GR-129	361RCMD	11-17-87	7.18	870
			03-22-88	5.85	
394728084012700	GR-130	112OTSH	11-18-87	110.78	940
			03-23-88	112.50	
394706084003000	GR-131	112OTSH	11-18-87	75.85	900
394735083593700	GR-132	361RCMD	11-18-87	15.75	865
			03-23-88	10.25	
395007084040400	GR-133	357BFLD	11-18-87	53.93	930
			03-22-88	32.69	
394916084043000	GR-134	361RCMD	11-18-87	22.96	820
			03-22-88	19.04	
394643083592200	GR-135	361RCMD	11-19-87	15.70	890
			03-23-88	14.51	
394606083595100	GR-136	361RCMD	11-19-87	50.10	885
			03-23-88	48.74	
394653083591100	GR-137	--	11-19-87	19.12	890
			03-23-88	16.18	
395005084012500	GR-138	112OTSH	11-24-87	11.47	825
			03-21-88	9.37	
395005084011600	GR-139	112OTSH	11-24-87	14.40	825
			03-21-88	12.65	
395002084012100	GR-140	112OTSH	11-24-87	13.39	825
			03-21-88	11.35	
394752083573100	GR-141	361RCMD	12-03-87	7.20	1010
			03-23-88	5.24	
394646084012200	GR-143	112OTSH	12-04-87	117.80	950
			03-23-88	119.13	
394645084012000	GR-144	--	12-04-87	118.28	950
			03-23-88	119.03	
394533084004200	GR-145	112OTSH	12-04-87	21.25	840
			03-23-88	18.20	
395038083565300	GR-146	357BFLD	12-04-87	39.90	1005
			03-21-88	43.19	
394921084053500	GR-147	357BFLD	10-30-87	18.00	930
			03-23-88	11.90	
394714084044100	GR-180	112TILL	12-02-87	21.84	949.1
			03-22-88	17.93	
394719084043000	GR-181	112OTSH	12-02-87	18.51	907.2
			03-22-88	15.37	
394718084042800	GR-182	112TILL	12-02-87	3.06	881.5
			03-22-88	-0.25	
394723084041800	GR-183	112OTSH	03-22-88	33.77	878.7
394727084042000	GR-184	112OTSH	12-02-87	7.79	837.9
			03-22-88	7.36	
394709084043900	GR-185	112OTSH	12-14-87	25.14	947.7
			03-22-88	21.35	
394711084044000	GR-186	112OTSH	12-14-87	28.77	947.7
394712084042800	GR-187	112TILL	12-14-87	9.76	891.0
			03-22-88	1.73	
394720084043400	GR-188	112TILL	11-19-87	13.73	910.8
			03-22-88	10.80	
394719084043300	GR-189	112TILL	11-19-87	8.62	910.4
			03-22-88	7.50	
394711084043100	GR-190	112TILL	12-02-87	18.14	912.1
			03-22-88	16.85	
394709084043300	GR-191	112TILL	12-02-87	1.02	891.5
			03-22-88	-0.88	
394717084041500	GR-192	112OTSH	12-14-87	35.64	912.5
			03-22-88	34.56	
394716084041500	GR-193	112OTSH	12-14-87	82.78	912.4
			03-22-88	82.19	
394731084041100	GR-195	112OTSH	12-14-87	47.49	841.8
			03-22-88	45.98	

GROUND-WATER RECORDS FOR THE WRIGHT PATTERSON AIR FORCE BASE PROJECT--Continued

GROUND-WATER LEVELS--Continued

SITE-ID	LOCAL WELL NUMBER	GEOLOGIC UNIT	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394731084041600	GR-196	112OTSH	12-14-87	16.24	852.1
			03-22-88	12.96	
394730084041600	GR-197	112OTSH	12-14-87	25.34	852.5
			03-22-88	24.97	
394726084041200	GR-198	112OTSH	12-14-87	20.34	875.4
			03-22-88	18.86	
394725084041200	GR-199	112OTSH	12-14-87	50.85	876.6
			03-22-88	50.44	
394900084042100	GR-203	112OTSH	12-07-87	15.56	806.59
			03-23-88	15.35	
394904084041700	GR-204	112OTSH	12-07-87	19.68	809.2
			03-23-88	19.76	
394856084041600	GR-205	112OTSH	11-24-87	7.87	798.3
			03-23-88	7.58	
394857084041300	GR-206	112OTSH	11-24-87	7.74	--
			03-23-88	7.50	
394854084042100	GR-207	112OTSH	12-14-87	5.60	796.7
			03-23-88	5.80	
394853084042200	GR-208	112OTSH	12-14-87	5.85	796.3
			03-23-88	6.04	
394852084042100	GR-209	112OTSH	12-14-87	6.00	796.1
			03-23-88	5.81	
394851084042300	GR-210	112OTSH	12-14-87	5.41	796.1
			03-23-88	5.10	
394850084042800	GR-211	112OTSH	12-14-87	5.96	795.6
			03-23-88	5.73	
394849084042700	GR-213	112OTSH	12-14-87	5.53	795.6
			03-23-88	5.25	
394853084042600	GR-214	112OTSH	12-14-87	5.78	795.3
			03-23-88	5.56	
394853084042600	GR-214	112OTSH	12-14-87	5.78	795.3
			03-23-88	5.56	
394852084042500	GR-215	112OTSH	12-14-87	5.98	795.6
			03-23-88	5.78	
394852084042600	GR-216	112OTSH	12-14-87	5.40	795.5
			03-23-88	5.10	
394848084043000	GR-217	112OTSH	12-14-87	5.52	795.2
			03-23-88	5.22	
394802084032000	GR-225	112OTSH	11-18-87	13.18	809.4
			03-22-88	12.21	
394758084032800	GR-226	112OTSH	11-18-87	12.56	808.4
			03-22-88	11.73	
394756084033200	GR-227	112OTSH	11-18-87	11.41	806.9
			03-22-88	10.54	
394747084033700	GR-228	112OTSH	11-18-87	8.91	808.9
			03-22-88	7.12	
394956084014200	GR-245	112OTSH	11-13-87	9.15	818.9
			03-24-88	7.19	
394950084014800	GR-246	112OTSH	11-13-87	11.37	818.8
			03-24-88	9.37	
395011084012600	GR-247	112OTSH	11-12-87	8.73	819.8
			03-23-88	6.77	
395008084011500	GR-248	112OTSH	11-12-87	13.29	825.4
			03-23-88	11.40	
395009084011700	GR-249	112OTSH	11-12-87	12.54	824.6
			03-23-88	10.62	
394811084050500	GR-259	112OTSH	11-13-87	10.67	789.1
			03-22-88	9.52	
394808084050500	GR-260	112OTSH	11-13-87	11.01	789.3
394807084045700	GR-261	112OTSH	11-24-87	15.6	794.3
			03-23-88	14.51	
394815084045000	GR-262	112OTSH	11-13-87	4.68	789.9
			03-23-88	3.76	
394800084044700	GR-263	112OTSH	11-13-87	7.45	793.0
			03-23-88	6.30	
395037084011600	GR-274	112OTSH	11-13-87	17.46	--
			03-23-88	21.14	
394916084035600	GR-277	112OTSH	12-07-87	11.56	803.4
			03-23-88	11.19	
394802084054400	GR-301	112OTSH	12-18-87	8.86	783.6
			03-22-88	8.04	
394801084054300	GR-302	112OTSH	12-18-87	22.14	783.8
			03-22-88	13.24	
394804084071900	MT-100	112OTSH	10-30-87	23.16	795
			03-22-88	19.31	
394813084065500	MT-101	361RCMD	10-30-87	27.50	795
			03-22-88	26.69	

GROUND-WATER LEVELS--Continued

SITE-ID	LOCAL WELL NUMBER	GEOLOGIC UNIT	WATER-LEVEL DATE	WATER LEVEL (FEET)	ALTITUDE OF LAND SURFACE (FEET)
394847084054800	MT-102	357BFLD	10-30-87	35.00	930
			03-22-88	26.04	
394848084054600	MT-103	361RCMD	10-30-87	31.98	930
			03-22-88	38.82	
395139084034300	MT-105	112OTSH	11-12-87	21.97	835
			03-22-88	20.11	
395130084035300	MT-106	112OTSH	11-13-87	25.27	840
			03-22-88	22.35	
395036084043700	MT-107	361RCMD	11-13-87	38.30	900
			03-22-88	37.69	
395103084054300	MT-108	112TILL	11-13-87	10.78	940
			03-22-88	7.68	
395102084054300	MT-109	--	11-13-87	8.09	950
			03-22-88	4.34	
395204084052300	MT-110	112TILL	11-13-87	5.76	905
			03-22-88	2.39	
395213084032400	MT-111	112OTSH	11-13-87	28.74	850
			03-21-88	26.80	
395225084035900	MT-112	112TILL	11-13-87	28.33	875
			03-22-88	25.49	
395053084033400	MT-113	112OTSH	11-17-87	16.76	825
			03-22-88	14.19	
395138084050400	MT-114	112OTSH	11-17-87	20.50	910
			03-23-88	22.20	
395022084060000	MT-115	112TILL	11-17-87	30.91	940
			03-22-88	26.42	
395025084032300	MT-116	112OTSH	11-18-87	14.35	810
			03-23-88	9.45	
395027084032200	MT-117	112OTSH	11-18-87	11.17	810
394856084075000	MT-118	112OTSH	12-04-87	62.99	845
			03-22-88	53.95	
394822084081200	MT-119	112TILL	12-04-87	58.31	805
			03-22-88	57.88	
394752084085700	MT-120	112OTSH	12-04-87	51.49	775
			03-22-88	48.57	
394722084055100	MT-134	112OTSH	12-18-87	35.64	797.3
			03-22-88	28.24	
394723084061000	MT-135	112OTSH	12-18-87	25.40	790.3
			03-22-88	23.95	
394704084065300	MT-136	112OTSH	03-22-88	21.25	783.5
394638084070500	MT-137	112OTSH	12-18-87	30.70	786.4
			03-22-88	30.15	
394753084063800	MT-138	112OTSH	12-18-87	14.80	778.3
			03-22-88	12.47	
394743084071300	MT-139	112OTSH	03-22-88	31.56	774.4
394744084071100	MT-140	112OTSH	12-18-87	22.68	774.5
			03-22-88	15.56	
394706084072500	MT-141	112OTSH	12-18-87	28.34	767.3
			03-22-88	24.29	
394706084072600	MT-142	112OTSH	12-18-87	23.36	767.1
			03-22-88	19.16	
394657084074700	MT-143	112OTSH	12-18-87	18.26	767.0
			03-22-88	16.36	
394645084082100	MT-144	112OTSH	12-18-87	23.80	760.5
			03-22-88	21.70	
394730084075000	MT-145	112OTSH	12-18-87	21.28	771.1
			03-22-88	18.03	
394730084075100	MT-146	112OTSH	12-18-87	33.78	771.1
			03-22-88	31.93	
394720084081600	MT-147	112OTSH	12-18-87	22.69	770.8
			03-22-88	20.09	
394713084083100	MT-148	112OTSH	12-18-87	13.81	763.9
			03-22-88	11.96	
394712084083200	MT-149	112OTSH	12-18-87	20.46	763.8
			03-22-88	18.93	
394626084093000	MT-150	112OTSH	12-18-87	22.20	756.8
			03-22-88	22.10	
394627084093000	MT-151	112OTSH	12-18-87	21.85	756.4
			03-22-88	21.45	

Geologic Unit

112OTSH - Outwash, Pleistocene Epoch
112TILL - Glacial Till
357BFLD - Brassfield Limestone, Lower Silurian
361RCMD - Richmond Group, Upper Ordovician

The following tables list the results of chemical analysis of samples collected from 21 drainage basins in eastern Ohio during the period October 1, 1987 through September 30, 1988. 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 compliancce.

An asterisk denotes an active gaging station. Refer to report OH-88-1 for detailed flow records.

SURFACE-WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 1987							
27...	1500	27	840	8.2	8.0	--	159
JUN 1988							
07...	1400	22	765	8.2	25.0	--	153
03109500*	L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)						
OCT 1987							
28...	0830	114	760	8.2	5.5	--	137
JUN 1988							
07...	1245	97	770	8.2	23.5	--	133
03110000*	YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)						
OCT 1987							
28...	1000	20	590	8.1	6.0	--	96
JUN 1988							
07...	1030	12	585	7.9	21.5	--	88
03111500*	SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)						
OCT 1987							
28...	1315	34	2300	8.3	7.5	--	207
JUN 1988							
08...	0840	27	2200	8.2	19.0	--	186
03111548	WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)						
OCT 1987							
27...	0745	23	2650	8.1	7.0	--	243
JUN 1988							
06...	1640	28	2270	8.1	25.5	--	211
03113550	MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)						
OCT 1987							
26...	1650	6.5	1450	8.2	9.5	--	176
JUN 1988							
06...	1510	10	1100	8.1	23.0	--	157
03114000*	CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)						
OCT 1987							
26...	1445	9.2	715	8.3	10.5	--	176
JUN 1988							
06...	1320	12	530	8.4	25.0	--	149
03114250	SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)						
OCT 1987							
26...	1315	3.1	455	8.2	11.0	--	146
JUN 1988							
06...	1145	4.8	400	8.3	21.0	--	131
03116950	NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)						
OCT 1987							
27...	1620	3.0	850	7.4	10.0	--	251
JUN 1988							
07...	1145	3.3	920	7.8	22.0	--	227
03117150	SANDY C AT MINERVA OH (LAT 40 43 53N LONG 081 05 57W)						
OCT 1987							
27...	1100	12	550	8.3	9.0	--	168

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 1987							
27...	160	60	<10	270	70	40	50
JUN 1988							
07...	160	150	20	450	40	300	200
03109500* L BEAVER C NR EAST LIVERPOOL OH (LAT 40 40 33N LONG 080 32 27W)							
OCT 1987							
28...	180	40	<10	130	30	30	20
JUN 1988							
07...	200	110	20	230	80	100	40
03110000* YELLOW C NR HAMMONDSVILLE OH (LAT 40 32 16N LONG 080 43 31W)							
OCT 1987							
28...	170	130	40	490	60	30	20
JUN 1988							
07...	170	140	50	220	10	60	30
03111500* SHORT C NR DILLONVALE OH (LAT 40 11 36N LONG 080 44 04W)							
OCT 1987							
28...	1100	300	120	550	70	90	80
JUN 1988							
08...	1100	1100	130	2900	10	150	70
03111548 WHEELING C BL BLAINE OH (LAT 40 04 01N LONG 080 48 31W)							
OCT 1987							
27...	1300	330	50	770	30	130	140
JUN 1988							
06...	1200	880	410	1600	50	110	60
03113550 MCMAHON C AT BELLAIRE OH (LAT 40 00 39N LONG 080 45 45W)							
OCT 1987							
26...	470	120	50	360	30	30	20
JUN 1988							
06...	380	220	110	320	<10	50	40
03114000* CAPTINA C AT ARMSTRONGS MILLS OH (LAT 39 54 31N LONG 080 55 27W)							
OCT 1987							
26...	150	90	<10	120	20	10	<10
JUN 1988							
06...	100	150	<10	250	<10	40	10
03114250 SUNFISH C AT CAMERON OH (LAT 39 46 00N LONG 080 56 09W)							
OCT 1987							
26...	55	50	<10	70	20	20	<10
JUN 1988							
06...	58	90	<10	190	10	40	10
03116950 NEWMAN C NR MASSILLON OH (LAT 40 49 22N LONG 081 33 06W)							
OCT 1987							
27...	120	110	<10	660	180	160	130
JUN 1988							
07...	110	150	<10	520	60	310	270
03117150 SANDY C AT MINERVA OH (LAT 40 43 53N LONG 081 05 57W)							
OCT 1987							
27...	87	30	<10	290	100	60	40

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
03117160 STILL F NR MINERVA OH (LAT 40 39 49N LONG 081 02 24W)							
OCT 1987							
27...	1400	1.1	330	7.6	9.0	--	93
03117280 HUGLE RN NR MALVERN OH (LAT 40 42 49N LONG 081 09 03W)							
OCT 1987							
27...	1015	2.5	620	7.9	9.5	--	159
03117310 PIPE RN AT MALVERN OH (LAT 40 41 16N LONG 081 11 02W)							
OCT 1987							
27...	0900	0.50	295	7.7	8.0	--	64
03117450 L SANDY C NR ROBERTSVILLE OH (LAT 40 44 03N LONG 081 14 40W)							
OCT 1987							
26...	1550	6.4	800	7.8	11.0	--	153
03117500* SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)							
OCT 1987							
26...	1445	80	530	8.1	10.0	--	102
JUN 1988							
07...	1000	54	645	7.7	19.0	--	139
03118000 M B NIMISHILLEN C AT CANTON OH (LAT 40 50 29N LONG 081 21 14W)							
OCT 1987							
26...	1715	4.2	850	7.1	12.0	--	172
03118100 E B NIMISHILLEN C NR CANTON OH (LAT 40 49 24N LONG 081 17 55W)							
OCT 1987							
26...	1445	7.9	2200	6.7	12.5	--	162
03118300 W B NIMISHILLEN C AT CANTON OH (LAT 40 47 48N LONG 081 23 26W)							
OCT 1987							
26...	1600	7.3	955	8.0	11.0	--	232
03122980 M F SUGAR C NR BREWSTER OH (LAT 40 41 10N LONG 081 36 40W)							
OCT 1987							
27...	1400	9.5	570	7.0	10.0	--	171
03123000 SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)							
OCT 1987							
27...	1500	24	680	6.9	9.0	--	200
JUN 1988							
07...	1330	17	780	7.7	23.5	--	202
03123166 S F SUGAR C NR SUGARCREEK OH (LAT 40 31 25N LONG 081 36 52W)							
OCT 1987							
28...	1045	9.8	1200	6.6	8.5	--	115
03123299 WALNUT C AT DUNDEE OH (LAT 40 35 12N LONG 081 37 16W)							
OCT 1987							
28...	1215	5.8	1250	6.6	8.5	--	131

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)
03117160 STILL F NR MINERVA OH (LAT 40 39 49N LONG 081 02 24W)							
OCT 1987							
27...	40	270	20	1000	160	220	230
03117280 HUGLE RN NR MALVERN OH (LAT 40 42 49N LONG 081 09 03W)							
OCT 1987							
27...	110	80	<10	760	160	260	250
03117310 PIPE RN AT MALVERN OH (LAT 40 41 16N LONG 081 11 02W)							
OCT 1987							
27...	49	110	30	800	480	130	110
03117450 L SANDY C NR ROBERTSVILLE OH (LAT 40 44 03N LONG 081 14 40W)							
OCT 1987							
26...	170	60	10	950	140	680	690
03117500* SANDY C AT WAYNESBURG OH (LAT 40 40 21N LONG 081 15 36W)							
OCT 1987							
26...	110	80	20	430	90	280	240
JUN 1988							
07...	120	90	<10	470	50	410	380
03118000 M B NIMISHILLEN C AT CANTON OH (LAT 40 50 29N LONG 081 21 14W)							
OCT 1987							
26...	120	20	<10	50	30	---	30
03118100 E B NIMISHILLEN C NR CANTON OH (LAT 40 49 24N LONG 081 17 55W)							
OCT 1987							
26...	460	80	20	230	100	160	160
03118300 W B NIMISHILLEN C AT CANTON OH (LAT 40 47 48N LONG 081 23 26W)							
OCT 1987							
26...	120	100	<10	270	50	90	70
03122980 M F SUGAR C NR BREWSTER OH (LAT 40 41 10N LONG 081 36 40W)							
OCT 1987							
27...	94	160	10	730	130	140	150
03123000 SUGAR C AB BEACH CITY DAM AT BEACH CITY OH (LAT 40 39 24N LONG 081 34 37W)							
OCT 1987							
27...	72	210	<10	700	170	110	90
JUN 1988							
07...	61	560	<10	1300	40	760	750
03123166 S F SUGAR C NR SUGARCREEK OH (LAT 40 31 25N LONG 081 36 52W)							
OCT 1987							
28...	350	400	30	1000	50	2900	3000
03123299 WALNUT C AT DUNDEE OH (LAT 40 35 12N LONG 081 37 16W)							
OCT 1987							
28...	520	380	20	1100	60	3400	3500

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
03127500* STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)							
OCT 1987							
27...	1615	41	920	7.7	8.5	--	192
JUN 1988							
06...	1600	44	1030	7.9	21.5	--	120
03129100 WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)							
OCT 1987							
26...	1445	5.0	460	7.4	9.0	--	92
JUN 1988							
06...	1330	5.0	440	7.5	21.0	--	91
03140000* MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)							
OCT 1987							
26...	1230	2.6	405	7.7	6.5	--	103
JUN 1988							
08...	0830	1.4	390	7.5	18.5	--	106
03148400 MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)							
OCT 1987							
28...	1200	11	2450	3.3	7.5	216	0
JUN 1988							
07...	1000	18	1900	3.3	20.5	133	0
03149500 SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)							
OCT 1987							
27...	1445	3.8	625	7.8	9.5	--	139
JUN 1988							
07...	1430	4.9	515	8.0	25.0	--	115
03150250 MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)							
OCT 1987							
27...	1645	1.9	2100	7.8	9.5	--	144
JUN 1988							
06...	1530	18	1300	8.1	21.5	--	172
03156700 RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)							
OCT 1987							
26...	1039	12	970	7.5	4.5	--	91
JUN 1988							
06...	0830	28	680	7.7	19.5	--	88
03157000* CLEAR C NR ROCKBRIDGE OH (LAT 39 35 18N LONG 082 34 43W)							
OCT 1987							
26...	1344	14	390	8.3	7.0	--	158
JUN 1988							
06...	1000	18	425	8.1	17.0	--	165
03158200 MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)							
OCT 1987							
26...	1605	2.9	1500	3.6	8.0	111	0
JUN 1988							
06...	1030	18	1100	3.6	17.0	64	0
03160050 LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)							
OCT 1987							
27...	1330	0.18	1400	6.9	10.5	--	104
JUN 1988							
08...	0930	1.7	700	7.8	18.5	--	101

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)
03127500* STILLWATER C AT UHRICHSVILLE OH (LAT 40 23 10N LONG 081 20 50W)							
OCT 1987							
27...	320	150	20	640	190	400	390
JUN 1988							
06...	340	260	20	450	20	800	700
03129100 WHITE EYES C NR FRESNO OH (LAT 40 18 17N LONG 081 45 01W)							
OCT 1987							
26...	79	180	20	2400	720	430	420
JUN 1988							
06...	73	200	10	2300	100	580	560
03140000* MILL C NR COSHOCTON OH (LAT 40 21 46N LONG 081 51 45W)							
OCT 1987							
26...	58	40	10	1200	320	150	150
JUN 1988							
08...	50	210	10	1300	140	390	360
03148400 MOXAHALA C AT ROBERTS OH (LAT 39 51 17N LONG 082 03 23W)							
OCT 1987							
28...	1200	14000	12000	13000	12000	19000	18000
JUN 1988							
07...	880	9900	1000	5100	4700	50000	47000
03149500 SALT C NR CHANDLERSVILLE OH (LAT 39 54 31N LONG 081 51 38W)							
OCT 1987							
27...	100	130	<10	810	50	290	280
JUN 1988							
07...	83	190	20	650	50	240	230
03150250 MEIGS C NR BEVERLY OH (LAT 39 36 00N LONG 081 42 42W)							
OCT 1987							
27...	990	90	<10	170	20	70	70
JUN 1988							
06...	570	250	10	350	20	100	40
03156700 RUSH C NR SUGAR GROVE OH (LAT 39 38 18N LONG 082 30 42W)							
OCT 1987							
26...	310	110	<10	500	60	4600	4600
JUN 1988							
06...	180	280	20	620	20	400	340
03157000* CLEAR C NR ROCKBRIDGE OH (LAT 39 35 18N LONG 082 34 43W)							
OCT 1987							
26...	27	<10	<10	220	10	---	50
JUN 1988							
06...	41	100	<10	290	30	40	20
03158200 MONDAY C AT DOANVILLE OH (LAT 39 26 07N LONG 082 11 30W)							
OCT 1987							
26...	730	13000	13000	4200	3400	4700	4800
JUN 1988							
06...	450	7600	7800	1400	1300	3200	3200
03160050 LEADING C NR MIDDLEPORT OH (LAT 39 00 31N LONG 082 05 07W)							
OCT 1987							
27...	310	20	<10	70	30	1300	1200
JUN 1988							
08...	150	90	20	170	50	270	270

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
03160105 CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)							
OCT 1987							
27...	1530	0.01	1000	7.0	11.0	--	93
JUN 1988							
07...	1430	0.18	570	7.7	29.5	--	75
03201988 L RACCOON C NR VINTON OH (LAT 38 57 11N LONG 082 21 56W)							
OCT 1987							
27...	1155	1.6	835	6.4	9.0	--	31
JUN 1988							
06...	1445	6.9	580	6.4	20.5	5.0	5
382715082242400 INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)							
OCT 1987							
28...	1005	0.22	710	7.2	7.0	--	104
JUN 1988							
07...	1030	2.1	450	7.6	20.5	--	88
383005082280600 SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)							
OCT 1987							
28...	1100	0.55	450	7.2	7.5	--	71
JUN 1988							
07...	1130	7.7	348	7.2	21.0	--	59
385826082201800 RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)							
OCT 1987							
27...	1015	0.79	570	6.8	10.0	--	51
JUN 1988							
07...	1530	21	485	6.6	22.5	--	9
390941082212200 ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)							
OCT 1987							
27...	0823	0.0	--	--	--	--	--
JUN 1988							
06...	1300	1.3	330	7.0	17.5	--	34
392342082072000 SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)							
OCT 1987							
26...	1730	6.5	2250	3.0	9.5	244	0
JUN 1988							
06...	1200	19	1150	6.1	17.0	91	14
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1987							
28...	1315	6.8	1980	8.4	8.5	--	72
JUN 1988							
07...	0900	0.85	1300	7.8	19.0	--	125
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1987							
28...	1045	20	2350	3.9	6.5	70	0
JUN 1988							
07...	1200	42	1250	6.6	22.0	--	11
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1987							
28...	0730	5.9	2600	8.2	5.0	--	242
JUN 1988							
08...	1315	8.2	1400	7.7	23.5	--	214

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)
03160105 CAMPAIGN C NR GALLIPOLIS OH (LAT 38 53 51N LONG 082 11 31W)							
OCT 1987							
27...	91	50	30	190	100	9500	9000
JUN 1988							
07...	150	140	10	890	30	2500	2400
03201988 L RACCOON C NR VINTON OH (LAT 38 57 11N LONG 082 21 56W)							
OCT 1987							
27...	310	160	20	730	350	940	940
JUN 1988							
06...	250	100	<10	320	140	4300	4300
382715082242400 INDIAN GUYAN C NR BRADRICK OH (LAT 38 27 15N LONG 082 24 24W)							
OCT 1987							
28...	220	50	<10	400	270	3700	3400
JUN 1988							
07...	120	160	<10	570	90	490	460
383005082280600 SYMMES C NR GETAWAY OH (LAT 38 30 05N LONG 082 28 06W)							
OCT 1987							
28...	26	20	<10	680	190	2400	2200
JUN 1988							
07...	62	230	<10	1100	120	1000	1000
385826082201800 RACCOON C AT VINTON OH (LAT 38 58 26N LONG 082 20 18W)							
OCT 1987							
27...	180	60	<10	810	360	1700	1600
JUN 1988							
07...	180	90	<10	340	30	3100	2900
390941082212200 ELK F NR RADCLIFF OH (LAT 39 09 41N LONG 082 21 22W)							
OCT 1987							
27...	--	--	--	--	--	--	--
JUN 1988							
06...	96	80	<10	770	160	2000	1900
392342082072000 SUNDAY C AT CHAUNCEY OH (LAT 39 23 42N LONG 082 07 20W)							
OCT 1987							
26...	1100	3700	3900	62000	51000	4800	5000
JUN 1988							
06...	540	60	30	42000	38000	2100	2200
395214082054700 JONATHAN C AT WHITE COTTAGE OH (LAT 39 52 14N LONG 082 05 47W)							
OCT 1987							
28...	760	150	90	70	20	3900	3800
JUN 1988							
07...	82	50	10	170	30	190	160
395337082011100 MOXAHALA C NR DARLINGTON OH (LAT 39 53 37N LONG 082 01 11W)							
OCT 1987							
28...	1000	8600	8900	2100	1500	14000	14000
JUN 1988							
07...	540	520	40	340	120	16000	14000
395417081323000 WILLS C AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 32 30W)							
OCT 1987							
28...	1200	330	<10	430	20	140	90
JUN 1988							
08...	560	960	10	1600	30	490	270

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1987							
27...	1045	4.2	715	7.7	8.0	--	173
JUN 1988							
08...	1115	1.0	595	7.8	20.5	--	156
400912082014700 L WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1987							
28...	1500	8.2	1700	7.6	7.5	--	88
JUN 1988							
06...	1130	8.8	1190	7.6	18.0	--	83
400920081432900 WHITE EYES C NR PLAINFIELD OH (LAT 40 09 20N LONG 081 43 29W)							
OCT 1987							
27...	1245	5.2	820	7.4	8.0	--	84
JUN 1988							
08...	0920	4.9	720	7.4	20.0	--	90
401548081311700 DUNLAP C NR NEWCOMERSTOWN OH (LAT 40 15 48N LONG 081 31 17W)							
OCT 1987							
27...	1345	1.0	345	7.6	8.5	--	112
401616081313900 BROWNING RN NR NEWCOMERSTOWN OH (LAT 40 16 16N LONG 081 31 39W)							
OCT 1987							
27...	1250	0.49	510	7.4	8.5	--	82
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1987							
27...	1145	3.4	490	7.5	8.5	--	79
JUN 1988							
06...	1400	2.4	530	7.7	21.5	--	71
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1987							
28...	1215	6.3	2120	8.2	8.0	--	216
JUN 1988							
08...	1000	6.0	2150	7.8	20.5	--	194
401805081394500 EVANS C NR W LAFAYETTE OH (LAT 40 18 05N LONG 081 39 45W)							
OCT 1987							
27...	1000	3.2	450	7.5	9.5	--	83
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1987							
28...	1115	40	1320	8.4	7.0	--	144
JUN 1988							
07...	0850	22	1500	8.1	19.5	--	138
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1987							
26...	1045	0.91	1150	7.8	6.0	--	106
JUN 1988							
08...	1000	0.63	915	7.5	19.5	--	113
401940081441400 E F WHITE EYES C NR FRESNO OH (LAT 40 19 40N LONG 081 44 14W)							
OCT 1987							
27...	0830	1.1	455	7.7	7.0	--	86

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)
400117081362600 CROOKED C NR CAMBRIDGE OH (LAT 40 01 17N LONG 081 36 26W)							
OCT 1987							
27...	140	420	10	860	80	360	330
JUN 1988							
08...	110	470	10	940	<10	660	570
400912082014700 L WAKATOMIKA C NR TRINWAY OH (LAT 40 09 12N LONG 082 01 47W)							
OCT 1987							
28...	830	80	<10	360	90	860	850
JUN 1988							
06...	580	120	10	340	20	670	670
400920081432900 WHITE EYES C NR PLAINFIELD OH (LAT 40 09 20N LONG 081 43 29W)							
OCT 1987							
27...	340	160	<10	990	220	890	930
JUN 1988							
08...	260	390	<10	1400	30	980	960
401548081311700 DUNLAP C NR NEWCOMERSTOWN OH (LAT 40 15 48N LONG 081 31 17W)							
OCT 1987							
27...	28	130	10	1000	160	170	160
401616081313900 BROWNING RN NR NEWCOMERSTOWN OH (LAT 40 16 16N LONG 081 31 39W)							
OCT 1987							
27...	150	30	20	1100	320	400	390
401624081363400 BUCKHORN C AT NEWCOMERSTOWN OH (LAT 40 16 24N LONG 081 36 34W)							
OCT 1987							
27...	100	---	320	730	410	610	570
JUN 1988							
06...	110	120	20	550	90	520	490
401716080451300 MCINTYRE C NR SMITHFIELD OH (LAT 40 17 16N LONG 080 45 13W)							
OCT 1987							
28...	1100	80	40	110	20	80	90
JUN 1988							
08...	1200	100	40	120	10	90	60
401805081394500 EVANS C NR W LAFAYETTE OH (LAT 40 18 05N LONG 081 39 45W)							
OCT 1987							
27...	71	110	<10	2100	330	630	570
401857080391700 CROSS C NR MINGO JUNCTION OH (LAT 40 18 57N LONG 080 39 17W)							
OCT 1987							
28...	590	230	30	90	20	150	130
JUN 1988							
07...	710	300	70	180	10	120	90
401936082001400 SIMMONS RN NR WARSAW OH (LAT 40 19 36N LONG 082 00 14W)							
OCT 1987							
26...	530	30	<10	180	40	70	80
JUN 1988							
08...	330	220	10	480	30	770	560
401940081441400 E F WHITE EYES C NR FRESNO OH (LAT 40 19 40N LONG 081 44 14W)							
OCT 1987							
27...	79	80	10	1400	270	240	240

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
401959081443300 WHITE EYES C AT FRESNO OH (LAT 40 19 59N LONG 081 44 33W)							
OCT 1987							
26...	1650	1.5	445	8.2	8.5	--	98
402011081450500 W F WHITE EYES C NR FRESNO OH (LAT 40 20 11N LONG 081 45 05W)							
OCT 1987							
26...	1600	1.8	430	7.6	8.0	--	90
402226081280300 FRYS C NR GNADENHUTTEN OH (LAT 40 22 26N LONG 081 28 03W)							
OCT 1987							
28...	1245	0.80	1100	8.1	8.0	--	156
402733081240400 BEAVERDAM C NR NEW PHILADELPHIA OH (LAT 40 27 33N LONG 081 24 04W)							
OCT 1987							
28...	1045	3.7	1000	7.5	6.5	--	85
402738081262300 OLD TOWN C AT NEW PHILADELPHIA OH (LAT 40 27 38N LONG 081 26 23W)							
OCT 1987							
28...	0935	2.8	1050	7.4	5.0	--	74
402841081285900 STONE C NR NEW PHILADELPHIA OH (LAT 40 28 41N LONG 081 28 59W)							
OCT 1987							
28...	0830	5.7	610	7.4	5.0	--	73
403108081364900 EB SF SUGAR C AT SUGARCREEK OH (LAT 40 31 08N LONG 081 36 49W)							
OCT 1987							
28...	1000	4.8	1050	6.6	6.5	--	82
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1987							
26...	1215	22	480	7.7	8.0	--	91
JUN 1988							
07...	0730	43	470	7.2	19.5	--	74
403445081313200 BROAD RN AT STRASBURG OH (LAT 40 34 45N LONG 081 31 32W)							
OCT 1987							
28...	0730	2.6	1300	6.8	6.0	--	80
403823081213700 NIMISHILLEN C AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1987							
26...	1330	68	1480	8.1	10.0	--	192
JUN 1988							
07...	0845	80	1250	7.7	20.0	--	200
404210081023700 MUDDY F NR MINERVA OH (LAT 40 42 10N LONG 081 02 37W)							
OCT 1987							
27...	1300	1.3	370	7.7	8.0	--	93
404300081394900 N F SUGAR C NR WEST LEBANON OH (LAT 40 43 00N LONG 081 39 49W)							
OCT 1987							
27...	1300	6.5	630	7.4	10.0	--	216

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)
401959081443300 WHITE EYES C AT FRESNO OH (LAT 40 19 59N LONG 081 44 33W)							
OCT 1987							
26...	65	50	20	1200	90	240	240
402011081450500 W F WHITE EYES C NR FRESNO OH (LAT 40 20 11N LONG 081 45 05W)							
OCT 1987							
26...	82	60	10	820	360	---	160
402226081280300 FRYS C NR GNADENHUTTEN OH (LAT 40 22 26N LONG 081 28 03W)							
OCT 1987							
28...	520	60	20	300	60	350	360
402733081240400 BEAVERDAM C NR NEW PHILADELPHIA OH (LAT 40 27 33N LONG 081 24 04W)							
OCT 1987							
28...	440	160	30	380	80	---	490
402738081262300 OLD TOWN C AT NEW PHILADELPHIA OH (LAT 40 27 38N LONG 081 26 23W)							
OCT 1987							
28...	510	220	30	300	50	2400	2400
402841081285900 STONE C NR NEW PHILADELPHIA OH (LAT 40 28 41N LONG 081 28 59W)							
OCT 1987							
28...	150	300	30	1000	190	970	950
403108081364900 EB SF SUGAR C AT SUGARCREEK OH (LAT 40 31 08N LONG 081 36 49W)							
OCT 1987							
28...	470	510	10	1200	40	4000	4100
403426081211900 CONOTTON C NR SOMERDALE OH (LAT 40 34 26N LONG 081 21 19W)							
OCT 1987							
26...	120	200	20	1800	600	690	680
JUN 1988							
07...	110	300	30	1800	80	2600	2700
403445081313200 BROAD RN AT STRASBURG OH (LAT 40 34 45N LONG 081 31 32W)							
OCT 1987							
28...	720	870	60	330	20	11000	11000
403823081213700 NIMISHILLEN C AT SANDYVILLE OH (LAT 40 38 23N LONG 081 21 37W)							
OCT 1987							
26...	190	70	30	450	60	100	80
JUN 1988							
07...	200	50	10	230	80	60	40
404210081023700 MUDDY F NR MINERVA OH (LAT 40 42 10N LONG 081 02 37W)							
OCT 1987							
27...	75	110	20	660	190	300	310
404300081394900 N F SUGAR C NR WEST LEBANON OH (LAT 40 43 00N LONG 081 39 49W)							
OCT 1987							
27...	49	210	<10	650	70	220	200

SURFACE-WATER QUALITY DATA--Continued

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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
404505081041100 M B SANDY C NR MINERVA OH (LAT 40 45 05N LONG 081 04 11W)							
OCT 1987							
27...	1145	1.8	640	8.1	8.0	--	215
404831081301000 SIPPO C AT MASSILLON OH (LAT 40 48 31N LONG 081 30 10W)							
OCT 1987							
27...	1745	6.6	610	6.8	10.5	--	177
404858081464900 L SUGAR C NR ORRVILLE OH (LAT 40 48 58N LONG 081 46 49W)							
OCT 1987							
27...	1015	1.9	765	7.4	10.0	--	216
404906081464600 SUGAR C NR ORRVILLE OH (LAT 40 49 06N LONG 081 46 46W)							
OCT 1987							
27...	0900	4.9	760	7.0	9.5	--	208
405037081420700 NEWMAN C AT BURTON CITY OH (LAT 40 50 37N LONG 081 42 07W)							
OCT 1987							
27...	1145	0.81	1350	7.5	10.0	--	305
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1987							
28...	1545	18	465	7.9	7.5	--	111
JUN 1988							
06...	1000	18	390	7.5	18.0	--	87

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)
404505081041100 M B SANDY C NR MINERVA OH (LAT 40 45 05N LONG 081 04 11W)							
OCT 1987							
27...	72	70	<10	420	140	90	100
404831081301000 SIPPO C AT MASSILLON OH (LAT 40 48 31N LONG 081 30 10W)							
OCT 1987							
27...	76	360	30	1300	270	210	190
404858081464900 L SUGAR C NR ORRVILLE OH (LAT 40 48 58N LONG 081 46 49W)							
OCT 1987							
27...	68	120	20	380	90	110	100
404906081464600 SUGAR C NR ORRVILLE OH (LAT 40 49 06N LONG 081 46 46W)							
OCT 1987							
27...	80	210	20	550	100	120	130
405037081420700 NEWMAN C AT BURTON CITY OH (LAT 40 50 37N LONG 081 42 07W)							
OCT 1987							
27...	75	70	<10	710	260	170	160
410616082075500 WAKATOMIKA C NR FRAZEYSBURG OH (LAT 41 06 16N LONG 082 07 55W)							
OCT 1987							
28...	23	60	<10	570	320	70	60
JUN 1988							
06...	38	280	70	1100	230	230	170

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	ACIDITY (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
390810082221900			V-90 AT RADCLIFF OH (LAT 39 08 10N LONG 082 22 19W)							
AUG 1988 29...	1445	28.40	120	5.8	16.0	5.1	30	22	20	6.4
391002082211100			V-91 NR RADCLIFF OH (LAT 39 10 02N LONG 082 21 11W)							
AUG 1988 29...	1730	21.04	560	5.8	15.0	0	150	130	24	28
392347082205300			HK-53 NR STARR OH (LAT 39 23 47N LONG 082 20 53W)							
AUG 1988 23...	1600	23.95	835	8.8	14.5	0	13	0	--	3.4
392500082195100			HK-52 NR STARR OH (LAT 39 25 00N LONG 082 19 51W)							
AUG 1988 23...	1430	10.84	610	7.3	15.5	0	180	0	--	50
395417081330100			GU-84 AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 33 01W)							
AUG 1988 30...	1545	27.42	915	8.0	12.0	1.8	290	0	--	64
395418081335800			GU-86 NR PLEASANT CITY OH (LAT 39 54 18N LONG 081 33 58W)							
AUG 1988 30...	1945	24.96	520	7.3	14.0	0.2	140	0	--	37
395758081345700			GU-83 AT BYESVILLE OH (LAT 39 57 58N LONG 081 34 57W)							
AUG 1988 30...	1230	59.52	625	7.9	12.0	5.2	260	52	--	72
395906081331600			GU-85 NR BYESVILLE OH (LAT 39 59 06N LONG 081 33 16W)							
AUG 1988 30...	1830	16.88	640	7.1	14.0	1.6	300	130	--	68
400609080541800			B-28 NR ST CLAIRSVILLE OH (LAT 40 06 09N LONG 080 54 18W)							
AUG 1988 24...	1415	23.17	1250	8.9	13.0	0	43	0	--	10
400806080453600			B-29 NR YORKVILLE OH (LAT 40 08 06N LONG 080 45 36W)							
AUG 1988 25...	1145	19.10	1320	7.9	15.0	1.3	100	0	--	27
400915080433100			B-30 NR YORKVILLE OH (LAT 40 09 15N LONG 080 43 31W)							
AUG 1988 25...	1445	7.52	1590	7.4	12.5	0	750	510	--	230
401140080490200			JE-95 NR DILLONVALE OH (LAT 40 11 40N LONG 080 49 02W)							
AUG 1988 25...	1930	8.22	1180	7.5	11.5	2.4	520	290	--	150

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	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CAC03)	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)
390810082221900			V-90 AT RADCLIFF OH (LAT 39 08 10N LONG 082 22 19W)						
AUG 1988									
29...	3.5	7.4	0.80	8	8.0	36	3.0	38	107
391002082211100			V-91 NR RADCLIFF OH (LAT 39 10 02N LONG 082 21 11W)						
AUG 1988									
29...	19	43	5.9	23	27	180	22	17	351
392347082205300			HK-53 NR STARR OH (LAT 39 23 47N LONG 082 20 53W)						
AUG 1988									
23...	1.1	180	2.1	287	288	1.1	71	7.1	472
392500082195100			HK-52 NR STARR OH (LAT 39 25 00N LONG 082 19 51W)						
AUG 1988									
23...	13	60	3.0	188	189	110	9.8	14	379
395417081330100			GU-84 AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 33 01W)						
AUG 1988									
30...	31	84	1.0	416	416	7.0	39	7.5	499
395418081335800			GU-86 NR PLEASANT CITY OH (LAT 39 54 18N LONG 081 33 58W)						
AUG 1988									
30...	11	53	2.2	241	246	3.3	14	14	281
395758081345700			GU-83 AT BYESVILLE OH (LAT 39 57 58N LONG 081 34 57W)						
AUG 1988									
30...	19	21	0.60	206	206	80	18	12	363
395906081331600			GU-85 NR BYESVILLE OH (LAT 39 59 06N LONG 081 33 16W)						
AUG 1988									
30...	32	17	0.60	174	174	120	22	16	401
400609080541800			B-28 NR ST CLAIRSVILLE OH (LAT 40 06 09N LONG 080 54 18W)						
AUG 1988									
24...	4.3	280	1.1	461	461	89	50	8.4	789
400806080453600			B-29 NR YORKVILLE OH (LAT 40 08 06N LONG 080 45 36W)						
AUG 1988									
25...	8.0	270	1.3	363	364	25	150	7.1	738
400915080433100			B-30 NR YORKVILLE OH (LAT 40 09 15N LONG 080 43 31W)						
AUG 1988									
25...	43	57	2.6	242	242	630	26	8.1	1220
401140080490200			JE-95 NR DILLONVALE OH (LAT 40 11 40N LONG 080 49 02W)						
AUG 1988									
25...	35	56	1.4	227	226	390	7.7	7.2	863

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)
390810082221900			V-90 AT RADCLIFF OH (LAT 39 08 10N LONG 082 22 19W)					
AUG 1988								
29...	100	310	20	330	86	50	73	1.3
391002082211100			V-91 NR RADCLIFF OH (LAT 39 10 02N LONG 082 21 11W)					
AUG 1988								
29...	329	130	10	630	76	90	74	1.2
392347082205300			HK-53 NR STARR OH (LAT 39 23 47N LONG 082 20 53W)					
AUG 1988								
23...	438	200	<10	210	<3	10	3	1.0
392500082195100			HK-52 NR STARR OH (LAT 39 25 00N LONG 082 19 51W)					
AUG 1988								
23...	374	30	<10	1500	1400	120	120	0.7
395417081330100			GU-84 AT PLEASANT CITY OH (LAT 39 54 17N LONG 081 33 01W)					
AUG 1988								
30...	484	20	<10	3800	1400	70	56	3.0
395418081335800			GU-86 NR PLEASANT CITY OH (LAT 39 54 18N LONG 081 33 58W)					
AUG 1988								
30...	280	30	50	1300	990	140	140	0.9
395758081345700			GU-83 AT BYESVILLE OH (LAT 39 57 58N LONG 081 34 57W)					
AUG 1988								
30...	352	<10	<10	6100	5700	220	230	1.6
395906081331600			GU-85 NR BYESVILLE OH (LAT 39 59 06N LONG 081 33 16W)					
AUG 1988								
30...	381	170	<10	350	160	500	510	1.0
400609080541800			B-28 AT ST CLAIRSVILLE OH (LAT 40 06 09N LONG 080 54 18W)					
AUG 1988								
24...	795	50	<10	130	55	10	<1	0.8
400806080453600			B-29 NR YORKVILLE OH (LAT 40 08 06N LONG 080 45 36W)					
AUG 1988								
25...	706	130	<10	240	<3	30	10	1.1
400915080433100			B-30 NR YORKVILLE OH (LAT 40 09 15N LONG 080 43 31W)					
AUG 1988								
25...	1140	40	<10	40	<3	10	1	0.9
401140080490200			JE-95 NR DILLONVALE OH (LAT 40 11 40N LONG 080 49 02W)					
AUG 1988								
25...	783	30	<10	60	14	10	6	0.8

SURFACE- AND GROUND-WATER RECORDS FOR THE SOUTHERN FRANKLIN COUNTY PROJECT

Data in the following three tables were collected as part of a 3-year study of Scioto River between Frank Road and the Southerly Wastewater Treatment facility and of ground-water in the vicinity of the City of Columbus collector-well system. The objective of the study is to (1) determine the proportion of water pumped from the collector wells that originates from the alluvial aquifer, bedrock aquifer, and Scioto River and (2) characterize the quality of water from the collector well as a function of variation in pumping rate and variation in the quantity of effluent from the Jackson Pike Wastewater Treatment facility during low-flow conditions.

Tables 1 and 2 contain chemical-quality data from a network of 12 surface-water sites and 4 ground-water sites. Table 3 contains ground-water level measurements from a network of 22 wells.

CHEMICAL QUALITY OF SURFACE WATER

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	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)
395501083003400 SCIOTO R AT FRANK RD AT COLUMBUS OH (LAT 39 55 01N LONG 083 00 34W)										
AUG 1988										
25...	0645	137	525	7.8	17.0	23.0	3.2	200	94	48
395417083003200 JACKSON PIKE STP OUTFALL AT COLUMBUS OH (LAT 39 54 17N LONG 083 00 32W)										
AUG 1988										
25...	0820	77[1]	880	7.8	18.0	25.0	6.4	230	110	62
395407083002200 AMERICAN AGGREGATES QUARRY DISCHARGE AT COLS OH (LAT 39 54 07N LONG 083 00 22W)										
AUG 1988										
25...	1000	25[2]	1840	8.1	--	26.0	--	980	0	260
395408083002100 SCIOTO R BL SEWAGE PLANT AT COLUMBUS OH (LAT 39 54 08N LONG 083 00 21W)										
AUG 1988										
25...	0715	164	850	7.4	20.0	22.0	4.1	310	190	82
25...	1540	175	829[3]	8.0	30.0	27.5	7.9	310	190	80
395328083003500 SCIOTO R 2.4 MI BL FRANK RD AT COLUMBUS OH (LAT 39 53 28N LONG 083 00 35W)										
AUG 1988										
25...	1200	168	770	7.6	27.0	22.0	5.1	310	190	80
25...	2030	186	850	8.0	25.5	26.0	6.5	330	210	86
395250083010900 SCIOTO BIG RUN AT COLUMBUS OH (LAT 39 52 50N LONG 083 01 09W)										
AUG 1988										
25...	1515	9.0	860	7.8	24.0	23.0	8.6	330	160	87
395251083010700 SCIOTO R AT I-270 S AT COLUMBUS OH (LAT 39 52 51N LONG 083 01 07W)										
AUG 1988										
25...	1715	157	860	8.0	28.0	23.0	8.6	310	190	82
395156083012600 SCIOTO R BL I-270 AT COLUMBUS OH (LAT 39 51 56N LONG 083 01 26W)										
AUG 1988										
25...	2100	--	787	8.0	21.0	--	--	310	180	81
395114083010401 SCIOTO R AT CW-101 NR SHADEVILLE OH (LAT 39 51 14N LONG 083 01 04W)										
AUG 1988										
26...	0300	147	780	7.8	18.0	23.0	8.6	320	200	84
395041083004800 SCIOTO R NR CW-103 NR SHADEVILLE OH (LAT 39 50 41N LONG 083 00 48W)										
AUG 1988										
26...	0650	171	792	7.8	19.0	21.0	9.7	320	180	83
395021083003600 SCIOTO R AT CW-104 NR COLUMBUS OH (LAT 39 50 21N LONG 083 00 36W)										
AUG 1988										
26...	0830	134	--	7.8	19.0	23.0	5.6	320	190	83
394957083002900 SCIOTO R AT SHADEVILLE OH (LAT 39 49 57N LONG 083 00 29W)										
AUG 1988										
26...	1130	134[2]	--	8.0	--	24.0	7.2	320	200	84

[1] Measured by the Sewage Treatment Plant
[2] Estimated
[3] Measured in the laboratory

CHEMICAL QUALITY OF SURFACE WATER--Continued

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY, CARBONATE IT-FLD (MG/L - CACO3)	BICARBONATE IT-FLD (MG/L AS HCO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)
395501083003400 SCIOTO R AT FRANK RD AT COLUMBUS OH (LAT 39 55 01N LONG 083 00 34W)										
AUG 1988										
25...	19	27	3.4	106	129	80	39	0.30	0.024	3.2
395417083003200 JACKSON PIKE STP OUTFALL AT COLUMBUS OH (LAT 39 54 17N LONG 083 00 32W)										
AUG 1988										
25...	17	86	10	114	139	130	96	0.90	0.87	8.5
395407083002200 AMERICAN AGGREGATES QUARRY DISCHARGE AT COLS OH (LAT 39 54 07N LONG 083 00 22W)										
AUG 1988										
25...	78	55	5.1	158	193	810	100	1.1	0.60	0.17
395408083002100 SCIOTO R BL SEWAGE PLANT AT COLUMBUS OH (LAT 39 54 08N LONG 083 00 21W)										
AUG 1988										
25...	26	51	6.7	123	150	190	67	0.60	0.41	4.8
25...	25	54	7.4	117	143	190	69	0.70	0.32	4.8
395328083003500 SCIOTO R 2.4 MI BL FRANK RD AT COLUMBUS OH (LAT 39 53 28N LONG 083 00 35W)										
AUG 1988										
25...	25	50	6.5	120	146	190	65	0.60	0.45	4.7
25...	27	55	7.2	115	140	200	70	0.70	0.36	4.7
395250083010900 SCIOTO BIG RUN AT COLUMBUS OH (LAT 39 52 50N LONG 083 01 09W)										
AUG 1988										
25...	27	36	4.4	168	205	150	57	0.30	0.086	7.2
395251083010700 SCIOTO R AT I-270 S AT COLUMBUS OH (LAT 39 52 51N LONG 083 01 07W)										
AUG 1988										
25...	26	49	6.3	128	156	190	63	0.60	0.42	4.9
395156083012600 SCIOTO R BL I-270 AT COLUMBUS OH (LAT 39 51 56N LONG 083 01 26W)										
AUG 1988										
25...	26	48	6.4	128[4]	--	190	63	0.50	0.53	4.7
395114083010401 SCIOTO R AT CW-101 NR SHADEVILLE OH (LAT 39 51 14N LONG 083 01 04W)										
AUG 1988										
26...	26	49	6.3	115	140	190	64	0.60	0.40	4.7
395041083004800 SCIOTO R NR CW-103 NR SHADEVILLE OH (LAT 39 50 41N LONG 083 00 48W)										
AUG 1988										
26...	26	49	6.3	135	165	180	64	0.50	98	4.6
395021083003600 SCIOTO R AT CW-104 NR COLUMBUS OH (LAT 39 50 21N LONG 083 00 36W)										
AUG 1988										
26...	26	49	6.3	128	156	190	64	0.50	0.40	4.4
394957083002900 SCIOTO R AT SHADEVILLE OH (LAT 39 49 57N LONG 083 00 29W)										
AUG 1988										
26...	27	50	6.3	127	155	190	65	0.50	0.40	4.3

[4] Titration to 4.5 end point

CHEMICAL QUALITY OF SURFACE WATER--Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)
395501083003400 SCIOTO R AT FRANK RD AT COLUMBUS OH (LAT 39 55 01N LONG 083 00 34W)										
AUG 1988										
25...	317	0.60	0.37	1.0	0.07	51	<0.5	70	1	<3
395417083003200 JACKSON PIKE STP OUTFALL AT COLUMBUS OH (LAT 39 54 17N LONG 083 00 32W)										
AUG 1988										
25...	556	9.5	0.10	1.9	4.2	25	0.8	210	1	<3
395407083002200 AMERICAN AGGREGATES QUARRY DISCHARGE AT COLS OH (LAT 39 54 07N LONG 083 00 22W)										
AUG 1988										
25...	1530	<0.10	0.08	0.80	0.02	25	<0.5	320	5	<3
395408083002100 SCIOTO R BL SEWAGE PLANT AT COLUMBUS OH (LAT 39 54 08N LONG 083 00 21W)										
AUG 1988										
25...	539	3.6	0.29	0.90	1.4	90	<0.5	150	<1	<3
25...	537	3.8	0.18	0.70	1.8	37	<0.5	150	<1	<3
395328083003500 SCIOTO R 2.4 MI BL FRANK RD AT COLUMBUS OH (LAT 39 53 28N LONG 083 00 35W)										
AUG 1988										
25...	542	3.4	0.22	0.50	1.3	42	<0.5	150	<1	<3
25...	566	3.9	0.13	0.90	1.7	38	<0.5	160	2	<3
395250083010900 SCIOTO BIG RUN AT COLUMBUS OH (LAT 39 52 50N LONG 083 01 09W)										
AUG 1988										
25...	492	--	--	1.0	0.04	79	<0.5	100	1	<3
395251083010700 SCIOTO R AT I-270 S AT COLUMBUS OH (LAT 39 52 51N LONG 083 01 07W)										
AUG 1988										
25...	527	3.0	0.14	0.90	1.1	44	<0.5	140	<1	<3
395156083012600 SCIOTO R BL I-270 AT COLUMBUS OH (LAT 39 51 56N LONG 083 01 26W)										
AUG 1988										
25...	513	2.8	0.07	0.80	1.1	53	<0.5	140	2	<3
395114083010401 SCIOTO R AT CW-101 NR SHADEVILLE OH (LAT 39 51 14N LONG 083 01 04W)										
AUG 1988										
26...	53	3.0	0.08	0.60	1.1	48	<0.5	140	<1	<3
395041083004800 SCIOTO R NR CW-103 NR SHADEVILLE OH (LAT 39 50 41N LONG 083 00 48W)										
AUG 1988										
26...	530	3.0	0.07	0.90	1.1	47	<0.5	140	<1	<3
395021083003600 SCIOTO R AT CW-104 NR COLUMBUS OH (LAT 39 50 21N LONG 083 00 36W)										
AUG 1988										
26...	524	--	--	0.60	1.10	47	<0.5	140	<1	<3
394957083002900 SCIOTO R AT SHADEVILLE OH (LAT 39 49 57N LONG 083 00 29W)										
AUG 1988										
26...	536	--	--	0.60	1.1	47	<0.5	150	<1	<3

CHEMICAL QUALITY OF SURFACE WATER--Continued

DATE	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
395501083003400 SCIOTO R AT FRANK RD AT COLUMBUS OH (LAT 39 55 01N LONG 083 00 34W)									
AUG 1988									
25...	20	14	<10	7	38	10	1700	<6	34
395417083003200 JACKSON PIKE STP OUTFALL AT COLUMBUS OH (LAT 39 54 17N LONG 083 00 32W)									
AUG 1988									
25...	20	59	<10	68	5	50	840	<6	100
395407083002200 AMERICAN AGGREGATES QUARRY DISCHARGE AT COLS OH (LAT 39 54 07N LONG 083 00 22W)									
AUG 1988									
25...	10	7	<10	62	12	<10	8500	<6	30
395408083002100 SCIOTO R BL SEWAGE PLANT AT COLUMBUS OH (LAT 39 54 08N LONG 083 00 21W)									
AUG 1988									
25...	<10	31	<10	43	22	20	2200	<6	45
25...	<10	14	<10	33	20	20	2200	<6	37
395328083003500 SCIOTO R 2.4 MI BL FRANK RD AT COLUMBUS OH (LAT 39 53 28N LONG 083 00 35W)									
AUG 1988									
25...	<10	92	<10	45	25	20	2200	<6	53
25...	<10	8	10	37	13	20	2300	<6	35
395250083010900 SCIOTO BIG RUN AT COLUMBUS OH (LAT 39 52 50N LONG 083 01 09W)									
AUG 1988									
25...	<10	19	<10	10	20	10	1500	<6	6
395251083010700 SCIOTO R AT I-270 S AT COLUMBUS OH (LAT 39 52 51N LONG 083 01 07W)									
AUG 1988									
25...	<10	22	<10	42	13	20	2100	<6	36
395156083012600 SCIOTO R BL I-270 AT COLUMBUS OH (LAT 39 51 56N LONG 083 01 26W)									
AUG 1988									
25...	10	37	<10	40	14	10	2000	<6	54
395114083010401 SCIOTO R AT CW-101 NR SHADEVILLE OH (LAT 39 51 14N LONG 083 01 04W)									
AUG 1988									
26...	<10	15	<10	40	11	20	2100	<6	23
395041083004800 SCIOTO R NR CW-103 NR SHADEVILLE OH (LAT 39 50 41N LONG 083 00 48W)									
AUG 1988									
26...	<10	20	<10	40	13	20	2100	<6	30
395021083003600 SCIOTO R AT CW-104 NR COLUMBUS OH (LAT 39 50 21N LONG 083 00 36W)									
AUG 1988									
26...	<10	26	<10	40	10	20	2100	<6	30
394957083002900 SCIOTO R AT SHADEVILLE OH (LAT 39 49 57N LONG 083 00 29W)									
AUG 1988									
26...	<10	15	<10	40	9	10	2100	<6	26

CHEMICAL QUALITY OF GROUND WATER

DATE	TIME	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	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)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
395116083024500 FR-270 TAMARA SMITH NR GROVE CITY OH (LAT 39 51 16N LONG 083 02 45W)												
AUG 1988 18...	1200	762	757	7.4	32.0	13.0	0.2	400	39	93	39	8.5
395323083014000 FR-269 RONS TRUCKING NR COLUMBUS OH (LAT 39 53 23N LONG 083 01 40W)												
AUG 1988 18...	1000	740	1410[1]	7.1	30	13.5	0.6	640	220	170	51	61
395024083003000 FR-149 HARTMAN FARMS AT CW-104 NR COLUMBUS OH (LAT 39 50 24N LONG 083 00 30W)												
AUG 1988 22...	1330	684	1290[1]	7.2	--	15.5	--	600	0	110	72	55
395314083021900 FR-202 (LAT 39 53 14N LONG 083 02 19W)												
AUG 1988 22...	1200	752	102	7.4	27.0	13.0	--	520	170	120	47	27

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L - CACO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	BORON, DIS-SOLVED (UG/L AS B)
395116083024500 FR-270 TAMARA SMITH NR GROVE CITY OH (LAT 39 51 16N LONG 083 02 45W)												
AUG 1988 18...	1.4	360	439	52	10	1.0	0.028	17	438	110	<0.5	50
395323083014000 FR-269 RONS TRUCKING NR COLUMBUS OH (LAT 39 53 23N LONG 083 01 40W)												
AUG 1988 18...	2.7	438[2]	--	130	150	0.60	0.10	17	922	110	<0.5	110
395024083003000 FR-149 HARTMAN FARMS AT CW-104 NR COLUMBUS OH (LAT 39 50 24N LONG 083 00 30W)												
AUG 1988 22...	8.8	590	720	32	130	1.4	0.76	9.9	727	31000	<0.5	1900
395314083021900 FR-202 (LAT 39 53 14N LONG 083 02 19W)												
AUG 1988 22...	2.2	350	427	190	13	1.5	0.043	16	658	29	<0.5	180

[1] Measured in the laboratory
[2] Titrated to an endpoint of 4.5

CHEMICAL QUALITY OF GROUND WATER--Continued

DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	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)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
395116083024500 FR-270 TAMARA SMITH NR GROVE CITY OH (LAT 39 51 16N LONG 083 02 45W)											
AUG 1988											
18...	<1	<3	<10	380	<10	22	7	10	5100	<6	5
395323083014000 FR-269 RONS TRUCKING NR COLUMBUS OH (LAT 39 53 23N LONG 083 01 40W)											
AUG 1988											
18...	2	<3	<10	7100	<10	27	200	20	8500	<6	27
395024083003000 FR-149 HARTMAN FARMS AT CW-104 NR COLUMBUS OH (LAT 39 50 24N LONG 083 00 30W)											
AUG 1988											
22...	1	<3	<10	200	10	85	180	<10	6800	<6	<3
395314083021900 FR-202 (LAT 39 53 14N LONG 083 02 19W)											
AUG 1988											
22...	1	<3	<10	3100	<10	27	30	50	21000	<6	11

GROUND-WATER LEVEL MEASUREMENTS

SITE ID	LOCAL WELL NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	WATER-LEVEL DATE	WATER LEVEL (FEET BELOW LAND SURFACE
394956083002700	FR-18	394956	830027	07-21-88	23.88
				07-22-88	23.88
				07-25-88	23.90
				07-29-88	23.70
				08-05-88	23.45
				08-15-88	24.00
395006083013600	FR-116	395006	830136	07-21-88	25.69
				07-25-88	25.72
				07-29-88	25.83
				08-05-88	26.06
				08-15-88	26.37
395008082593100	FR-126 M13	395008	825931	07-25-88	20.33
				07-29-88	20.66
				08-05-88	21.08
				08-17-88	21.26
395016083010300	FR-117	395016	830103	07-21-88	19.29
				07-22-88	19.32
				07-25-88	19.35
				07-29-88	19.43
				08-05-88	19.67
				08-15-88	20.07
395020083003300	FR-104 TH-20	395020	830033	07-21-88	34.73
				07-22-88	32.99
				07-25-88	33.15
				07-29-88	33.68
				08-05-88	31.49
				08-15-88	33.62
				08-22-88	36.95
				08-23-88	37.39
				09-09-88	34.38
395020083003400	FR-104 TH-72	395020	830034	07-21-88	34.09
				07-22-88	31.37
				07-25-88	32.94
				07-29-88	33.60
				08-05-88	30.95
395021083002900	FR-104 TH-18	395021	830029	07-21-88	40.30
				07-22-88	39.10
				07-25-88	39.55
				07-29-88	40.10
				08-05-88	38.16
				08-15-88	40.30
395024083003000	FR-149	395024	830030	07-21-88	21.40
				07-22-88	21.40
				07-25-88	21.41
				07-29-88	21.58
				08-05-88	22.33
				08-15-88	23.16
				08-22-88	23.65
				08-23-88	25.26
				09-09-88	24.81
395027082592500	FR 151	395027	825925	07-21-88	32.93
				07-25-88	32.93
				07-29-88	32.94
				08-05-88	33.24
				08-17-88	32.99
395039082585800	FR-115 TH 67	395039	825858	07-21-88	41.03
				07-25-88	41.74
				07-29-88	40.88
				08-05-88	40.50
395045083003100	FR 103 TH-11	395045	830025	07-21-88	52.53
				07-25-88	49.95
				07-29-88	56.22
				08-05-88	59.47
				08-15-88	59.88
395058083002400	FR-119	395111	830026	07-22-88	39.72
				07-25-88	39.36
395108083010600	FR-147	395108	830106	07-21-88	26.63
				07-22-88	25.53
				07-25-88	26.97
				07-29-88	26.06
				08-05-88	28.96
				08-15-88	32.14
395114083010201	FR-101-TH 46	395114	830102	07-21-88	31.12
				07-22-88	29.60
				07-25-88	30.35
				07-29-88	29.32
				08-05-88	33.65
				08-12-88	36.30
				08-17-88	37.40
				08-23-88	35.38
				09-09-88	30.32

SURFACE- AND GROUND-WATER RECORDS FOR THE SOUTHERN FRANKLIN COUNTY PROJECT--Continued

GROUND-WATER LEVEL MEASUREMENTS--Continued

SITE ID	LOCAL WELL NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	WATER-LEVEL DATE	WATER LEVEL (FEET BELOW LAND SURFACE)
395114083010200	FR-148	395114	830102	07-21-88	31.02
				07-22-88	30.67
				07-25-88	31.07
				07-29-88	30.10
				08-05-88	31.79
				08-12-88	34.86
				08-17-88	35.47
				08-23-88	36.69
				09-09-88	31.49
395117083011600	FR-120	395117	830116	07-22-88	19.95
				07-25-88	20.48
395123083003300	FR-121	395123	830033	07-21-88	27.70
				07-25-88	27.87
				07-29-88	27.97
				08-05-88	28.20
				08-17-88	29.09
395126083014000	FR-131	395126	830140	07-22-88	48.63
				07-25-88	48.72
				07-29-88	48.80
				08-05-88	48.87
				08-15-88	49.07
395131082592400	FR-123	395131	825924	07-21-88	14.69
				07-25-88	14.77
				07-29-88	14.81
				08-05-88	14.96
				08-17-88	15.17
395157083003500	FR-109	395157	830035	07-21-88	29.82
				08-05-88	30.57
395218083023900	FR-133	395218	830239	07-25-88	62.71
				07-29-88	62.84
				08-05-88	62.73
				08-15-88	62.90
395314083021900	FR-202	395314	830219	08-22-08	90.03

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.

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 current year.
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 5, 1987	33.19	Nov 23, 1987	34.03	Dec 21, 1987	33.29	Feb 17, 1988	31.91
Apr 27, 1988	30.52	Jul 07, 1988	32.39	Aug 15, 1988	33.17		

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
23...	1330	2200	6.7	12.0	1300	970	360	96	32
AUG 1988									
16...	0900	2000	6.8	13.5	1200	890	330	89	32

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)
NOV 1987								
23...	3.9	330	1000	55	1970	<10	90	6600
AUG 1988								
16...	3.5	300	890	67	1600	10	200	5500

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 current year.
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, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 5, 1987	46.22	Nov 23, 1987	46.41	Dec 21, 1987	46.47	Feb 17, 1988	45.20
Apr 27, 1988	45.97	July 7, 1988	46.60	Aug 15, 1988	46.23		

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 current year.
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 5, 1987	34.30	Feb 17, 1988	33.03	Apr 27, 1988	31.60	July 7, 1988	33.45
Aug 15, 1988	34.15						

JEFFERSON COUNTY--Continued

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 current year.
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 5, 1987	52.31	Nov 23, 1987	53.15	Dec 21, 1987	52.38	Feb 17, 1988	49.26
Apr 27, 1988	48.32	Jul 7, 1988	51.34	Aug 6, 1988	52.25		

401002080521801. Local number, J11 W5-3.
LOCATION.--Lat 40°10'02", long 80°52'18", Hydrologic Unit 05030106, near Harrisville
QUIFER.--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 current year.

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 current year.
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 5, 1987	38.19	Nov 23, 1987	39.14	Dec 21, 1987	39.10	Feb 17, 1988	36.11
Apr 27, 1988	34.20	Jul 07, 1988	37.28	Aug 6, 1988	37.65		

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 current year.
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 05, 1987	158.73	Nov 23, 1987	158.81	Dec 21, 1987	156.29	Feb 17, 1988	155.93
Apr 27, 1988	148.70	Jul 7, 1988	146.11	Aug 16, 1988	146.36		

GROUND-WATER RECORDS IN STRIP MINES--Continued

JEFFERSON COUNTY--Continued

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 current year.
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.
REMARKS.--Water-level data affected by pumpage Nov. 24-30, 1987 and Aug. 15 to Sept. 30, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.37	28.68	29.39	28.17	28.51	27.87	26.95			---	28.27	30.84
2	28.35	28.61	29.44	28.19	27.45	27.87	26.97			---	28.34	30.85
3	28.36	28.57	29.44	28.18	26.61	27.86	26.97			---	28.35	30.81
4	28.33	28.54	29.32	28.42	26.61	27.47	26.79			---	28.36	30.77
5	28.26	28.69	29.22	28.48	27.01	27.02	26.56			---	28.49	30.64
6	28.32	28.69	29.23	28.59	27.29	26.86	26.60			---	28.51	30.62
7	28.42	28.67	29.28	28.61	27.36	26.96	26.76			29.25	28.51	30.59
8	28.47	28.64	29.33	28.67	27.49	26.97	26.81			29.25	28.49	30.55
9	28.47	28.65	29.37	28.72	27.60	26.98	26.83			29.24	28.51	30.52
10	28.39	28.66	29.37	28.79	27.70	27.11	26.83			29.24	28.56	30.57
11	28.35	28.64	29.32	28.80	27.70	27.15	27.04			29.24	28.57	30.59
12	28.33	28.60	29.54	28.80	27.73	27.13	27.08			29.25	28.57	30.59
13	28.32	28.67	29.70	28.94	27.86	27.05	27.08			29.25	28.58	30.57
14	28.37	28.74	29.71	29.01	27.85	26.90	27.09			29.20	28.60	30.47
15	28.40	28.76	29.62	28.95	27.77	27.07	27.11			29.22	28.64	30.41
16	28.40	28.74	29.57	29.02	27.85	27.11	27.11			29.22	31.41	30.41
17	28.46	28.66	29.62	29.01	27.84	27.13	27.11			29.20	31.08	30.39
18	28.52	28.62	29.62	28.92	27.83	27.13	27.11			29.20	30.97	30.38
19	28.52	28.62	29.59	28.75	27.82	27.06	27.11			29.16	30.97	30.37
20	28.49	28.58	29.49	28.21	27.59	27.19	27.12			29.13	30.91	30.34
21	28.53	28.70	28.78	28.02	27.69	27.19	27.12			28.31	30.87	30.37
22	28.56	28.71	28.67	28.07	27.67	27.18	27.12			27.82	30.87	30.37
23	28.51	28.74	28.76	28.14	27.65	27.06	27.12			27.90	30.86	30.29
24	28.54	35.84	28.72	28.26	27.65	27.06	27.21			27.72	30.77	30.34
25	28.65	31.31	28.68	28.26	27.69	27.06	27.21			27.75	30.76	30.33
26	28.62	30.74	28.52	28.42	27.69	27.03	27.20			27.89	30.81	30.31
27	28.53	30.70	28.24	28.53	27.79	26.67	27.16			28.05	30.81	30.31
28	28.55	30.64	28.19	28.57	27.84	26.75	27.16			28.13	30.86	30.27
29	28.56	30.50	28.15	28.57	27.85	26.75	27.16			28.18	30.85	30.28
30	28.56	29.62	28.15	28.56	---	26.91	27.14			28.19	30.83	30.28
31	28.68	---	28.14	28.55	---	26.91	---			28.24	30.83	---
MAX	28.68	35.84	29.71	29.02	28.51	27.87	27.21			---	31.41	30.85

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
24...	1000	2100	6.8	12.0	1200	700	340	91	17
AUG 1988									
15...	1533	2000	6.6	11.5	1400	900	410	88	20

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)
NOV 1987								
24...	3.1	522	740	30	1680	<10	20	3400
AUG 1988								
15...	2.4	490	810	31	1480	<10	30	3600

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 current year.

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 present.
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 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.79	34.42	34.85	34.87	34.62	32.60	31.22	31.35	32.18	32.89	33.57	34.07
2	33.79	34.45	34.89	34.86	34.54	32.60	31.22	31.38	32.19	32.92	33.59	34.09
3	33.84	34.46	34.89	34.84	33.89	32.60	31.22	31.39	32.23	32.94	33.61	34.09
4	33.86	34.46	34.90	34.78	33.72	32.54	31.22	31.43	32.27	32.98	33.63	34.10
5	33.87	34.49	34.91	34.76	33.45	32.47	31.19	31.45	32.29	33.02	33.64	34.12
6	33.87	34.53	34.96	34.76	33.36	32.39	31.13	31.49	32.31	33.04	33.66	34.15
7	33.89	34.53	34.97	34.76	33.24	32.24	31.07	31.53	32.33	33.07	33.68	34.18
8	33.95	34.55	34.97	34.75	33.06	32.16	31.08	31.55	32.34	33.08	33.69	34.20
9	33.97	34.58	34.97	34.71	32.99	32.04	31.09	31.57	32.39	33.09	33.72	34.23
10	33.99	34.59	34.97	34.71	32.90	31.96	31.13	31.59	32.44	33.12	33.74	34.26
11	34.00	34.61	34.97	34.71	32.86	31.92	31.13	31.65	32.46	33.15	33.76	34.29
12	34.00	34.63	34.98	34.68	32.78	31.88	31.15	31.67	32.48	33.18	33.77	34.30
13	34.05	34.64	35.03	34.66	32.77	31.82	31.19	31.69	32.51	33.19	33.79	34.31
14	34.06	34.68	35.04	34.67	32.73	31.73	31.21	31.69	32.54	33.23	33.81	34.35
15	34.08	34.71	35.04	34.67	32.68	31.66	31.22	31.73	32.55	33.26	33.82	34.39
16	34.09	34.72	35.04	34.67	32.66	31.63	---	31.74	32.57	33.28	33.84	34.39
17	34.11	34.72	35.08	34.66	32.66	31.63	---	31.78	32.58	33.29	33.85	34.43
18	34.13	34.74	35.08	34.66	32.66	31.62	---	31.79	32.62	33.33	33.85	34.46
19	34.15	34.76	35.08	34.66	32.66	31.55	---	31.83	32.63	33.36	33.86	34.47
20	34.16	34.77	35.08	34.61	32.60	31.51	---	31.86	32.66	33.37	33.87	34.51
21	34.20	34.81	35.06	34.59	32.61	31.53	---	31.88	32.67	33.35	33.90	34.52
22	34.21	34.83	35.06	34.59	32.61	31.53	---	31.91	32.68	33.38	33.92	34.54
23	34.22	34.85	35.06	34.59	32.58	31.53	---	31.93	32.73	33.39	33.92	34.56
24	34.26	34.85	35.07	34.59	32.58	31.48	---	31.96	32.74	33.41	33.93	34.58
25	34.29	34.83	35.07	34.58	32.58	31.48	---	32.01	32.75	33.44	33.95	34.61
26	34.30	34.84	35.06	34.59	32.58	31.46	---	32.04	32.78	33.45	33.96	34.65
27	34.31	34.85	35.04	34.61	32.59	31.36	31.20	32.07	32.79	33.48	33.98	34.65
28	34.32	34.85	35.03	34.62	32.59	31.26	31.23	32.09	32.82	33.49	34.00	34.67
29	34.36	34.85	34.94	34.62	32.59	31.23	31.27	32.11	32.84	33.53	34.02	34.67
30	34.38	34.85	34.93	34.63	---	31.21	31.29	32.15	32.86	33.53	34.04	34.68
31	34.42	---	34.93	34.62	---	31.21	---	32.17	---	33.55	34.05	---
MAX	34.42	34.85	35.08	34.87	34.62	32.60	---	32.17	32.86	33.55	34.05	34.68

WTR YR 1988 MEAN 33.42 HIGH 31.07 APR 7 LOW 35.08 DEC 17 AND OTHERS

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
24...	0900	1300	6.6	12.5	780	490	220	55	18
AUG 1988									
15...	1300	1400	6.7	14.5	840	560	230	64	21

JEFFERSON COUNTY--Continued

MISCELLANEOUS STATION ANALYSES

401007080522401. Local number, J11 W9-3--Continued

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)
NOV 1987								
24...	2.8	285	500	31	1040	<10	39	930
AUG 1988								
15...	2.7	280	600	35	1190	<10	20	1100

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 1987 to present.

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 current year.

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", 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 current year.
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 19, 1986	Dry	Nov 17, 1987	Dry	Dec 22, 1987	Dry	Feb 18, 1988	Dry
Apr 28, 1988	Dry	Jul 6, 1988	Dry	Aug 8, 1988	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 current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 33.15 ft below land-surface datum, Nov 17, 1987; 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 19, 1987	36.13	Nov 17, 1987	33.15	Dec 22, 1987	36.44	Feb 18, 1988	35.48
Apr 28, 1988	35.05	Jul 6, 1988	36.07	Aug 8, 1988	36.09		

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 current year.
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 19, 1987	17.81	Nov 17, 1987	18.06	Dec 22, 1987	15.40	Feb 18, 1988	15.34
Apr 28, 1988	16.42	Aug 8, 1988	16.17				

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 current year.
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
Nov 17, 1987	14.57	Dec 22, 1987	14.02	Feb 18, 1988	13.34	Apr 28, 1988	13.27
June 6, 1988	14.89	Aug 8, 1988	14.43				

394845081462601. Local number, MQ9 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 current year.
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
Nov 17, 1987	8.03	Dec 22, 1987	7.15	Feb 18, 1988	6.48	Apr 28, 1988	6.58
Jul 6, 1988	9.11	Aug 8, 1988	8.21				

394845081462602. Local number, MQ9 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 current year.
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
Nov 17, 1987	15.50	Dec 22, 1988	14.96	Feb 18, 1988	14.25	Apr 28, 1987	14.19
Jul 6, 1988	15.80	Aug 8, 1988	15.34				

394855081461603. Local number, MQ9 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 current year.
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 19, 1987	49.92	Nov 18, 1987	50.57	Dec 22, 1987	50.80	Feb 8, 1988	50.18
Apr 28, 1988	47.82	Jul 6, 1988	48.77	Aug 9, 1988	49.01		

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 current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 94.80 ft below land-surface datum, Sept. 25 1980; lowest measured, 106.18 ft below land-surface datum, Aug 20, 1987.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	106.60	---	106.86	106.94	106.64	106.25	106.04	106.26	106.79	106.98	107.23
2	---	106.62	---	106.87	106.94	106.64	106.24	106.05	106.26	106.82	106.99	107.25
3	---	106.63	---	106.87	106.93	106.64	106.24	106.06	106.28	106.84	106.99	107.25
4	---	106.64	---	106.88	106.93	106.63	106.23	106.06	106.29	106.85	107.00	107.25
5	---	106.64	---	106.89	106.92	106.61	106.21	106.06	106.30	106.86	107.00	107.25
6	---	106.65	---	106.91	106.91	106.60	106.19	106.06	106.32	106.91	107.01	107.25
7	---	106.66	---	106.92	106.90	106.59	106.17	106.07	106.33	106.92	107.02	107.25
8	---	106.67	---	106.92	106.89	106.55	106.13	106.07	106.34	106.95	107.02	107.26
9	---	106.72	---	106.92	106.89	106.54	106.13	106.08	106.34	106.95	107.02	107.26
10	---	---	---	106.93	106.87	106.52	106.12	106.08	106.35	106.95	107.02	107.27
11	---	106.74	---	106.93	106.86	106.50	106.12	106.08	106.39	106.95	107.03	107.28
12	---	106.74	---	106.93	106.84	106.49	106.11	106.10	106.40	106.96	107.06	107.29
13	---	106.75	---	106.93	106.82	106.47	106.10	106.11	106.43	106.98	107.07	107.31
14	---	106.75	---	106.94	106.81	106.45	106.10	106.11	106.45	106.98	107.09	107.31
15	---	106.75	---	106.96	106.80	106.44	106.09	106.11	106.47	107.00	107.10	107.31
16	---	106.76	---	106.96	106.76	106.43	106.09	106.12	106.48	107.00	107.11	107.32
17	---	106.77	---	106.97	106.74	106.42	106.09	106.12	106.50	107.01	107.14	107.32
18	---	106.77	---	106.97	106.75	106.42	106.09	106.14	106.52	107.04	107.14	107.32
19	106.53	106.77	---	106.97	106.75	106.41	106.07	106.14	106.54	107.04	107.15	107.33
20	106.53	106.77	---	106.96	106.72	106.39	106.05	106.16	106.56	107.04	107.15	107.33
21	106.53	106.77	---	106.94	106.69	106.37	106.05	106.16	106.57	107.04	107.15	107.33
22	106.54	106.78	106.82	106.93	106.69	106.37	106.05	106.18	106.58	107.01	107.16	107.34
23	106.54	106.79	106.82	106.93	106.67	106.37	106.04	106.19	106.58	106.99	107.18	107.34
24	106.55	106.80	106.83	106.92	106.67	106.32	106.04	106.19	106.66	106.99	107.18	107.35
25	106.56	106.82	106.83	106.92	106.66	106.30	106.04	106.19	106.67	106.97	107.19	107.35
26	106.56	106.82	106.84	106.91	106.66	106.29	106.04	106.19	106.69	106.97	107.19	107.36
27	106.56	---	106.86	106.91	106.66	106.27	106.03	106.19	106.69	106.97	107.20	107.37
28	106.56	---	106.86	106.92	106.65	106.26	106.03	106.20	106.72	106.98	107.21	107.38
29	106.57	---	106.86	106.92	106.64	106.25	106.03	106.21	106.75	106.98	107.21	107.41
30	106.58	---	106.86	106.94	---	106.25	106.03	106.23	106.78	106.98	107.21	107.43
31	106.59	---	106.86	106.94	---	106.25	---	106.25	---	106.98	107.22	---
MAX	---	---	---	106.97	106.94	106.64	106.25	106.25	106.78	107.04	107.22	107.43

WTR YR 1988 MEAN 106.70 HIGH 106.03 APR 27 AND OTHERS LOW 107.43 SEP 30

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 current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 32.25 ft below land-surface datum, Aug. 19, 1980; lowest measured, intersittently dry.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.25	29.78	30.24	30.84	30.76	30.17	---	28.37	28.28	28.45	28.79	29.11
2	29.41	29.76	30.38	30.86	30.56	30.12	---	28.37	28.22	28.47	28.85	29.11
3	29.44	29.71	30.38	30.83	30.22	30.10	---	28.37	28.25	28.48	28.86	29.09
4	29.39	29.65	30.40	30.77	29.97	---	---	28.33	28.27	28.53	28.86	28.94
5	29.27	29.73	30.48	30.85	29.94	---	---	28.30	28.29	28.61	28.83	28.99
6	29.24	29.79	30.58	30.87	29.93	---	---	28.29	28.26	28.64	28.83	29.09
7	29.45	29.77	30.59	30.86	29.92	---	---	28.32	28.22	28.63	28.84	29.11
8	29.50	29.77	30.56	30.73	29.93	---	---	28.31	28.17	28.62	28.84	29.11
9	29.51	29.83	30.49	30.75	29.96	---	---	28.25	28.28	28.58	28.94	29.10
10	29.51	29.84	30.43	30.84	30.01	---	---	28.22	28.32	28.58	28.93	29.16
11	29.51	29.84	30.39	30.81	30.00	---	---	28.29	28.36	28.59	28.96	29.20
12	29.52	29.81	30.38	30.74	29.90	---	---	28.32	28.37	28.59	28.96	29.18
13	29.55	29.77	30.57	30.83	30.05	---	---	28.30	28.42	28.63	28.97	29.11
14	29.54	29.86	30.57	30.93	30.06	---	---	28.29	28.46	28.62	28.94	29.13
15	29.54	29.95	30.48	30.84	29.93	---	---	28.28	28.43	28.65	28.93	29.22
16	29.49	29.95	30.52	30.76	30.08	---	---	28.17	28.38	28.66	28.95	29.23
17	29.53	29.88	30.66	30.72	30.11	---	---	28.19	28.36	28.66	28.96	29.20
18	29.51	31.16	30.71	30.75	30.17	---	---	28.19	28.39	28.67	28.90	29.18
19	29.44	30.60	30.65	30.75	30.10	---	---	28.19	28.39	28.69	28.88	29.17
20	29.44	30.34	30.61	30.40	30.02	---	---	28.21	28.39	28.69	28.86	29.13
21	29.56	30.45	30.64	30.56	30.09	---	---	28.22	28.35	28.46	28.97	29.18
22	29.60	30.45	30.63	30.58	30.09	---	---	28.23	28.34	28.59	28.98	29.18
23	29.59	30.43	30.68	30.56	30.09	---	---	28.21	28.40	28.61	28.97	29.13
24	29.61	30.46	30.67	30.58	30.09	---	---	28.17	28.44	28.64	28.88	29.16
25	29.72	30.45	30.61	30.58	30.15	---	---	28.27	28.42	28.66	28.86	29.22
26	29.63	30.45	30.68	30.76	30.15	---	---	28.29	28.37	28.65	28.91	29.23
27	29.51	30.45	30.68	30.86	30.10	---	---	28.29	28.39	28.70	28.98	29.24
28	29.58	30.45	30.66	30.87	30.13	---	28.32	28.29	28.39	28.79	29.02	29.28
29	29.62	30.32	30.82	30.86	30.09	---	28.32	28.29	28.38	28.79	29.04	29.30
30	29.62	30.25	30.84	30.80	---	---	28.37	28.29	28.39	28.79	29.06	29.31
31	29.76	---	30.71	30.78	---	---	---	28.29	---	28.79	29.10	---
MAX	29.76	31.16	30.84	30.93	30.76	---	---	28.37	28.46	28.79	29.10	29.31

WTR YR 1988 MEAN 29.43 HIGH 28.17 MAY 16 AND OTHERS LOW 31.16 NOV 18

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
18...	1100	1450	6.9	12.0	810	260	230	58	8.2
AUG 1988									
08...	1500	1500	6.8	14.0	870	450	260	53	6.5

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)
NOV 1987								
18...	3.1	558	350	2.5	990	<10	20000	990
AUG 1988								
08...	2.3	420	500	2.0	1170	20	9700	970

394852081462003. Local number, M09 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.--highest water level, 54.62 ft below land-surface datum, April 15, 1980; lowest measured, 67.45 ft below land-surface datum, Aug. 2, 1979.
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 LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct 19, 1987	65.47	Nov 17, 1987	66.38	Dec 22, 1987	81.47	Feb 18, 1988	59.82
Apr 28, 1988	59.73	Jul 6, 1988	63.46	Aug 9, 1988	64.06		

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
18...	1000	1000	6.9	12.0	220	0	54	21	140
AUG 1988									
09...	1100	840	7.4	13.5	240	0	55	24	100

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)
NOV 1987								
18...	2.4	364	170	6.0	620	<10	10	80
AUG 1988								
09...	2.2	330	150	3.4	551	20	15	71

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 current year.
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	DATE	WATER LEVEL
Nov 18, 1987	29.84	Dec 22, 1987	22.99	Feb 18, 1988	10.36	Apr 28, 1988	11.00
Jul 6, 1988	18.70	Aug 8, 1988	16.14				

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 current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 23.17 ft below land-surface datum, Feb. 20, 1986, 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 19, 1987	24.82	Nov 17, 1987	24.64	Dec 22, 1987	24.93	Feb 18, 1988	23.82
Apr 28, 1988	23.54	Aug 8, 1988	24.36				

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 current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 54.32 ft below land-surface datum, Feb. 20, 1986; 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 21, 1987	60.11	Nov 17, 1987	60.42	Dec 22, 1987	60.92	Feb 18, 1988	59.75
Apr 28, 1988	57.52	Jul 6, 1988	58.55	Aug 8, 1988	58.72		

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
AUG 1988									
08...	1300	4050	6.6	15.0	3500	2900	580	490	44

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)
AUG 1988								
08...	9.4	535	2800	2.2	4390	20	940	1700

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 current year.
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 19, 1987	45.90	Nov 17, 1987	48.70	Dec 22, 1987	49.30	Feb 18, 1988	48.30
Apr 28, 1988	46.45	Jul 6, 1988	47.43	Aug 8, 1988	47.66		

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 current year.
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 19, 1987	30.66	Nov 17, 1987	30.42	Dec 22, 1987	31.32	Feb 18, 1988	31.09
Apr 28, 1988	30.54	Jul 6, 1988	30.54	Aug 8, 1988	30.39		

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
18...	1045	1430	6.7	12.0	800	0	230	56	14
AUG 1988									
09...	0900	1180	6.5	14.5	720	23	200	54	15

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)
NOV 1987								
18...	1.1	872	54	5.1	858	<10	29000	3000
AUG 1988								
09...	1.0	700	100	4.0	846	20	3900	2500

394839081463000. Local number. M09 Stream
LOCATION.--LAT 39°48'39", long 81°46'30", Hydrologic Unit 05040004, near Chandlersville.
DRAINAGE AREA.--0.06 mi^2.
DATUM.--Altitude of land-surface datum is 920 ft.
PERIOD OF RECORD.--July 1986 to current year.

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
18...	1200	2380	7.5	9.0	1500	1200	350	140	14
AUG 1988									
09...	0830	2150	7.7	19.5	1800	1500	420	180	15

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)
NOV 1987								
18...	3 2	238	1400	12	2220	<10	40	320
AUG 1988								
09...	2.0	245	1500	2.5	2290	20	30	2400

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 current year.

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 1987									
17...	1445	3250	7.5	--	2200	1800	530	210	16
AUG 1988									
09...	0930	2900	7.5	17.0	2200	1900	490	240	15

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)
NOV 1987								
17...	3.4	437	2000	4.3	3210	<10	120	1900
AUG 1988								
09...	1.8	360	1900	1.7	3070	20	30	460

GROUND-WATER RECORDS FOR SHALERSVILLE BRINE DISPOSAL PROJECT

The chemistry and ground-water level data in the following tables were collected from a network of wells in Portage County, Ohio, as part of the Shalersville Brine Disposal Project. The study is being conducted in cooperation with the City of Akron and the Ohio Water Development Authority. The data will be used to evaluate the possible degradation of natural ground-water quality, in northern Portage County, as a result of brine-injection practices. Wells that produce water from outwash of Quaternary Age (112OTSH) are preceded with an asterisk (*). All other wells produce water from the Pottsville Formation of Pennsylvanian Age (324PSVL).

	DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	BARO-METRIC PRES-SURE (MM OF HG)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
*	411038081190201 PO-20 USGS SHALLOW PIEZOMETER NR KENT OH (LAT 41 10 38N LONG 081 19 02W)										
	APR 1988 13...	1700	3.45	16.	1055	733	478	7.2	20.0	8.5	0
*	411040081172800 PO-27 HILGERT NR RAVENNA OH (LAT 41 10 40N LONG 081 17 28W)										
	APR 1988 28...	1700	1.00	42.	1075	734	599	7.3	6.0	12.0	0
	411239081151400 PO-107 USGS DEEP WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)										
	APR 1988 14...	1115	91.01	181.	1210	728	528	7.2	13.5	11.0	0
	411239081151401 PO-108 USGS SHALLOW WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)										
	MAY 1988 12...	1030	33.24	71.	1210	739	579	7.5	18.0	14.5	--
	411311081161600 PO-25 COOLEY NR RAVENNA OH (LAT 41 13 11N LONG 081 16 16W)										
	APR 1988 12...	1600	41.03	82.	1130	733	544	7.6	19.0	11.0	0
	411319081141400 PO-23 MELLINGER NR RAVENNA OH (LAT 41 13 19N LONG 081 14 14W)										
	MAY 1988 10...	1730	21.55	88.	1180	731	404	7.5	20.0	11.5	0
	411325081154400 PO-79 WILLIAMS NR MANTUA OH (LAT 41 13 25N LONG 081 15 44W)										
	APR 1988 12...	1300	18.57	71.	1200	732	486	7.4	19.0	12.0	0.3
*	411327081164900 PO-80 DANTONE NR RAVENNA OH (LAT 41 13 27N LONG 081 16 49W)										
	APR 1988 20...	1415	8.94	58.	1095	732	561	7.3	10.0	11.0	0
	411404081053900 PO-110 LONG NR WINDHAM OH (LAT 41 14 04N LONG 081 05 39W)										
	APR 1988 21...	1730	37.52	--	1080	734	757	7.0	12.5	11.5	5.2
	411418081141200 PO-21 HILLSIDE CEM NR SHALERSVILLE OH (LAT 41 14 18N LONG 081 14 12W)										
	APR 1988 27...	1400	30.64	73.	1200	728	2030	7.3	15.0	11.0	5.5
*	411435081151800 PO-75 LAING NR SHALERSVILLE OH (LAT 41 14 35N LONG 081 15 18W)										
	APR 1988 15...	0930	17.41	38.	1100	735	525	7.3	4.0	11.5	0
	411508081120800 PO-31 KUBE NR MANTUA OH (LAT 41 15 08N LONG 081 12 08W)										
	APR 1988 12...	1000	18.98	63.	1210	732	625	7.0	12.0	11.0	0
	411528081024400 PO-64 ISLER NR WINDHAM OH (LAT 41 15 28N LONG 081 02 44W)										
	APR 1988 19...	1415	9.70	50.	940	736	334	7.0	4.0	11.5	0

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 WH FET FIELD MG/L AS HCO3	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)
* 411038081190201 PO-20 USGS SHALLOW PIEZOMETER NR KENT OH (LAT 41 10 38N LONG 081 19 02W)										
APR 1988										
13...	230	65	69	13	14	1.7	196	161	55	29
* 411040081172800 PO-27 HILGERT NR RAVENNA OH (LAT 41 10 40N LONG 081 17 28W)										
APR 1988										
28...	270	130	78	17	17	0.90	171	140	73	59
411239081151400 PO-107 USGS DEEP WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)										
APR 1988										
14...	300	7	82	22	6.9	1.8	336	275	39	2.1
411239081151401 PO-108 USGS SHALLOW WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)										
MAY 1988										
12...	310	35	83	24	8.1	2.0	332	272	52	1.1
411311081161600 PO-25 COOLEY NR RAVENNA OH (LAT 41 13 11N LONG 081 16 16W)										
APR 1988										
12...	290	91	83	19	8.7	1.1	238	195	70	29
411319081141400 PO-23 MELLINGER NR RAVENNA OH (LAT 41 13 19N LONG 081 14 14W)										
MAY 1988										
10...	210	20	58	16	3.8	3.2	233	191	24	9.6
411325081154400 PO-79 WILLIAMS NR MANTUA OH (LAT 41 13 25N LONG 081 15 44W)										
APR 1988										
12...	260	72	73	18	8.2	0.90	225	184	63	15
* 411327081164900 PO-80 DANTONE NR RAVENNA OH (LAT 41 13 27N LONG 081 16 49W)										
APR 1988										
20...	290	100	84	20	4.3	1.0	232	190	96	17
411404081053900 PO-110 LONG NR WINDHAM OH (LAT 41 14 04N LONG 081 05 39W)										
APR 1988										
21...	380	140	100	32	16	1.3	298	244	90	46
411418081141200 PO-21 HILLSIDE CEM NR SHALERSVILLE OH (LAT 41 14 18N LONG 081 14 12W)										
APR 1988										
27...	490	280	140	35	190	1.8	261	214	80	420
* 411435081151800 PO-75 LAING NR SHALERSVILLE OH (LAT 41 14 35N LONG 081 15 18W)										
APR 1988										
15...	270	79	78	18	10	1.6	232	190	65	20
411508081120800 PO-31 KUBE NR MANTUA OH (LAT 41 15 08N LONG 081 12 08W)										
APR 1988										
12...	310	120	84	25	8.3	1.3	231	189	49	59
411528081024400 PO-64 ISLER NR WINDHAM OH (LAT 41 15 28N LONG 081 02 44W)										
APR 1988										
19...	150	23	42	12	6.4	0.80	161	132	46	6.7

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BARIUM, DIS-SOLVED (UG/L AS BA)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
* 411038081190201 PO-20 USGS SHALLOW PIEZOMETER NR KENT OH (LAT 41 10 38N LONG 081 19 02W)									
APR 1988									
13...	0.1	0.028	5.9	289	27	56	650	130	1.6
* 411040081172800 PO-27 HILGERT NR RAVENNA OH (LAT 41 10 40N LONG 081 17 28W)									
APR 1988									
28...	0.2	0.068	14	339	160	740	130	120	--
411239081151400 PO-107 USGS DEEP WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)									
APR 1988									
14...	0.3	0.026	18	307	110	850	58	200	0.8
411239081151401 PO-108 USGS SHALLOW WELL NR SHALERSVILLE OH (LAT 41 12 39N LONG 081 15 14W)									
MAY 1988									
12...	0.3	0.012	16	350	44	2300	680	110	1.6
411311081161600 PO-25 COOLEY NR RAVENNA OH (LAT 41 13 11N LONG 081 16 16W)									
APR 1988									
12...	0.2	0.044	14	331	140	550	140	120	0.7
411319081141400 PO-23 MELLINGER NR RAVENNA OH (LAT 41 13 19N LONG 081 14 14W)									
MAY 1988									
10...	0.4	0.020	13	229	75	820	82	300	0.5
411325081154400 PO-79 WILLIAMS NR MANTUA OH (LAT 41 13 25N LONG 081 15 44W)									
APR 1988									
12...	0.2	0.024	12	304	15	730	190	76	0.5
* 411327081164900 PO-80 DANTONE NR RAVENNA OH (LAT 41 13 27N LONG 081 16 49W)									
APR 1988									
20...	0.2	0.043	9.9	351	110	710	120	110	0.5
411404081053900 PO-110 LONG NR WINDHAM OH (LAT 41 14 04N LONG 081 05 39W)									
APR 1988									
21...	0.3	0.051	11	468	59	14	<1	140	0.7
411418081141200 PO-21 HILLSIDE CEM NR SHALERSVILLE OH (LAT 41 14 18N LONG 081 14 12W)									
APR 1988									
27...	0.4	0.11	13	1100	76	44	16	210	1.1
* 411435081151800 PO-75 LAING NR SHALERSVILLE OH (LAT 41 14 35N LONG 081 15 18W)									
APR 1988									
15...	0.2	0.047	11	321	31	10	210	110	0.6
411508081120800 PO-31 KUBE NR MANTUA OH (LAT 41 15 08N LONG 081 12 08W)									
APR 1988									
12...	0.3	0.061	11	361	4	7	3	110	0.7
411528081024400 PO-64 ISLER NR WINDHAM OH (LAT 41 15 28N LONG 081 02 44W)									
APR 1988									
19...	0.1	0.029	13	202	48	4200	1000	80	0.8

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	BARO-METRIC PRES-SURE (MM OF HG)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)
* 411539081164600 PO-41 HARMON NR MANTUA OH (LAT 41 15 39N LONG 081 16 46W)										
APR 1988										
20...	1030	16.44	60.	1090	734	1140	7.3	4.0	11.0	0
* 411539081180800 PO-44 MILLER NR STREETSBORD OH (LAT 41 15 39N LONG 081 18 08W)										
APR 1988										
29...	1000	64.06	118.	1165	735	1130	7.1	6.0	11.0	0
411558081141000 PO-32 FORREST NR MANTUA OH (LAT 41 15 58N LONG 081 14 10W)										
APR 1988										
13...	1430	11.61	50.	1150	733	245	5.8	19.5	9.0	9.4
411559081142100 PO-38 HUNTER NR MANTUA OH (LAT 41 15 59N LONG 081 14 21W)										
APR 1988										
11...	1500	42.69	--	1160	734	833	6.0	18.5	12.0	5.0
28...	1400	39.29	--	1160	730	1120	5.7	8.0	12.0	9.5
411559081142400 PO-39 MAYLE NR MANTUA OH (LAT 41 15 59N LONG 081 14 24W)										
APR 1988										
13...	1030	41.57	90.	1160	734	924	6.2	22.5	11.5	8.8
28...	1000	41.96	90.	1160	730	1220	5.8	1.0	11.5	9.4
* 411631081181500 PO-43 HIENTON NR MANTUA OH (LAT 41 16 31N LONG 081 18 15W)										
APR 1988										
18...	1630	93.60	253.	1200	725	557	7.6	5.0	11.0	0
411741081132400 PO-59 HAMMEL NR MANTUA OH (LAT 41 17 41N LONG 081 13 24W)										
MAY 1988										
11...	1000	30.49	46.	1245	737	311	6.6	12.0	11.5	0
411824081140000 PO-95 CHIANCONE NR MANTUA OH (LAT 41 18 24N LONG 081 14 00W)										
MAY 1988										
11...	1400	31.81	81.	1240	737	405	7.0	14.0	11.5	1.7
* 411837081102000 PO-102 PHILLIPS NR HIRAM OH (LAT 41 18 37N LONG 081 10 20W)										
APR 1988										
20...	1200	19.35	47.	1230	731	950	7.0	8.0	11.0	0
411954081120600 PO-97 HERBOLD NR MANTUA OH (LAT 41 19 54N LONG 081 12 06W)										
APR 1988										
14...	1600	51.30	98.	1185	729	395	7.6	15.5	11.0	0
412019081030100 PO-109 HRACH NR GARRETTSVILLE OH (LAT 41 20 19N LONG 081 03 01W)										
APR 1988										
21...	1400	9.20	--	1130	731	1130	5.0	19.0	10.0	7.9
412031081051700 PO-88 KLER NR GARRETTSVILLE OH (LAT 41 20 31N LONG 081 05 17W)										
APR 1988										
19...	1600	63.78	97.	1170	729	344	6.2	5.0	11.5	0

DATE	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE WATER WH FET FIELD MG/L AS HCO3	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
* 411539081164600 PO-41 HARMON NR MANTUA OH (LAT 41 15 39N LONG 081 16 46W)										
APR 1988										
20...	350	200	98	25	83	1.4	178	146	75	230
* 411539081180800 PO-44 MILLER NR STREETSBORD OH (LAT 41 15 39N LONG 081 18 08W)										
APR 1988										
29...	660	320	150	69	16	2.0	410	336	350	1.8
411558081141000 PO-32 FORREST NR MANTUA OH (LAT 41 15 58N LONG 081 14 10W)										
APR 1988										
13...	99	92	23	10	4.2	2.5	9	7	36	9.1
411559081142100 PO-38 HUNTER NR MANTUA OH (LAT 41 15 59N LONG 081 14 21W)										
APR 1988										
11...	290	270	74	26	75	2.0	28	23	61	280
28...	310	260	73	30	72	1.8	51	42	58	290
411559081142400 PO-39 MAYLE NR MANTUA OH (LAT 41 15 59N LONG 081 14 24W)										
APR 1988										
13...	250	240	66	21	67	2.1	17	14	60	210
28...	320	310	83	27	88	2.5	11	9	66	320
* 411631081181500 PO-43 HIENTON NR MANTUA OH (LAT 41 16 31N LONG 081 18 15W)										
APR 1988										
18...	300	23	81	24	6.3	1.2	341	279	48	0.7
411741081132400 PO-59 HAMMEL NR MANTUA OH (LAT 41 17 41N LONG 081 13 24W)										
MAY 1988										
11...	150	37	40	11	3.0	0.90	132	108	43	8.2
411824081140000 PO-95 CHIANCONE NR MANTUA OH (LAT 41 18 24N LONG 081 14 00W)										
MAY 1988										
11...	200	37	58	14	5.3	0.90	203	166	26	18
* 411837081102000 PO-102 PHILLIPS NR HIRAM OH (LAT 41 18 37N LONG 081 10 20W)										
APR 1988										
20...	440	190	110	40	27	1.4	301	246	110	110
411954081120600 PO-97 HERBOLD NR MANTUA OH (LAT 41 19 54N LONG 081 12 06W)										
APR 1988										
14...	190	0	49	16	13	4.9	256	210	9.5	4.8
412019081030100 PO-109 HRACH NR GARRETTSVILLE OH (LAT 41 20 19N LONG 081 03 01W)										
APR 1988										
21...	140	130	39	9.9	170	5.0	10	8	58	310
412031081051700 PO-88 KLER NR GARRETTSVILLE OH (LAT 41 20 31N LONG 081 05 17W)										
APR 1988										
19...	100	11	19	13	7.8	3.5	110	90	90	5.4

GROUND-WATER RECORDS FOR SHALERSVILLE BRINE DISPOSAL PROJECT--Continued

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BARIUM, DIS-SOLVED (UG/L AS BA)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
* 411539081164600 PO-41 HARMON NR MANTUA OH (LAT 41 15 39N LONG 081 16 46W)									
APR 1988									
20...	0.1	1.3	9.8	660	97	550	96	140	0.5
* 411539081180800 PO-44 MILLER NR STREETSBORD OH (LAT 41 15 39N LONG 081 18 08W)									
APR 1988									
29...	0.3	0.036	20	813	15	2600	180	870	--
411558081141000 PO-32 FORREST NR MANTUA OH (LAT 41 15 58N LONG 081 14 10W)									
APR 1988									
13...	0.1	0.010	11	171	43	9	2	160	0.7
411559081142100 PO-38 HUNTER NR MANTUA OH (LAT 41 15 59N LONG 081 14 21W)									
APR 1988									
11...	0.1	3.0	12	643	34	4400	2600	300	0.6
28...	0.1	3.3	12	712	39	5700	3900	260	--
411559081142400 PO-39 MAYLE NR MANTUA OH (LAT 41 15 59N LONG 081 14 24W)									
APR 1988									
13...	0.1	2.7	14	562	33	160	180	500	0.7
28...	0.1	3.1	14	715	44	490	280	650	--
* 411631081181500 PO-43 HIENTON NR MANTUA OH (LAT 41 16 31N LONG 081 18 15W)									
APR 1988									
18...	0.2	0.021	18	336	65	2600	240	200	0.5
411741081132400 PO-59 HAMMEL NR MANTUA OH (LAT 41 17 41N LONG 081 13 24W)									
MAY 1988									
11...	0.3	0.021	13	182	26	6200	470	54	0.7
411824081140000 PO-95 CHIANCONE NR MANTUA OH (LAT 41 18 24N LONG 081 14 00W)									
MAY 1988									
11...	0.4	0.083	12	233	23	10	20	82	0.5
* 411837081102000 PO-102 PHILLIPS NR HIRAM OH (LAT 41 18 37N LONG 081 10 20W)									
APR 1988									
20...	0.2	0.083	11	528	44	1100	290	170	2.7
411954081120600 PO-97 HERBOLD NR MANTUA OH (LAT 41 19 54N LONG 081 12 06W)									
APR 1988									
14...	0.5	0.032	6.8	208	270	210	18	760	0.6
412019081030100 PO-109 HRACH NR GARRETTSVILLE OH (LAT 41 20 19N LONG 081 03 01W)									
APR 1988									
21...	0.2	0.069	9.7	679	32	37	470	130	1.1
412031081051700 PO-88 KLER NR GARRETTSVILLE OH (LAT 41 20 31N LONG 081 05 17W)									
APR 1988									
19...	0.3	0.020	11	187	4	34000	3100	32	0.6

411038081190200. Local number, PO-19.

LOCATION.--Lat 41°10'38", long 81°19'02", Hydrologic Unit 04110002, near Kent.
AQUIFER.--Sand of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 16 ft, cased to 14 ft, bottom 2 ft screened.
DATUM.--Altitude of land surface datum is 1,055 ft. Measuring point: Top of casing.
PERIOD OF RECORD.--October 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1,052.79 ft above National Geodetic Vertical Datum of 1929, May 21, 1988; lowest measured, 1,050.56 ft above National Geodetic Vertical Datum of 1929, August 30, 1988.

WATER LEVEL, IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM OF 1929, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1051.72	1051.57	1051.68	1051.60	1051.81	1051.90	1052.23	1052.35	1051.26	---	1050.70
2	---	1051.72	1051.59	1051.65	1051.71	1051.76	1051.88	1052.34	1052.23	1051.27	---	1050.76
3	---	1051.72	1051.61	1051.60	1051.78	1051.73	1051.81	1052.47	1052.16	1051.29	---	1051.17
4	---	1051.68	1051.63	1051.59	1051.79	1051.70	1051.88	1052.54	1052.08	1051.29	---	1051.66
5	---	1051.65	1051.63	1051.58	1051.79	1051.69	1051.90	1052.60	1052.05	1051.29	---	1051.90
6	---	1051.62	1051.63	1051.52	1051.79	1051.66	1051.94	1052.64	1052.01	1051.30	---	1052.06
7	---	1051.56	1051.63	1051.45	1051.77	1051.66	1052.00	1052.66	1051.97	1051.30	---	1052.10
8	---	1051.52	1051.64	1051.51	1051.75	1051.65	1052.00	1052.69	1051.92	1051.27	---	1052.16
9	---	1051.47	1051.65	1051.51	1051.72	1051.65	1052.00	1052.70	1051.83	1051.22	---	1052.17
10	---	1051.42	1051.68	1051.51	1051.70	1051.64	1051.99	1052.71	1051.77	1051.16	---	1052.17
11	---	1051.36	1051.71	1051.51	1051.66	1051.64	1051.94	1052.71	1051.71	1051.11	---	1052.16
12	---	1051.31	1051.74	1051.51	1051.66	1051.63	1051.90	1052.73	1051.66	---	---	1052.16
13	---	1051.28	1051.74	1051.51	1051.66	1051.63	1051.85	1052.75	1051.60	---	---	1052.14
14	---	1051.26	1051.77	1051.51	1051.64	1051.63	1051.81	1052.75	1051.53	---	---	1052.14
15	---	1051.25	1051.82	1051.50	1051.62	1051.63	1051.80	1052.74	1051.44	---	---	1052.14
16	---	1051.24	1051.82	1051.49	1051.62	1051.63	1051.76	1052.74	1051.37	---	---	1052.07
17	---	1051.24	1051.82	1051.49	1051.62	1051.63	1051.70	1052.74	1051.30	---	---	1051.99
18	---	1051.22	1051.82	1051.49	1051.64	1051.63	1051.65	1052.77	1051.23	---	---	1051.92
19	---	1051.20	1051.81	1051.57	1051.72	1051.63	1051.60	1052.78	1051.19	---	---	1051.85
20	---	1051.20	1051.88	1051.64	1051.80	1051.63	1051.54	1052.78	1051.17	---	---	1051.77
21	---	1051.20	1051.94	1051.66	1051.81	1051.63	1051.50	1052.79	1051.16	---	---	1051.67
22	1051.49	1051.20	1051.94	1051.68	1051.86	1051.62	1051.51	1052.79	1051.15	---	---	1051.58
23	1051.47	1051.20	1051.94	1051.69	1051.88	1051.61	1051.60	1052.79	1051.14	---	---	1051.51
24	1051.47	1051.22	1051.94	1051.69	1051.89	1051.60	1051.67	1052.79	1051.12	---	---	1051.41
25	1051.47	1051.22	1051.93	1051.69	1051.89	1051.60	1051.78	1052.77	1051.11	---	---	1051.31
26	1051.48	1051.24	1051.88	1051.69	1051.89	1051.67	1051.88	1052.73	1051.14	---	---	1051.21
27	1051.56	1051.27	1051.86	1051.67	1051.89	1051.76	1051.96	1052.69	1051.17	---	---	1051.13
28	1051.63	1051.33	1051.81	1051.61	1051.89	1051.81	1052.01	1052.64	1051.20	---	---	1051.00
29	1051.69	1051.42	1051.78	1051.58	1051.85	1051.89	1052.07	1052.59	1051.24	---	---	1050.90
30	1051.71	1051.52	1051.72	1051.57	---	1051.90	1052.13	1052.48	1051.25	---	1050.56	1050.79
31	1051.72	---	1051.70	1051.54	---	1051.90	---	1052.40	---	---	1050.64	---
MAX	---	1051.72	1051.94	1051.69	1051.89	1051.90	1052.13	1052.79	1052.35	---	---	1052.17

WTR YR 1988 MEAN 1051.73 HIGH 1052.79 MAY 21 AND OTHERS LOW 1050.56 AUG 30

411038081190201. Local number, PO-20.

LOCATION.--Lat 41°10'38", long 81°19'02", Hydrologic Unit 04110002, near Kent.
AQUIFER.--Sand of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 11 ft, cased to 9 ft, bottom 2 ft screened.
DATUM.--Altitude of land surface datum is 1,055. Measuring point: Top of casing.
PERIOD OF RECORD.--October 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1,052.87 ft above National Geodetic Vertical Datum of 1929, May 20, 1988; lowest measured, 1,050.32 ft above National Geodetic Vertical Datum of 1929, August 26, 1988.

WATER LEVEL, IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM OF 1929, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1051.72	1051.59	1051.81	1051.72	1051.94	1052.01	1052.22	1052.37	1051.23	1051.51	1050.74
2	---	1051.72	1051.61	1051.79	1051.86	1051.92	1051.95	1052.34	1052.26	1051.23	1051.41	1050.80
3	---	1051.72	1051.65	1051.75	1051.89	1051.90	1051.94	1052.48	1052.23	1051.23	1051.39	1051.03
4	---	1051.69	1051.67	1051.75	1051.91	1051.86	1052.04	1052.54	1052.13	1051.23	1051.33	1051.46
5	---	1051.67	1051.68	1051.68	1051.90	1051.83	1052.04	1052.60	1052.10	1051.23	1051.28	1051.91
6	---	1051.64	1051.68	1051.64	1051.90	1051.81	1052.07	1052.64	1052.05	1051.23	1051.25	1052.17
7	---	1051.57	1051.68	1051.55	1051.88	1051.81	1052.09	1052.68	1052.03	1051.23	1051.20	1052.28
8	---	1051.53	1051.68	1051.58	1051.87	1051.81	1052.09	1052.71	1051.95	1051.23	1051.17	1052.33
9	---	1051.53	1051.70	1051.58	1051.85	1051.81	1052.09	1052.75	1051.88	1051.19	1051.10	1052.34
10	---	1051.53	1051.72	1051.58	1051.79	1051.81	1052.09	1052.77	1051.83	1051.14	1051.05	1052.34
11	---	1051.37	1051.74	1051.58	1051.76	1051.81	1052.05	1052.78	1051.76	1051.14	1050.98	1052.33
12	---	1051.33	1051.77	1051.58	1051.76	1051.80	1052.02	1052.80	1051.72	1051.14	1050.92	1052.32
13	---	1051.28	1051.79	1051.58	1051.76	1051.80	1051.97	1052.84	1051.65	1051.13	1050.85	1052.32
14	---	1051.25	1051.86	1051.58	1051.73	1051.80	1051.89	1052.84	1051.62	1051.12	1050.79	1052.30
15	---	1051.24	1051.89	1051.58	1051.70	1051.80	1051.89	1052.84	1051.49	1051.07	1050.74	1052.22
16	---	1051.24	1051.89	1051.58	1051.70	1051.80	1051.88	1052.84	1051.43	1051.06	1050.66	1052.15
17	---	1051.24	1051.88	1051.57	1051.70	1051.80	1051.79	1052.84	1051.35	1051.02	1050.58	1052.07
18	---	1051.23	1051.88	1051.59	1051.73	1051.79	1051.72	1052.85	1051.27	1050.98	1050.52	1052.01
19	---	1051.20	1051.88	1051.70	1051.79	1051.79	1051.70	1052.86	1051.23	1050.96	1050.48	1051.92
20	---	1051.20	1052.02	1051.77	1051.89	1051.79	1051.63	1052.87	1051.19	1050.96	1050.43	1051.84
21	---	1051.20	1052.06	1051.77	1051.92	1051.79	1051.66	1052.87	1051.17	1051.11	1050.37	1051.75
22	1051.49	1051.20	1052.06	1051.77	1051.97	1051.78	1051.66	1052.87	1051.14	1051.14	1050.34	1051.66
23	1051.47	1051.20	1052.06	1051.77	1052.01	1051.76	1051.66	1052.87	1051.14	1051.29	1050.35	1051.58
24	1051.46	1051.22	1052.06	1051.77	1052.01	1051.76	1051.66	1052.87	1051.13	1051.37	1050.35	1051.48
25	1051.46	1051.22	1052.03	1051.76	1052.01	1051.77	1051.77	1052.84	1051.13	1051.43	1050.33	1051.38
26	1051.48	1051.22	1051.99	1051.76	1052.01	1051.86	1051.87	1052.84	1051.15	1051.48	1050.32	1051.28
27	1051.52	1051.28	1051.97	1051.76	1052.01	1051.89	1051.96	1052.83	1051.19	1051.51	1050.38	1051.18
28	1051.62	1051.32	1051.93	1051.72	1052.01	1051.98	1052.00	1052.73	1051.22	1051.53	1050.49	1051.09
29	1051.69	1051.42	1051.92	1051.69	1052.00	1052.05	1052.06	1052.66	1051.23	1051.53	1050.56	1050.99
30	1051.71	1051.55	1051.86	1051.68	---	1052.06	1052.12	1052.54	1051.23	1051.53	1050.61	1050.88
31	1051.72	---	1051.86	1051.67	---	1052.06	---	1052.48	---	1051.53	1050.67	---
MAX	---	1051.72	1052.06	1051.81	1052.01	1052.06	1052.12	1052.87	1052.37	1051.53	1051.51	1052.34

WTR YR 1988 MEAN 1051.69 HIGH 1052.87 MAY 20 AND OTHERS LOW 1050.32 AUG 26

411239081151400. Local number, PO-107.

LOCATION.--Lat 41°12'39", long 81°15'14", Hydrologic Unit 04110002, near Shalersville.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 181 ft, cased to 178 ft.
DATUM.--Altitude of land surface datum is 1,210 ft. Measuring point: Top of casing, 3.0 ft above land-surface datum.
PERIOD OF RECORD.--November 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 94.60 ft below land-surface datum, April 12, 1988, lowest measured, 114.30 ft below land-surface datum, November 10, 1987.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	113.70	---	113.50	95.60	95.30	108.40	106.80	106.63	102.92	
2		---	113.90	---	113.60	95.60	95.30	108.30	106.70	106.64	102.69	
3		---	113.80	---	113.60	95.60	95.10	108.20	106.70	106.55	102.45	
4		113.80	113.90	---	113.50	95.50	95.10	108.00	106.80	106.55	102.31	
5		114.00	114.00	---	113.50	95.50	95.10	107.90	106.80	106.56	102.17	
6		114.20	114.00	---	113.50	95.20	95.20	107.90	106.70	106.66	101.99	
7		114.10	114.00	---	---	95.30	95.30	107.70	106.70	106.63	101.94	
8		114.20	113.90	---	---	95.30	94.90	107.70	106.70	106.60	101.79	
9		114.20	113.70	---	---	95.50	94.70	107.50	106.90	106.57	101.59	
10		114.30	113.80	---	110.90	95.20	94.70	107.50	106.85	106.53	101.48	
11		114.20	113.70	---	110.90	95.10	94.70	107.60	106.81	106.50	101.43	
12		114.00	113.80	---	110.40	95.60	94.60	107.60	106.81	106.50	101.31	
13		114.00	114.00	---	110.30	94.90	94.60	107.40	106.82	106.20	101.13	
14		114.20	114.00	---	109.40	95.00	112.20	107.50	106.73	105.99	100.96	
15		114.30	---	---	107.10	95.10	110.10	107.40	106.73	105.94	100.74	
16		114.20	---	---	104.60	95.20	109.70	107.10	106.64	105.87	100.77	
17		114.00	---	---	103.90	95.20	109.30	107.20	106.74	105.65	100.53	
18		114.30	---	---	101.70	95.10	109.00	107.20	106.75	105.57	100.45	
19		114.20	---	---	99.10	96.00	109.00	107.10	106.56	105.33	100.24	
20		114.00	---	---	97.10	95.80	109.00	107.10	106.47	105.19	99.99	
21		114.20	---	---	97.10	95.80	109.10	107.00	106.57	104.84	99.82	
22		114.20	---	---	96.50	95.80	109.10	107.00	106.48	104.79	99.65	
23		114.10	---	---	96.30	95.70	109.00	106.90	106.79	104.55	99.48	
24		114.20	---	---	96.40	95.60	109.10	106.90	106.79	104.26	99.31	
25		114.20	---	---	96.20	95.60	109.00	107.00	106.69	104.06	99.12	
26		113.90	---	---	95.30	95.60	108.90	107.00	106.60	103.82	98.97	
27		113.90	---	---	95.70	95.80	108.60	106.80	106.61	103.73	98.88	
28		113.80	---	---	95.50	95.70	108.60	106.80	106.61	103.59	98.73	
29		113.60	---	---	95.90	95.50	108.60	106.80	106.52	103.41	98.46	
30		113.60	---	113.50	---	95.60	108.50	106.80	106.53	103.24	98.20	
31		---	---	113.50	---	95.50	---	106.70	---	103.25	---	
MAX		---	---	---	---	96.00	112.20	108.40	106.90	106.66	---	

WTR YR 1988 MEAN 105.08 HIGH 94.60 APR 12 AND OTHERS LOW 114.30 NOV 10 AND OTHERS

411239081151401. Local number, PO-108.

LOCATION.--Lat 41°12'39", long 81°15'14", Hydrologic Unit 04110002, near Shalersville.
AQUIFER.--Sandstone of Pennsylvanian Age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 71 ft, cased to 50 ft.
DATUM.--Altitude of land surface datum is 1,210 ft. Measuring point: Top of casing, 1.7 ft above land-surface datum.
PERIOD OF RECORD.--November 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level 29.66 below land-surface datum, April 7, 1988; lowest measured, 50.76 ft below land-surface datum, May 10, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	33.17	---	31.86	31.34	30.32	31.08	32.20	33.45	33.87	---
2		---	33.13	---	31.78	31.34	30.32	31.10	32.14	33.50	33.85	---
3		---	33.13	---	31.64	31.30	30.28	31.12	32.20	33.51	33.80	---
4		32.00	33.00	---	31.38	31.29	30.22	31.08	32.26	33.55	33.73	---
5		32.94	32.98	---	31.21	31.37	30.08	31.05	32.26	33.60	33.65	---
6		33.03	32.98	---	31.12	31.37	29.90	31.08	32.25	33.67	33.59	---
7		33.05	32.95	---	---	31.32	29.66	31.13	32.26	33.70	33.56	33.66
8		33.07	32.86	---	---	31.32	29.73	31.14	32.32	33.73	33.55	33.65
9		33.07	32.73	---	---	31.23	29.80	31.13	32.42	33.76	33.54	33.57
10		33.10	32.59	---	31.76	31.09	29.80	50.76	32.45	33.79	33.58	33.54
11		33.12	32.50	---	31.81	31.07	29.80	48.19	32.49	33.81	33.60	33.53
12		33.12	32.31	---	31.88	31.04	29.82	44.83	32.53	33.91	33.63	33.53
13		33.08	32.34	---	32.02	30.90	29.90	36.93	32.56	33.94	33.65	33.50
14		33.13	32.35	---	32.09	30.90	50.59	32.68	32.62	33.96	33.66	33.47
15		33.19	---	---	32.16	30.93	41.82	31.89	32.65	34.00	33.66	33.43
16		33.19	---	---	32.26	31.00	32.47	31.69	32.72	34.02	33.71	33.41
17		33.13	---	---	32.31	31.04	30.80	31.68	32.79	34.04	33.72	33.40
18		33.17	---	---	32.33	31.05	30.40	31.73	32.86	34.06	33.73	33.40
19		33.20	---	---	32.30	30.97	30.43	31.72	32.93	34.03	33.74	33.40
20		33.17	---	---	32.02	30.83	30.48	31.76	32.96	34.06	33.75	33.40
21		33.17	---	---	31.82	30.91	30.54	31.78	33.01	34.06	33.93	33.45
22		33.19	---	---	31.75	30.95	30.62	31.79	33.03	34.02	33.90	33.45
23		33.19	---	---	31.49	30.93	30.64	31.79	33.15	34.04	33.88	33.45
24		33.22	---	---	31.49	30.83	30.71	31.79	33.20	33.99	33.85	33.53
25		33.22	---	---	31.46	30.78	30.81	31.90	33.22	33.98	33.82	33.56
26		33.34	---	---	31.44	30.69	30.84	31.94	33.22	33.95	33.89	33.59
27		33.38	---	---	31.29	30.55	30.88	31.99	33.27	33.96	33.91	33.59
28		33.36	---	---	31.32	30.46	30.91	32.00	33.32	33.94	33.93	33.60
29		33.32	---	---	31.30	30.40	30.96	32.02	33.36	33.93	33.92	33.65
30		33.22	---	31.88	---	30.27	31.07	32.07	33.39	33.92	33.91	33.69
31		---	---	31.88	---	30.32	---	32.14	---	33.89	---	---
MAX		---	---	---	---	31.37	50.59	50.76	33.39	34.06	---	---

WTR YR 1988 MEAN 32.72 HIGH 29.66 APR 7 LOW 50.76 MAY 10

WELL NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	AQUIFER CODE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	WATER-LEVEL DATE	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)
PO-22	411404	0811355	324PSVL	1225	04-12-88	18.79
PO-24	411258	0811653	324PSVL	1140	04-12-88	53.63
PO-26	411041	0811721	112OTSH	1080	04-11-88	14.56
PO-28	411049	0811745	324PSVL	1110	04-11-88	51.43
PO-29	411126	0811759	112OTSH	1120	04-11-88	60.47
PO-30	411509	0811233	324PSVL	1220	04-13-88	26.20
PO-33	411556	0811429	324PSVL	1150	04-12-88	37.29
PO-34	411517	0811142	324PSVL	1180	04-13-88	70.63
PO-35	411550	0811449	112OTSH	1105	04-12-88	11.40
PO-37	411512	0811205	324PSVL	1205	04-13-88	21.36
PO-40	411540	0811501	324PSVL	1095	04-12-88	9.49
PO-45	411432	0812001	324PSVL	1155	04-15-88	76.99
PO-46	411405	0811922	324PSVL	1145	04-13-88	47.77
PO-47	411441	0811934	112OTSH	1150	04-13-88	74.57
PO-48	411341	0812038	112OTSH	1130	04-14-88	81.43
PO-49	412017	0810521	324PSVL	1185	04-14-88	73.88
PO-50	411243	0811211	112OTSH	1150	04-11-88	42.49
PO-51	411242	0811206	112OTSH	1155	04-11-88	55.01
PO-52	411227	0811157	112OTSH	1150	04-11-88	38.02
PO-53	411417	0811141	324PSVL	1165	04-13-88	36.38
PO-54	411418	0811313	112OTSH	1200	04-14-88	2.85
PO-55	411701	0811526	324PSVL	1200	04-13-88	27.05
PO-56	411729	0811246	324PSVL	1110	04-13-88	22.85
PO-57	412033	0811249	112OTSH	1165	04-13-88	10.41
PO-58	412033	0811226	324PSVL	1150	04-13-88	21.86
PO-60	411405	0810414	324PSVL	1010	04-14-88	9.83
PO-61	411423	0810508	324PSVL	1105	04-14-88	77.87
PO-62	411500	0810505	324PSVL	1100	04-14-88	56.40
PO-63	411536	0810328	324PSVL	950	04-14-88	8.94
PO-65	411515	0810132	324PSVL	940	04-14-88	13.93
PO-66	411534	0810033	324PSVL	930	04-14-88	9.07
PO-67	411452	0810233	324PSVL	960	04-14-88	13.77
PO-69	411450	0811741	324PSVL	1100	04-12-88	8.78
PO-70	411119	0811651	324PSVL	1060	04-11-88	0.95
PO-71	411125	0811708	112OTSH	1070	04-11-88	8.68
PO-72	411205	0811707	324PSVL	1090	04-11-88	9.54
PO-73	411155	0811157	324PSVL	1125	04-11-88	32.62
PO-74	411418	0811438	324PSVL	1120	04-12-88	23.85
PO-76	411209	0811659	112OTSH	1105	04-11-88	27.26
PO-77	411317	0811756	112OTSH	1075	04-12-88	11.23
PO-78	411315	0811551	324PSVL	1190	04-12-88	19.90
PO-81	411344	0811755	324PSVL	1080	04-12-88	8.15
PO-83	411448	0811721	324PSVL	1110	04-12-88	23.01
PO-84	411448	0811719	--	1110	04-12-88	21.07
PO-85	411840	0810522	324PSVL	1095	04-14-88	43.88
PO-86	411857	0810543	112OTSH	1080	04-14-88	30.20
PO-87	411958	0810447	--	1170	04-14-88	52.18
PO-89	411956	0810644	112OTSH	1120	04-13-88	26.46
PO-90	411221	0812051	112OTSH	1130	04-11-88	71.51
PO-91	411851	0810444	324PSVL	1160	04-14-88	74.73
PO-92	411418	0811221	324PSVL	1205	04-13-88	11.23
PO-93	411709	0811408	324PSVL	1195	04-13-88	14.32
PO-94	411743	0811354	324PSVL	1290	04-13-88	57.92
PO-96	411858	0811226	324PSVL	1230	04-13-88	9.20
PO-98	411939	0811136	324PSVL	1150	04-13-88	40.05
PO-99	411714	0811135	324PSVL	1130	04-13-88	31.18
PO-101	411834	0811128	112OTSH	1120	04-13-88	26.68
PO-103	411956	0810941	324PSVL	1145	04-14-88	25.88
PO-104	412034	0810919	324PSVL	1120	04-13-88	14.12
PO-105	412041	0811016	324PSVL	1110	04-13-88	8.93
PO-106	412040	0811010	112OTSH	1110	04-13-88	12.17

WATER-QUALITY DATA FOR LUCAS, SANDUSKY, AND WOOD COUNTIES

The following tables contain water-quality data for 2 springs and 6 wells located in Lucas County. Also, the tables list radiochemical-quality data collected during the 1987 water year for ground water from 18 wells in Lucas County, from 3 springs and 27 wells in Sandusky County, and from 1 spring and 28 wells in Wood County. The corresponding ground-water level and ground-water quality data for the sites with only radiochemical constituents listed are available in Water Resources Data for Ohio, Water Year 1987--Volume 2, pages 178-340 (U.S. Geological Survey Water Data Report OH-87-2). In addition, the tables for Wood County contain data for a ground-water level recorder operated on well WO-121-N at Northwood.

The well network and spring network has been established as part of an assessment of ground-water movement and ground-water quality in (1) the carbonate aquifer comprised of rocks of Silurian and Devonian Age, and (2) selected unconsolidated surficial sand aquifers of Quaternary age.

Local well numbers are comprised of a county prefix and township and section number suffix. City and township abbreviations used for well identification in Lucas, Wood, and Sandusky Counties are shown below:

Lucas		Sandusky		Wood	
City or township	Abbreviation	City or township	Abbreviation	City or township	Abbreviation
Jerusalem	J	Ballville	B	Bloom	B
City of Maumee	MA	Green Creek	GC	Center	C
Monclova	M	Jackson	J	Freedom	F
City of Oregon	O	Madison	M	Grand Rapids	GR
Providence	P	Rice	R	Henry	H
Richfield	R	Riley	RL	Jackson	J
Spencer	SP	Sandusky	S	Liberty	LI
Springfield	SF	Scott	SC	Lake	LK
Swanton	SW	Townsend	T	Middleton	MD
Sylvania	SY	Washington	W	Milton	ML
City of Toledo	T	Woodville	WO	Montgomery	MO
Washington	WA	York	Y	City of Northwood	N
Waterville	W			Perry	PE
				Perrysburg	PB
				Plain	PL
				Portage	PO
				City of Rossford	R
				Troy	T
				Washington	WA
				Webster	WB
				Weston	WS

The ground-water assessment is being conducted in cooperation with: Wood County; Sandusky County Department of Public Health; Lucas County; City of Toledo, Ohio; City of Oregon, Ohio; City of Sylvania, Ohio; and City of Maumee, Ohio.

WATER-QUALITY DATA FOR LUCAS COUNTY

The following tables contain results of analyses of ground-water samples collected for the purpose of establishing a data base of water-quality information for wells completed in the carbonate aquifer and in selected surficial sand aquifers. Ground water also was collected from two springs that discharge from the carbonate aquifer at quarry sumps. Water characteristics, major and minor dissolved inorganic constituents, dissolved trace elements, nitrogen and phosphorus compounds, dissolved organic carbon and radiochemical data are reported.

The notation "ND" means the constituent of interest was not detectable at the analytical limit. Sulfide concentrations listed as ND were based on titrations for which the sample aliquot required more titrant than a blank aliquot of equal volume.

In data for total coliform, fecal coliform, and fecal streptococcus bacteria counts, the prefix "K" indicates an estimated count based on a non-ideal colony number of less than 20 per filter. The ">" symbol preceding a value indicates that the number of colonies per filter was too numerous to count; therefore, an estimate was made based on the smallest filtered volume.

Samples for total recoverable purgeable organic compound analysis by gas chromatography-mass spectrometry were collected from the following wells (county prefix is omitted) -- 126T, 175-T, 187-023, 201-036, 202-011, 203-P7; Springs -- 15-SY18, 16-W40. The results for the specific purgeable compounds were found to be less than the reporting concentration listed in the table below for all wells and the springs.

BROMO-DI-CHLORO-METHANE TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	DI-BROMO-CHLORO-METHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	BROMO-METHANE TOTAL (UG/L)
<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

CHLORO-METH-ANE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	TRANS-1,2-DI-CHLORO-ETHENE TOTAL (UG/L)
<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	TRI-CHLORO-ETHENE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	XYLENE WATER WHOLE TOT REC (UG/L)
<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

414135083445100. Local number. LU-15-SY18 at Silica.
LOCATION.--Lat 41°41'35", long 83°44'51", Hydrologic Unit 04100001.
OWNER: France Stone Co.
AQUIFER.--Dolomite of Middle Devonian age.
SPRING CHARACTERISTICS.--Discharge from fracture and bedding plane above quarry floor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 07...	1500	920	7.4	7.6	10.5	13.5	1.0	K4	<1	K2	460	270

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 07...	130	32	21	29	237	0	191	16	ND	290	29	0.9

DATE	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, DISSOLVED (UG/L AS SB)
OCT 07...	0.039	7.2	628	664	0.005	0.14	0.13	0.20	<0.001	8	1

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BORON, DISSOLVED (UG/L AS B)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
OCT 07...	1	190	100	<1	10	<1	19	5	22	37	<0.1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 07...	10	<1	<1.0	7300	8	8.6	36	25	1.6	3.6	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

412930083440600. Local number LU-16-W40 at Waterville.
LOCATION.--Lat 41°29'30", long 83°44'06", Hydrologic Unit 04100009.
OWNER: France Stone Co.
AQUIFER.--Dolomite of Upper Silurian age.
SPRING CHARACTERISTICS.--Discharge from fracture on west highwall above quarry floor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 08...	0900	3350	7.3	7.8	10.0	11.5	<0.1	<1	<1	<1	2100	1900

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE IT-FLD (MG/L AS HCO3)	CARBONATE IT-FLD (MG/L AS CO3)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 08...	520	190	120	7.8	216	0	178	19	11	1900	210	1.9

DATE	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, DISSOLVED (UG/L AS SB)
OCT 08...	1.6	8.0	3240	3080	<0.001	<0.01	1.50	<0.001	<10	1

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BORON, DISSOLVED (UG/L AS B)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
OCT 08...	<1	<100	650	<1	20	<1	30	<5	90	20	0.3

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 08...	4	<1	<1.0	9500	10	3.6	13	8.6	0.09	1.4	<0.010

413436083441300. Local number, LU-116-M32 at Monclova.
LOCATION.--Lat 41°34'36", long 83°44'13", Hydrologic Unit 04100009.
OWNER: Jason Wildarger.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5 in., depth 55 ft., cased to 45 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
25...	1830	8.4	8.9	5.8	0.56

413942083364400. Local number, LU-127-T at Toledo.
LOCATION.--Lat 41°39'42", long 83°36'44", Hydrologic Unit 04100009.
OWNER: University of Toledo.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 7 in., depth 200 ft., cased to 86.0 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
17...	1245	3.6	5.1	3.4	0.02

414317083424100. Local number, LU-131-SY4 at Sylvania.
LOCATION.--Lat 41°43'17", long 83°42'41", Hydrologic Unit 04100001.
OWNER: Westgate.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 52 ft., cased to 16.4 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
10...	1000	8.1	5.3	3.9	0.14

414024083435500. Local number, LU-133-SY29 near Sylvania.
LOCATION.--Lat 41°40'24", long 83°43'55", Hydrologic Unit 04100001.
OWNER: Conventry Furniture.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 6 in., depth 100 ft., cased to 51.1 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
16...	1440	3.7	1.9	1.5	0.09

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

413905083385300 - Local number LU-126-T at Toledo.
LOCATION.--Lat 41°39'05", long 83°38'53", Hydrologic Unit 04100001.
OWNER: Inverness Golf Course, well number 3.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled irrigation well, diameter 10 in., depth 155 ft., cased to 99.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT										
07...	1000	28	2500	7.0	10.5	11.5	<0.1	K2	<1	<1

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 IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)
OCT											
07...	1700	1500	500	110	35	3.2	316	0	259	47	0.9

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
OCT											
07...	1400	30	1.5	0.18	15	2290	2260	<0.001	<0.01	0.44	0.30

DATE	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT											
07...	<0.001	<10	<1	<1	<100	530	<1	<10	<1	180	12

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)
OCT										
07...	60	20	<0.1	<1	<1	<1.0	10000	<10	<0.4	3.9

DATE	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	URANIUM DIS-SOLVED EXTRAC-TION (UG/L)	CARBON, ORGANIC DIS-SOLVED (MG/L) AS C)	CYANIDE TOTAL (MG/L) AS CN)
OCT				
07...	6.3	0.01	2.3	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

413003083441300. Local number, LU-141-W29 at Waterville.
LOCATION.--Lat 41°30'03", long 83°44'13", Hydrologic Unit 04100009.
OWNER: Craddock.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 77 ft., cased to 32 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
07...	1310	1.5	7.0	4.7	0.18

412633083482400. Local number, LU-148-P34 at Providence Township.
LOCATION.--Lat 41°26'33", long 83°48'24", Hydrologic Unit 04100009.
OWNER: Wilbur Kunkle.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 61 ft., cased to 57.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
25...	1300	5.6	4.7	3.2	1.2

413830083293800. Local number, LU-169 at Oregon.
LOCATION.--Lat 41°38'30", long 83°29'38", Hydrologic Unit 04100009.
OWNER: Al Kish-Fun Spot Skate.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commerical water well, diameter 6 in., depth 256 ft., cased to 82 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
23...	1440	5.4	5.2	4.0	0.09

414019083261400. Local number, LU-170-O26 at Oregon.
LOCATION.--Lat 41°40'19", long 83°26'14", Hydrologic Unit 04100010.
OWNER: Joe Fox.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 110 ft., cased to 83.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
07...	1800	1.1	5.1	3.4	0.13

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

414142083290400. Local number, LU-175-T at Toledo.
LOCATION.--Lat 41°41'42", long 83°29'04", Hydrologic Unit 04100001.
OWNER: Detwiler Golf Course, City of Toledo.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled irrigation well, diameter 10 in., depth 522 ft., cased to 106 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT 06...	1620	25.07	2450	7.4	7.8	12.5	11.5	<0.1	>80	K3	<1	1700

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 06...	1600	420	150	35	2.5	122	0	97	7.2	<0.5	1500	47

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
OCT 06...	2.0	0.37	9.1	2380	2240	<0.001	0.01	0.29	0.30	<0.001	<10	1

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 06...	<1	<100	250	<1	20	1	80	<5	40	10	<0.1

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 06...	5	<1	<1.0	9100	10	7.6	4.2	2.8	0.03	1.1	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

413915083144200. Local number, LU-179-J33 at Reno Beach.
LOCATION.--Lat 41°39'15", long 83°14'42", Hydrologic Unit 04100010.
OWNER: Anna Davis.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 91 ft., cased to 59.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
14...	1215	<0.4	3.9	2.5	0.07

413743083112300. Local number, LU-180-J12 Crane Cr Park near Reno Beach.
LOCATION.--Lat 41°37'43", long 83°11'23", Hydrologic Unit 04100010.
OWNER: State of Ohio
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commerical water well, diameter 5.62 in., depth 105 ft., cased to 57.6 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
23...	1045	<0.4	4.8	3.2	0.13

414128083314800. Local number, LU-193-T at Toledo.
LOCATION.--Lat 41°41'28", long 83°31'48", Hydrologic Unit 04100010.
OWNER: Diversitech Corp.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 10 in., depth 518 ft., cased to 107 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
22...	1600	<0.4	8.1	5.2	0.18

414032083274600. Local number, LU-197-O27 at Oregon.
LOCATION.--Lat 41°40'32", long 83°27'46", Hydrologic Unit 04100010.
OWNER: Sohio, Toledo Refinery.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 12 in., depth 215 ft., cased to 121 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
15...	1020	17	7.4	5.0	0.20

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

414109083265300. Local number, LU-187-023 at Oregon.
LOCATION.-- Lat 41°41'09", long 83°26'53", Hydrologic Unit 04100010.
OWNER: Union Oil of California.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled industrial water well, diameter 4.25 in., depth 130 ft., cased to 114 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L) AS CACO3)
OCT 14...	1000	39.95	2130	6.8	7.5	11.0	12.5	<0.1	K1	K1	K15	1100

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 14...	950	310	88	59	2.8	245	0	201	56	ND	1400	48

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
OCT 14...	1.5	0.26	14	2350	2060	0.001	<0.01	0.31	0.60	<0.001	10	<1

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 14...	<1	100	430	<1	20	<1	680	<5	30	30	<0.1

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 14...	<1	<1	<1.0	8700	2000	<0.4	6.2	4.2	0.47	1.6	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

414138083265000. Local number, LU-201-036 at Oregon.
LOCATION.--Lat 41°41'38", long 83°26'50", Hydrologic Unit 04100010.
OWNER: Harold Harting.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well (unused), diameter 4.25 in., depth 131 ft., cased to 127 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT 13...	1800	36.85	2150	7.6	7.6	19.0	12.0	<0.1	<1	<1	10K	1600

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 13...	1500	470	110	45	2.4	112	0	92	5.0	<0.5	1600	27

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
OCT 13...	1.7	0.24	10	2480	2330	<0.001	<0.01	0.46	0.60	<0.001	<10	1

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 13...	5	<100	330	1	20	<1	910	<5	30	20	<0.1

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 13...	3	<1	<1.0	9000	110	<0.4	6.2	4.2	0.25	0.8	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

413725083261600. Local number, LU-202-011 at Oregon.
LOCATION.--Lat 41°37'25", long 83°26'16", Hydrologic Unit 04100010.
OWNER: Doug Nappenbach.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 129 ft., cased to 87 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT 14...	1815	63.60	2480	7.0	7.5	20.0	11.5	<0.1	<1	<1	<1	730

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 14...	620	170	71	160	4.8	135	0	109	21	ND	1000	130

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
OCT 14...	1.2	1.1	14	1740	1630	<0.001	<0.01	0.31	0.60	<0.001	<10	<1

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 14...	<1	<100	1500	<1	10	<1	650	<5	50	40	<0.1

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT 14...	<1	4	<1.0	11000	30	2.2	5.7	3.9	0.48	0.8	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

412928083522000. Local number, LU-203-P7 at Neapolis.
LOCATION.--Lat 41°29'28", long 83°52'20", Hydrologic Unit 04100009.
OWNER: Neapolis Fire Department.
AQUIFER.--Limestone of Devonian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 63 ft., cased to 59 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	PH LAB (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT												
08...	1315	41.88	342	8.2	8.1	11.0	13.5	<0.1	K1	<1	<1	76

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	CAR-BONATE IT-FLD (MG/L AS CO3)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT												
08...	0	17	7.4	53	2.3	218	0	179	2.5	1.1	4.7	6.9

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, 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 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)
OCT												
08...	2.0	0.076	10	208	215	<0.001	0.03	0.19	0.20	0.002	4	1

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT											
08...	<1	84	1000	<1	20	<1	5	<5	17	4	<0.1

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)
OCT											
08...	4	<1	<1.0	2700	<3	<0.4	1.9	1.4	0.01	2.5	<0.010

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

413049083483800. Local number, LU-198 at Whitehouse.
LOCATION.--Lat 41°30'49", long 83°48'38", Hydrologic Unit 04100009.
OWNER: Village of Whitehouse.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 10 in., depth 170 ft., cased to 41.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
08...	1130	7.1	5.3	3.8	3.6

413408083512400. Local number, LU-301-SW17 near Swanton.
LOCATION.--Lat 41°34'08", long 83°51'24", Hydrologic Unit 04100009.
OWNER: USGS-Toledo Metro Parks.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Driven observation point, diameter 1.25 in., depth 14.9 ft., finish is 1.5 ft. of 0.010-inch well screen.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
02...	1320	<0.4	1.2	1.1	<0.01

413212083514300. Local number, LU-302-SW29 near Swanton.
LOCATION.--Lat 41°32'12", long 83°51'43", Hydrologic Unit 04100009.
OWNER: USGS-Toledo Metro Parks.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Driven observation point, diameter 1.25 in., depth 11.3 ft., finish is 1.5 ft. of 0.010-inch well screen.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
02...	1645	<0.4	<0.4	<0.4	<0.01

414133083424800. Local number, LU-305-SY16 at Sylvania.
LOCATION.--Lat 41°41'33", long 83°42'48", Hydrologic Unit 04100001.
OWNER: USGS-Sylvania City Parks.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Driven observation point, diameter 1.25 in., depth 15.1 ft., finish is 1.5 ft. of 0.010-inch well screen.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
03...	1430	2.1	1.1	0.9	0.09

WATER-QUALITY DATA FOR LUCAS COUNTY--Continued

414314083403100. Local number, LU-306-SY2 at Sylvania.
LOCATION.--Lat 41°43'14", long 83°40'31", Hydrologic Unit 04100001.
OWNER: USGS-Huntington Farms Inc.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Driven observation point, diameter 1.25 in., depth 13.2 ft., finish is 2 ft. of 0.007-inch well screen.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
03...	1700	5.2	8.9	6.3	6.7

414242083395100. Local number, LU-309-SY12 at Sylvania.
LOCATION.--Lat 41°42'42", long 83°39'51", Hydrologic Unit 04100001.
OWNER: USGS-Arbor Jr. High, Sylvania Schools.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Driven observation point, diameter 1.25 in., depth 15.5 ft., finish is 2 ft. of 0.007-inch well screen.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUN					
04...	0830	<0.4	1.4	1.1	0.99

WATER-QUALITY DATA FOR SANDUSKY COUNTY

412356083212600. Local number, S-11 near Gibsonburg.
LOCATION.--Lat 41°23'56", long 83°21'26", Hydrologic Unit 04100010.
OWNER: James Ackerman.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled test well, diameter 12 in., depth 250 ft., cased to 24 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEP					
02...	1615	9.4	3.2	2.4	0.23

412537083040100. Local number, S-18 near Wightmans Grove.
LOCATION.--Lat 41°25'37", long 83°04'01", Hydrologic Unit 04100011.
OWNER: Lamalie Farms.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled test well converted to water supply, diameter 12 in., depth 340 ft., cased to 180 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
13...	1300	21	18	12	0.09

412048083085500. Local number, S-32 at Fremont.
LOCATION.--Lat 41°20'48", long 83°08'55", Hydrologic Unit 04100011.
OWNER: Gottron Brothers Co.
AQUIFER.--Dolomite of Silurian age.
SPRING CHARACTERISTICS.--Discharge from fracture in quarry floor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
06...	1200	32	30	21	24

412805083211400. Local number, S-33 at Woodville.
LOCATION.--Lat 41°28'05", long 83°21'14", Hydrologic Unit 04100010.
OWNER: Martin-Marietta Co.
AQUIFER.--Dolomite of Silurian age.
SPRING CHARACTERISTICS.--Discharge from fracture in quarry floor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
12...	1030	12	7.4	5.1	3.5

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

411551083030900. Local number, S-34 at Green Springs.
LOCATION.--Lat 41°15'51", long 83°03'09", Hydrologic Unit 04100011.
OWNER: St. Francis of Oak Ridge Hospital.
AQUIFER.--Dolomite of Silurian age.
SPRING CHARACTERISTICS.--Artesian discharge in topographic depression, reported discharge = 12 cubic feet per second. Sample taken at artesian fountain.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 14...	1200	4.3	8.0	5.6	0.16

412123083012000. Local number, S-107-RL33 near Erlin.
LOCATION.--Lat 41°21'23", long 83°01'20", Hydrologic Unit 04100011.
OWNER: Jim Diedrich.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 100 ft., cased to 94.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 18...	1440	2.0	6.3	4.1	0.14

412143083053500. Local number, S-110-S26 at Fremont.
LOCATION.--Lat 41°21'43", long 83°05'35", Hydrologic Unit 04100011.
OWNER: H. J. Heinz.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 8 in., depth 315 ft., cased to 88 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 20...	0830	23	5.7	3.8	0.39

411729083061700. Local number, S-119-B23 south of Fremont.
LOCATION.--Lat 41°17'29", long 83°06'17", Hydrologic Unit 04100011.
OWNER: Howard Sacks.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial irrigation well, diameter 12 in., depth 355 ft., cased to 94 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 27...	0900	3.5	4.4	3.0	0.16

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

411755083111000. Local number, S-122-B19 near Havens.
LOCATION.--Lat 41°17'55", long 83°11'10", Hydrologic Unit 04100011.
OWNER: Joseph Roth.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 61 ft., cased to 23.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 17...	1425	2.9	2.9	2.1	0.30

411644082511600. Local number, S-129-Y25 at Bellevue.
LOCATION.--Lat 41°16'44", long 82°51'16", Hydrologic Unit 04100011.
OWNER: France Stone Company.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well (unused), converted for observation, diameter 5.62 in., depth 130 ft., cased to 8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 05...	1700	<0.4	4.6	3.1	1.2

411757082504300. Local number, S-130-Y13 near Bellevue.
LOCATION.--Lat 41°17'57", long 82°50'43", Hydrologic Unit 04100011.
OWNER: Larry Gardner.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 140 ft., cased to 29.6 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 18...	1730	11	1.0	0.8	0.44

412026082505000. Local number, S-132-Y1 north of Bellevue.
LOCATION.--Lat 41°20'26", long 82°50'50", Hydrologic Unit 04100011.
OWNER: Terry Groves.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 150 ft., cased to 31 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 19...	0930	5.3 b	6.3	4.1	2.4

411935082560300. Local number, S-135-Y8 near Clyde.
LOCATION.--Lat 41°19'35", long 82°56'03", Hydrologic Unit 04100011.
OWNER: Denny Snyder.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 70 ft., cased to 63.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
20...	1145	5.1	4.7	3.2	0.15

411806082554800. Local number, S-136A near Clyde.
LOCATION.--Lat 41°18'06", long 82°55'48", Hydrologic Unit 04100011.
OWNER: Steinbauer Farms.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commerical irrigation water well, diameter 14 in., depth 250 ft., cased to unknown depth.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
20...	1700	15	10	6.8	5.8

411722082540200. Local number, S-141-Y21 near Wales Corners.
LOCATION.--Lat 41°17'22", long 82°54'02", Hydrologic Unit 04100011.
OWNER: Bill Gore.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 100 ft., cased to 28 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L (AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED UG/L AS U)
AUG					
18...	1530	19	6.0	4.3	0.23

411632082580300. Local number, S-147-G25 south of Clyde.
LOCATION.--Lat 41°16'32", long 82°58'03", Hydrologic Unit 04100011.
OWNER: Green Hills Golf Club.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 8 in., depth 138 ft., cased to 75.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
14...	0845	5.8	6.2	4.1	0.05

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

412420083081600. Local number, S-166-S9 south of Kingsway.
LOCATION.--Lat 41°24'20", long 83°08'16", Hydrologic Unit 04100011.
OWNER: Bernard Schneider.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 98 ft., cased to 60.9 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 18...	1135	4.5	3.7	2.7	0.42

412409083110200. Local number, S-170-W12 near Lindsey.
LOCATION.--Lat 41°24'09, long 83°11'02", Hydrologic Unit 04100011.
OWNER: Charles Wonderly.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well (unused), diameter 4.25 in., depth 61 ft., cased to 20.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 13...	1020	7.5	5.4	4.0	3.4

412449083130400. Local number, S-171-W11 near Lindsey.
LOCATION.--Lat 41°24'49", long 83°13'04", Hydrologic Unit 04100011.
OWNER: Vernon Roepke.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.5 in., depth 87 ft., cased to 21.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 25...	1510	38	9.8	6.9	0.06

412249083191400. Local number, S-179-M23 at Gibsonburg.
LOCATION.--Lat 41°22'49", long 83°19'14", Hydrologic Unit 04100010.
OWNER: Village of Gibsonburg, well No. 4.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled public water supply well, diameter 10 in., depth 301 ft., cased to 25.9 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 26...	0830	4.4	2.9	2.1	1.0

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

412537083181100. Local number, S-186-W01 near Busy Corners.
LOCATION.--Lat 41°25'37", long 83°18'11", Hydrologic Unit 04100010.
OWNER: Sam James.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 105 ft., cased to 24 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
25...	1255	8.2	3.8	2.8	1.6

412118083231400. Local number, S-198-M32 northeast of Bradner.
LOCATION.--Lat 41°21'18", long 83°23'14", Hydrologic Unit 04100010.
OWNER: Kenneth Holcomb.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 52 ft., cased to unknown depth.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
26...	1245	8.6	3.1	2.3	0.09

412119083205800. Local number, S-200-M34 near Rollersville.
LOCATION.--Lat 41°21'19", long 83°20'58", Hydrologic Unit 04100010.
OWNER: Walter Underwood.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 85 ft., cased to 22.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
26...	1000	15	65	47	4.5

412120083172400. Local number, S-202-W31 north of Helena.
LOCATION.--Lat 41°21'20", long 83°17'24", Hydrologic Unit 04100011.
OWNER: Ron Wasserman.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 80 ft., cased to 23.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
27...	1430	26	14	11	16

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

411911083165100. Local number, S-205-J8 near Millersville.
LOCATION.--Lat 41°19'11", long 83°16'51", Hydrologic Unit 04100011.
OWNER: Ohio Lime Company.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 8 in., depth 300 ft., cased to 23.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
12...	1530	2.8	5.3	3.7	0.50

411613083193300. Local number, S-208-SC26 southeast of Girton.
LOCATION.--Lat 41°16'13", long 83°19'33", Hydrologic Unit 04100011.
OWNER: Lakota High School.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 8 in., depth 230 ft., cased to 30.9 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
27...	1200	6.1	5.0	3.7	0.18

411654083213400. Local number, S-210-SC27 at Girton.
LOCATION.--Lat 41°16'54", long 83°21'34", Hydrologic Unit 04100011.
OWNER: William Dieter.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 5.62 in., depth 102 ft., cased to 21.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
26...	1530	2.4	9.0	6.3	0.74

412505082512400. Local number, S-217-T1 near Castalia.
LOCATION.--Lat 41°25'05", long 82°51'24", Hydrologic Unit 04100011.
OWNER: Roger Hall.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 76 ft., cased to 64 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
19...	1200	5.2	6.8	4.2	0.35

WATER-QUALITY DATA FOR SANDUSKY COUNTY--Continued

412605082574900. Local number, S-231-RL36 at Tippetts Marsh.
LOCATION.--Lat 41°26'05", long 82°57'49", Hydrologic Unit 04100011.
OWNER: Ohio Department of Natural Resources, Division of Wildlife
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled water well (unused), diameter 6 in., depth 300 ft., cased to 45 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
11...	1730	610	500	330	0.20

412340083011400. Local number, S-234-RL16 near Wightmans Grove.
LOCATION.--Lat 41°23'40", long 83°01'14", Hydrologic Unit 04100011.
OWNER: Merle Pearson.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth unknown, cased to unknown depth.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
13...	1430	<0.4	1.8	1.2	0.20

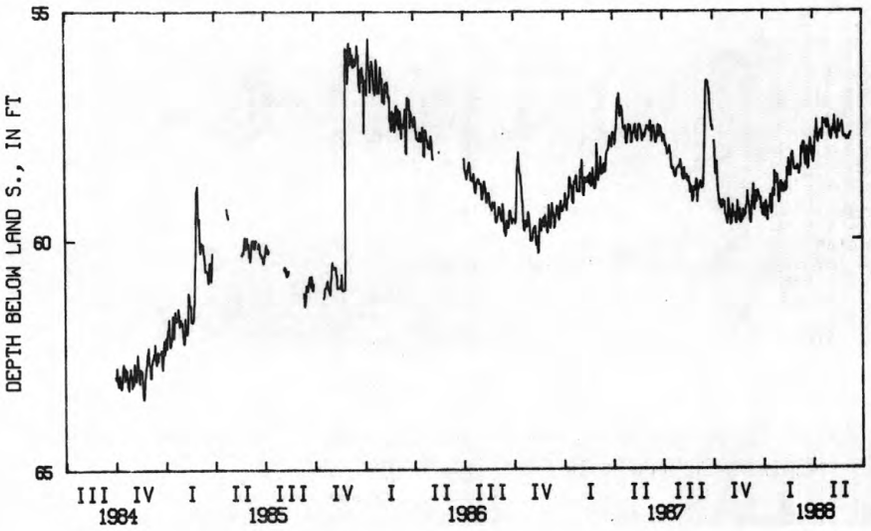
GROUND-WATER LEVELS FOR WOOD COUNTY

413629083304400. Local number, WO-121-N
LOCATION.--Lat 41°36'29", long 83°30'34", Hydrologic Unit 04100010, 6585 Wales Road at Northwood.
Owner: Waste Management Inc.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well converted to observation well, diameter 6.0 in., depth, 188.5 ft, cased to unknown depth.
INSTRUMENTATION.--Digital recorder -- 60-minute punch.
DATUM.--Elevation of land-surface datum is 616.47 ft above National Geodetic Vertical Datum of 1929, from levels. Measuring point: Top of casing, 2.12 ft above land-surface datum.
PERIOD OF RECORD.--August 22, 1984 to June 8, 1988.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 55.60 ft below land-surface datum, Jan. 8, 1986; lowest water level, 63.46 ft below land-surface datum, Nov. 21, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57.86	59.68	58.96	59.47	58.75	58.49	58.20	57.76	57.78			
2	58.11	59.67	59.19	59.52	58.97	58.40	58.11	57.79	57.81			
3	58.53	59.47	59.19	59.43	58.98	58.42	57.82	57.83	57.78			
4	58.59	59.25	59.29	59.18	58.81	58.49	57.67	57.71	57.83			
5	58.39	59.50	59.46	59.36	58.92	58.59	57.66	57.59	57.75			
6	58.30	59.52	59.59	59.54	58.97	58.48	57.40	57.64	57.77			
7	58.67	59.49	59.65	59.60	58.97	58.44	57.62	57.66	57.70			
8	58.95	59.43	59.49	59.31	58.87	58.42	57.85	57.52	57.69			
9	59.03	59.59	59.22	59.30	58.76	57.99	57.89	57.32	---			
10	59.16	59.66	59.11	59.30	58.95	58.09	57.81	57.49	---			
11	59.26	59.64	59.02	59.30	58.90	58.13	57.74	57.72	---			
12	59.15	59.47	58.81	59.04	58.45	57.90	57.70	57.72	---			
13	59.19	59.17	59.29	59.34	58.63	57.89	57.67	57.68	---			
14	59.32	59.46	59.37	59.45	58.63	57.90	57.64	57.82	---			
15	59.33	59.59	59.23	59.43	58.25	58.14	57.74	57.59	---			
16	59.29	59.57	58.96	59.03	58.44	58.29	57.83	57.41	---			
17	59.15	59.34	59.19	58.91	58.59	58.39	57.69	57.62	---			
18	59.28	59.64	59.19	59.03	58.63	58.25	57.38	57.68	---			
19	59.18	59.64	59.05	59.07	58.49	57.99	57.48	57.59	---			
20	59.19	59.47	58.94	58.52	58.15	58.17	57.45	57.56	---			
21	59.46	59.58	58.99	58.76	58.33	58.47	57.46	57.53	---			
22	59.47	59.59	59.02	58.80	58.10	58.45	57.49	57.49	---			
23	59.53	59.36	59.12	58.59	58.28	58.12	57.40	57.44	---			
24	59.59	59.53	59.16	58.60	58.39	58.01	57.57	57.58	---			
25	59.67	59.53	59.09	58.60	58.48	57.81	57.59	57.74	---			
26	59.58	59.47	59.34	58.84	58.47	57.85	57.50	57.78	---			
27	59.13	59.48	59.34	59.08	58.49	58.13	57.40	57.78	---			
28	59.27	59.35	59.32	59.21	58.47	58.19	57.51	57.78	---			
29	59.35	59.27	59.49	59.16	58.46	58.00	57.55	57.75	---			
30	59.39	59.27	59.49	58.81	---	58.29	57.69	57.79	---			
31	59.69	---	59.24	58.76	---	58.33	---	57.83	---			
MAX	59.69	59.68	59.65	59.60	58.98	58.59	58.20	57.83	---			

WTR YR 1988 MEAN 58.60 HIGH 57.32 MAY 9 LOW 59.69 OCT 31



WATER-QUALITY DATA FOR WOOD COUNTY

412140083352700. Local number, WQ-23-C27 near Bowling Green.
LOCATION.--Lat 41°21'40", long 83°35'27", Hydrologic Unit 04100010.
OWNER: Edgar Stewart.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled test well, diameter 12 in., depth 235 ft., cased to 22 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
03...	1830	<0.4	4.5	3.1	0.30

413515083304300. Local number, WQ-118 near Walbridge.
LOCATION.--Lat 41°31'15", long 83°30'43", Hydrologic Unit 04100010.
OWNER: Robert Elvy.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 160 ft., cased to 65.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED UG/L AS U)
SEPT					
01...	1550	13	4.0	2.9	0.29

413515083313700. Local number, WQ-119 near Walbridge.
LOCATION.--Lat 41°35'15", Long 83°31'37", Hydrologic Unit 04100010.
OWNER: Ramon E. Siewert.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 132 ft., cased to 55 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEPT					
01...	1310	33	7.7	5.2	0.12

413629083304400. Local number, WQ-121-N at Northwood.
LOCATION.--Lat 41°36'29", long 83°30'44", Hydrologic Unit 04100010.
OWNER: Waste Management Inc.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well converted for observation, diameter 6 in., depth 188.5 ft., cased to unknown depth.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEP					
02...	1130	6.5	4.3	3.1	0.49

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

413219083334300. Local number, WQ-151 at Lime City.
LOCATION.--Lat 41°32'19", long 83°33'43", Hydrologic Unit 04100010.
OWNER: Stoneco Inc.
AQUIFER.--Dolomite of Silurian age.
SPRING CHARACTERISTICS.-- Discharge from fracture at quarry floor.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
04...	0900	2.4	3.1	2.1	1.4

412726083283100. Local number, WQ-198-T21 at Luckey.
location.--Lat 41°27'26", long 83°28'31", Hydrologic Unit 04100010.
OWNER: Jerry Vestal.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.82 in., depth 55 ft., cased to 25 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
13...	0910	1.0	10	7.7	0.31

412103083272200. Local number, WQ-199-F34 near Bradner.
LOCATION.--Lat 41°21'03", long 83°27'22", Hydrologic Unit 04100010.
OWNER: William Libbe.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 72 ft., cased to 28 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
06...	1655	16	5.4	4.1	0.48

411209083273500. Local number, WQ-204-PE22 near Fostoria.
LOCATION.--Lat 41°12'09", long 83°27'35", Hydrologic Unit 04100010.
OWNER: Paul R. Dibling.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 65 ft., cased to 24.1 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
22...	1325	5.7	13	10	0.90

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

411050083333400. Local number, WQ-210-B35 at Bloomdale.
LOCATION.--Lat 41°10'50", long 83°33'34", Hydrologic Unit 04100010.
OWNER: Claude Baird.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 80 ft., cased to 23.1 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
30...	0950	<0.4	6.5	4.4	<0.01

411429083362200. Local number, WQ-212-B4 at Jerry City.
LOCATION.--Lat 41°14'29", long 83°36'22", Hydrologic Unit 04100010.
OWNER: Jerry Roberts.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 30 ft., cased to 19.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
22...	1700	7.0	6.9	5.1	0.16

411216083470300. Local number, WQ-230-J24 at Hoytville.
LOCATION.--Lat 41°12'16", long 83°47'03", Hydrologic Unit 04100010.
OWNER: Grace E. Smith.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 89 ft., cased to 60.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
04...	1000	7.3	5.8	3.8	0.30

411337083503800. Local number, WQ-236-J8 near Deshler.
LOCATION.--Lat 41°13'37", long 83°50'38", Hydrologic Unit 04100009
OWNER: Eugene Moses.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 100 ft., cased to 64.4 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
03...	1445	3.0	6.2	4.2	0.66

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

411706083455600. Local number, WQ-246-LI19 near Custar.
LOCATION.--Lat 41°17'06", long 83°45'56", Hydrologic Unit 04100010.
OWNER: Richard Wensink
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 57 ft., cased to 43.6 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL 31...	0930	1.3	3.1	2.3	0.18

411945083410600. Local number, WQ-250-LI2 near Portage.
LOCATION.--Lat 41°19'45", long 83°41'06", Hydrologic Unit 04100010.
OWNER: Pat Maidment.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 31 ft., cased to 23.2 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 05...	1150	0.9	13	8.0	0.19

411911083285300. Local number, WQ-260-MO9 near Wayne.
LOCATION.--Lat 41°19'11", long 83°28'53", Hydrologic Unit 04100010.
OWNER: John Firsdon, Jr.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 40 ft., cased to unknown depth.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL 28...	1330	2.4	4.1	3.1	0.25

411943083261300. Local number, WQ-263-MO1 at Bradner.
LOCATION.--Lat 41°19'43", long 83°26'13", Hydrologic Unit 04100010.
OWNER: Larry Beckford.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 75 ft., cased to 20.3 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL 29...	1040	0.7	12	8.1	1.2

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

411616083251900. Local number, WQ-265-MO25 at Risingsun.
LOCATION.--Lat 41°16'16", long 83°25'19", Hydrologic Unit 04100010.
OWNER: Chuck Bowen.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 74 ft., cased to 41.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
22...	0930	0.6	5.2	4.1	0.08

412735083460800. Local number, WQ-299-WA24 near Grand Rapids.
LOCATION.--Lat 41°27'35", long 83°46'08", Hydrologic Unit 04100009.
OWNER: Bruce Seeger.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 7 in., depth 36 ft., cased to 27.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
27...	1540	55	13	8.5	0.29

413026083420800. Local number, WQ-303-MD23 near Waterville.
LOCATION.--Lat 41°30'26", long 83°42'08", Hydrologic Unit 04100009.
OWNER: Frank Ferris.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 48 ft., cased to 37.7 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
28...	1745	5.4	9.4	6.3	0.28

413345083371500. Local number, WQ-306-PB at Perrysburg.
LOCATION.--Lat 41°33'45", long 83°37'15", Hydrologic Unit 04100009.
OWNER: Herman Mizer.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 192 ft., cased to 71.9 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
JUL					
16...	0920	1.3	4.6	3.1	0.16

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

412839083352000. Local number, WQ-307-WB15 at Dowling.
LOCATION.--Lat 41°28'39", long 83°35'20", Hydrologic Unit 04100010.
OWNER: Jim Roth.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 82 ft., cased to 20 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
11...	1200	1.7	5.4	4.1	1.0

413147083275800. Local number, WQ-309-LK27 near Millbury.
LOCATION.--Lat 41°31'47", long 83°27'58", Hydrologic Unit 04100010.
OWNER: Robert Sibberson.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 149 ft., cased to 60.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
12...	0855	12	3.2	2.3	0.03

413542083282700. Local number, WQ-316-LK4 at Walbridge.
LOCATION.--Lat 41°35'42", long 83°28'27", Hydrologic Unit 04100010.
OWNER: Don Billings.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 149 ft., cased to 77.1 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEP					
02...	1400	6.8	4.5	3.2	0.22

413608083255500. Local number, WQ-320-N36 near Woodville Gardens.
LOCATION.--Lat 41°36'08", long 83°25'55", Hydrologic Unit 04100010.
OWNER: Fred Draper.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 110 ft., cased to 82.5 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SEP					
03...	0900	4.9	6.0	3.8	0.54

994121230835129000. Local number, WO-326-WS32 near Weston.
LOCATION.--Lat 41°21'23", long 83°51'29", Hydrologic Unit 04100009.
OWNER: Vernon Weaver.
AQUIFER.--Dolomite of Upper Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 5.62 in., depth 55 ft., cased to 36.4 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 04...	1455	2.0	7.7	5.1	0.08

413025083374000. Local number, WO-333-PB19 near Five Points.
LOCATION.--Lat 41°30'25", long 83°37'40", Hydrologic Unit 04100009.
OWNER: John Voland.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 112 ft., cased to 62.8 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 14...	0840	2.4	5.3	3.5	0.05

413055083254300. Local number, WO-341-LK36 near Forest Park.
LOCATION.--Lat 41°30'55", long 83°25'43", Hydrologic Unit 04100010.
OWNER: Lowell Baker.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled domestic water well, diameter 4.25 in., depth 80 ft., cased to 34.6 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 11...	1455	6.0	4.5	3.3	0.03

412950083282500. Local number, WO-342-T9 at Lemoyne.
LOCATION.--Lat 41°29'50", long 83°28'25", Hydrologic Unit 04100010.
OWNER: Luckey Farmers, Inc.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled commercial water well, diameter 5.62 in., depth 135 ft., cased to 38.4 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG 12...	1055	5.9	3.6	2.7	0.02

WATER-QUALITY DATA FOR WOOD COUNTY--Continued

411432083385100. Local number, WQ-351-B6 at Cygnet.
LOCATION.--Lat 41°14'32", long 83°38'51", Hydrologic Unit 04100010.
OWNER: Village of Cygnet, well No. 9.
AQUIFER.--Dolomite of Silurian age.
WELL CHARACTERISTICS.--Drilled public supply water well (unused), diameter 6.5 in., depth 100 ft., cased to 25 ft.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
AUG					
05...	1130	7.4	5.7	3.8	0.13

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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