USGS
science for a changing world

Prepared in cooperation with the State of Ohio and other agencies

Water Resources Data
Ohio
Water Year 2004

Volume 2
St. Lawrence River Basin

Water-Data Report OH-04-2

U.S. Department of the Interior
U.S. Geological Survey

Calendar for Water Year 2004

2003

October

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

November

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

December

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

2004

January

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29						

March

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

April

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

May

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

June

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

July

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

August

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Water Resources Data
Ohio
Water Year 2004

Volume 2. St. Lawrence River Basin and Statewide Project Data

By H.L. Shindel, J.P. Mangus, and S.R. Frum

Water-Data Report OH-04-2

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

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
Gale A. Norton, Secretary

U.S. Geological Survey
Charles G. Groat, Director

U.S. Geological Survey
6480 Doubletree Avenue
Columbus, OH 43229-1111
(614) 430-7700

Information about the USGS, Ohio Water Science Center is available on the Internet at http://oh.water.usgs.gov

Information about all USGS reports and products is available by calling 1-888-ASK-USGS or on the Internet via the World Wide Web at http://www.usgs.gov/

Additional earth science information is available by accessing the USGS home page at http://www.usgs.gov/

Preface

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

Volume 1. Ohio Rier Basin Excluding Project Data
Volume 2. St. Lawrence River Basin and 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

K.E. Bossenbroek
E.E. Bertke
A.M.G. Brady
R.N. Bushon
A.W. Coen III
R.A. Darner
A.L. Dillenburg
D.H. Dumouchelle
C.M. Eberle
T.J. Eaton
D.P. Finnegan
D.S. Francy
R.P. Frehs
S.M. Fuller
R.J. Haefner
S.W. Hatch
C.A. Hawkins
G.A. Hren
C.A. Huitger
K.S. Jackson
S.D. Janosy
G.F. Koltun
D.O. Kumfer
J.D. Lageman
B.E. Mailot
J.A. McClure
K.D. Metzker
C.J. Ostheimer
S.M. Quigley
J.W. Roberts
T.L. Schumann
K.H. Shaffer
J.M. Sherwood
B.N. Sroka
D.E. Straub
J.S. Tertuliani
M.A. Thomas
M.A. Tibbetts
S.A. Vivian
M.T. Whitehead

This report was prepared in cooperation with the State of Ohio and with other agencies under the general supervision of J.R. Morris, Director, USGS Ohio Water Science Center.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave Blank)

2. REPORT DATE

April 2005

3. REPORT TYPE AND DATES COVERED

Annual—October 1, 2003–September 30, 2004

4. TITLE AND SUBTITLE

Water Resources Data, Ohio, Water Year 2004, Volume 2
St. Lawrence River Basin and Statewide Project Data

5. FUNDING NUMBERS

6. AUTHOR(S)

H.L. Shindel, J.P. Mangus, and S.R. Frum

7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(ES)

U.S. Geological Survey, Ohio Water Science Center
6480 Doubletree Avenue
Columbus, Ohio 43229-1111

8. PERFORMING ORGANIZATION REPORT NUMBER

USGS-WDR-OH-04-2

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Geological Survey, Ohio Water Science Center
6480 Doubletree Avenue
Columbus, Ohio 43229-1111

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

USGS-WDR-OH-04-2

11. SUPPLEMENTARY NOTES

Prepared in cooperation with Federal, State, and local agencies.

12a. DISTRIBUTION/AVAILABILITY STATEMENT

No restriction on distribution. This report may be purchased from the National Technical Information Service, Springfield Virginia 22161

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

Water-resources data for the 2004 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 137 gaging stations and various partial-record sites; water levels at 243 observation wells and 38 crest-stage gages; and water quality at 18 gaging stations, 34 observation wells, and no partial-record sites. Also included are data from miscellaneous and synoptic 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 Information System collected by the U.S. Geological Survey and cooperating Federal, State, and local agencies in Ohio.

14. SUBJECT TERMS

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

15. NUMBER OF PAGES

328

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unclassified

Contents

Figures

[Maps showing project study areas are at the beginning of each project-data listing]

Surface-Water Stations, in Downstream Order, for which Records are Published

[Letter after station names designates type of data: (d) discharge]

Ground-Water Stations for which Records are Published

[Letter after station names designates type of data: (l) water level]

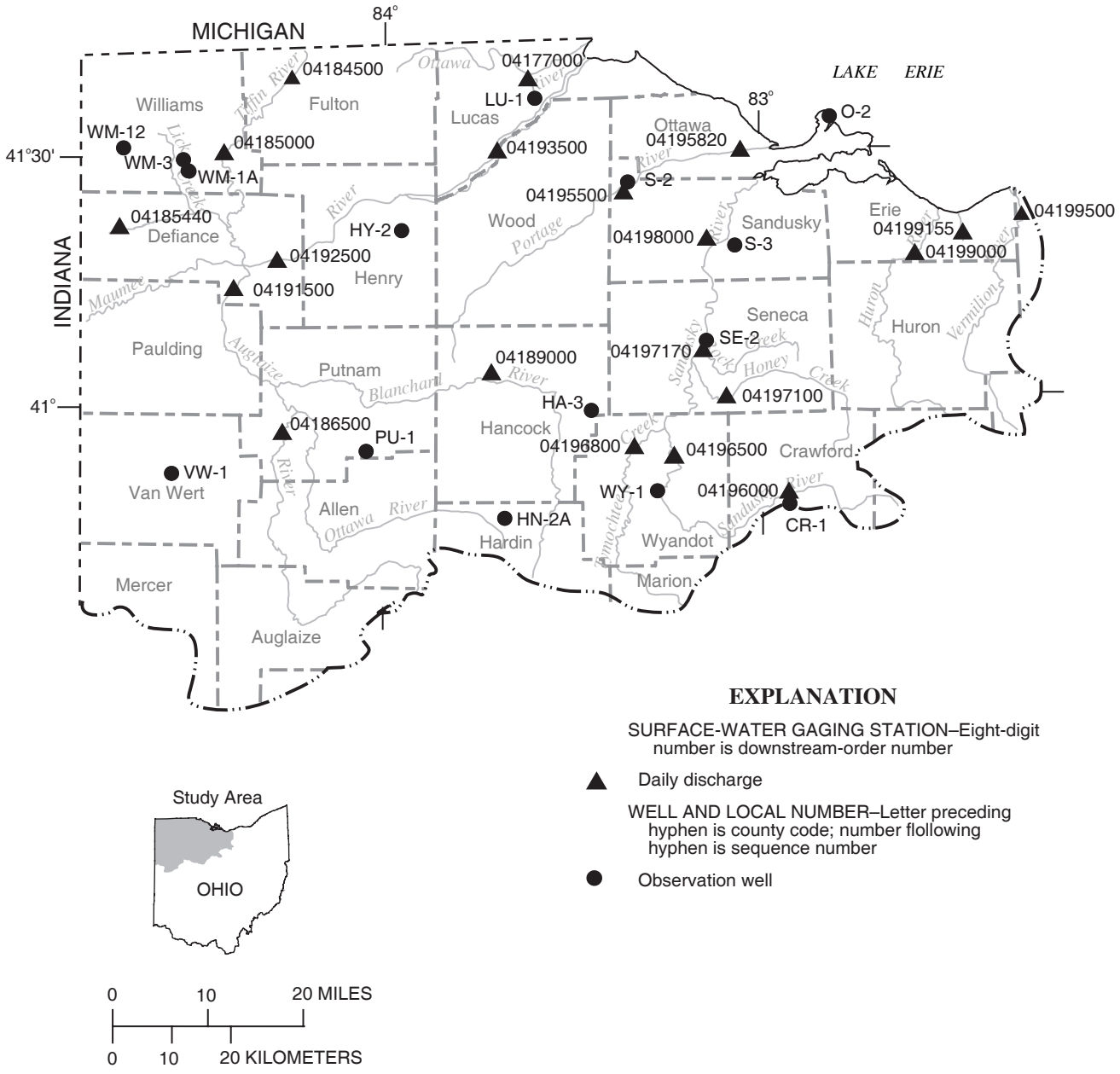


Figure 1a. Location of data-collection stations and wells.

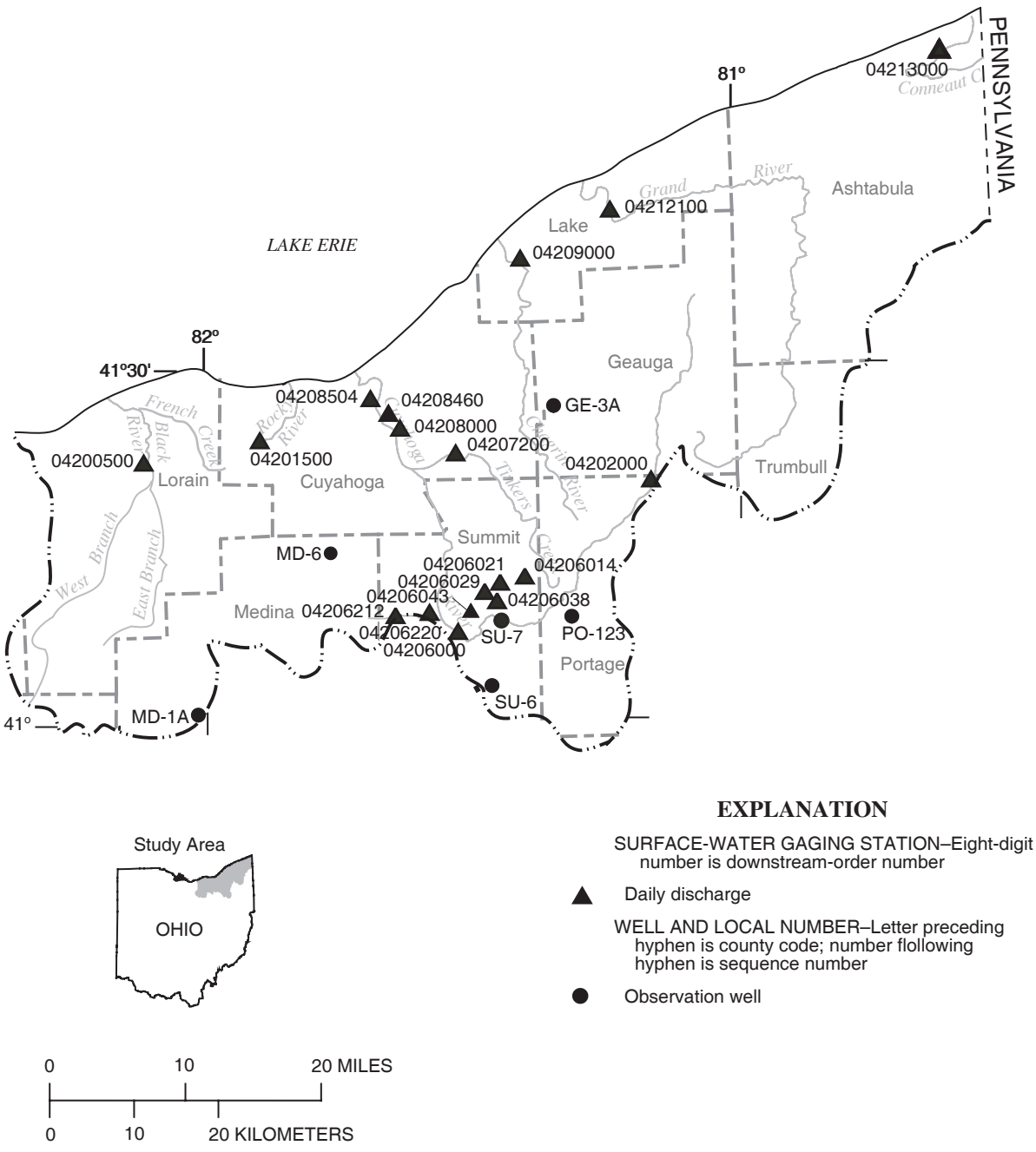


Figure 1b. Location of data-collection stations and wells.

Discontinued Surface-Water-Discharge Stations

The following continuous-record surface-water-discharge or stage-only stations (gaging stations) have been discontinued. Daily discharge or stage records were collected and published for the period of record, expressed in water years, shown for each station. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the USGS Ohio Water Science Center at the address given on the back side of the title page of this report.

[a---, not determined for canals]

Station name	Station number	Drainage area (in square miles)	Period of record
St. Joseph River near Blakeslee	04177500	394	1926–32
St. Marys River near Willshire	04181000	354	1926–32
Maumee River at Antwerp	04183500	2,129	1922–35 1939–82
Maumee River near Sherwood	04184000	2,275	1903–06
Tiffin River near Brunersburg	04185500	736	1928–36
Miami and Erie Canal at Delphos	04186000	a---	1928–33
Ottawa River at Lima	04187100	128	1988–99
Ottawa River at Allentown	04187500	160	1924–36 1943–82
Ottawa River at Kalida	04188000	309	1931–36
Eagle Creek near Findlay	04188500	55.0	1947–57
Blanchard River at Glandorf	04189500	644	1921–28 1947–52
Blanchard River at Dupont	04190000	756	1928–36
Roller Creek at Ohio City	04190500	5.14	1946–48
Town Creek near Van Wert	04191000	21.2	1945–53
Miami and Erie Canal near Defiance	04192000	a---	1925–29 1953–69
Miami and Erie Canal at Waterville	04193000	a---	1921–29
Swan Creek at Toledo	04194000	199	1945–48
Portage River near Pemberville	04194500	337	1930–35
North Branch Portage River near Bowling Green	04195000	45.1	1924–32
Lacarpe Creek near Oak Harbor	04195825	2.95	1988–92
Bayou Ditch near Oak Harbor	04195830	2.82	1988–92
Broken Sword Creek at Nevada	04196200	83.8	1976–81
Tymochtee Creek near Marseilles	04196600	137	1970–74
Sandusky River near Mexico	04197000	774	1923–36 1938–82
Honey Creek near New Washington	04197020	17	1979–89
Wolf Creek at Bettsville	04197300	66.2	1976–81
East Branch Wolf Creek near Bettsville	04197450	82.4	1976–81
Havens Creek at Havens	04197500	4.28	1946–49
East Branch Huron River near Norwalk	04198500	85.5	1924–35
Old Woman Creek at U.S. Highway 6 at Huron	04199165	26.5	1980–94
Lake Erie at Huron	04199170		1980–86

[a---, not determined for canals]

Station name	Station number	Drainage area (in square miles)	Period of record
Lake Erie at Ruggles Beach	04199175		1987–94
Vermilion River near Fitchville	04199287	112	1987–89 1991–93
West Branch Black River above Lake Street at Elyria	04200430	174	1980–84
Cuyahoga River near Kent	04202500	210	1934–35
Breakneck Creek near Kent	04203000	77.6	1927–35
Cuyahoga River at Cuyahoga Falls	04203900	333	1999–2001
Little Cuyahoga River at Mogadore	04204000	14.3	1946–78
Little Cuyahoga River at Massillon Road at Akron	04204500	31.6	1946–74
Springfield Lake Outlet at Akron	04205000	9.72	1946–49 1961–74
Little Cuyahoga River at Akron	04205500	44.4	1920 1928–34
Little Cuyahoga River Below Ohio Canal at Akron	04205700	59.2	1974–79
Yellow Creek at Ghent	04206208	12.7	1992–98
North Fork at Bath	04206210	2.81	1992–98
Park Creek at Bath Center	04206211	0.826	1992–98
Bath Creek at Bath Center	04206215	3.52	1992–98
Cuyahoga River at Ira	04206250	478	1974–79
Ohio Canal at Independence	04207500	a---	1922–23 1927–36 1941 1949–80
Big Creek at Cleveland	04208502	35.3	1973–86 2001–02
Euclid Creek near Euclid	04208690	22.6	1977–80 1983–86 2001–02
Grand River near North Bristol	04209500	85.4	1942–47
Phelps Creek near Windsor	04210000	25.6	1942–59
Grand River near Rome	04210500	251	1942–47
Rock Creek near Rock Creek	04211000	69.2	1942–66
Mill Creek near Jefferson	04211500	82.0	1942–74
Grand River near Madison	04212000	581	1923–35 1938–74
Ashtabula River near Ashtabula	04212500	111	1924–36 1939–48 1950–79

Discontinued Surface-Water-Quality Stations

The following continuous-record surface-water-quality stations have been discontinued. Daily records of temperature, specific conductance, pH, dissolved oxygen, or sediment were collected and published for the period of record, expressed in water years, shown for each station. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the USGS Ohio Water Science Center at the address given on the back side of the title page of this report.

Letters designate type of record: do, dissolved oxygen; pH, pH; s, sediment; sc, specific conductance; t, temperature]

Station name	Station number	Drainage area (in square miles)	Type of record	Period of record
Maumee River at Antwerp	04183500	2,129	t	1939–82
Maumee River at Defiance	04184100	2,316	do, sc, t	1966–70
			pH	1973–78
Tiffin River at Evansport	04185300	541	do, pH, sc, t	1968–78
Auglaize River near Ft. Jennings	04186500	332	do, pH, sc, t	1969–78
Ottawa River at Allentown	04187500	160	sc, t	1969–82
			do, pH	1977–82
Auglaize River at Cloverdale	04188200	713	do, pH, sc, t	1967–78
Blanchard River near Findlay	04189000	346	do, pH, sc, t	1968–80
Auglaize River near Defiance	04191500	2,318	s	1936
			do, pH, sc, t	1966–76
Maumee River near Waterville	04193490	6,313	do, pH, sc, t	1977–91
Maumee River at Waterville	04193500	6,329	do, pH, sc, t	1963–77
Maumee River at mouth at Toledo	04194023	6,608	do, pH, sc, t	1967–75
Middle Branch Portage River near Portage	04194310	217	sc, t	1969–75
Portage River at Railroad Bridge at Woodville	04195600	428	do, pH, sc, t	1968–80
Portage River at Elmore	04195800	432	t	1950–52
			s	1950–53
			do	1970–80
Sandusky River near Upper Sandusky	04196500	298	do, sc, t	1969–79
			pH	1977–79
Tymochtee Creek at Crawford	04196800	229	do, pH, sc, t	1968–75
Sandusky River at St. Johns Bridge near Mexico	04196990	711	do, sc, t	1969–76
Honey Creek at Melmore	04197100	141	s	1988–89
Sandusky River near Fremont	04198000	1,251	s	1951–56
				1979–2002
Sandusky River below Fremont	04198005	1,264	do, pH, sc, t	1966–80
West Branch Huron River near Willard	04198018	86.0	sc, t	1968–75
Huron River at Milan	04199000	371	s	1970–74
				1988–91
Huron River below Milan	04199100	385	do, pH, sc, t	1968–78
Vermilion River near Fitchville	04199287	112	s	1987–89
Vermilion River near Vermilion	04199500	262	sc, t	1969–76
			do, pH	1976–80
East Branch Black River at Grafton	04199900	170	sc, t	1969–75
West Branch Black River near Elyria	04200400	170	sc, t	1969–75

Letters designate type of record: do, dissolved oxygen; pH, pH; s, sediment; sc, specific conductance; t, temperature]

Station name	Station number	Drainage area (in square miles)	Type of record	Period of record
West Branch Black River above Lake Street at Elyria	04200430	174	s	1980–81
Black River at Elyria	04200500	396	t	1962–70
			sc	1964–70
			s	1980–81
Black River below Elyria	04200550	412	do, sc, t	1966–82
			pH	1976–82
Cuyahoga River at Old Portage	04205700	59.2	do, pH, sc, t	1970–84
			s	1972–81
Cuyahoga River at Botzum	04206200	443	t	1947–49
Tinkers Creek at Bedford	04207200	83.9	s	1972–79
Cuyahoga River at Independence	04208000	707	s	1950–74
			do, sc, t	1965–91
			pH	1972–91
			s	1977–84
				1988–2002
Big Creek at Cleveland	04208502	35.3	s	1978
Cuyahoga River at Dupont Intake in Cleveland	04208505	794	sc	1964–75
Cuyahoga River at West Third Street Bridge	04208506	798	do, pH, sc, t	1966–87
Cuyahoga River at Superior Street Bridge in Cleveland	04208510	808	do, pH, sc, t	1964–66
Chagrin River at Willoughby	04209000	246	t	1950
			s	1969–74
Grand River at Painesville	04212200	701	do, pH, sc, t	1966–82
Fields Brook at Ashtabula	04212680	3.63	do, pH, sc, t	1983–91
Ashtabula River at Ashtabula	04212700	136	do, pH, sc, t	1968–79

Introduction

The Water Resources Discipline of the U.S. Geological Survey (USGS), in cooperation with state agencies, obtains a large amount of data each water year (a water year is the 12-month period from October 1 through September 30 and is identified by the calendar year in which it ends) pertaining to the water resources of Ohio. These data, accumulated during many years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the USGS, they are published annually in this report series entitled "Water Resources Data—Ohio."

This report (in two volumes) includes records on surface water and ground water in the State. Specifically, it contains (1) discharge records for streamflow-gaging stations, miscellaneous sites, and crest-stage stations, (2) stage and content records for streams, lakes, and reservoirs, (3) water-quality data for streamflow-gaging stations, wells, synoptic sites, and partial-record sites, and (4) water-level data for 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 figures 1a and 1b (located after "contents"). The data in this report represent that part of the National Water Information System collected by the USGS and cooperating State and Federal agencies in Ohio.

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 or three volumes) data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to the introduction of this series, and for several years concurrent with it, water-resources data for Ohio were published in a series of USGS 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 chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above-mentioned Water-Supply Papers can be found in libraries of the principal cities of the United States and can be purchased from the U.S. Geological Survey, Information Services, Box 25286, Denver, CO 80225.

Publications similar to this report are published annually by the USGS for all states. These official USGS reports are identified by means of a number consisting of the two-letter state abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report OH-04-2." 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, 5285 Port Royal Road, Springfield, VA 22161.

USGS water data can be accessed on the World Wide Web at *http://water.usgs.gov*. Data at this Web site include historical daily values and peaks, real-time water data, and spatial data. (The USGS Ohio District's Web site can be accessed at *http://oh.water.usgs.gov*.)

Additional information for specific reports may be obtained by writing to the address given on the back of title page or by telephoning (614) 430-7700.

Cooperation

The USGS has had cooperative agreements for the collection of water-resources data since 1898. The following organizations assisted in collecting data in this report:

Cities of Akron, Canton, Columbus (Water Division and Sewerage and Drainage Division), Fremont, Oregon, Toledo, and Westerville

Counties of Geauga, Knox, Lake, Lucas, Lorain, Madison, Medina, Ross, and Summit

Eastgate Development and Transportation Agency

Miami Conservancy District

Northeast Ohio Regional Sewer District

Ohio Departments of Health, Natural Resources (Mineral Resources Management and Water Divisions), and Transportation

Ohio Environmental Protection Agency

Ohio Water Development Authority

Ohio Lake Erie Office

Ottawa Soil and Water District

Toledo Metropolitan Area Council of Governments

University of Toledo

U.S. Air Force, Air Force Materiel Command, Aeronautical Systems Center, Environmental Management Directorate, Restoration Branch

U.S. Army Corps of Engineers (Buffalo, Huntington, Louisville, and Pittsburgh Districts)

U.S. Air Force, Air Force Material Command, 88th Air Base Wing, Environmental Management

Villages of North Olmstead and South Russell

Summary of Hydrologic Conditions

Ohio is part of three physiographic provinces. Each province has its own distinctive hydrologic characteristics. The topography of the Till Plains Section of the Central Lowlands Physiographic Province (fig. 2) consists of gently rolling ground moraine, bands of terminal moraine, and outwash-filled valleys. Glaciation altered the courses of most streams in this area. The Eastern Lake Section (fig. 2) consists of wide expanses of level or nearly level land interrupted only by the sporadic sandy ridges that are the last visible remnants of glacial-lake beaches. Much of the area was swamp prior to development, and marshes are still present along Lake Erie near Toledo. The Lexington Plain Section of the Interior Low Plateaus Province (fig. 2) is characterized by rolling terrain and a few isolated large hills and ridges. The "barbed" drainage pattern formed when small streams were captured as their headwaters cut back into the hills over time. Streams have carved the Kanawha Section of the Appalachian Plateaus Province (fig. 2) 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. 2), 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 annual precipitation decreases from around 42 inches on the southern border to about 32 inches in the northwest. An anomalous area of high precipitation (as much as 44 inches) in northeastern Ohio results from air masses that pick up moisture and heat from Lake Erie and subsequently release precipitation over a range of hills stretching northeastward from Cleveland.

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

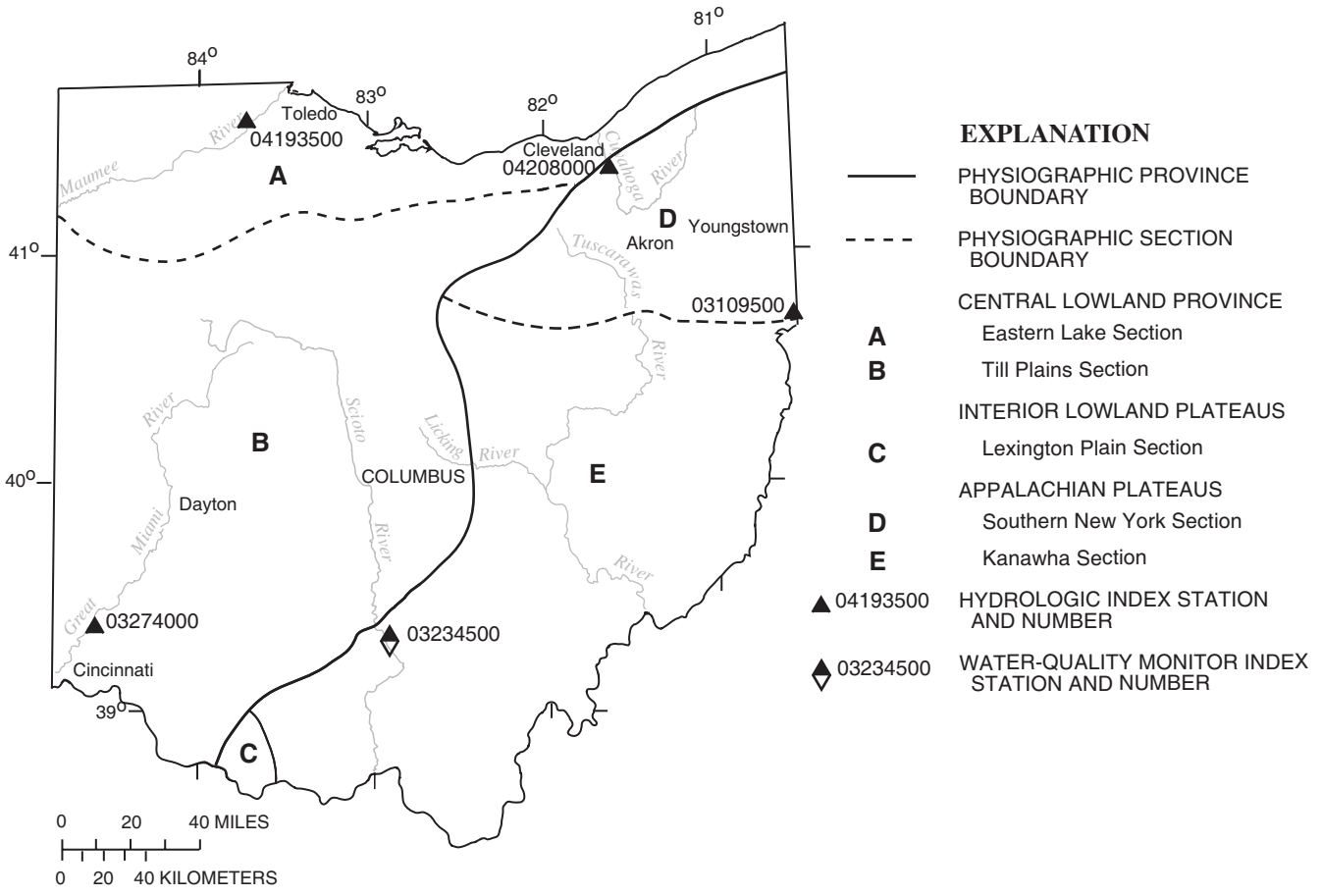


Figure 2. Physiographic divisions and location of hydrologic index stations.

differs from the pattern of precipitation because of the contributions of snowmelt to streamflow in the early spring and the reduction in flows by evapotranspiration from June through September.

Surface Water

Streamflow

Streamflow-data-collection stations are distributed irregularly throughout the State and tend to be concentrated on the main river systems. The stations are used to sample a wide variety of conditions. The drainage areas range from less than four to more than 6,330 square miles and represent a wide diversity of topography and other physical characteristics. Streamflow ranges from unregulated to highly regulated.

Statewide Streamflow, Water Year 2004.

Streamflow conditions during water year 2004 were as follows:

October. At the beginning of water year 2004, streamflow was above normal throughout the State. Above-normal precipitation for most of the State kept flows in the excessive range during October.

November-December. Excessive flows prevailed statewide in response to above-normal precipitation. Significant flooding occurred throughout much of the State in early January.

February-April. Flows declined throughout the State during the period. Streamflow was generally in the normal range for February and March. In April, streamflow fell into the deficient range in western Ohio but remained normal elsewhere.

May-June. Near record precipitation in May produced excessive flows statewide. Some severe flooding occurred in parts of eastern Ohio in late May. Streamflow remained in the above-normal range through June.

July. Streamflow declined into the normal range for most of the state.

August-September. Flows remained normal in southwest Ohio but rose into the excessive range for the rest of the State in response to above-normal precipitation. Rainfall produced by the remnants of two hurricanes caused serious flooding in eastern Ohio, and record September flows occurred at some streams. At the end of water year 2004, streamflow was in the normal range in southwest Ohio and above normal elsewhere.

A comparison of streamflows for 2004 with long-term median flows at four representative stations is shown in figure 3.

Water Quality

Water-quality data in Ohio are collected on a short-term basis in conjunction with local or regional studies. On a long-term basis, water-quality data in Ohio are collected at fixed stations. The only active long-term monitoring program in Ohio is the National Water-Quality Assessment (NAWQA) Program, a program designed to assess the status and trends in the quality of ground- and surface-water resources in major hydrologic systems (study units) of the United States. Sampling in NAWQA began in 1991 in the Nation and in March 1996 at some sites in Ohio as part of the Lake Erie-Lake St. Clair (LERI) study unit. Sampling began in 1999 at some sites as part of the Great Miami and Little Miami River Basins (MIAM) study unit. In 2001, watersheds in the MIAM study unit were combined with those in the White River Basin study unit in Indiana to form the White and Great and Little Miami River Basins study unit (WHMI). During 2004, the LERI NAWQA was in its low-intensity data-collection phase; water-quality data were collected at five fixed stations eight times per year. During 2004, the WHMI was in its high-intensity data-collection phase and collected water-quality data 10 times per year at two fixed sites in Ohio. Samples at NAWQA sites are collected over a range of streamflows and are analyzed for major anions and cations, nutrients, pesticides, suspended sediment, and selected physical properties.

Several continuous years of water-quality data collected as part of the NAWQA program for two sites are shown in figures 4 and 5—the Maumee River at Waterville and the Mad River at St. Paris Pike at Eagle City. Streamflows and concentrations of selected constituents measured during the previous 8-year period (1996 to 2003) for the Maumee River and previous 5-year period (1999 to 2003) for the Mad River are shown in boxplots along with results of analysis of samples collected in water year 2004.

The values for streamflow measured at the time of water-quality sampling during 2004 were higher than those found during the previous 8-year period. For both rivers, none of the samples were collected at low flow during 2004 (below the 25th percentile for the previous 8- or 5-year period). For the Maumee River, seven samples were collected at moderate flow (between the 25th and 75th percentile) and one was collected at high flow (above the 75th percentile). For the Mad River, seven samples were collected at moderate flow and three at high flow.

Elevated chloride concentrations are commonly associated with municipal or industrial point sources of wastewater. For the Maumee River, chloride concentrations in 2004 were in the same range as concentrations measured during the previous period, with no outside values in 2004.

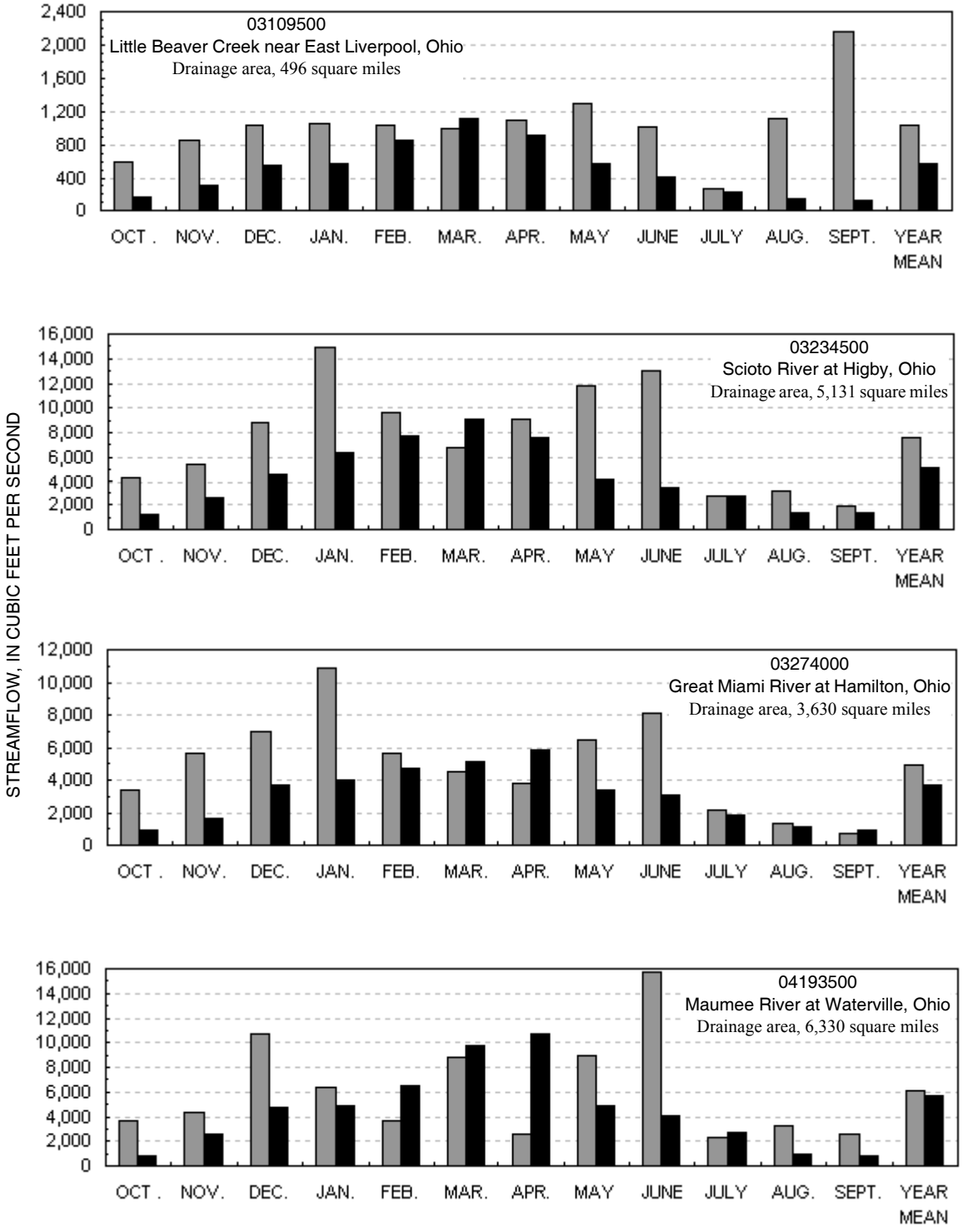


Figure 3. Streamflow during water year 2004 compared with median streamflow for period 1971–2000 for four representative gaging stations.

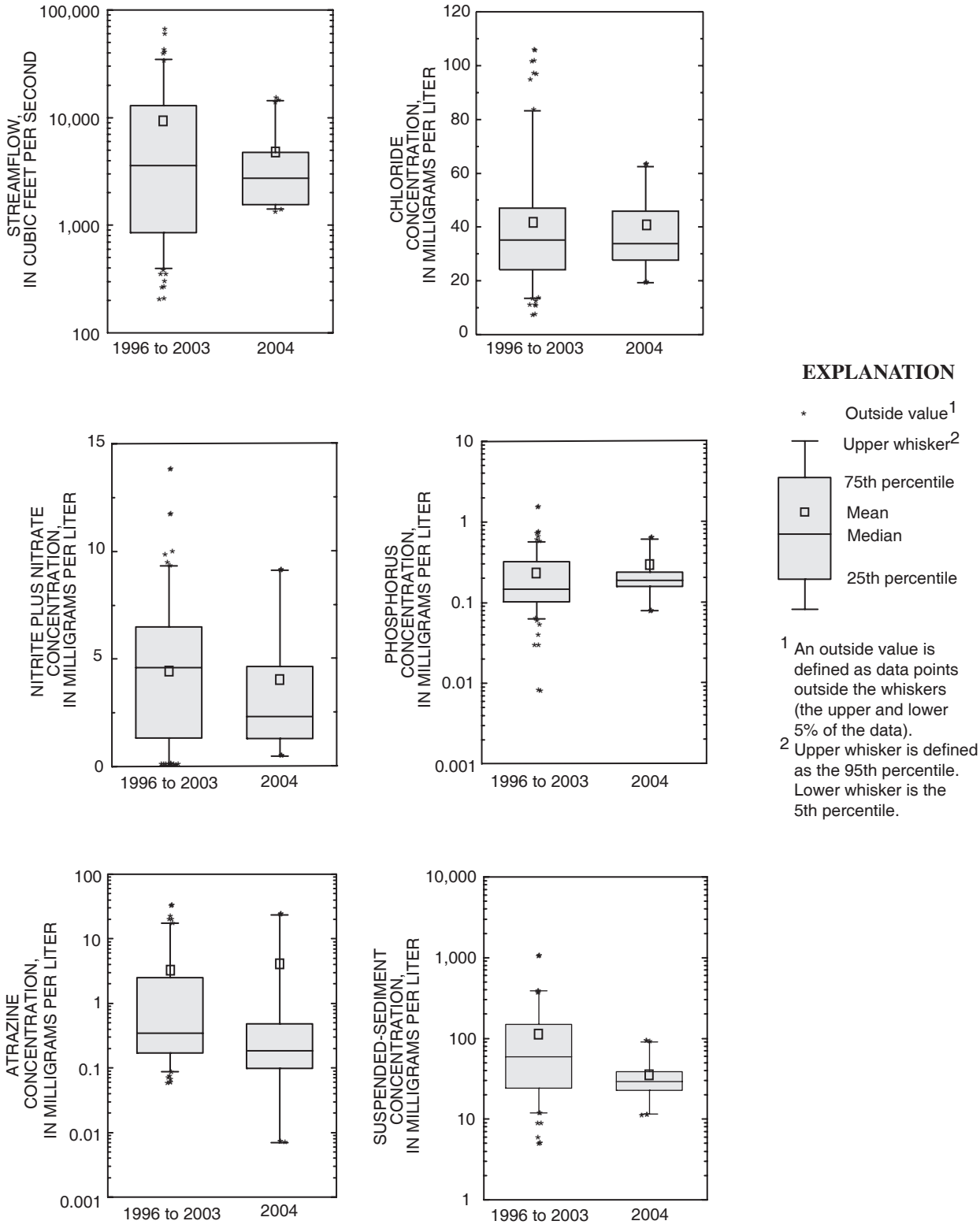


Figure 4. Streamflow and concentration of selected constituents measured in water year 2004 and the distribution of those characteristics from measurements made during water years 1996–2002 for the Maumee River at Waterville, Ohio.

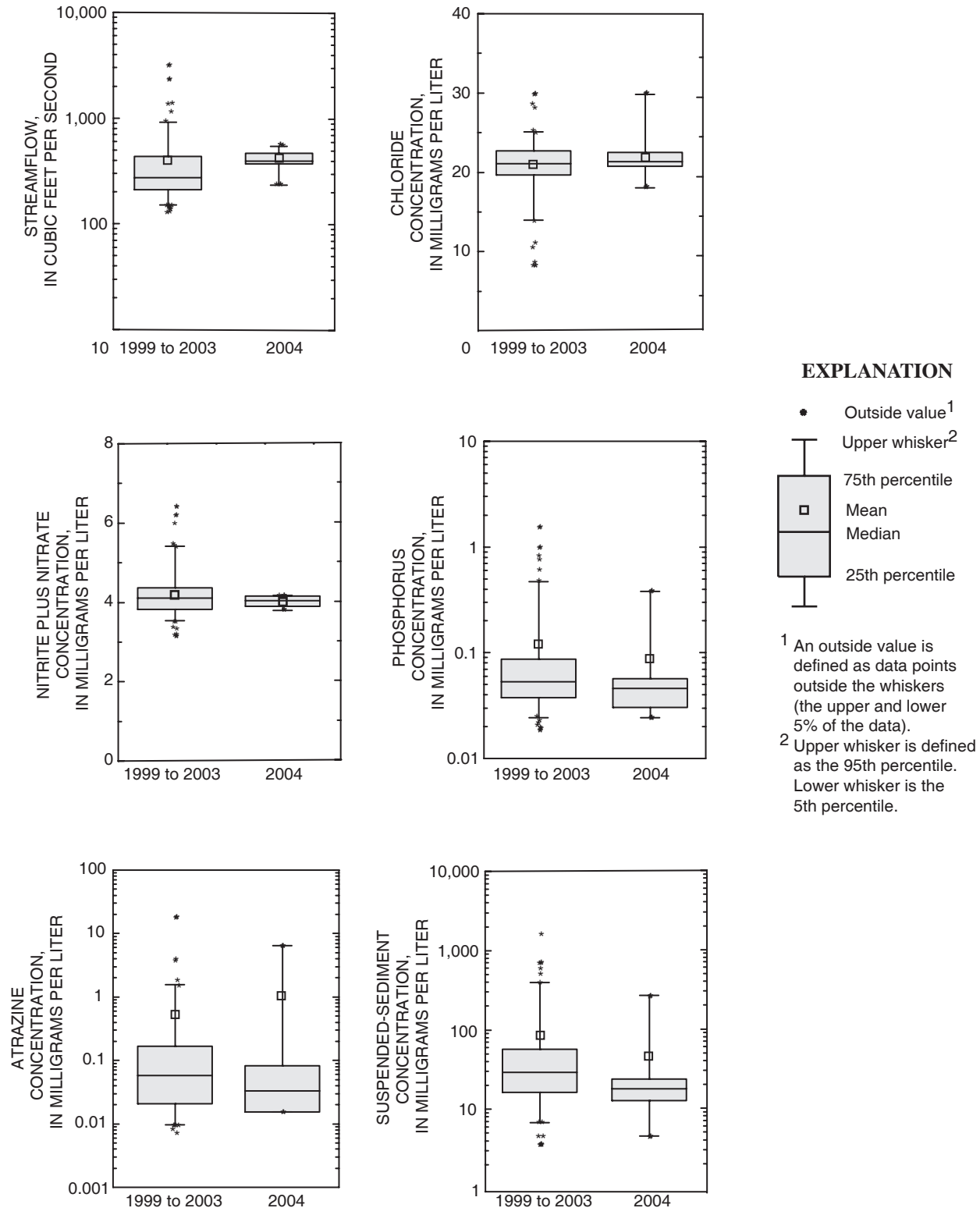


Figure 5. Streamflow and concentration of selected constituents measured in water year 2004 and the distribution of those characteristics from measurements made during water years 1999–2002 for the Mad River at St. Paris Pike at Eagle City, Ohio.

For the Maumee River, chloride concentrations determined in eight samples collected during 2004 ranged from 19.6 to 62.7 milligrams per liter (mg/L) with a median of 35.2 mg/L. For the Mad River, concentrations determined in 10 samples collected in 2004 were higher than those measured during the previous period, ranging from 18.1 to 30.5 mg/L with a median of 22.2 mg/L.

Out of the 18 samples collected for nitrate plus nitrite during 2004 at these two sites, none exceeded the U.S. Environmental Protection Agency maximum contaminant level for finished drinking water (10 mg/L, as N). In Ohio, fertilizers are a major source of nitrate. Concentrations in the Maumee River in 2004 were in the same range as those found during the previous 8-year period. Similarly, in the Mad River, nitrate plus nitrite concentrations during 2004 were in the same range as those found during the previous 5 years, except that no outside values were found during 2004.

Agricultural runoff and municipal and industrial point sources are the principal sources of phosphorus in Ohio. Increased phosphorus concentrations may lead to a high rate of production of plant materials in water and eutrophication of the receiving water. During 2004, median concentrations of total phosphorus were 0.199 mg/L for the Maumee River and 0.044 mg/L for the Mad River. Phosphorus concentrations are affected by streamflow. For 2004 in the Maumee River, seven out of eight samples were greater than the median phosphorus concentration for the previous 8-year period (0.148 mg/L), probably the result of higher streamflows during 2004.

The Maumee and Mad Rivers drain areas of heavy herbicide use. Not surprisingly, atrazine was detected in 100 percent of the water samples collected during 2004. Atrazine concentrations found in samples collected during 2004 were generally in the same range as those found during the previous periods. In the Maumee River during 2004, atrazine concentrations ranged from 0.007 to 23.4 micrograms per liter (μg/L); in the Mad River, atrazine concentrations were lower and ranged from 0.013 to 7.5 μg/L. The atrazine concentration in one sample from each river exceeded the U.S. Environmental Protection Agency's Maximum Contaminant Level of 3 μg/L. Both samples were collected in mid May 2004.

Elevated suspendend-sediment concentrations result from periods of high streamflows and are exacerbated by increased development and agriculture. Suspended-sediment concentrations in the Maumee River in 2004 were lower than those found during the previous 8-year period; the median value for 2004 was 31 mg/L, whereas the median for the previous period was 62 mg/L. At the Mad River, concentrations during 2004 were slightly lower than those measured during 1999-2003; median concentrations were 17.5 and 28.5 mg/L, respectively.

Ground Water

Ground water serves the needs of 46 percent of Ohio's population. An estimated 800 million gallons of ground water per day is withdrawn for public-supply, 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. 6) underlie glacial till, are locally confined under artesian pressure, and are highly productive. Extensive kame-terrace deposits of water-bearing gravel and sand are widely used ground-water sources in northeastern Ohio. The fine-grained unconsolidated aquifers are similar to the coarse-grained unconsolidated aquifers in form and origin but are less permeable because of higher percentages of mixed fine sand, silt, and clay. Included in the fine-grained unconsolidated aquifers are tills that contain thin or localized stratified lenses of sand and gravel.

Ground-water supply for much of the unglaciated upland area of southeastern Ohio is from bedrock aquifers composed of shaly sandstone and thin limestone. These strata, which range from Mississippian to Permian in age, are dominated by low-yielding shales and shaly sandstones that include numerous coal-bearing strata. In some places, small water supplies are available from fractured coal beds. Several sandstone aquifers in northeastern Ohio are of regional extent and are major ground-water sources for individual and small public supplies. These include the Berea and Black Hand Sandstones of Mississippian age and several sandstone members of the Pottsville and Allegheny Formations of Pennsylvanian age. The Lake Erie coastline of northeastern Ohio is underlain by shale of Devonian and Mississippian age (fig. 6) that yields only small amounts of water to wells. Silurian-age limestone and dolomite and Devonian limestone comprise the carbonate aquifer system (fig. 6) 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 a carbonate section was periodically exposed as land mass during the Paleozoic Era. The southwestern corner of Ohio near Cincinnati is underlain by shale and a thin limestone aquifer of Ordovician age. Away from the watercourse (coarse unconsolidated) aquifers that traverse the area, the rocks that form the uplands yield only very small amounts of ground water.

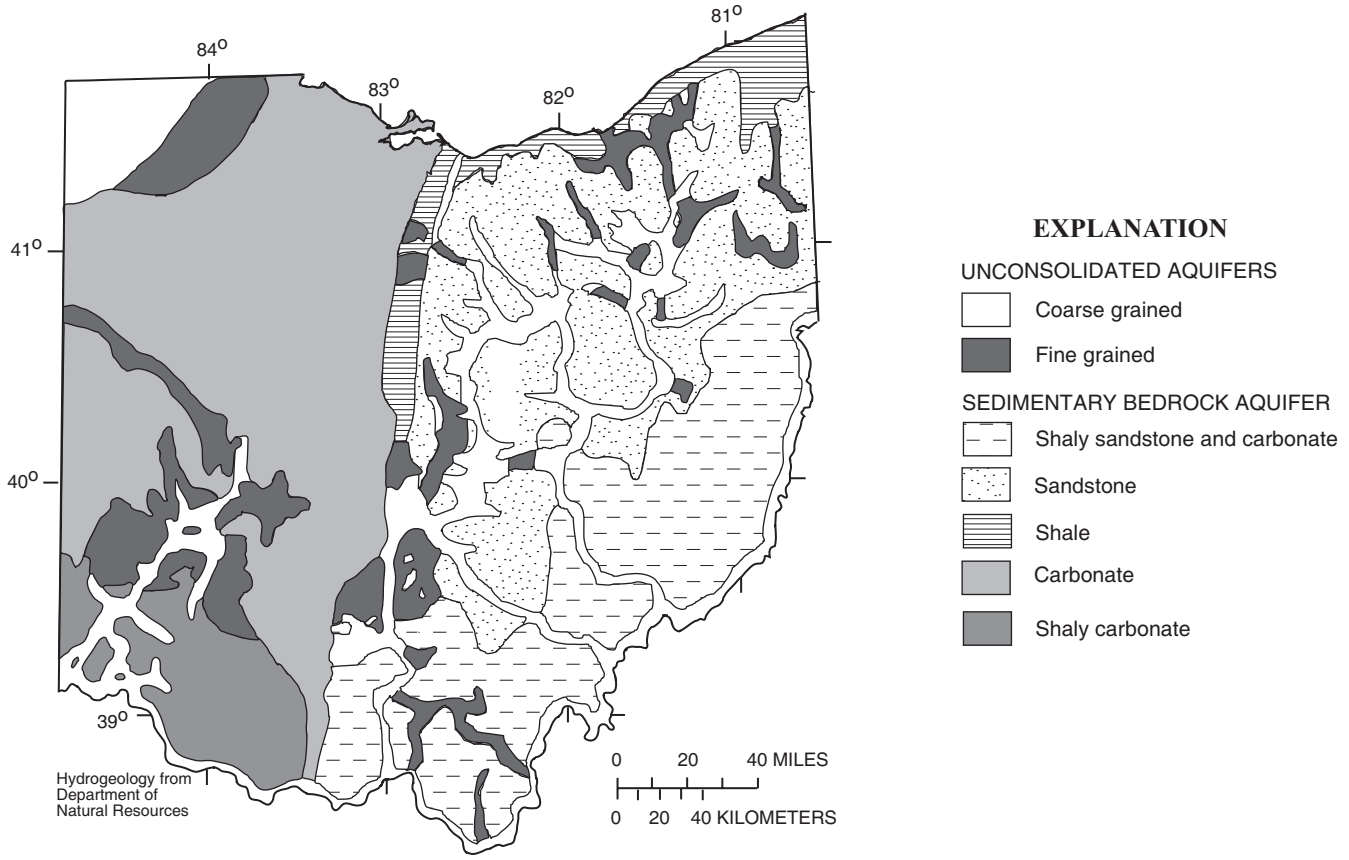


Figure 6. Geographic distribution of principal aquifers in Ohio.

Ground-Water Levels

Most ground-water observation wells in Ohio tap unconsolidated sand and gravel aquifers associated with the State's principal streams. Sample 1-year and 5-year hydrographs of a well completed in an unconfined unconsolidated sand-and-gravel aquifer are shown in figure 7. The observation-well network also includes some bedrock wells in areas where consolidated aquifers are heavily used for water supply, such as in the carbonate-rock region of northwestern Ohio. Sample 1-year and 5-year hydrographs of a well completed in a confined carbonate-rock aquifer are shown in figure 8. 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 but can be as much as 10 feet.

Ground-water conditions in Ohio during water year 2004 were as follows:

October-November. At the beginning of water year 2004, ground-water levels were above normal for most of the State in response to above normal precipitation late in water year 2003. Levels were generally stable and remained above normal through November.

December-January. Above-normal precipitation produced net rises in ground-water levels, and they remained above-normal statewide.

February. Ground-water levels declined in response to colder and drier conditions. Levels remained in the above-normal range except for southwest Ohio, where they were slightly below normal.

March-May. Generally, there were seasonal increases in ground-water levels statewide. For the most part, levels were above normal in consolidated aquifers and below normal in unconsolidated aquifers.

June. In response to well above normal precipitation late in May, ground-water levels rose and were in the above normal range except for southwest Ohio, where they remained below-normal.

July-September. The remainder of the water year was characterized by seasonal declines throughout the period. Above-normal ground-water levels prevailed statewide except for southwest Ohio, where they were below normal.

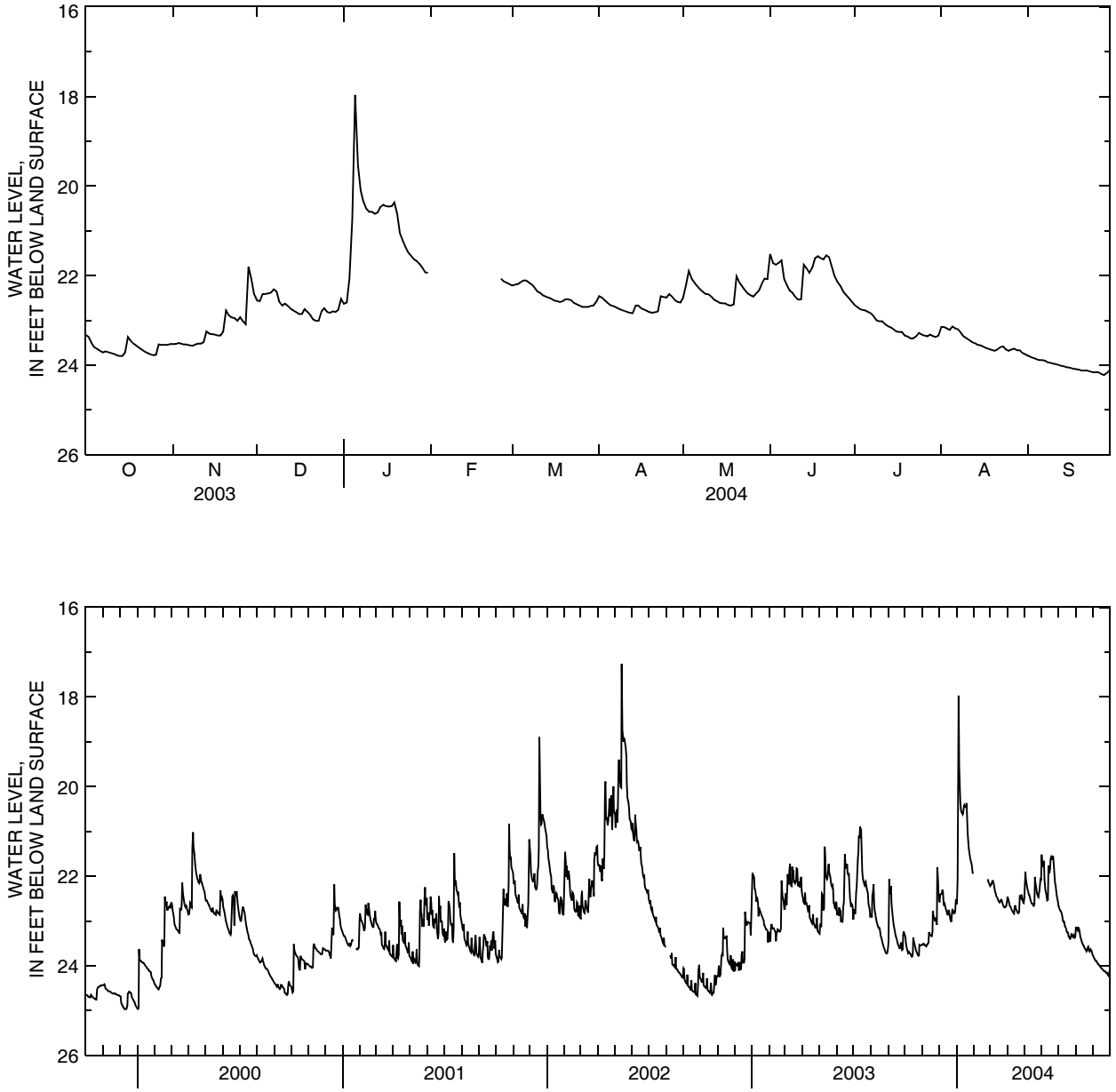


Figure 7. Sample of 1-year and 5-year hydrographs of well H-1 (391717084393300), completed in a unconfined unconsolidated aquifer.

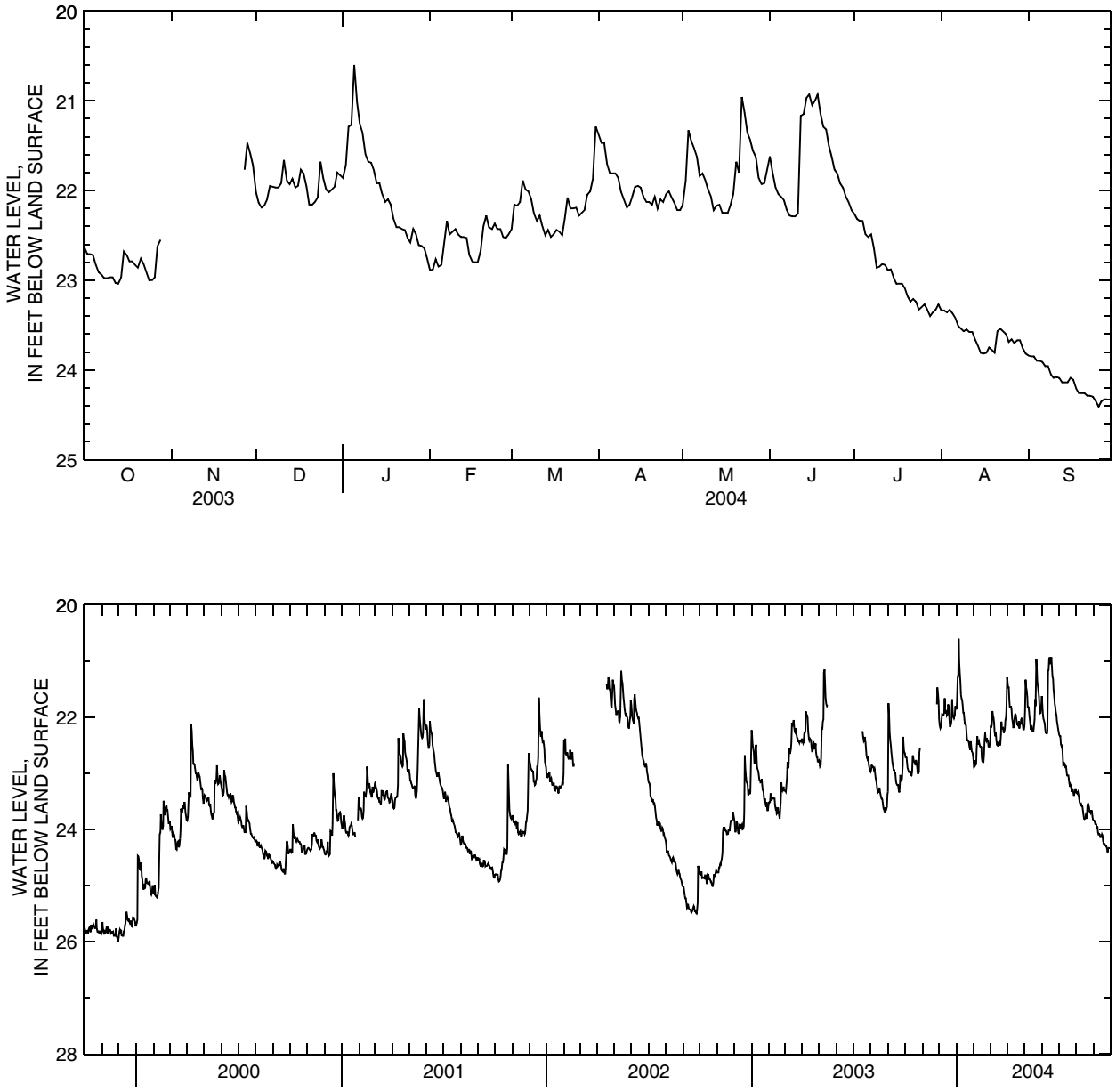


Figure 8. Sample of 1-year and 5-year hydrographs of well U-4 (401826083255200), completed in a confined carbonate-rock aquifer.

Downstream Order and Station Number

Since October 1, 1950, hydrologic-station records in USGS reports have been listed in order of 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 entering between two main-stream stations is listed between those stations. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is located with respect to the stream to which it is immediately tributary is indicated by an indention in that list of stations in the front of this report. Each indentation represents one rank. This downstream order and system of indentation indicates which stations are on tributaries between any two stations and the rank of the tributary on which each station is located.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These station numbers are in the same downstream order used in this report. In assigning a station number, 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 composed of both types of stations. Gaps are consecutive. The complete 8-digit (or 10-digit) number for each station such as 09004100, which appears just to the left of the station name, includes a 2-digit part number "09" plus the 6-digit (or 8-digit) downstream order number "004100." In areas of high station density, an additional two digits may be added to the station identification number to yield a 10-digit number. The stations are numbered in downstream order as described above between stations of consecutive 8-digit numbers.

Numbering System for Wells and Miscellaneous Sites

The USGS well and miscellaneous site-numbering system is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, and the next 7 digits denote degrees, minutes, and seconds of longitude; the last 2 digits are a sequential number for wells within a 1-second grid. In the event that the latitude-longitude coordinates for a well and miscellaneous site are the same, a sequential number such as "01," "02," and so forth, would be assigned as one would for wells (see fig. 9). The 8-digit, downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

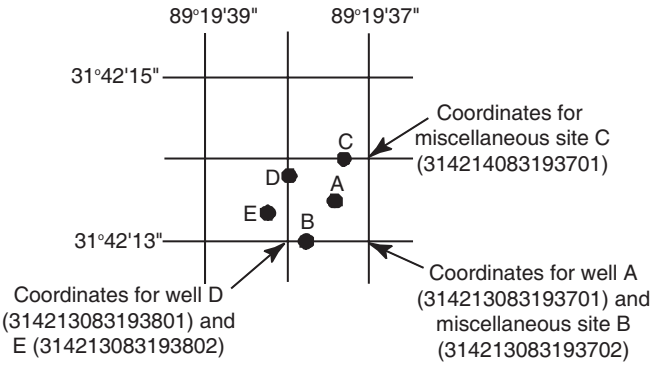


Figure 9. System for numbering wells and miscellaneous sites (latitude and longitude).

Special Networks and Programs

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative of undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program may be accessed from http://water.usgs.gov/hbn/.

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande River basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia Rivers so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment (NAWQA) Program; (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of

water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program may be accessed from http://water.usgs.gov/nasqan/.

The National Atmospheric Deposition Program/ National Trends Network (NADP/NTN) is a network of monitoring sites that provides continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead Federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from this network of 250 precipitation-chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as data from the individual sites, may be accessed from http://bqs.usgs.gov/acidrain/.

The USGS National Water-Quality Assessment (NAWQA) Program is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents is measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for water-resources managers to use in making decisions and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and Federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key Federal, State, and local water-resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program may be accessed from http://water.usgs.gov/nawqa/.

The USGS National Streamflow Information Program (NSIP) is a long-term program with goals to provide framework streamflow data across the Nation. Included in the program are creation of a permanent Federally funded streamflow network, research on the nature of streamflow, regional assessments of streamflow data and databases, and upgrades in the streamflow information delivery systems. Additional information about NSIP may be accessed from http://water.usgs.gov/nsip/.

Explanation of Stage- and Water-Discharge Records

Data Collection and Computation

The base data collected at gaging stations (fig. 1a and 1b) consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and volume of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder that is either downloaded electronically in the field to a laptop computer or similar device or is transmitted using telemetry such as GOES satellite, land-line or cellular-phone modems, or by radio transmission. Measurements of discharge are made with a current meter or acoustic Doppler current profiler, using the general methods adopted by the USGS. These methods are described in standard textbooks, USGS Water-Supply Paper 2175, and the Techniques of Water-Resources Investigations of the United States Geological Survey (TWRIs), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2, which may be accessed from http://water.usgs.gov/pubs/twri/. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standardization (ISO).

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

relation for a station is temporarily changed by the presence of aquatic growth or debris on the controlling section, the daily mean discharge is computed by the shifting-control method.

The stage-discharge relation at some stream-gaging stations is affected by backwater from reservoirs, tributary streams, or other sources. Such an occurrence 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 at some distance from the base gage.

An index velocity is measured using ultrasonic or acoustic instruments at some stream-gaging stations and this index velocity is used to calculate an average velocity for the flow in the stream. This average velocity along with a stage-area relation is then used to calculate average discharge.

At some stations, stage-discharge relation is affected by changing stage. At these stations, the rate of change in stage is used as a factor in computing discharge.

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

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

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

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

Data Presentation

The records published for each continuous-record surface-water discharge station (stream-gaging station) consist of five parts: (1) the station manuscript or description; (2) the data table of daily mean values of discharge for the current water year with summary data; (3) a tabular statistical summary of monthly mean flow data for a designated period, by water year; (4) a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration; and (5) a hydrograph of discharge.

Station Manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; 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 follow that clarify information presented under the various headings of the station description.

LOCATION.—Location information is obtained from the most accurate maps available. The location of the gaging station 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 of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.—This term indicates the time period for which records have been published 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 its flow reasonably can be considered equivalent to flow at the present station.

REVISED RECORDS.—If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

GAGE.—The type of gage in current use, the datum of the current gage referred to a standard datum, 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 either will be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily discharge table. (See section titled Identifying Estimated Daily Discharge.) Information is presented relative to the accuracy of

the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, the outlet works and spillway, and the purpose and use of the reservoir.

COOPERATION.—Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.—Information here documents major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the USGS.

REVISIONS.—Records are revised if errors in published records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (*http://waterdata.usgs.gov/nwis*). Users are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent data updates. Updates to NWISWeb are made on an annual basis.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because no current or, possibly, future station manuscript would be published for these stations to document the revision in a REVISED RECORDS entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office (address given on the back of the title page of this report) to determine if the published records were revised after the station was discontinued. If, however, the data for a discontinued station were obtained by computer retrieval, the data would be current. Any published revision of data is always accompanied by revision of the corresponding data in computer storage.

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

Peak Discharge Greater than Base Discharge

Tables of peak discharge above base discharge are included for some stations where secondary instantaneous peak discharge data are used in flood-frequency studies of highway and bridge design, flood-control structures, and other flood-related projects. The base discharge value is selected so an average of three peaks a year will be reported. This base discharge value has a recurrence interval of approximately 1.1 years or a 91-percent chance of exceedence in any 1 year.

Data Table of Daily Mean Values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed TOTAL gives the sum of the daily figures for each month; the line headed MEAN gives the arithmetic average flow in cubic feet per second for the month; and the lines headed MAX and MIN give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month is expressed in cubic feet per second per square mile (line headed CFSM); or in inches (line headed IN); or in acre-feet (line headed AC-FT). Values for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if extensive regulation or diversion is in effect or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir volumes are given. These values are identified by a symbol and a corresponding footnote.

Statistics of Monthly Mean Data

A tabular summary of the mean (line headed MEAN), maximum (MAX), and minimum (MIN) of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those values. The designated period will be expressed as FOR WATER YEARS __-__, BY WATER YEAR (WY), and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. The designated period will consist of all of the station record within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript.

Summary Statistics

A table titled SUMMARY STATISTICS follows the statistics of monthly mean data tabulation. This table consists of four columns with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, WATER YEARS __-__, will consist of all of the station records within the specified water years, including complete months of record for partial water years, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated

in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the ANNUAL 7-DAY MINIMUM statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When the dates of occurrence do not fall within the selected water years listed in the heading, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration-curve statistics and runoff data also are given. Runoff data may be omitted if extensive regulation or diversion of flow is in effect in the drainage basin.

The following summary statistics data are provided with each continuous record of discharge. Comments that follow clarify information presented under the various line headings of the SUMMARY STATISTICS table.

ANNUAL TOTAL.—The sum of the daily mean values of discharge for the year.

ANNUAL MEAN.—The arithmetic mean for the individual daily mean discharges for the year noted or for the designated period.

HIGHEST ANNUAL MEAN.—The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.—The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.—The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.—The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.—The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. This value should not be confused with the 7-day 10-year low-flow statistic.

MAXIMUM PEAK FLOW.—The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.—The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.—The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.—Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-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.

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

Inches (INCHES) indicate the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.—The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.—The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.—The discharge that has

been exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first table lists annual maximum stage and discharge at crest-stage stations, and the second table lists 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 often made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for a 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. This identification is shown either by flagging individual daily values with the letter "e" and noting in a table footnote, "e–Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of Field Data and Computed Results

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

The degree of accuracy of the records is stated in the REMARKS in the station description. "Excellent" indicates that about 95 percent of the daily discharges are within 5 percent of the true value; "good" within 10 percent; and "fair," within 15 percent. "Poor" indicates that daily discharges have less than "fair" accuracy. Different accuracies may be attributed to different parts of a given record.

Values of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to the nearest tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 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 discharge values listed for partial-record stations.

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

Other Data Records Available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the District office (see address that is shown on the back of the title page of this report).

Explanation of Precipitation Records

Data Collection and Computation

Rainfall data generally are collected using electronic data loggers that measure the rainfall in 0.01-inch increments every 15 minutes using either a tipping-bucket rain gage or a collection well gage. Twenty-four hour rainfall totals are tabulated and presented. A 24-hour period extends from just past midnight of the previous day to midnight of the current day. Snowfall-affected data can result during cold weather when snow fills the rain-gage funnel and then melts as temperatures rise. Snowfall-affected data are subject to errors. Missing values are indicated by this symbol "---" in the table.

Data Presentation

Precipitation records collected at surface-water gaging stations are identified with the same station number and name as the stream-gaging station. Where a surface-water daily-record station is not available, the precipitation record is published with its own name and latitude-longitude identification number.

Information pertinent to the history of a precipitation station is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, period of record, and general remarks.

The following information is provided with each precipitation station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report

(same comments apply).

PERIOD OF RECORD.—See Data Presentation in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

INSTRUMENTATION.—Information on the type of rainfall collection system is given.

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

Explanation of Water-Quality Records

Collection and Examination of Data

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

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

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

Water Analysis

Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from http://water.usgs.gov/pubs/twri/.

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 at several verticals to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the 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 and minimum values (and sometimes mean or median values) for each constituent measured, and are based on 15-minute or 1-hour intervals of recorded data beginning at 0000 hours and ending at 2400 hours for the day of record.

Surface-Water-Quality Records

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because discharge data is useful in the interpretation of surface-water quality. Records of surface-water quality in this report 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 *continuous-record station* is a site where data are collected on a regularly scheduled basis. Frequency may be one 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 continuous- or partial-record station, where 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 *continuous records* as used in this report and *continuous recordings* that refer to a continuous graph or a series of discrete values recorded at short intervals. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figures 1a and 1b.

Accuracy of the Records

One of four accuracy classifications is applied for measured physical properties at continuous-record stations on a scale ranging from poor to excellent. The accuracy rating is based on data values recorded before any shifts or corrections are made. Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

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 the 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 assuring that the data obtained represent the naturally occurring quality of the water. To ensure this, certain measurements, such as water temperature, pH, and dissolved oxygen, must be made on site when the samples are taken. To assure that measurements made in the laboratory also represent the naturally occurring water, carefully prescribed procedures must be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1-A9. Most of the methods used for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Also, detailed information on collecting, treating, and shipping samples can be obtained from the USGS District office (see address that is shown on the back of title page in this report).

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the 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 diurnal 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. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

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 be collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges 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 are 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 suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Samples for biochemical oxygen demand (BOD) and indicator bacteria are analyzed locally. All other samples are analyzed in the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chapter C1. Methods used by the USGS laboratories are given in the TWRIs, Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. The TWRI publications may be accessed from *http://water.usgs.gov/pubs/twri/*. These methods are consistent with ASTM standards and generally follow ISO standards.

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 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 information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

DRAINAGE AREA.—See Data Presentation information in the EXPLANATION OF STAGE- AND WATER-DISCHARGE RECORDS section of this report (same comments apply).

PERIOD OF RECORD.—This indicates the time periods for which published water-quality records for the station are available. 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 records.

COOPERATION.—Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

EXTREMES.—Maximums and minimums are given only for parameters measured daily or more frequently. For parameters measured weekly or less frequently, true maximums or minimums may not have been obtained. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.—Records are revised if errors in published water-quality records are discovered. Appropriate updates are made in the USGS distributed data system, NWIS, and subsequently to its Web-based National data system, NWISWeb (http://waterdata.usgs.gov/nwis). Users of USGS water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure that they have the most recent updates. Updates to the NWISWeb are made on an annual basis.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

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

Printed Output	Remark
E or 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.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

Water-Quality Control Data

The USGS National Water Quality Laboratory collects quality-control data on a continuing basis to evaluate selected analytical methods to determine long-term method detection levels (LT-MDLs) and laboratory reporting levels (LRLs). These values are re-evaluated each year on the basis of the most recent quality-control data and, consequently, may change from year to year.

This reporting procedure limits the occurrence of false positive error. Falsely reporting a concentration greater than the LT-MDL for a sample in which the analyte is not present is 1 percent or less. Application of the LRL limits the occurrence of false negative error. The chance of falsely reporting a non-detection for a sample in which the analyte is present at a concentration equal to or greater than the LRL is 1 percent or less.

Accordingly, concentrations are reported as less than LRL

for samples in which the analyte was either not detected or did not pass identification. Analytes detected at concentrations between the LT-MDL and the LRL and that pass identification criteria are estimated. Estimated concentrations will be noted with a remark code of "E." These data should be used with the understanding that their uncertainty is greater than that of data reported without the E remark code.

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this District office are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples. These data are not presented in this report but are available from the District office.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated in the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. Many types of blank samples are possible; each is designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this district are:

Field blank—A blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank—A blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank—A blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank—A blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank—A blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank—A blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank—A blank solution that is treated with the sampler preservatives used for an environmental sample.

Reference Samples

Reference material is a solution or material prepared by a laboratory. The reference material composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. Many types of replicate samples are possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

Concurrent samples—A type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating the collection of samples into two or more compositing containers.

Sequential samples—A type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample—A type of replicate sample in which a sample is split into subsamples, each subsample contemporaneous in time and space.

Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on

the analyte concentration during sample processing and analysis.

Explanation of Ground-Water-Level Records

Generally, only ground-water-level data from selected wells with continuous recorders from a basic network of observation wells are published in this report. This basic network contains observation wells located so that the most significant data are obtained from the fewest wells in the most important aquifers.

Site Identification Numbers

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is produced for local needs. (See NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES in this report for a detailed explanation).

Data Collection and Computation

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

Most methods for collecting and analyzing water samples are described in the TWRIs referred to in the On-site Measurements and Sample Collection and the Laboratory Measurements sections in this report. In addition, TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRIs Book 1, Chapter D2; Book 3, Chapters A1, A3, and A4; and Book 9, Chapters A1 through A9. The TWRI publications may be accessed from http://water.usgs.gov/pubs/twri/. The values in this report represent water-quality conditions at the time of sampling, as much as possible, and that are consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. Trained personnel collected all samples. The wells sampled were pumped long enough to ensure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

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 elevation of the land-surface datum above sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (EOM).

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

Data Presentation

Water-level data are presented in alphabetical order by county. The primary identification number for a given well is the 15-digit site identification number that appears in the upper left corner of the table. The secondary identification number is the local or county well number. Well locations are shown in figures 1c and 1d each well is identified on the map by its local well or county well number.

Each well record consists of three parts: the well description, the data table of water levels observed during the water year, and, for most wells, a hydrograph following the data table. Well descriptions are presented in the headings preceding the tabular data.

The following comments clarify information presented in these various headings.

LOCATION.—This paragraph follows the well-identification number and reports the hydrologic-unit number and a geographic point of reference. Latitudes and longitudes used in this report are reported as North American Datum of 1927 unless otherwise specified.

AQUIFER.—This entry designates by name and geologic age the aquifer that the well taps.

WELL CHARACTERISTICS.—This entry describes the well in terms of depth, casing diameter and depth or screened interval, method of construction, use, and changes since construction.

INSTRUMENTATION.—This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on continuous, monthly, or some other

frequency of measurement.

DATUM.—This entry describes both the measuring point and the land-surface elevation at the well. The altitude of the land-surface datum is described in feet above the altitude datum; it is reported with a precision depending on the method of determination. The measuring point is described physically (such as top of casing, top of instrument shelf, and so forth), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above National Geodetic Vertical Datum of 1929 (NGVD 29); 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, when various methods of measurement were begun, and the network (climatic, terrane, local, or areal effects) or the special project to which the well belongs.

PERIOD OF RECORD.—This entry indicates the time period for which records are published for the well, the month and year at the start of publication of water-level records by the USGS, and the words "to current year" if the records are to be continued into the following year. Time periods for which water-level records are available, but are not published by the USGS, may be noted.

EXTREMES FOR PERIOD OF RECORD.—This entry contains the highest and lowest instantaneously recorded or measured water levels of the period of published record, with respect to land-surface datum or sea level, and the dates of occurrence.

Water-Level Tables

A table of water levels follows the well description for each well. Water-level measurements in this report are given in feet with reference to either sea level or land-surface datum (lsd). Missing records are indicated by dashes in place of the water-level value.

For wells not equipped with recorders, water-level measurements were obtained periodically by steel or electric tape. Tables of periodic water-level measurements in these wells show the date of measurement and the measured water-level value.

Hydrographs

Hydrographs are a graphic display of water-level fluctuations over a period of time. In this report, current water year and, when appropriate, period-of-record hydrographs are shown. Hydrographs that display periodic water-level measurements show points that may be connected with a dashed line from one measurement to the next. Hydrographs that display recorder data show a solid line representing the mean water level recorded for each day. Missing data are indicated by a blank space or break in a hydrograph. Missing data may occur as a result of recorder malfunctions, battery failures, or mechanical problems related to the response of the recorder's float mechanism to water-level fluctuations in a well.

Ground-Water-Quality Data

Data Collection and Computation

The ground-water-quality data in this report were obtained as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some wells within a county but not for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide.

Most methods for collecting and analyzing water samples are described in the TWRIs, which may be accessed from *http://water.usgs.gov/pubs/twri/*. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in TWRI, Book 1, Chapter D2; Book 5, Chapters A1, A3, and A4 and Book 9, Chapters A1-A6. Also, detailed information on collecting, treating, and shipping samples may be obtained from the USGS District office (see address shown on back of title page in this report).

Laboratory Measurements

Analysis for sulfide and measurement of alkalinity, pH, water temperature, specific conductance, and dissolved oxygen are performed on site. All other sample analyses are performed at the USGS laboratory in Lakewood, Colorado, unless otherwise noted. Methods used by the USGS laboratory are given in TWRI, Book 1, Chapter D2; and Book 5, Chapters A1, A3, and A4, which may be accessed from *http://water.usgs.gov/pubs/twri/*.

Access to USGS Water Data

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary

telemetry and historic daily mean and peak-flow discharge data for most current or discontinued gaging stations through the World Wide Web (WWW). These data may be accessed from http://water.usgs.gov.

Water-quality data and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on various media. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each Water Discipline District Office (See address that is shown on the back of the title page of this report.)

Definition of Terms

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (SI) units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity.)

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff".)

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

Algal growth potential (AGP) is the maximum algal 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. (See also "Biomass" and "Dry weight".)

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that purposely is 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 collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

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

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas 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.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Bedload is material in transport that primarily is supported by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to the top of the bedload sampler nozzle (an elevation ranging from 0.25 to 0.5 foot). These particles are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

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 mass per unit area or volume of habitat.

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This also is called the Autotrophic Index.

Blue-green algae (Cyanophyta) are a group of phytoplankton and periphyton organisms with a blue pigment in addition to a green pigment called chlorophyll. Blue-green algae can cause nuisance water-quality conditions in lakes and slow-flowing rivers; however, they are found commonly in streams throughout the year. The abundance of blue-green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of blue-green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton"and "Periphyton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved-solids content of the pore water, and the lithology and porosity of the rock.

Canadian Geodetic Vertical Datum 1928 is a geodetic datum derived from a general adjustment of Canada's first order level network in 1928.

Cell volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are used frequently in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average

biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

sphere $4/3\ \pi\rho^3$ cone $1/3\ \pi r^2 h$ cylinder $\pi r^2 h$

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159….

From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cells/volume refers to the number of cells of any organism that 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 volume, and generally are reported as cells or units per milliliter (mL) or liter (L).

Cfs-day (See "Cubic foot per second-day")

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

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 BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also "Biochemical oxygen demand (BOD)"]

Clostridium perfringens (*C. perfringens*) is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and the presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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.

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, 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 saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "second-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [$(ft^3/s)/d$]) 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, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables numerically are equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, $(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also "Annual runoff")

Daily mean suspended-sediment concentration is the time-weighted mean concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also

"Sediment" and "Suspended-sediment concentration")

Daily record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to data collection on a daily or near-daily basis.

Data collection platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data usually are downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or Universal Transverse Mercator (UTM) coordinates. (See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988")

Diatoms (Bacillariophyta) are unicellular or colonial algae with a siliceous cell wall. The abundance of diatoms in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of diatoms in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, and so forth, within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to 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 and State agencies that collect water-quality data. Determinations of "dissolved" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4917 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

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

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

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

Drainage area of a stream at a specific location is

that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, 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. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria commonly are found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis, Streptococcus feacium, Streptococcus avium,* and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that generally are considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli (*E. coli*) are bacteria present in the intestine and feces of warmblooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) value of a concentration is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an E code will be reported with the value. If the analyte is identified qualitatively as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an E code even though the measured value is greater than the MDL. A value reported with an E code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<). For bacteriological data, concentrations are reported as estimated when results are based on non-ideal colony counts.

Euglenoids (Euglenophyta) are a group of algae that usually are free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are 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 when incubated at 44.5 °C plus or minus 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. (See also "Bacteria")

Fecal streptococcal bacteria are present in the

intestines of warmblooded animals and are ubiquitous in the environment. 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 plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Filtered pertains to constituents in a water sample passed through a filter of specified pore diameter, most commonly 0.45 micrometer or less for inorganic analytes and 0.7 micrometer for organic analytes.

Filtered, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that has passed through a filter has been extracted. Complete recovery is not achieved by the extraction procedure and thus the analytical determination represents something less than 95 percent of the total constituent concentration in the sample. To achieve comparability of analytical data, equivalent extraction procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results.

Fire algae (Pyrrhophyta) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum is not an actual physical object, the datum is usually defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term "stage," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

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

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae (Chlorophyta) are unicellular or colonial algae with chlorophyll pigments similar to those in terrestrial green plants. Some forms of green algae produce mats or floating "moss" in lakes. The abundance of green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter (μm^3/mL). The abundance of green algae in periphyton samples is given in cells per square centimeter (cells/cm^2) or biovolume per square centimeter ($\mu m^3/cm^2$). (See also "Phytoplankton" and "Periphyton")

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat typically are made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

Hardness of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA Web site: http://www.csc.noaa.gov/text/glossary.html* (See "High water")

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum\frac{(n)(a)}{N} \quad ,$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See "Datum")

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

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

Inch (IN., in.), in reference to streamflow, as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were distributed uniformly on it. (See also "Annual runoff")

Instantaneous discharge is the discharge at a particular instant of time. (See also "Discharge")

International Boundary Commission Survey Datum refers to a geodetic datum established at numerous monuments along the United States-Canada boundary by the International Boundary Commission.

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year, on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) generally is equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. The LRL replaces the term 'non-detection value' (NDV).

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L} \quad ,$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{\mathrm{L}}\log_{\mathrm{e}}\frac{\mathrm{I}}{\mathrm{I_o}} \quad .$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many

environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike-sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA Web site: http://www.csc.noaa.gov/text/glossary.html* (See "Low water")

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

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

Mean high or **low tide** is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

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

Megahertz is a unit of frequency. One megahertz equals one million cycles per second.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

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.

Method code is a one-character code that identifies the analytical or field method used to determine a value stored in the National Water Information System (NWIS).

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Method of Cubatures is a method of computing discharge in tidal estuaries based on the conservation of mass equation.

Methylene blue active substances (MBAS) indicate the presence of detergents (anionic surfactants). The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

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

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

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

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD 29) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It formerly was called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations**,** it does not necessarily represent local mean sea level at any particular place. *See NOAA Web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88* (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

Nekton are the consumers in the aquatic environment and consist of large, free-swimming organisms that are capable of sustained, directed mobility.

Nonfilterable refers to the portion of the total residue retained by a filter.

North American Datum of 1927 (NAD 27) is the horizontal control datum for the United States that was defined by a location and azimuth on the Clarke spheroid of 1866.

North American Datum of 1983 (NAD 83) is the horizontal control datum for the United States, Canada, Mexico, and Central America that is based on the adjustment of 250,000 points including 600 satellite Doppler stations that constrain the system to a geocentric origin. NAD 83 has been officially adopted as the legal horizontal datum for the United States by the Federal government.

North American Vertical Datum of 1988 (NAVD 88) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian**,** Mexican, and United States first-order terrestrial leveling networks.

Open or **screened interval** is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or **volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. 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 milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method uses the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) 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, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (millimeters)	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
Cobble	>64–256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, most of the organic matter 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.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

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

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They usually are 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 commonly are known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one-trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 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. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

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

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic 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 (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [mg C/(m^2/time)] for periphyton and macrophytes or per volume [mg C/(m^3/time)] for phytoplankton. The carbon method defines 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 with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [mg O/(m^2/time)] for periphyton and macrophytes or per volume [mg O/(m^3/time)] for phytoplankton. The oxygen method defines 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. (See also "Primary productivity")

Radioisotopes are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling

unit for collecting physical, chemical, and biological data.

Recoverable is the amount of a given constituent that is in solution after a representative water sample has been extracted or digested. Complete recovery is not achieved by the extraction or digestion and thus the determination represents something less than 95 percent of the constituent present in the sample. To achieve comparability of analytical data, equivalent extraction or digestion procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results. (See also "Bed material")

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See "Recurrence interval")

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

Salinity is the total quantity of dissolved salts, measured by weight in parts per thousand. Values in this report are calculated from specific conductance and temperature. Seawater has an average salinity of about 35 parts per thousand (for additional information, refer to: Miller, R.L., Bradford, W.L., and Peters, N.E., 1988, Specific conductance: theoretical considerations and application to analytical quality control: U.S. Geological Survey Water-Supply Paper 2311, 16 p.)

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment 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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport

through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 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.

Stable isotope ratio (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See "Gage height")

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

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.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2 mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment::

0 < no gravel or larger substrate.
1 > 75 percent.
2 51–75 percent.
3 26–51 percent.
4 5–25 percent.
5 < 5 percent.

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

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

Surrogate is an analyte that behaves similarly to a target analyte, but that is highly unlikely to occur in a sample. A surrogate is added to a sample in known amounts before extraction and is measured with the same laboratory procedures used to measure the target analyte. Its purpose is to monitor method performance for an individual sample.

Suspended is the amount (concentration) of undissolved material in a water-sediment mixture. Most commonly refers to 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 filter has been extracted or digested. Complete recovery is not achieved by the extraction or digestion procedures and thus the determination represents less than 95 percent of the constituent present in the sample. To achieve comparability of analytical data, equivalent extraction or digestion procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results. (See also "Suspended")

Suspended sediment is sediment carried in suspension by the turbulent components of the fluid or by the Brownian movement (a law of physics). (See also "Sediment")

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 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also "Sediment" and "Suspended sediment")

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027. (See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also "Sediment")

Suspended solids, total residue at 105° C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Suspended, total is the total amount of a given constituent in the part of a water-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. 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 directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also "Suspended")

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a 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*

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table descriptions 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 resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (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, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric ton per day.

Total is the amount of a given constituent in a representative whole-water (unfiltered) 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 determined at least 95 percent of the constituent in the sample.)

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. 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 all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also "Bacteria")

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the 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 length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume")

Total recoverable is the amount of a given constituent in a whole-water sample after a 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 for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is an expression of the optical properties of a liquid that causes light rays to be scattered and absorbed rather than transmitted in straight lines through water. Turbidity, which can make water appear cloudy or muddy, is caused by the presence of suspended and dissolved matter, such as clay, silt, finely divided organic matter, plankton and other microscopic organisms, organic acids, and dyes (ASTM International, 2003, D1889–00 Standard test method for turbidity of water, *in* ASTM International, Annual Book of ASTM Standards, Water and Environmental Technology, v. 11.01: West Conshohocken, Pennsylvania, 6 p.). The color of water, whether resulting from dissolved compounds or suspended particles, can affect a turbidity measurement. To ensure that USGS turbidity data can be understood and interpreted properly within the context of the instrument used and site conditions encountered, data from each instrument type are stored and reported in the National Water Information System (NWIS) using parameter codes and measurement reporting units that are specific to the instrument type, with specific instruments designated by the method code. The respective measurement units, many of which also are in use internationally, fall into two categories: (1) the designations NTU, NTRU, BU, AU, and NTMU signify the use of a broad spectrum incident light in the wavelength range of 400-680 nanometers (nm), but having different light detection configurations; (2) The designations FNU, FNRU, FBU, FAU, and FNMU generally signify an incident light in the range between 780-900 nm, also with varying light detection configurations. These reporting units are equivalent when measuring a calibration solution (for example, formazin or polymer beads), but their respective instruments may not produce equivalent results for environmental samples. Specific reporting units are as follows:

NTU (Nephelometric Turbidity Units): white or broadband [400-680 nm] light source, 90 degree detection angle, one detector.

NTRU (Nephelometric Turbidity Ratio Units): white or broadband [400-680 nm] light source, 90 degree detection angle, multiple detectors with ratio compensation.

BU (Backscatter Units): white or broadband [400-680 nm] light source, 30 ± 15 degree detection angle (backscatter).

AU (Attenuation Units): white or broadband [400-680 nm] light source, 180 degree detection angle (attenuation).

NTMU (Nephelometric Turbidity Multibeam Units): white or broadband [400-680 nm] light source, multiple light sources, detectors at 90 degrees and possibly other angles to each beam.

FNU (Formazin Nephelometric Units): near infrared [780-900 nm] or monochrome light source, 90 degree detection angle, one detector.

FNRU (Formazin Nephelometric Ratio Units): near infrared [780-900 nm] or monochrome light source, 90 degree detection angle, multiple detectors, ratio compensation.

FBU (Formazin Backscatter Units): near infrared [780-900 nm] or monochrome light source, 30±15 degree detection angle.

FAU (Formazin Attenuation Units): near infrared [780-900 nm] light source, 180 degree detection angle.

FNMU (Formazin Nephelometric Multibeam Units): near infrared [780-900 nm] or monochrome light source, multiple light sources, detectors at 90 degrees and possibly other angles to each beam.

For more information please see *http://water.usgs.gov/owq/FieldManual/Chapter6/6.7_contents.html*.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of path length of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Unfiltered pertains to the constituents in an unfiltered, representative water-suspended sediment sample.

Unfiltered, recoverable is the amount of a given constituent in a representative water-suspended sediment sample that has been extracted or digested. Complete recovery is not achieved by the extraction or digestion treatment and thus the determination represents less than 95 percent of the constituent present in the sample. To achieve comparability of analytical data, equivalent extraction or digestion procedures are required of all laboratories performing such analyses because different procedures are likely to produce different analytical results.

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and, subsequently, analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They often are components of fuels, solvents, hydraulic fluids, paint thinners, and dry-cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human-health concern because many are toxic and are known or suspected human carcinogens.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS 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, 2002, is called the "2002 water year."

Watershed (See "Drainage basin")

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976.)

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.

Wet mass is the mass of living matter plus contained water. (See also "Biomass" and "Dry mass")

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also "Dry weight")

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are 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. (See also "Plankton")

Surface-Water Records—Ottawa River Basin

04177000 Ottawa River at University of Toledo, Toledo, Ohio

LOCATION.—Latitude 41°39′29″, longitude 83°37′19″, in NE ¼ sec. 32, T.9 S., R.7 E., Lucas County, Hydrologic Unit 04100001, on left bank at auto bridge at University of Toledo, 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 mi^2. Area at site used prior to Sept. 30, 1948, 150 mi^2, 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 sea level. From Aug. 1976-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.—Records fair except for periods of estimated record, which are poor. Water-quality data fomerly collected at this site.

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 ft^3/s. Flood of Apr. 25, 1950, reached a stage of 15.0 ft present datum, from floodmark; discharge, 3,300 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	35	105	304	e17	e120	97	29	321	32	28	24
2	22	28	75	215	e16	342	84	87	135	26	24	17
3	21	27	58	209	e16	375	72	255	83	22	23	12
4	35	25	52	184	e15	264	64	137	59	21	66	18
5	21	27	89	175	e17	545	58	81	47	32	31	15
6	19	24	86	e130	e20	852	52	59	41	29	24	42
7	20	22	39	e110	e17	405	47	61	38	29	22	104
8	17	21	28	e96	e15	236	46	48	33	23	21	42
9	17	25	22	e82	e14	155	44	48	30	17	20	38
10	18	27	107	e70	e14	115	40	319	107	15	18	23
11	e17	40	438	e62	e13	99	36	440	372	19	16	16
12	e16	44	413	e56	e13	89	34	199	703	24	15	13
13	e16	37	147	e52	e13	68	40	117	576	27	14	11
14	e20	34	79	e48	e13	63	34	124	312	19	13	11
15	e300	34	55	e52	e12	62	33	105	254	15	23	11
16	e460	37	48	e60	e12	65	30	65	197	12	17	12
17	228	35	50	e40	e12	64	29	54	375	13	10	11
18	107	60	54	e37	e12	66	27	90	885	32	9.0	9.9
19	73	143	38	e34	e12	77	26	95	748	27	19	8.7
20	56	299	25	e30	e40	103	26	61	239	24	30	8.3
21	43	156	15	e28	e280	145	49	114	125	23	27	11
22	37	92	14	e26	e260	130	33	291	85	61	14	6.3
23	34	67	186	e25	e180	94	52	228	60	31	13	5.7
24	30	96	730	e23	e140	90	39	323	47	40	13	6.1
25	34	117	627	e21	e120	268	43	336	40	24	13	5.4
26	44	104	333	e20	e100	419	37	150	36	21	16	5.4
27	31	96	204	e20	e90	291	33	90	34	68	197	5.6
28	32	115	154	e19	e80	207	29	78	44	29	329	5.9
29	40	174	307	e18	e70	152	26	59	48	25	74	6.3
30	32	154	692	e18	---	127	23	73	36	38	40	5.2
31	34	---	614	e17	---	113	---	239	---	123	36	---
TOTAL	1904	2195	5884	2281	1633	6201	1283	4455	6110	941	1215.0	509.8
MEAN	61.4	73.2	190	73.6	56.3	200	42.8	144	204	30.4	39.2	17.0
MAX	460	299	730	304	280	852	97	440	885	123	329	104
MIN	16	21	14	17	12	62	23	29	30	12	9.0	5.2
CFSM	0.41	0.49	1.27	0.49	0.38	1.33	0.29	0.96	1.36	0.20	0.26	0.11
IN.	0.47	0.54	1.46	0.57	0.40	1.54	0.32	1.10	1.52	0.23	0.30	0.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945-2004, BY WATER YEAR (WY)

MEAN	63.5	88.1	128	113	170	269	237	150	133	47.7	30.0	40.2
MAX	407	449	380	561	467	729	438	358	437	264	143	406
(WY)	1987	1993	1978	1993	1990	1978	1977	1945	1989	1992	1980	1981
MIN	0.85	3.04	6.14	4.92	16.7	43.8	20.4	21.4	7.36	8.46	0.82	0.13
(WY)	1947	1947	1947	1977	2003	2000	1946	1988	1988	1984	1946	1946

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1945-2004
ANNUAL TOTAL	34570.9	34611.8	
ANNUAL MEAN	94.7	94.6	122
HIGHEST ANNUAL MEAN			215 1993
LOWEST ANNUAL MEAN			65.5 1995
HIGHEST DAILY MEAN	1090 Apr 6	885 Jun 18	3500 Mar 14 1982
LOWEST DAILY MEAN	6.0 Feb 18	5.2 Sep 30	0.00 Aug 24 1945
ANNUAL SEVEN-DAY MINIMUM	6.9 Jan 25	5.7 Sep 24	0.00 Aug 24 1945
MAXIMUM PEAK FLOW		1050 Jun 19a	3950 Mar 14 1982
MAXIMUM PEAK STAGE		9.43 Jun 19	14.54 Mar 14 1982
INSTANTANEOUS LOW FLOW		4.9 Sep 25	0.00 Sep 19 1945
ANNUAL RUNOFF (CFSM)	0.631	0.63	0.82
ANNUAL RUNOFF (INCHES)	8.57	8.58	11.07
10 PERCENT EXCEEDS	237	261	306
50 PERCENT EXCEEDS	35	40	39
90 PERCENT EXCEEDS	9.6	13	7.1

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Maumee River Basin

04184500 Bean Creek at Powers, Ohio

LOCATION.—Latitude 41°39′35″, longitude 84°14′57″, in NE ¼ of SE ¼ sec. 5, T.9 S., R.1 E., Fulton County, Hydrologic Unit 04100006, on left bank at downstream side of bridge on Fulton County Road 20, 2.1 mi south of Powers, 0.3 mi upstream from Iron Creek, 5 mi downstream from Siver Creek, and 5.2 mi east of Fayette.

DRAINAGE AREA.—206 mi^2.

PERIOD OF RECORD.—October 1940 to Septmber 1981, November 2000 to current year.

REVISED RECORDS.—WSP 1307: 1948 (M). WSP 1912: Drainage area WDR OH-76-2: 1975.

GAGE.—Water-stage recorder and crest gage. Datum of gage is 710.0 ft above sea level. Prior to Jan. 18, 1941, nonrecording gage, Jan. 18, 1941-Sept. 30, 1977, water-stage recorder at site 0.5 mi upstream at datum 12.57 ft higher; Oct.1, 1977-Oct. 30, 1980 at site 0.5 mi upstream at datum 7.57 ft higher.

REMARKS.—Records fair except for periods of estimated record, which are poor. Water-quality data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	90	159	330	e54	e280	237	68	469	84	55	21
2	109	85	141	298	e52	475	211	131	319	77	55	19
3	97	83	128	340	e50	460	193	154	250	71	45	18
4	86	102	118	307	e49	381	177	128	200	73	44	18
5	84	140	113	270	e48	717	162	107	167	80	60	17
6	80	135	116	248	e46	778	150	95	144	83	58	16
7	74	123	116	315	e45	557	140	85	126	78	48	25
8	67	112	109	e300	e44	429	135	84	112	108	41	19
9	61	102	102	e260	e42	346	129	86	101	108	38	17
10	58	94	115	e240	e41	287	122	230	101	87	33	16
11	55	93	377	e220	e40	250	116	415	279	75	30	16
12	52	106	324	e200	e39	222	111	605	866	66	28	16
13	48	113	234	e180	e38	192	107	442	976	59	29	16
14	58	109	180	e170	e38	177	105	322	748	54	27	16
15	354	97	163	e160	e37	168	102	287	679	48	26	17
16	411	93	146	e150	e36	160	100	287	509	44	26	16
17	302	93	e140	e140	e35	154	97	264	856	45	27	13
18	219	111	e130	e130	e34	150	96	263	1150	55	26	13
19	173	539	e120	e120	e60	151	96	221	690	100	24	13
20	147	530	e120	e110	e100	161	85	183	433	76	27	13
21	128	384	e110	e100	e160	297	88	208	302	59	27	14
22	115	288	e110	e92	e270	297	84	582	243	58	25	14
23	109	234	338	e86	e450	234	81	675	204	55	23	14
24	102	266	748	e82	e360	203	77	1230	177	48	21	14
25	95	365	519	e74	e280	336	77	569	155	41	21	14
26	96	276	352	e70	e250	453	75	368	138	44	22	14
27	112	225	270	e66	e230	454	70	280	123	64	22	14
28	117	202	226	e62	e210	396	69	227	112	64	21	16
29	110	197	247	e60	e210	343	67	190	103	63	26	29
30	103	176	524	e58	---	307	60	177	94	52	23	26
31	97	---	435	e56	---	270	---	485	---	53	22	---
TOTAL	3852	5563	7030	5294	3348	10085	3419	9448	10826	2072	1000	504
MEAN	124	185	227	171	115	325	114	305	361	66.8	32.3	16.8
MAX	411	539	748	340	450	778	237	1230	1150	108	60	29
MIN	48	83	102	56	34	150	60	68	94	41	21	13
MED	102	118	146	150	49	297	101	230	223	64	27	16
AC-FT	7640	11030	13940	10500	6640	20000	6780	18740	21470	4110	1980	1000
CFSM	0.60	0.90	1.10	0.83	0.56	1.58	0.55	1.48	1.75	0.32	0.16	0.08
IN.	0.70	1.00	1.27	0.96	0.60	1.82	0.62	1.71	1.95	0.37	0.18	0.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941-2004, BY WATER YEAR (WY)

MEAN	49.7	87.7	164	179	286	385	332	232	133	86.0	40.1	42.0
MAX	285	350	722	761	830	863	1019	1071	540	507	222	431
(WY)	2002	1973	1968	1952	2001	1978	1950	1943	1981	1951	1980	1981
MIN	8.30	13.5	13.4	15.5	16.9	64.5	77.1	53.3	25.6	12.1	8.38	7.03
(WY)	1964	1965	1964	1963	1963	1964	1946	1941	1962	1963	1963	1963

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1941-2004		
ANNUAL TOTAL	47173.6		62441				
ANNUAL MEAN	129		171		167		
HIGHEST ANNUAL MEAN					329		1950
LOWEST ANNUAL MEAN					34.8		1964
HIGHEST DAILY MEAN	1000	Mar 16	1230	May 24	3740	Apr 5	1950
LOWEST DAILY MEAN	5.9	Jul 31	13	Sep 17	2.3	Sep 11	2002
ANNUAL SEVEN-DAY MINIMUM	8.3	Jul 26	13	Sep 17	2.6	Sep 7	2002
MAXIMUM PEAK FLOW			1610	May 24a	4250	Apr 29	1956
MAXIMUM PEAK STAGE			16.24	May 24	20.03	Feb 20	1981
INSTANTANEOUS LOW FLOW			12	Sep 17	5.0	Aug 9	1964
ANNUAL RUNOFF (CFSM)	0.63		0.83		0.81		
ANNUAL RUNOFF (INCHES)	8.52		11.28		11.01		
10 PERCENT EXCEEDS	339		382		412		
50 PERCENT EXCEEDS	77		109		66		
90 PERCENT EXCEEDS	17		25		16		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04185000 Tiffin River at Stryker, Ohio

LOCATION.—Latitude 41°30′16″, longitude 84°25′47″, in SE ¼ 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, Ohio, 0.6 mi upstream from Penn Central bridge, and 1.6 mi downstream from Leatherwood Creek.

DRAINAGE AREA.—410 mi^2.

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 and crest gage. Datum of gage is 685.1 ft above sea level. Prior to Sept. 30, 1928, nonrecording gage at site 3.5 mi downstream at different datum; Oct. 13, 1940-Jan. 17, 1941, nonrecording gage; and Jan. 18, 1941-Sept. 30, 1953, water-stage recorder, at site 0.5 mi downstream at same datum.

REMARKS.—Records fair except for periods of estimated record, which are poor. Small diversion upstream from gage for municipal supply of Archbold. Diversion returned as sewage to Brush Creek, which flows into Tiffin River about 15 mi downstream from station. Water-quality and sediment data fomerly collected at this site.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood in Mar. 1913 reached a stage of 16.0 ft, from floodmarks; discharge, 7,600 ft^3/s. Flood in 1937 reached a stage of 15.0 ft, from information by local resident; discharge, 6,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e140	183	338	953	e82	e380	392	130	1060	127	70	39
2	e130	174	282	819	e80	e600	340	443	1060	112	70	33
3	e120	168	243	694	e78	e800	299	661	880	101	66	29
4	e120	167	220	e540	e74	e940	270	488	524	98	56	30
5	e110	188	211	e470	e72	1130	241	331	351	110	54	31
6	e98	224	226	e410	e70	1220	217	247	279	108	65	31
7	e92	216	234	e330	e68	1270	206	205	237	111	64	48
8	e86	197	224	e290	e66	1250	197	178	205	106	55	54
9	e80	179	209	e270	e64	1090	188	170	179	126	46	40
10	72	162	229	e250	e62	809	175	300	200	122	43	31
11	69	156	616	e220	e62	515	164	509	660	101	36	26
12	66	161	808	e210	e60	397	157	769	1270	89	33	24
13	67	173	742	e190	e58	329	152	848	1640	79	31	23
14	92	186	489	e180	e58	288	149	837	1710	72	31	22
15	780	180	347	e170	e56	272	143	625	1700	67	30	21
16	988	169	287	e160	e56	254	136	455	1570	61	34	20
17	994	162	266	e150	e54	243	132	429	1400	90	33	21
18	801	192	258	e150	e54	233	130	753	1210	79	32	19
19	462	652	246	e140	e80	236	125	800	1220	79	35	18
20	312	914	222	e130	e110	250	120	581	1370	105	40	18
21	260	995	197	e130	e300	307	122	400	1320	84	e44	18
22	229	928	203	e120	e500	406	160	624	1030	79	e42	18
23	202	643	495	e120	e680	396	151	835	563	85	e37	18
24	184	490	1060	e110	e560	332	137	1150	338	69	e34	17
25	170	619	1180	e110	e460	325	127	1320	270	57	31	18
26	166	658	1220	e100	e380	513	124	1490	231	49	29	18
27	176	513	1110	e98	e350	700	115	1440	197	67	28	18
28	206	409	804	e96	e330	778	107	1150	171	96	29	22
29	212	401	535	e92	e320	704	99	663	155	82	43	39
30	201	387	783	e88	---	557	95	402	140	74	70	50
31	189	---	930	e86	---	458	---	935	---	66	51	---
TOTAL	7874	10846	15214	7876	5244	17982	5170	20168	23140	2751	1362	814
MEAN	254	362	491	254	181	580	172	651	771	88.7	43.9	27.1
MAX	994	995	1220	953	680	1270	392	1490	1710	127	70	54
MIN	66	156	197	86	54	233	95	130	140	49	28	17
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922-2004, BY WATER YEAR (WY)												
MEAN	121	224	368	384	548	782	658	405	271	148	74.3	69.0
MAX	933	1339	1785	1687	1586	2563	1990	2112	1422	761	799	460
(WY)	2002	1993	1928	1993	2001	1982	1950	1943	1989	1943	1998	1981
MIN	10.2	14.6	18.4	20.2	21.9	135	106	74.4	24.1	13.7	9.76	7.39
(WY)	1964	1954	1964	1963	1963	1964	1946	1925	1988	1988	1941	1999

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922-2004		
ANNUAL TOTAL	101916		118441				
ANNUAL MEAN	279		324		337		
HIGHEST ANNUAL MEAN					671		1950
LOWEST ANNUAL MEAN					59.6		1964
HIGHEST DAILY MEAN	3000	Mar 16	1710	Jun 14	7640	Mar 15	1982
LOWEST DAILY MEAN	11	Sep 20	17	Sep 24	2.5	Jul 18	1988
ANNUAL SEVEN-DAY MINIMUM	18	Jan 27	18	Sep 19	3.6	Jul 7	1988
MAXIMUM PEAK FLOW			1740	Jun 15a	7800	Mar 15	1982
MAXIMUM PEAK STAGE			12.82	Jun 15	18.36	Mar 15	1982
INSTANTANEOUS LOW FLOW					2.5	Jul 18	1988
10 PERCENT EXCEEDS	802		890		940		
50 PERCENT EXCEEDS	133		179		125		
90 PERCENT EXCEEDS	23		35		23		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04185440 Unnamed Tributary to Lost Creek near Farmer, Ohio

LOCATION.—Latitude 41°21′42″, longitude 84°41′28″, Defiance County, Hydrologic Unit 04100006, on right bank 400 ft above bridge on Rosedale Road, 0.5 mi above mouth and 3 mi west from Farmer, Ohio.
DRAINAGE AREA.—4.23 mi^2.
PERIOD OF RECORD.—October 1985 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 760 ft above sea level (from topographic map).
REMARKS.—Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.1	4.8	2.9	e0.35	38	1.3	6.5	9.6	0.17	0.22	0.12
2	1.7	1.1	2.3	4.3	e0.40	27	1.1	37	4.0	0.17	0.16	0.11
3	1.4	1.1	1.7	4.6	e0.70	10	0.96	6.6	2.2	0.18	0.15	0.20
4	1.6	1.0	1.4	6.6	e0.46	24	0.81	2.8	1.5	1.6	0.22	0.85
5	1.4	0.95	1.5	11	e0.35	64	0.62	1.7	1.1	1.0	0.25	0.25
6	1.2	0.88	2.7	4.7	e0.33	12	0.58	1.1	0.80	0.48	0.16	0.15
7	1.0	0.82	2.2	e1.5	e0.31	6.6	0.55	3.5	0.61	9.2	0.13	1.9
8	0.90	0.75	1.6	e1.2	e0.30	4.2	0.53	2.4	0.47	1.3	0.14	0.48
9	0.80	0.70	6.5	e1.0	e0.30	3.2	0.45	1.5	0.43	0.48	0.13	0.21
10	0.66	0.71	38	e0.90	e0.29	2.5	0.41	5.5	0.48	0.31	0.15	0.15
11	0.63	0.80	23	e0.84	e0.28	2.3	0.43	29	14	1.9	0.13	0.13
12	0.57	0.83	5.4	e0.78	e0.28	1.6	0.42	26	73	3.1	0.12	0.11
13	0.55	0.69	2.8	e0.72	e0.27	1.2	0.45	4.4	13	0.53	0.12	0.10
14	14	0.68	2.1	e0.68	e0.27	1.2	0.39	2.5	6.8	0.28	0.13	0.09
15	23	0.72	1.6	e0.64	e0.26	1.1	0.36	1.7	3.6	0.19	0.12	0.09
16	4.9	0.74	1.7	e0.60	e0.26	1.0	0.37	1.1	2.2	0.44	0.13	0.09
17	2.9	0.72	2.2	e0.56	e0.25	0.97	0.37	0.82	1.7	5.1	0.10	0.08
18	2.0	19	1.6	e0.52	e0.25	1.3	0.37	0.69	1.2	0.59	0.10	0.08
19	1.6	34	1.3	e0.49	e0.24	2.9	0.36	0.56	0.71	0.34	0.44	0.08
20	1.3	6.8	1.1	e0.47	e0.50	2.5	0.37	0.47	0.58	0.24	3.8	0.09
21	1.1	3.7	1.0	e0.46	e1.4	2.2	1.1	3.7	0.61	0.20	4.2	0.08
22	0.97	2.6	1.1	e0.44	e3.5	1.3	0.70	2.7	0.45	15	0.61	0.08
23	0.89	2.0	70	e0.42	e9.0	1.1	0.64	2.8	0.30	1.7	0.26	0.08
24	0.78	19	24	e0.41	e5.4	1.2	0.51	35	0.24	0.48	0.18	0.06
25	0.86	4.9	7.6	e0.40	e4.0	3.1	0.51	3.8	0.25	0.30	0.14	0.07
26	2.4	2.9	4.0	e0.39	e3.6	6.1	0.46	2.0	0.23	0.26	0.13	0.08
27	1.9	2.6	2.8	e0.39	e3.3	9.6	0.41	1.1	0.18	2.2	0.13	0.09
28	1.4	6.9	2.4	e0.38	e3.0	4.4	0.36	0.76	0.20	0.66	0.16	0.20
29	1.3	5.2	11	e0.38	e12	2.8	0.32	0.54	0.20	0.32	0.19	0.95
30	1.1	6.4	17	e0.37	---	2.3	0.31	15	0.17	0.26	0.17	0.40
31	1.0	---	4.5	e0.36	---	1.8	---	96	---	0.31	0.12	---
TOTAL	78.11	130.29	250.9	49.40	51.85	243.47	16.52	299.24	140.81	49.29	13.19	7.45
MEAN	2.52	4.34	8.09	1.59	1.79	7.85	0.55	9.65	4.69	1.59	0.43	0.25
MAX	23	34	70	11	12	64	1.3	96	73	15	4.2	1.9
MIN	0.55	0.68	1.0	0.36	0.24	0.97	0.31	0.47	0.17	0.17	0.10	0.06
CFSM	0.60	1.03	1.91	0.38	0.42	1.86	0.13	2.28	1.11	0.38	0.10	0.06
IN.	0.69	1.15	2.21	0.43	0.46	2.14	0.15	2.63	1.24	0.43	0.12	0.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986-2004, BY WATER YEAR (WY)

MEAN	3.02	4.00	5.87	5.28	6.60	7.36	7.53	5.06	3.22	1.82	2.07	1.44
MAX	15.7	15.6	23.9	13.9	21.2	14.5	20.6	13.6	9.09	7.75	16.4	9.20
(WY)	2002	1993	1991	1993	1990	1998	1999	2003	1996	1986	1998	2003
MIN	0.03	0.04	0.11	0.44	0.46	1.19	0.55	0.26	0.05	0.01	0.02	0.00
(WY)	1995	2000	1990	2000	1995	2001	2004	1988	1988	1988	1989	1991

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1986-2004	
ANNUAL TOTAL	2181.66	1330.52		
ANNUAL MEAN	5.98	3.64	4.43	
HIGHEST ANNUAL MEAN			6.66	1998
LOWEST ANNUAL MEAN			1.96	1995
HIGHEST DAILY MEAN	150 May 5	96 May 31	322 Aug 25	1998
LOWEST DAILY MEAN	0.03 Jul 19	0.06 Sep 24	0.00 Aug 3	1987
ANNUAL SEVEN-DAY MINIMUM	0.07 Jun 28	0.08 Sep 19	0.00 Aug 3	1987
MAXIMUM PEAK FLOW		303 May 31	1770 Aug 25	1998
MAXIMUM PEAK STAGE		4.33 May 31	7.59 Aug 25	1998
INSTANTANEOUS LOW FLOW			0.00 Jul 27	1991
ANNUAL RUNOFF (CFSM)	1.41	0.86	1.05	
ANNUAL RUNOFF (INCHES)	19.19	11.70	14.22	
10 PERCENT EXCEEDS	15	6.8	9.3	
50 PERCENT EXCEEDS	1.1	0.83	0.64	
90 PERCENT EXCEEDS	0.14	0.15	0.05	

e Estimated.

04186500 Auglaize River near Fort Jennings, Ohio

LOCATION.—Latitude 40°56′55″, longitude 84°15′58″, in SE ¼ 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, Ohio, 6.0 mi upstream from Ottawa River, and 7.3 mi downstream from Jennings Creek.

DRAINAGE AREA.—332 mi^2.

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 sea level. Prior to Oct. 6, 1930, nonrecording gage at same site and datum.

REMARKS.—Records good except for periods of estimated record, which are poor. Beginning Jan. 4, 1971, water was diverted for low-flow augmentation and water supply of city of Lima, in Ottawa River Basin. 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. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	119	959	619	e25	326	269	74	3040	69	776	321
2	148	141	535	421	e30	1310	231	110	1830	64	367	133
3	114	154	396	366	e40	1130	202	765	507	59	150	162
4	94	133	285	1340	e64	743	154	597	301	58	143	2090
5	116	109	242	3970	e88	2090	126	304	216	55	774	e3000
6	145	108	435	e4400	e110	1930	120	202	165	53	480	e1000
7	108	97	584	e3500	e130	745	107	266	130	51	188	e500
8	82	77	441	e700	e170	437	103	600	108	53	91	e150
9	67	67	439	e400	e130	327	100	452	93	49	60	79
10	61	59	1570	e300	e96	256	92	253	85	45	46	54
11	58	54	2090	e150	e75	204	67	177	150	44	37	37
12	57	67	1450	e120	e60	173	56	143	1590	49	29	29
13	61	172	604	e100	e50	145	71	131	2930	41	22	42
14	109	241	381	e90	e46	100	78	111	4140	37	18	39
15	1060	184	290	e76	e41	91	78	167	4510	43	14	27
16	1480	110	274	e68	e37	108	70	188	3030	54	12	18
17	696	88	453	e56	e34	113	63	128	1350	421	10	22
18	388	91	642	e50	e32	117	48	107	807	167	8.5	32
19	272	111	380	e43	e34	188	39	196	526	114	14	25
20	221	632	268	e39	e500	392	47	386	338	75	46	15
21	161	424	180	e36	2050	661	57	722	238	54	476	19
22	138	235	158	e34	1430	603	63	2380	191	1080	563	22
23	131	163	1070	e32	702	352	130	2860	153	2100	218	14
24	106	167	3340	e31	636	253	324	2390	120	836	91	9.3
25	82	370	2800	e30	525	211	190	603	110	281	55	7.1
26	77	322	896	e28	302	216	121	332	162	130	39	5.9
27	164	355	471	e27	224	771	118	234	130	258	30	5.5
28	359	2100	332	e27	196	1010	97	221	100	309	96	5.1
29	235	3140	295	e26	172	556	82	152	88	137	1330	76
30	166	2730	822	e26	---	398	73	173	79	79	2520	91
31	153	---	1200	e25	---	323	---	2000	---	334	1090	---
TOTAL	7334	12820	24282	17130	8029	16279	3376	17424	27217	7199	9793.5	8029.9
MEAN	237	427	783	553	277	525	113	562	907	232	316	268
MAX	1480	3140	3340	4400	2050	2090	324	2860	4510	2100	2520	3000
MIN	57	54	158	25	25	91	39	74	79	37	8.5	5.1
CFSM	0.71	1.29	2.36	1.66	0.83	1.58	0.34	1.69	2.73	0.70	0.95	0.81
IN.	0.82	1.44	2.72	1.92	0.90	1.82	0.38	1.95	3.05	0.81	1.10	0.90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921-2004, BY WATER YEAR (WY)

MEAN	78.7	173	306	427	463	592	502	307	262	191	84.3	91.3
MAX	782	1286	1283	2184	1555	2112	1874	1237	1142	1652	579	1090
(WY)	1927	1973	1991	1950	1950	1978	1957	1943	1981	1992	2003	1926
MIN	5.44	8.53	10.9	8.23	23.6	78.3	51.3	28.7	13.6	12.7	8.10	2.89
(WY)	1989	2000	2000	1977	1964	2000	1971	1934	1988	2002	1991	1999

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1921-2004	
ANNUAL TOTAL	226430.8		158913.4			
ANNUAL MEAN	620		434		289	
HIGHEST ANNUAL MEAN					537	1973
LOWEST ANNUAL MEAN					65.3	1931
HIGHEST DAILY MEAN	6700	Jul 9	4510	Jun 15	12000 Jul 15	1992
LOWEST DAILY MEAN	9.8	Feb 2	5.1	Sep 28	0.50 Oct 20	1994
ANNUAL SEVEN-DAY MINIMUM	10	Jan 27	9.8	Sep 22	1.1 Sep 19	1999
MAXIMUM PEAK FLOW			4610	Jan 6a	12800 Jul 15	1992
MAXIMUM PEAK STAGE			13.86	Jan 6	20.30 Jan 23	1959
INSTANTANEOUS LOW FLOW					0.50 Oct 20	1994
ANNUAL RUNOFF (CFSM)	1.87		1.31		0.87	
ANNUAL RUNOFF (INCHES)	25.37		17.81		11.83	
10 PERCENT EXCEEDS	2000		1150		700	
50 PERCENT EXCEEDS	222		150		74	
90 PERCENT EXCEEDS	40		33		17	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04189000 Blanchard River near Findlay, Ohio

LOCATION.—Latitude 41°03′21″, longitude 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, Ohio, 3 mi downstream from Eagle Creek, and 3 mi upstream from Aurand Run.

DRAINAGE AREA.—346 mi^2.

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. WDR-OH-81-2: 1959, 1975(M). WDR-OH-97-2: 1996(M).

GAGE.—Water-stage recorder. Datum of gage is 753.65 ft above sea level (North American Vertical Datum of 1988). Prior to July 24, 1930, nonrecording gage at same site and datum.

REMARKS.—Records good except for periods of estimated record, which are poor. Water is diverted upstream from station into Findlay Reservoir. All water returns to stream upstream from station. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	176	870	607	e49	534	341	69	3840	67	221	121
2	58	144	445	392	e48	1870	310	254	2110	61	149	77
3	49	143	297	401	e52	1300	360	700	365	e56	69	62
4	58	127	231	2160	e60	860	267	302	239	e54	e50	e500
5	46	110	228	5390	e78	2950	198	158	194	66	66	92
6	43	91	264	4970	e90	2230	175	117	159	59	e200	e58
7	39	75	267	2030	e130	647	168	171	130	e52	67	e45
8	34	64	232	472	208	399	150	387	106	e48	56	e40
9	30	54	247	325	172	287	134	294	104	e43	e52	e50
10	29	50	1720	e200	e120	232	121	151	132	e39	e47	67
11	26	57	3010	e170	e100	208	107	130	687	e36	e43	e58
12	26	87	1770	e150	e88	190	98	585	2330	e33	e56	e45
13	29	103	502	e130	e80	149	102	428	3330	e32	61	e24
14	151	277	334	e120	e74	132	95	178	4700	e30	54	28
15	990	135	264	e110	e70	131	95	191	4810	e30	e45	27
16	879	89	226	e100	e66	134	93	140	3260	e33	e38	25
17	359	74	635	e90	e62	140	87	138	1490	e36	e34	35
18	241	77	504	e82	e58	159	83	212	456	e37	e31	26
19	178	120	283	e74	e100	274	79	565	320	e35	e50	29
20	128	304	232	e68	748	392	76	790	213	e33	110	40
21	104	216	187	e62	2210	498	77	2600	180	e31	191	29
22	87	137	156	e60	1270	357	79	6180	168	e50	286	24
23	73	105	1580	58	551	218	92	4700	134	e70	110	22
24	62	119	3740	e56	549	183	86	2060	109	110	61	22
25	55	132	2620	e54	418	178	94	463	122	68	56	21
26	263	142	678	e53	277	199	83	299	166	e48	57	20
27	1070	714	377	e52	238	357	76	205	117	e90	200	20
28	526	3670	314	e51	230	415	68	150	94	e68	211	19
29	311	4510	333	e50	260	293	60	153	82	e31	368	45
30	288	3320	2190	e50	---	459	67	217	76	e30	828	27
31	213	---	1750	e49	---	658	---	3020	---	e60	277	---
TOTAL	6522	15422	26486	18636	8456	17033	3921	26007	30223	1536	4144	1698
MEAN	210	514	854	601	292	549	131	839	1007	49.5	134	56.6
MAX	1070	4510	3740	5390	2210	2950	360	6180	4810	110	828	500
MIN	26	50	156	49	48	131	60	69	76	30	31	19
CFSM	0.61	1.49	2.47	1.74	0.84	1.59	0.38	2.42	2.91	0.14	0.39	0.16
IN.	0.70	1.66	2.85	2.00	0.91	1.83	0.42	2.80	3.25	0.17	0.45	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924-2004, BY WATER YEAR (WY)

MEAN	65.8	155	292	368	422	554	468	296	244	141	66.7	85.8
MAX	623	1435	1482	1800	1402	1814	1588	1081	1612	1075	474	944
(WY)	1927	1973	1991	1930	1959	1978	1957	2003	1981	1992	1979	1926
MIN	2.43	3.67	4.28	6.54	9.86	60.1	33.3	22.1	18.3	4.27	1.24	1.62
(WY)	1935	1935	1935	1945	1964	1941	1925	1925	1988	1934	1934	1934

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1924-2004	
ANNUAL TOTAL	187590		160084			
ANNUAL MEAN	514		437		263	
HIGHEST ANNUAL MEAN					571	1973
LOWEST ANNUAL MEAN					57.5	1931
HIGHEST DAILY MEAN	6990	May 10	6180	May 22	12000 Jun 14	1981
LOWEST DAILY MEAN	26	Oct 11	19	Sep 28	0.40 Aug 27	1934
ANNUAL SEVEN-DAY MINIMUM	30	Oct 7	21	Sep 22	0.56 Aug 25	1934
MAXIMUM PEAK FLOW			6750	May 22a	13000 Jun 14	1981
MAXIMUM PEAK STAGE			12.21	May 22	17.43 Jun 14	1981
INSTANTANEOUS LOW FLOW					0.40 Aug 27	1934
ANNUAL RUNOFF (CFSM)	1.49		1.26		0.76	
ANNUAL RUNOFF (INCHES)	20.17		17.21		10.32	
10 PERCENT EXCEEDS	1340		912		626	
50 PERCENT EXCEEDS	156		130		60	
90 PERCENT EXCEEDS	45		37		10	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04191500 Auglaize River near Defiance, Ohio

LOCATION.—Latitude 41°14′15″, longitude 84°23′57″, in NE ¼ sec. 9, T.3 N. R.4 E., Defiance County, Hydrologic Unit 04100007, on right bank 125 ft downstream from City of Bryan hydroelectric dam, 0.2 mi upstream from Jackson Ditch, and 3 mi south of Defiance, Ohio.

DRAINAGE AREA.—2,318 mi^2.

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. WDR OH-72-1: 1966(M).

GAGE.—Water-stage recorder. Datum of gage is 659.70 ft above sea level. May 20-Aug. 8, 1903, non-recording gage at site 1.8 mi downstream at different datum; Apr. 13, 1915-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-Nov. 1984 at dam 125 ft upstream, at present datum.

REMARKS.—Records fair except 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 occasional gate operation, Jan. 10, 1963-Sept. 7, 1985. Some diversion by Miami and Erie Canal from Grand Lake into Jennings Creek, tributary to Auglaize River 70 mi upstream from station. Water-quality data formerly collected at this site.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood of Mar. 1913 reached a stage of 38.8 ft, from reading on powerplant tailwater gage at present datum; discharge, 120,000 ft^3/s, from rating curve extended above 51,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2500	e900	9850	5570	e170	2560	1120	450	20300	295	6060	2560
2	e1400	e1000	4680	1740	e170	7270	1400	352	17200	244	1190	1130
3	e700	e1100	4010	2920	e160	8920	1380	1060	9900	409	1240	586
4	e820	e840	2010	4790	e150	7720	1390	4100	5430	532	1030	4300
5	e980	627	1370	15700	e150	10500	1350	1270	1760	536	2710	8530
6	e1100	538	1400	20900	e140	13000	829	1360	1300	1150	2910	5170
7	e900	581	1390	16300	e160	9430	519	1140	1300	666	1290	2910
8	767	546	1420	10700	e210	6350	549	4610	259	111	740	1930
9	336	503	1390	6750	e250	2260	783	3650	100	112	607	809
10	56	571	7050	2770	e300	1530	775	2290	545	116	348	512
11	54	615	13000	1160	e230	1500	419	1790	1550	118	405	520
12	292	771	11200	e860	e200	1550	424	677	10200	186	404	268
13	882	827	7420	e740	e170	963	464	1570	19800	213	229	530
14	478	403	3400	e660	e180	797	473	1670	26300	582	223	260
15	e2000	637	1700	e580	e200	856	462	1430	31500	360	223	267
16	e7000	1040	1480	e500	e210	780	509	1410	29100	210	227	285
17	e5000	800	1690	e470	e230	812	496	1100	20400	891	226	268
18	e3300	769	2090	e420	e260	762	370	1480	12400	1960	223	268
19	e2100	1790	2180	e380	e300	749	334	2080	6530	892	220	272
20	e1300	1340	1560	e350	e350	851	186	2060	2570	485	764	263
21	e1000	1410	1090	e320	e1300	1180	193	4240	1540	231	1560	234
22	e940	1660	1080	e300	e4200	3000	378	13100	1160	1810	3080	237
23	e880	841	4690	e280	e6400	2960	339	15000	1110	7920	2030	245
24	e600	1050	14700	e260	e5000	1530	451	16400	673	5560	804	216
25	e540	1930	15100	e250	e4400	982	599	12200	772	720	454	202
26	e600	1800	10800	e230	e3500	1060	1160	6720	437	1110	621	202
27	e1000	1470	4870	e220	e2600	1470	213	4010	404	915	964	202
28	e1800	7130	2850	e210	1990	4610	307	1090	241	1360	880	203
29	e1200	11500	1060	e200	1520	3150	461	2000	303	1040	1550	228
30	e1100	11700	5340	e190	---	1840	535	1060	473	587	11000	586
31	e840	---	6210	e180	---	2150	---	13400	---	4470	7380	---
TOTAL	42465	56689	148080	96900	35100	103092	18868	124769	225557	35791	51592	34193
MEAN	1370	1890	4777	3126	1210	3326	629	4025	7519	1155	1664	1140
MAX	7000	11700	15100	20900	6400	13000	1400	16400	31500	7920	11000	8530
MIN	54	403	1060	180	140	749	186	352	100	111	220	202

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916-2004, BY WATER YEAR (WY)

MEAN	520	995	1854	2505	2976	4107	3457	2047	1556	897	389	455
MAX	4151	7856	8510	13350	10170	13090	11210	10490	7519	7006	2668	5571
(WY)	2002	1973	1967	1950	1976	1982	1957	1943	2004	2003	2003	1992
MIN	23.6	7.28	9.34	48.5	111	382	242	69.8	101	42.0	27.1	28.9
(WY)	1953	1953	1977	1977	1964	1941	1946	1934	1988	1930	1932	1963

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1916-2004	
ANNUAL TOTAL	1284747		973096			
ANNUAL MEAN	3520		2659		1799	
HIGHEST ANNUAL MEAN					3337	1973
LOWEST ANNUAL MEAN					342	1931
HIGHEST DAILY MEAN	33000	May 11	31500	Jun 15	52300 Mar 14	1982
LOWEST DAILY MEAN	39	Feb 21	54	Oct 11	0.50 Oct 13	1952
ANNUAL SEVEN-DAY MINIMUM	151	Sep 15	157	Feb 1	1.1 Oct 12	1952
MAXIMUM PEAK FLOW			32400	Jun 15	52500 Feb 16	1950
MAXIMUM PEAK STAGE			20.74	Jun 15	27.65 Feb 13	1959
INSTANTANEOUS LOW FLOW					0.50 Oct 13	1952
10 PERCENT EXCEEDS	10900		7390		5000	
50 PERCENT EXCEEDS	1250		1000		444	
90 PERCENT EXCEEDS	331		220		39	

e Estimated.

04192500 Maumee River near Defiance, Ohio

LOCATION.—Latitude 41°17′31″, longitude 84°16′52″, in NW ¼ 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, Ohio.

DRAINAGE AREA.—5,545 mi^2.

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. WDR Ohio, 1970: Drainage Area.

GAGE.—Water-stage recorder. Datum of gage is 658.56 ft above sea level. Prior to Nov. 13, 1924, nonrecording gage at same site and datum.

REMARKS.—Records good except for periods estimated record, which are poor. 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-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. Two 36-inch diversion pipes installed at dam in 1998 for low-flow augmentation. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8830	2150	14500	10900	e580	8180	4730	1300	37500	1190	7320	7200
2	6160	2180	8990	6830	e560	15700	4350	1990	31400	1230	3860	5860
3	4430	1890	8430	6340	e560	18200	3760	4400	17900	1070	2990	3560
4	3180	1910	5840	9460	e540	15300	3370	6930	10700	1330	2500	5680
5	2590	1590	4290	21100	e520	21000	3110	3700	6160	1420	4070	11400
6	2270	1470	4030	30400	e600	26200	2490	3440	4430	2110	5370	8410
7	1850	1540	3600	24900	e840	21500	1780	2710	3780	2040	3300	6770
8	1890	1500	3560	17500	e900	15800	1700	6980	2240	1900	1840	5610
9	1550	1350	3530	12600	e1000	9800	1790	7160	1410	2010	1430	3440
10	1000	1420	9320	7620	e1200	7590	1860	5180	1650	1360	1170	1840
11	1060	1490	21700	5180	e1000	6430	1370	4510	3600	1070	925	1490
12	1040	1570	20900	e3600	e860	5440	1310	3710	19200	1430	955	940
13	1570	1620	14700	e3000	e800	4110	1320	4580	38100	1330	584	934
14	1460	1380	8880	e2500	e780	3060	1290	5030	49400	1520	452	736
15	4230	1310	5510	e2100	e860	2850	1220	4170	54100	1260	556	572
16	9320	1910	4820	e1900	e920	2450	1240	3720	50900	994	552	574
17	8870	1720	4590	e1700	e1000	2370	1260	3150	38800	1910	515	722
18	6700	1890	4730	e1500	e1100	2330	1110	3350	25600	2960	458	605
19	4950	4900	4720	e1300	e1200	2290	1070	4920	17600	1950	646	535
20	4140	6810	3820	e1100	e1300	2470	945	4780	11700	1420	1230	447
21	3600	6210	2730	e1000	5210	2970	869	6650	8580	1070	3760	368
22	2740	6230	2670	e860	11500	5160	1220	17800	6640	2320	6180	394
23	2150	4290	7060	e800	13200	5260	1510	21000	5400	10700	4820	411
24	1780	4830	24400	e740	11600	4030	1340	23900	3800	10100	2680	366
25	1970	6440	26800	e700	10700	3300	1490	21300	3180	3570	1590	369
26	2280	6780	20600	e680	8530	3600	2280	13500	2230	2730	1370	374
27	2160	5330	12700	e660	7610	4900	1400	8770	1900	2260	1560	340
28	2310	9560	9640	e640	7810	9000	1210	5910	1760	2700	2620	351
29	2330	15300	7000	e620	6620	8090	1350	5730	1360	2130	1780	496
30	2300	17200	11300	e600	---	5560	1350	3880	1390	1460	12100	871
31	2260	---	12500	e600	---	5870	---	23000	---	4510	11900	---
TOTAL	102970	123770	297860	179430	99900	250810	55094	237150	462410	75054	91083	71665
MEAN	3322	4126	9608	5788	3445	8091	1836	7650	15410	2421	2938	2389
MAX	9320	17200	26800	30400	13200	26200	4730	23900	54100	10700	12100	11400
MIN	1000	1310	2670	600	520	2290	869	1300	1360	994	452	340

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925-2004, BY WATER YEAR (WY)

MEAN	1460	2668	4587	5870	6891	9343	8484	5360	3878	2205	1134	1180
MAX	11490	16410	18040	30150	22460	33940	23210	27270	20370	13230	7598	11470
(WY)	2002	1973	1967	1950	1959	1982	1957	1943	1981	2003	1998	1926
MIN	63.9	110	158	219	363	1455	789	359	214	211	111	88.1
(WY)	1929	1954	1964	1945	1964	1941	1925	1925	1988	1930	1932	1955

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1925-2004\		
ANNUAL TOTAL	2580481		2047196				
ANNUAL MEAN	7070		5593		4407		
HIGHEST ANNUAL MEAN					8286		1950
LOWEST ANNUAL MEAN					849		1931
HIGHEST DAILY MEAN	54800	May 11	54100	Jun 15	98800	Mar 15	1982
LOWEST DAILY MEAN	320	Feb 21	340	Sep 27	3.0	Sep 4	1925
ANNUAL SEVEN-DAY MINIMUM	486	Feb 15	372	Sep 22	27	Aug 31	1925
MAXIMUM PEAK FLOW			55100	Jun 15	104000	Mar 15	1982
MAXIMUM PEAK STAGE			9.55	Jun 15	15.87	Mar 15	1982
INSTANTANEOUS LOW FLOW					2.0	Sep 3	1925
10 PERCENT EXCEEDS	20700		13800		12500		
50 PERCENT EXCEEDS	3240		2720		1440		
90 PERCENT EXCEEDS	900		739		231		

e Estimated.

04193500 Maumee River at Waterville, Ohio

LOCATION.—Latitude 41°30′00″, longitude 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, Ohio, 3 mi downstream from Tontogany Creek, and 20.7 mi upstream from mouth.

DRAINAGE AREA.—6,330 mi^2.

PERIOD OF RECORD.—November 1898 to December 1901, August 1921 to December 1935, March 1939 to current year. Miami and Erie Canal flow included at Waterville prior to 1930, when the canal was abandoned.

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 auxiliary crest-stage gage. Datum of gage is 595.71 ft above sea level. Nov. 19, 1898-Dec. 31, 1901 and Aug. 26, 1921-July 31, 1930, nonrecording gage; Aug. 1, 1930-Dec. 31, 1935, water-stage recorder; Mar. 14, 1939-Mar. 12, 1940, nonrecording gage at same site and datum.

REMARKS.—Records fair except for periods of estimated record, which are poor. Satellite telemeter at station. Water-quality and sediment data collected at this site.

EXTREMES FOR PERIOD OF RECORD.—Practically no flow at times prior to June 30, 1929, when entire river flow was being diverted by canal.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood in Mar. 1913 reached a stage of 19.9 ft, from information by local resident; estimated discharge, 180,000 ft^3/s, from rating curve extended above 94,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10200	2180	16800	13100	e680	7490	6100	2690	37600	1280	7630	8930
2	7530	2370	12100	e10000	e660	14500	4900	3050	33900	1190	6110	6880
3	5420	2150	8420	6320	e640	19600	4710	6170	22600	1020	2650	4480
4	4020	2080	7430	9450	e620	17300	3810	9190	12800	1230	2910	3310
5	2850	1830	5110	17800	e600	21300	3540	8480	8250	1330	2350	9710
6	2520	1590	4730	30200	e680	27400	3250	5690	5000	1390	5400	10300
7	2130	1530	4340	26900	e780	23500	2180	4390	4090	2380	4360	7020
8	1880	1430	3910	20300	e900	18000	2070	5420	3180	1640	2190	5840
9	1830	1390	3950	15000	e1200	12500	1890	11700	1630	1770	1580	5010
10	1320	1350	6020	10300	e1600	8550	2110	7550	1400	1550	1360	2270
11	1070	1540	21800	e4600	e1300	7460	1790	6790	2720	1210	942	1740
12	1190	1530	23500	e3800	e1100	6110	1500	5680	15000	1200	919	1270
13	1170	1900	17800	e3400	e1000	4990	1710	5150	35600	1400	820	922
14	1620	1350	12200	e3000	e940	3760	1660	6880	46600	1350	571	984
15	4280	1130	6590	e2600	e1000	3030	1540	5830	50400	1430	502	763
16	8480	1590	5690	e2300	e1000	2730	1580	5190	49200	916	624	667
17	10500	1840	5170	e2000	e1100	2590	1630	4430	40100	1080	588	576
18	7860	1780	5090	e1700	e1200	2500	1680	3930	28200	2300	550	779
19	5990	3450	5280	e1500	e1300	2520	1690	5750	19700	2450	605	624
20	4710	7580	4640	e1400	1400	2790	1170	6750	13200	1520	886	617
21	4000	6640	3470	e1300	3510	3450	1680	5570	9690	1120	2610	519
22	3250	7290	2820	e1100	10100	4420	1630	15000	7000	1110	5210	438
23	2490	4840	4600	e1000	13700	5580	2610	22200	5560	6700	5450	446
24	1930	5010	23600	e960	13800	5790	2400	25900	4390	12000	3620	463
25	1750	6080	29200	e900	12300	4410	2720	25200	3340	6040	2090	432
26	2240	7750	23800	e880	10200	4340	3120	17600	2560	2790	1480	397
27	2510	6310	16500	e840	8050	5860	3590	10200	1930	2370	1480	408
28	2340	8280	11000	e780	8710	8410	2280	7720	1760	2460	4450	378
29	2480	16700	9660	e740	7740	10600	2510	5290	1640	2570	3750	524
30	2550	18200	11700	e720	---	6960	2400	5220	1360	1720	9620	670
31	2330	---	14500	e700	---	6690	---	16300	---	2370	15500	---
TOTAL	114440	128690	331420	195590	107810	275130	75450	276910	470400	70886	98807	77367
MEAN	3692	4290	10690	6309	3718	8875	2515	8933	15680	2287	3187	2579
MAX	10500	18200	29200	30200	13800	27400	6100	25900	50400	12000	15500	10300
MIN	1070	1130	2820	700	600	2500	1170	2690	1360	916	502	378
MED	2510	2110	7430	2300	1200	6110	2140	6170	7630	1520	2190	771
CFSM	0.58	0.68	1.69	1.00	0.59	1.40	0.40	1.41	2.48	0.36	0.50	0.41
IN.	0.67	0.76	1.95	1.15	0.63	1.62	0.44	1.63	2.76	0.42	0.58	0.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930-2004, BY WATER YEAR (WY)

MEAN	1605	2970	5423	6737	7855	10760	9694	6290	4522	2544	1306	1211
MAX	13810	19010	23830	34010	30000	38210	25890	29540	24030	12740	9665	10320
(WY)	2002	1993	1967	1950	1976	1982	1957	1943	1981	2003	1998	1992
MIN	95.5	196	177	235	424	1759	914	587	231	207	146	127
(WY)	1964	1965	1964	1945	1934	1941	1946	1934	1988	1930	1941	1963

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1930-2004		
ANNUAL TOTAL	2823650		2222900				
ANNUAL MEAN	7736		6073		5061		
HIGHEST ANNUAL MEAN					9370		1950
LOWEST ANNUAL MEAN					938		1931
HIGHEST DAILY MEAN	62400	May 11	50400	Jun 15	113000	Mar 14	1982
LOWEST DAILY MEAN	330	Feb 21	378	Sep 28	17	Jun 30	1988
ANNUAL SEVEN-DAY MINIMUM	579	Feb 15	423	Sep 22	47	Jun 27	1988
MAXIMUM PEAK FLOW			53100	Jun 15	121000	Mar 14	1982
MAXIMUM PEAK STAGE			12.33	Jun 15	17.18	Mar 14	1982
INSTANTANEOUS LOW FLOW			352	Sep 28	17	Jun 30	1988
ANNUAL RUNOFF (CFSM)	1.22		0.96		0.80		
ANNUAL RUNOFF (INCHES)	16.59		13.06		10.86		
10 PERCENT EXCEEDS	21900		15200		14100		
50 PERCENT EXCEEDS	3540		3080		1690		
90 PERCENT EXCEEDS	896		884		266		

e Estimated.

Surface-Water Records—Portage River Basin

04195500 Portage River at Woodville, Ohio

LOCATION.—Latitude 41°26′58″, longitude 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, Ohio, 600 ft downstream from unnamed right bank tributary, and 10.3 mi upstream from Sugar Creek.

DRAINAGE AREA.—428 mi^2.

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 sea level. Prior to Oct. 8, 1933, nonrecording gage; Oct. 9, 1933-Dec. 30, 1935, water-stage recorder; Oct. 17-Nov. 29, 1939, nonrecording gage, all at same site and datum.

REMARKS.—Records fair except for periods of estimated record, which are poor. 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. Water-quality data formerly collected at this site 800 ft downstream. Sediment data formerly collected at this site. National Weather Service gage height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood in Mar. 1913 reached a stage of 17 ft, from information by local residents; discharge, 17,000 ft^3/s, from rating curve extended above 11,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	105	726	823	e50	e300	304	91	2850	51	88	890
2	56	114	433	556	e48	1600	317	194	1190	44	80	410
3	48	103	298	510	e54	1530	374	958	541	39	51	246
4	42	88	231	642	e60	1110	341	649	271	37	40	152
5	40	77	203	2800	e70	2410	245	367	186	35	39	108
6	37	67	241	2620	e84	2170	191	258	147	37	41	83
7	35	59	249	942	e76	950	166	206	121	36	41	56
8	33	54	211	665	e70	620	153	273	102	32	29	43
9	29	48	189	466	e64	480	141	313	89	27	22	39
10	26	43	588	245	e60	394	122	233	85	23	20	37
11	22	45	2260	e210	e56	323	108	202	239	21	16	34
12	19	51	1490	e180	e52	277	100	200	2570	78	14	29
13	16	55	653	e150	e50	200	100	401	3460	107	14	26
14	21	79	396	e130	e47	161	106	246	3480	53	13	23
15	157	74	301	e120	e45	156	103	207	4420	36	14	20
16	326	62	243	e110	e44	145	92	233	2770	26	13	18
17	261	56	339	e100	e42	142	86	192	1130	22	12	17
18	155	55	436	e92	e40	123	82	193	874	24	12	16
19	105	90	321	e86	e39	177	81	449	427	23	16	15
20	79	159	241	e82	e100	338	80	440	266	20	46	15
21	62	159	168	e76	e400	635	86	280	187	16	114	16
22	54	131	176	e72	915	472	117	1030	140	16	169	15
23	48	112	549	e68	508	293	131	916	101	24	107	14
24	45	102	3170	e64	e400	215	116	698	80	54	67	14
25	41	128	2230	e62	e340	306	109	495	70	45	48	13
26	43	140	952	e60	e280	375	112	322	72	30	37	13
27	51	201	543	e58	e260	476	111	210	79	29	35	12
28	72	1940	433	e56	e230	528	100	191	62	38	1440	11
29	78	2620	524	e54	e190	396	95	145	57	39	2630	11
30	104	1550	1700	e52	---	320	90	130	63	32	3630	11
31	97	---	1770	e50	---	311	---	1840	---	41	2450	---
TOTAL	2277	8567	22264	12201	4674	17933	4359	12562	26129	1135	11348	2407
MEAN	73.5	286	718	394	161	578	145	405	871	36.6	366	80.2
MAX	326	2620	3170	2800	915	2410	374	1840	4420	107	3630	890
MIN	16	43	168	50	39	123	80	91	57	16	12	11
CFSM	0.17	0.67	1.68	0.92	0.38	1.35	0.34	0.95	2.03	0.09	0.86	0.19
IN.	0.20	0.74	1.94	1.06	0.41	1.56	0.38	1.09	2.27	0.10	0.99	0.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928-2004, BY WATER YEAR (WY)

MEAN	89.0	191	355	450	521	749	646	418	301	149	90.8	84.7
MAX	722	1595	1722	2129	1793	2542	1965	1685	1875	821	1601	1088
(WY)	1951	1973	1991	1952	1976	1982	1957	1943	1981	1958	1998	1981
MIN	2.96	3.61	4.37	2.24	2.00	118	41.7	25.4	9.29	2.81	3.09	3.67
(WY)	1935	1935	1935	1945	1934	1941	1946	1934	1988	1930	1933	1944
(+)	7.72	7.27	6.89	7.00	7.27	7.05	7.33	7.30	7.74	8.66	8.43	9.03
MEAN≠	65.8	279	711	387	154	571	138	398	863	27.9	358	71.2
CFSM≠	0.15	0.65	1.66	0.90	0.36	1.33	0.32	0.93	2.02	0.07	0.84	0.17
IN≠	0.18	0.73	1.92	1.04	0.39	1.54	0.36	1.07	2.25	0.08	0.96	0.19

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1928-2004	
ANNUAL TOTAL	165836		125856			
ANNUAL MEAN	454(+7.67)		344(+7.64)		≠333	
HIGHEST ANNUAL MEAN					628	1973
LOWEST ANNUAL MEAN					81.4	1931
HIGHEST DAILY MEAN	5110	May 10	4420	Jun 15	11100 Aug 27	1998
LOWEST DAILY MEAN	16	Oct 13	11	Sep 28	0.40 Aug 26	1931
ANNUAL SEVEN-DAY MINIMUM	24	Oct 8	12	Sep 24	0.93 Oct 12	1934
MAXIMUM PEAK FLOW			4530	Jun 15	11500 Feb 15	1950
MAXIMUM PEAK STAGE			9.34	Jun 15	14.51 Feb 15	1950
INSTANTANEOUS LOW FLOW			10	Sep 28	0.40 Aug 16	1931
ANNUAL RUNOFF (CFSM)	1.06		0.80		0.79	
ANNUAL RUNOFF (INCHES)	14.41		10.94		≠10.57	
10 PERCENT EXCEEDS	1340		898		858	
50 PERCENT EXCEEDS	153		105		71	
90 PERCENT EXCEEDS	40		23		8.5	

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

04195820 Portage River near Elmore, Ohio

LOCATION.—Latitude 41°29′28″, longitude 83°13′29″, Ottawa County, Hydrologic Unit 04100010, on right bank 500 ft upstream from State Route 590, 0.4 mi upstream from Sugar Creek, and 4.2 mi east of Elmore.
DRAINAGE AREA.—494 mi^2.
PERIOD OF RECORD.—August 1998 to current year.
GAGE.—Water-stage recorder. Datum of gage is 576 ft above sea level.
REMARKS.—Records fair except for periods of estimated record, which are poor. Flow supplemented by water imported from Maumee River Basin for municipal supply for city of Bowling Green 30 mi upstream. The importation of this water began Sept. 1, 1951.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	108	1080	1230	e98	e230	561	145	3380	71	62	1280
2	64	134	626	790	e96	1540	610	325	1580	59	95	540
3	51	122	389	716	e110	1910	717	1040	749	52	69	261
4	45	109	281	752	e120	1300	627	831	355	49	53	161
5	41	97	239	2930	e140	2510	425	415	231	47	44	112
6	40	88	280	3360	e160	2830	307	247	180	45	42	85
7	39	79	316	1480	e140	1390	255	173	148	49	44	68
8	38	70	264	e800	e130	827	228	164	123	46	39	56
9	37	63	223	e520	e120	565	211	273	106	43	29	50
10	34	56	482	e310	e110	409	183	199	128	38	24	45
11	32	56	2660	e270	e110	326	158	156	282	35	21	42
12	29	62	2120	e250	e100	281	144	156	2520	32	17	39
13	25	69	975	e220	e96	221	147	338	3790	149	15	34
14	25	85	561	e210	e92	177	152	253	3680	86	15	31
15	74	98	387	e190	e90	171	148	198	4940	54	13	27
16	330	86	296	e180	e88	163	134	225	3600	40	15	24
17	316	77	345	e170	e86	159	133	186	1450	32	15	22
18	189	73	573	e160	e84	171	133	167	1300	34	13	21
19	122	94	420	e150	e82	280	133	465	636	31	19	19
20	92	184	298	e140	e130	527	123	564	349	28	30	17
21	74	209	216	e140	e500	920	128	323	236	24	83	19
22	63	172	187	e130	e1200	803	164	816	183	22	155	19
23	56	143	406	e130	e860	502	201	1070	147	21	129	18
24	50	128	3530	e120	e610	369	187	805	117	36	84	18
25	49	137	2970	e120	e490	456	179	592	97	60	61	18
26	49	167	1430	e110	e340	635	186	352	93	44	46	17
27	51	179	799	e110	e270	778	187	206	101	37	40	17
28	73	2010	596	e110	e220	808	171	280	90	37	910	17
29	86	3310	709	e100	e200	654	160	163	78	45	2880	17
30	104	2180	1990	e100	---	549	152	118	76	40	3680	18
31	114	---	2420	e100	---	539	---	1510	---	43	3140	---
TOTAL	2481	10445	28068	16098	6872	23000	7244	12755	30745	1429	11882	3112
MEAN	80.0	348	905	519	237	742	241	411	1025	46.1	383	104
MAX	330	3310	3530	3360	1200	2830	717	1510	4940	149	3680	1280
MIN	25	56	187	100	82	159	123	118	76	21	13	17
CFSM	0.16	0.70	1.83	1.05	0.48	1.50	0.49	0.83	2.07	0.09	0.78	0.21
IN.	0.19	0.79	2.11	1.21	0.52	1.73	0.55	0.96	2.32	0.11	0.89	0.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998-2004, BY WATER YEAR (WY)

MEAN	190	115	450	401	645	767	918	643	569	118	416	71.8
MAX	747	348	905	996	1164	1351	1515	1227	1169	345	1686	107
(WY)	2002	2004	2004	1999	2002	2003	1999	2003	2000	2003	1998	1998
MIN	22.9	20.1	37.4	99.8	186	378	241	131	193	23.6	21.1	13.1
(WY)	2003	2000	1999	2000	2003	2000	2004	1999	2002	2002	1999	1999

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998-2004		
ANNUAL TOTAL	209968		154131				
ANNUAL MEAN	575		421		422		
HIGHEST ANNUAL MEAN					512		2003
LOWEST ANNUAL MEAN					347		2000
HIGHEST DAILY MEAN	6120	Apr 6	4940	Jun 15	9940	Aug 27	1998
LOWEST DAILY MEAN	23	Sep 21	13	Aug 15	5.7	Jul 17	2002
ANNUAL SEVEN-DAY MINIMUM	27	Sep 16	15	Aug 12	7.1	Jul 14	2002
MAXIMUM PEAK FLOW			5120	Jun 15a	10200	Aug 27	1998
MAXIMUM PEAK STAGE			9.20	Jun 15	13.92	Aug 27	1998
INSTANTANEOUS LOW FLOW			12	Aug 15	5.5	Jul 17	2002
ANNUAL RUNOFF (CFSM)	1.16		0.85		0.86		
ANNUAL RUNOFF (INCHES)	15.81		11.61		11.61		
10 PERCENT EXCEEDS	1870		1070		1190		
50 PERCENT EXCEEDS	179		147		117		
90 PERCENT EXCEEDS	45		31		17		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Sandusky River Basin

04196000 Sandusky River near Bucyrus, Ohio

LOCATION.—Latitude 40°48′13″, longitude 83°00′21″, in NE ¼ sec. 10, T.3 S., R.16 E., Crawford County, Hydrologic Unit 04100011, on right bank at downstream side of bridge on township road, 1 mi upstream from unnamed left bank tributary, 1.5 mi west of Bucyrus, Ohio, and 12 mi downstream from Loss Creek.

DRAINAGE AREA.—88.8 mi^2.

PERIOD OF RECORD.—August 1925 to November 1935, July 1938 to December 1951, December 1963 to September 1981, October 1995 to current year.

REVISED RECORDS.—WSP 744: 1925-32. WSP 874: 1938. WSP 1307: 1926(M), 1928(M), 1931, 1932(M), 1934-35(M), 1939, 1940(M), 1946(M). WDR OH-2003-2: 2002(M). WSP 1912: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 955.04 ft above sea level. Prior to May 11, 1940, nonrecording gage.

REMARKS.—Records fair except for periods of estimated record, which are poor. Low flow slightly affected by operation of reservoirs for municipal supply of Bucyrus. Water-quality and sediment data formerly collected at this site.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood of Mar. 23, 1913 reached a stage of 14.5 ft, from floodmarks. Flood of Jan. 22, 1959, reached a stage of 11.9 ft, from floodmarks; discharge, 13,500 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	56	164	167	e16	149	411	53	251	17	28	18
2	50	49	109	279	e13	412	413	753	99	16	17	12
3	41	45	80	457	e27	255	295	883	63	14	12	10
4	41	43	67	903	e100	226	169	213	46	13	21	9.0
5	37	41	79	1930	e80	628	112	127	38	13	17	8.0
6	32	36	103	516	e90	255	88	90	33	12	16	7.7
7	28	32	97	e150	e160	135	76	90	30	13	11	6.7
8	26	29	80	e100	e60	109	72	106	27	14	9.0	62
9	23	26	89	e50	e48	88	64	80	25	14	7.3	172
10	26	24	495	e44	e40	71	52	67	163	12	6.7	72
11	42	31	859	e39	e34	57	46	72	470	20	6.0	31
12	34	48	241	e35	e30	46	46	118	1460	66	7.5	22
13	29	64	119	e32	e24	35	83	63	876	45	6.8	14
14	51	41	89	e29	e19	34	638	62	2780	21	7.1	11
15	670	32	74	e25	e16	34	234	151	1980	17	13	8.7
16	225	29	99	e22	e14	36	117	219	547	14	8.9	8.8
17	121	28	339	e18	e11	38	87	110	206	11	7.0	45
18	87	42	138	e15	e10	44	73	135	145	12	7.8	69
19	65	120	91	e10	e30	131	63	238	97	14	25	29
20	51	145	72	e9.0	e200	169	53	172	69	11	59	16
21	45	71	55	e8.0	e500	271	55	425	53	10	57	11
22	41	54	62	e7.0	168	131	68	1520	45	11	35	8.7
23	34	48	415	e6.0	114	91	146	393	38	9.4	17	7.6
24	31	31	761	e5.6	144	75	106	139	32	6.9	12	6.9
25	28	45	274	e5.0	99	69	88	86	32	6.4	9.9	6.6
26	186	52	145	e4.7	90	82	96	65	29	7.9	9.1	6.3
27	240	419	107	e16	85	617	75	50	23	11	8.4	6.3
28	108	1390	99	e60	86	267	57	43	23	11	26	6.1
29	98	874	230	e50	92	142	48	37	26	8.8	113	13
30	85	264	1090	e30	---	877	47	49	23	7.7	43	7.4
31	63	---	363	e20	---	1030	---	710	---	33	22	---
TOTAL	2707	4209	7085	5042.3	2400	6604	3978	7319	9729	492.1	645.5	711.8
MEAN	87.3	140	229	163	82.8	213	133	236	324	15.9	20.8	23.7
MAX	670	1390	1090	1930	500	1030	638	1520	2780	66	113	172
MIN	23	24	55	4.7	10	34	46	37	23	6.4	6.0	6.1
CFSM	0.98	1.58	2.57	1.83	0.93	2.40	1.49	2.66	3.65	0.18	0.23	0.27
IN.	1.13	1.76	2.97	2.11	1.01	2.77	1.67	3.07	4.08	0.21	0.27	0.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925-2004, BY WATER YEAR (WY)

MEAN	24.2	56.2	110	138	139	184	152	100	81.2	36.9	24.5	23.2
MAX	278	271	405	635	339	471	408	252	428	184	212	125
(WY)	1927	1973	1928	1950	1976	1978	1964	1969	1947	2003	1979	2003
MIN	1.28	1.34	1.39	3.93	2.29	32.9	9.64	4.44	1.93	0.84	1.34	0.38
(WY)	1935	1935	1935	1977	1934	1981	1935	1934	1934	1995	1995	1995

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1925-2004	
ANNUAL TOTAL	47422.8		50922.7			
ANNUAL MEAN	130		139		88.6	
HIGHEST ANNUAL MEAN					145	1973
LOWEST ANNUAL MEAN					20.4	1934
HIGHEST DAILY MEAN	2050	Jul 9	2780	Jun 14	4600 Dec 14	1927
LOWEST DAILY MEAN	4.6	Feb 21	4.7	Jan 26	0.34 Sep 30	1995
ANNUAL SEVEN-DAY MINIMUM	5.1	Feb 15	6.5	Jan 20	0.36 Sep 24	1995
MAXIMUM PEAK FLOW			4230	Jun 14a	5800 Dec 14	1927
MAXIMUM PEAK STAGE			9.50	Jun 14	9.83 Dec 14	1977
INSTANTANEOUS LOW FLOW					0.60 Sep 28	1947
ANNUAL RUNOFF (CFSM)	1.46		1.57		1.00	
ANNUAL RUNOFF (INCHES)	19.87		21.33		13.56	
10 PERCENT EXCEEDS	304		308		196	
50 PERCENT EXCEEDS	49		50		22	
90 PERCENT EXCEEDS	9.9		9.0		3.3	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04196500 Sandusky River near Upper Sandusky

LOCATION.—Latitude 40°51′02″, longitude 83°15′23″, Wyandot County, Hydrologic Unit 04100011, on left bank at downstream side of county road bridge, 0.7 mi downstream from unnamed right bank tributary, 0.8 mi upstream from Rocky Run, and 2 mi northeast of Upper Sandusky, Ohio.

DRAINAGE AREA.—298 mi^2.

PERIOD OF RECORD.—October 1921 to December 1935, January 1938 to September 1981, November 2000 to current year. Gage height records collected at site 3 mi upstream since 1912 (fragmentary) are contained in reports of National Weather Service.

REVISED RECORDS.—WSP 874: 1927-30, 1933. WSP 1387: 1922(tn), 1923-29, 1944. WSP 1912: Drainage area

GAGE.—Water-stage recorder. Datum of gage is 792.25 ft above sea level. Prior to Sept. 14, 1924, nonrecording site and datum. Water-quality data collected at site 1969-1980.

REMARKS.—Records good except for periods of estimated record, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood of June 1937 reached a stage of 14.3 ft from high-water marks in gage well.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289	189	845	916	e150	393	1940	136	2050	73	238	138
2	199	162	534	621	e100	1140	1210	986	814	62	136	87
3	151	143	374	979	e94	1110	1180	2660	370	55	71	58
4	125	130	289	2250	e160	836	764	1320	240	50	68	41
5	112	117	276	4480	e210	1850	473	589	178	47	68	35
6	99	102	402	e3700	e320	1510	340	366	142	42	62	34
7	85	88	410	e1800	e500	721	279	288	122	41	48	25
8	75	76	331	e820	e700	465	246	470	99	42	36	89
9	68	65	317	448	e370	368	220	357	85	37	29	259
10	67	60	843	e270	e230	292	187	247	79	34	24	324
11	65	63	2090	e240	e200	242	158	206	567	34	20	152
12	78	93	1400	e210	e180	203	143	407	2300	263	17	81
13	76	220	614	e180	e160	165	167	307	3190	200	13	63
14	102	299	378	e160	e150	140	613	285	4010	100	13	47
15	803	183	298	e140	e140	131	1010	347	4980	56	15	38
16	1120	133	264	175	e130	128	439	580	4670	41	19	45
17	518	108	728	270	e120	131	290	427	1470	43	21	113
18	329	106	691	147	e110	138	227	531	866	52	20	319
19	241	312	375	e140	e150	202	188	1560	572	43	30	261
20	189	762	275	e110	791	424	167	1140	359	41	62	117
21	159	463	212	e94	1580	704	150	2550	264	37	201	72
22	136	269	197	e72	1080	593	154	4720	211	36	197	52
23	118	198	645	e62	549	346	294	2940	165	52	104	39
24	102	189	2320	e60	498	266	428	850	135	46	54	32
25	92	204	1630	e58	446	229	281	499	138	38	36	33
26	414	180	763	e56	308	219	277	344	156	31	26	28
27	996	664	463	e90	277	725	270	263	111	33	21	24
28	567	2830	372	e210	258	1150	197	201	93	34	52	24
29	373	3550	456	e540	269	580	155	163	128	42	562	31
30	328	1820	1900	e360	---	1630	135	160	84	36	805	30
31	245	---	2060	e240	---	2850	---	1800	---	136	434	---
TOTAL	8321	13778	22752	19898	10230	19881	12582	27699	28648	1877	3502	2691
MEAN	268	459	734	642	353	641	419	894	955	60.5	113	89.7
MAX	1120	3550	2320	4480	1580	2850	1940	4720	4980	263	805	324
MIN	65	60	197	56	94	128	135	136	79	31	13	24
CFSM	0.90	1.54	2.46	2.15	1.18	2.15	1.41	3.00	3.20	0.20	0.38	0.30
IN.	1.04	1.72	2.84	2.48	1.28	2.48	1.57	3.46	3.58	0.23	0.44	0.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922-2004, BY WATER YEAR (WY)

MEAN	57.1	132	276	392	436	570	449	278	202	101	56.8	65.6
MAX	795	891	1107	1701	1069	1490	1399	894	1283	594	504	839
(WY)	1927	1973	1978	1930	1971	1963	1957	2004	1947	2003	1958	1981
MIN	1.67	5.09	5.64	13.9	15.6	114	37.3	18.2	6.44	8.07	4.02	1.22
(WY)	1964	1964	1964	1945	1964	1941	1946	1934	1934	1934	1952	1955

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922 - 2004	
ANNUAL TOTAL	155478		171859			
ANNUAL MEAN	426		470		252	
HIGHEST ANNUAL MEAN					470	2004
LOWEST ANNUAL MEAN					70.0	1934
HIGHEST DAILY MEAN	4510	May 10	4980	Jun 15	8400 Jan 22	1959
LOWEST DAILY MEAN	11	Feb 21	13	Aug 13	0.60 Sep 13	1955
ANNUAL SEVEN-DAY MINIMUM	16	Feb 15	17	Aug 11	0.71 Sep 8	1955
MAXIMUM PEAK FLOW			5760	Jun 16a	10000 Jan 22	1959
MAXIMUM PEAK STAGE			10.29	Jan 7	15.00 Jan 22	1959
INSTANTANEOUS LOW FLOW			12	Aug 13	0.50 Oct 2	1963
ANNUAL RUNOFF (CFSM)	1.43		1.58		0.84	
ANNUAL RUNOFF (INCHES)	19.41		21.45		11.48	
10 PERCENT EXCEEDS	1030		1140		642	
50 PERCENT EXCEEDS	167		201		65	
90 PERCENT EXCEEDS	38		39		8.2	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04196800 Tymochtee Creek at Crawford, Ohio

LOCATION.—Latitude 40°55′22″, longitude 83°20′56″, in SE ¼ 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, Ohio, 1.5 mi downstream from Lick Run, 2.7 mi upstream from Little Tymochtee Creek, and 3 mi southeast of Carey, Ohio.
DRAINAGE AREA.—229 mi^2.
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.—WDR Ohio 1969: 1964(P), 1966(M), 1967(P).
GAGE.—Water-stage recorder. Datum of gage is 785.86 ft above sea level.
REMARKS.—Records good except for periods of estimated record, which are poor. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	136	1540	849	e42	299	1350	61	1740	27	159	116
2	80	107	571	369	e37	780	624	167	2560	21	144	58
3	57	91	299	455	e34	937	424	849	1260	18	64	33
4	43	78	203	1050	e47	754	321	1240	336	15	30	22
5	33	72	164	2510	e64	1120	211	739	188	16	23	19
6	29	66	200	3590	e84	1290	148	246	120	14	26	16
7	27	57	353	2070	e150	999	114	171	83	11	36	13
8	25	50	326	1050	e330	383	97	296	64	12	23	12
9	22	45	260	408	e140	243	90	684	53	11	13	81
10	21	38	708	e200	e110	176	79	330	45	8.9	9.3	100
11	21	34	1160	e150	e110	132	71	174	150	8.8	8.0	72
12	22	36	1310	e110	e96	107	60	400	870	9.3	6.4	43
13	19	76	864	e90	e86	92	55	632	1280	17	4.9	26
14	32	125	296	e74	e80	79	63	312	1950	101	4.1	19
15	245	96	185	e58	e72	68	193	344	3400	69	3.8	14
16	434	76	151	e54	e68	65	191	399	3300	35	3.7	13
17	389	61	268	e50	e64	62	119	365	1810	20	4.2	12
18	203	51	408	e45	e58	65	89	241	660	13	6.5	66
19	133	94	278	e41	e80	110	74	1100	330	16	5.9	80
20	96	292	173	e39	e200	255	65	1400	221	17	6.4	58
21	75	311	128	e34	e600	400	56	1980	154	23	34	37
22	61	178	105	e30	e1000	473	55	2640	117	17	117	22
23	48	122	535	e28	709	254	50	4290	87	11	98	17
24	42	98	1230	e26	443	151	428	2700	69	25	42	14
25	39	103	1520	e24	459	120	317	1220	67	50	19	12
26	200	106	1190	e24	327	112	178	390	60	27	11	11
27	537	339	382	e28	212	149	172	258	54	17	8.3	12
28	626	1310	230	e33	223	316	122	186	43	11	12	11
29	323	2310	225	e42	181	298	89	148	32	8.1	167	9.0
30	220	2570	844	e54	---	650	73	194	35	7.8	510	7.7
31	180	---	1040	e47	---	1090	---	1040	---	30	313	---
TOTAL	4407	9128	17146	13632	6106	12029	5978	25196	21138	686.9	1912.5	1025.7
MEAN	142	304	553	440	211	388	199	813	705	22.2	61.7	34.2
MAX	626	2570	1540	3590	1000	1290	1350	4290	3400	101	510	116
MIN	19	34	105	24	34	62	50	61	32	7.8	3.7	7.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964-2004, BY WATER YEAR (WY)

MEAN	34.0	135	228	233	297	404	338	236	157	109	34.3	33.0
MAX	278	844	1104	777	823	1392	946	813	780	741	201	370
(WY)	1987	1993	1991	1974	1975	1978	1972	2004	1981	1992	1992	1981
MIN	0.08	0.86	1.78	1.67	37.2	35.1	32.8	11.7	1.78	1.04	0.48	0.27
(WY)	1965	1992	1992	1977	1972	1983	1971	1988	1988	1965	1965	1964

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1964-2004	
ANNUAL TOTAL	110471.6		118385.1			
ANNUAL MEAN	303		323		187	
HIGHEST ANNUAL MEAN					330	1973
LOWEST ANNUAL MEAN					72.2	1988
HIGHEST DAILY MEAN	3470	May 11	4290	May 23	6280 Dec 31	1990
LOWEST DAILY MEAN	7.8	Feb 21	3.7	Aug 16	0.00 Aug 10	1964
ANNUAL SEVEN-DAY MINIMUM	11	Feb 15	4.7	Aug 13	0.00 Oct 23	1964
MAXIMUM PEAK FLOW			4590	May 23a	6700 Dec 31	1990
MAXIMUM PEAK STAGE			8.41	May 23	11.21 Mar 6	1963
INSTANTANEOUS LOW FLOW			3.5	Aug 15	0.00 Aug 10	1964
10 PERCENT EXCEEDS	926		1010		515	
50 PERCENT EXCEEDS	96		96		35	
90 PERCENT EXCEEDS	17		14		1.6	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04197100 Honey Creek at Melmore, Ohio

LOCATION.—Latitude 41°01′20″, longitude 83°06′35″, Seneca County, Hydrologic Unit 04100011, at bridge on State Highways 67 and 100 at Melmore, Ohio, 1.5 mi upstream from Buckeye Creek.
DRAINAGE AREA.—149 mi^2.
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 sea level (from topographic map).
REMARKS.—Records fair except for periods of estimated record, which are poor. Water-quality data fomerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	63	461	516	e25	e100	1060	34	562	23	636	65
2	43	51	237	290	e24	479	994	265	234	21	161	38
3	32	44	140	254	e23	486	827	797	89	17	56	28
4	27	41	99	808	e30	416	478	590	56	16	35	21
5	25	39	83	2050	e44	910	242	205	43	15	30	17
6	24	35	74	1490	e80	781	153	107	36	13	26	12
7	20	31	68	570	e190	332	116	77	31	12	20	9.4
8	18	28	62	375	e170	178	94	67	28	10	16	9.7
9	15	25	67	200	e80	125	78	60	24	9.3	13	16
10	15	22	414	e100	e66	95	64	51	45	9.0	10	69
11	19	22	1010	e70	e80	79	57	45	278	7.8	8.2	40
12	41	24	804	e58	e52	69	50	175	852	7.5	7.0	23
13	34	29	329	e49	e46	57	52	180	1330	7.8	6.1	16
14	32	42	158	e44	e42	49	108	122	1890	8.4	5.7	11
15	212	43	107	e39	e39	47	189	130	1980	8.1	5.2	7.8
16	396	34	101	e36	e37	46	103	108	1460	6.6	5.4	6.2
17	217	30	290	e33	e35	45	75	93	811	7.2	14	5.2
18	100	28	276	e30	e33	47	62	67	425	8.0	16	6.0
19	67	60	147	e27	e31	69	54	215	220	25	27	31
20	52	218	98	e25	e100	106	47	371	133	15	199	19
21	42	175	e86	e22	e240	167	42	760	92	9.6	490	9.9
22	37	88	66	e21	e300	164	41	956	67	12	378	5.8
23	33	61	400	e19	e110	95	43	614	56	28	97	4.0
24	30	51	1080	e17	e94	75	62	222	49	26	44	3.0
25	26	48	922	e16	e78	70	53	112	44	13	28	2.5
26	157	44	404	e16	e68	91	74	75	54	8.6	21	2.0
27	427	239	204	e20	e62	365	68	58	42	8.2	18	1.9
28	282	1130	149	e24	e60	337	51	47	35	7.1	16	1.8
29	145	1640	271	e29	e58	177	41	40	30	6.9	218	1.8
30	120	957	1080	e33	---	813	37	38	26	6.7	444	1.8
31	88	---	1060	e28	---	1200	---	492	---	650	177	---
TOTAL	2842	5342	10747	7309	2297	8070	5415	7173	11022	1022.8	3227.6	484.8
MEAN	91.7	178	347	236	79.2	260	180	231	367	33.0	104	16.2
MAX	427	1640	1080	2050	300	1200	1060	956	1980	650	636	69
MIN	15	22	62	16	23	45	37	34	24	6.6	5.2	1.8
CFSM	0.62	1.20	2.33	1.58	0.53	1.75	1.21	1.55	2.47	0.22	0.70	0.11
IN.	0.71	1.33	2.68	1.82	0.57	2.01	1.35	1.79	2.75	0.26	0.81	0.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976-2004, BY WATER YEAR (WY)

MEAN	30.8	94.9	162	151	228	264	237	122	118	73.1	45.2	34.1
MAX	186	550	518	465	601	765	540	340	740	373	233	242
(WY)	1991	1993	1978	1993	1976	1978	1979	1997	1981	1992	1998	1981
MIN	0.71	2.51	1.99	1.31	31.1	40.4	44.4	8.69	1.05	0.46	0.91	0.84
(WY)	1989	1995	1977	1977	2003	1981	1976	1988	1988	1988	2002	1995

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1976-2004
ANNUAL TOTAL	61499.7	64952.2	
ANNUAL MEAN	168	177	130
HIGHEST ANNUAL MEAN			189 1993
LOWEST ANNUAL MEAN			48.1 1988
HIGHEST DAILY MEAN	2340 Jul 10	2050 Jan 5	4000 Dec 30 1990
LOWEST DAILY MEAN	4.0 Sep 14	1.8 Sep 28	0.07 Sep 28 1988
ANNUAL SEVEN-DAY MINIMUM	4.6 Sep 12	2.1 Sep 24	0.09 Sep 24 1988
MAXIMUM PEAK FLOW		2700 Jun 13a	4440 Jun 13 1981
MAXIMUM PEAK STAGE		8.97 Jun 13	11.00 Jun 13 1981
INSTANTANEOUS LOW FLOW			0.07 Sep 28 1988
ANNUAL RUNOFF (CFSM)	1.13	1.19	0.87
ANNUAL RUNOFF (INCHES)	15.35	16.22	11.84
10 PERCENT EXCEEDS	447	491	344
50 PERCENT EXCEEDS	47	54	31
90 PERCENT EXCEEDS	10	9.7	2.0

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04197170 Rock Creek at Tiffin, Ohio

LOCATION.—Latitude 41°06′49″, longitude 83°10′06″, Seneca County, Hydrologic Unit 04100011, on left bank 0.05 mi downstream from bridge on Rebecca Street, at Heidelberg College, Tiffin, Ohio.
DRAINAGE AREA.—34.6 mi^2.
PERIOD OF RECORD.—June 1983 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 740 ft above sea level (from topographic map).
REMARKS.—Records fair except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	8.2	30	41	e6.0	e24	104	9.5	108	3.7	130	3.0
2	3.2	7.0	18	33	e5.0	e120	233	47	20	3.5	13	2.1
3	2.7	7.2	13	36	e14	85	131	116	11	3.4	5.6	1.5
4	3.0	7.0	11	262	e30	70	55	31	9.2	4.5	4.4	1.5
5	2.4	6.4	12	628	e22	349	33	18	7.2	3.4	3.7	1.4
6	2.1	5.9	13	e90	e20	94	24	14	6.3	3.2	3.1	1.4
7	2.2	5.6	12	e36	e17	38	21	13	5.8	3.0	2.7	1.3
8	2.1	5.2	11	e12	e14	25	19	13	5.3	2.9	2.5	2.0
9	2.2	4.9	12	e10	e11	18	17	12	5.0	2.8	2.3	1.6
10	2.5	4.7	164	e8.6	e9.0	15	15	11	5.1	2.7	2.1	1.3
11	2.6	5.5	282	e7.2	e8.0	14	14	11	55	2.7	1.9	1.2
12	2.7	6.2	58	e6.8	e7.0	14	14	76	243	3.4	1.9	1.2
13	3.2	7.0	23	e6.6	e6.2	10	14	25	129	2.8	1.7	1.2
14	5.7	8.7	16	e6.4	e5.6	9.2	16	61	531	2.7	1.7	1.1
15	54	8.2	13	e6.4	e5.2	9.4	16	65	235	2.5	1.6	1.1
16	48	7.9	19	e6.2	e4.7	9.3	15	44	46	2.4	1.5	1.1
17	13	7.3	121	e6.2	e4.3	8.9	13	24	20	2.6	1.5	1.2
18	8.3	8.1	38	e6.0	e3.9	9.6	13	20	12	2.7	1.7	1.2
19	6.5	8.5	19	e6.0	e6.0	20	13	99	10	2.4	2.4	1.1
20	5.7	20	14	e5.8	e25	25	13	66	8.3	2.3	2.8	0.98
21	5.4	14	13	e5.8	e88	37	12	455	6.8	2.3	3.1	0.91
22	4.9	9.5	11	e5.6	e20	22	11	416	6.1	3.7	6.8	0.90
23	4.5	7.7	161	e5.6	e17	15	11	65	5.4	3.7	3.9	0.92
24	4.1	7.8	336	e5.6	e14	12	10	30	5.0	2.9	2.4	1.00
25	4.7	8.3	82	e5.4	e13	15	11	19	5.3	2.8	2.0	1.1
26	45	8.1	34	e5.4	e12	28	11	13	4.7	3.2	1.9	0.93
27	87	74	23	e10	e12	179	10	11	4.5	3.1	2.2	0.89
28	22	438	20	e23	e11	64	10	10	4.5	2.9	2.1	0.85
29	13	314	54	e14	e11	33	9.7	9.0	4.3	2.6	2.5	0.85
30	12	67	476	e11	---	447	9.6	13	3.8	2.5	16	0.87
31	9.7	---	117	e7.6	---	232	---	342	---	113	6.9	---
TOTAL	388.5	1097.9	2226	1319.2	421.9	2051.4	898.3	2158.5	1522.6	202.3	237.9	37.70
MEAN	12.5	36.6	71.8	42.6	14.5	66.2	29.9	69.6	50.8	6.53	7.67	1.26
MAX	87	438	476	628	88	447	233	455	531	113	130	3.0
MIN	2.1	4.7	11	5.4	3.9	8.9	9.6	9.0	3.8	2.3	1.5	0.85
CFSM	0.36	1.06	2.08	1.23	0.42	1.91	0.87	2.01	1.47	0.19	0.22	0.04
IN.	0.42	1.18	2.39	1.42	0.45	2.21	0.97	2.32	1.64	0.22	0.26	0.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984-2004, BY WATER YEAR (WY)

MEAN	9.37	26.3	37.6	37.1	55.0	49.3	54.6	30.6	24.0	14.2	10.7	10.8
MAX	50.3	145	172	98.5	122	138	108	87.6	90.8	82.0	88.8	99.5
(WY)	1991	1993	1991	1993	1990	1984	2002	1997	1997	1992	1998	1992
MIN	1.27	1.73	2.09	9.48	11.7	13.6	17.9	2.29	1.12	0.55	1.19	0.83
(WY)	2000	2000	1992	2001	2003	1989	1988	1988	1988	1988	2002	1995

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1984-2004		
ANNUAL TOTAL	10707.10		12562.20				
ANNUAL MEAN	29.3		34.3		29.8		
HIGHEST ANNUAL MEAN					48.2		1984
LOWEST ANNUAL MEAN					11.6		1988
HIGHEST DAILY MEAN	580	Apr 5	628	Jan 5	1590	Aug 26	1998
LOWEST DAILY MEAN	0.80	Feb 19	0.85	Sep 28	0.32	Jul 29	1988
ANNUAL SEVEN-DAY MINIMUM	0.82	Feb 15	0.93	Sep 24	0.37	Sep 11	2001
MAXIMUM PEAK FLOW			873	Jun 14	2640	Aug 26	1998
MAXIMUM PEAK STAGE			6.63	Jun 14	8.96	Aug 26	1998
INSTANTANEOUS LOW FLOW			0.75	Sep 26	0.32	Jul 29	1988
ANNUAL RUNOFF (CFSM)	0.848		0.99		0.86		
ANNUAL RUNOFF (INCHES)	11.51		13.51		11.70		
10 PERCENT EXCEEDS	67		83		57		
50 PERCENT EXCEEDS	7.6		9.2		6.2		
90 PERCENT EXCEEDS	2.5		2.0		1.4		

e Estimated.

04198000 Sandusky River near Fremont, Ohio

LOCATION.—Latitude 41°18′28″, longitude 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, Ohio.
DRAINAGE AREA.—1,251 mi^2.
PERIOD OF RECORD.—November 1898 to March 1901 (gage height and discharge measurements only, published as "at Fremont"), October 1923 to December 1935, July 1938 to current year. Monthly discharge only for October 1923, published in WSP 1307.
REVISED RECORDS.—WSP 744: 1931-32. WSP 874: 1938. WSP 1144: 1924-30. WSP 1387: 1925, 1928-29, 1931-35. WSP 1912: Drainage area.
GAGE.—Water-stage recorder. Datum of gage is 626.30 ft (National Geodetic Vertical Datum of 1912). Nov. 18, 1898-Mar. 10, 1901, nonrecording gage at site 4 mi downstream at different datum; Nov. 8, 1923-Sept. 5, 1930, nonrecording gage at present site and datum.
REMARKS.—Records good except for periods of estimated record, which are poor. Water-quality data collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	827	7870	5800	e350	1070	e7200	460	6850	282	2100	1090
2	664	664	4620	3310	e290	3240	e6700	646	5290	239	1250	514
3	475	562	2180	2280	e240	4370	e5000	3840	3980	216	644	312
4	370	509	1430	4140	e340	3710	3360	5210	2350	229	406	225
5	297	456	1120	12500	e520	6450	2090	3580	1000	294	290	176
6	252	410	1010	e11000	e780	e6570	1420	1910	677	232	252	146
7	224	373	1130	e7000	e1300	e4400	1080	1080	534	198	223	123
8	202	333	1290	e3500	e2000	2680	894	970	438	194	196	113
9	185	298	1180	e1600	e1300	1650	760	1110	379	193	179	132
10	171	263	2390	e1100	e840	1220	665	1340	349	192	154	205
11	157	254	7100	e850	e700	966	583	918	634	195	127	516
12	142	257	6620	e720	e580	804	524	1130	5080	202	107	397
13	150	267	4640	e660	e500	676	506	1900	8030	196	94	258
14	164	322	2610	e560	e430	578	510	1670	11600	328	86	185
15	475	649	1560	e520	e400	521	913	1810	12400	285	83	150
16	2210	566	1170	e460	e370	491	1530	1590	11400	262	77	124
17	2400	472	1890	e420	e340	e490	995	1530	11400	205	83	103
18	1500	459	2450	e380	e320	499	751	1390	8360	166	87	98
19	921	371	2120	e360	e600	630	616	2870	3230	159	105	145
20	666	742	1450	e330	e2000	903	538	5300	1550	170	149	419
21	516	1700	1020	e310	e8000	1480	499	7930	1050	156	655	295
22	422	1380	848	e290	e3900	1920	457	13000	781	167	1090	207
23	359	889	1510	e270	4840	1680	447	10300	621	217	724	162
24	320	684	7660	e250	2330	1150	475	9450	499	201	456	130
25	287	611	7530	e240	1920	942	984	6960	445	174	291	108
26	373	626	5650	e220	1530	906	951	3190	512	159	198	94
27	2080	933	3280	e370	1120	1620	773	1310	442	176	153	85
28	2610	6990	1870	e600	918	2390	726	912	372	155	155	79
29	1920	11200	1650	e1200	884	2380	607	720	323	138	187	75
30	1350	9530	5970	e760	---	4490	506	611	289	121	1240	72
31	1040	---	7680	e500	---	e7390	---	3450	---	361	1710	---
TOTAL	24032	43597	100498	62500	39642	68266	43060	98087	100865	6462	13551	6738
MEAN	775	1453	3242	2016	1367	2202	1435	3164	3362	208	437	225
MAX	2610	11200	7870	12500	8000	7390	7200	13000	12400	361	2100	1090
MIN	142	254	848	220	240	490	447	460	289	121	77	72
CFSM	0.62	1.16	2.59	1.61	1.09	1.76	1.15	2.53	2.69	0.17	0.35	0.18
IN.	0.71	1.30	2.99	1.86	1.18	2.03	1.28	2.92	3.00	0.19	0.40	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924-2004, BY WATER YEAR (WY)

MEAN	229	573	1115	1542	1894	2284	1855	1121	847	469	238	254
MAX	2521	4413	5495	7659	7504	8261	5524	3654	6091	3479	1660	3713
(WY)	1927	1993	1991	1930	1984	1978	1957	1969	1981	1992	1958	1981
MIN	9.94	25.4	32.6	53.5	60.3	319	144	100	43.4	30.9	22.4	13.5
(WY)	1964	1954	1964	1961	1964	1941	1946	1941	1988	1934	1952	1953

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1924-2004		
ANNUAL TOTAL	582470		607298				
ANNUAL MEAN	1596		1659		1030		
HIGHEST ANNUAL MEAN					2167		1984
LOWEST ANNUAL MEAN					275		1934
HIGHEST DAILY MEAN	12200	Jul 11	13000	May 22	36000	Mar 15	1978
LOWEST DAILY MEAN	87	Sep 18	72	Sep 30	5.0	Oct 20	1963
ANNUAL SEVEN-DAY MINIMUM	92	Sep 15	88	Aug 13	6.3	Jul 9	1988
MAXIMUM PEAK FLOW			14000	Jan 5a	36500	Mar 16	1978
MAXIMUM PEAK STAGE			7.30	Jan 5	16.14	Feb 24	1979
INSTANTANEOUS LOW FLOW			71	Sep 30	4.4	Feb 29	1964
ANNUAL RUNOFF (CFSM)	1.28		1.33		0.82		
ANNUAL RUNOFF (INCHES)	17.32		18.06		11.19		
10 PERCENT EXCEEDS	4430		5120		2740		
50 PERCENT EXCEEDS	649		645		282		
90 PERCENT EXCEEDS	150		158		40		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated

Surface-Water Records—Huron River Basin

04199000 Huron River at Milan, Ohio

LOCATION.—Latitude 41°18′06″, longitude 82°36′25″, in SW ¼ 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, Ohio, and 2 mi downstream from confluence of east and west branches.

DRAINAGE AREA.—371 mi^2.

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

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

GAGE.—Water-stage recorder. Datum of gage is 573.26 ft above sea level. July 29, 1953-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.—Records fair except for periods of estimated record, which are poor. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	226	696	688	e68	354	2700	171	925	77	902	118
2	149	212	449	605	e68	1160	4300	1720	434	68	246	81
3	124	205	329	600	e66	920	2380	2580	500	60	116	63
4	127	193	270	1820	e130	757	1180	833	203	58	107	54
5	114	187	258	5650	e250	2940	764	495	151	54	90	50
6	103	179	270	1820	e500	1180	534	364	127	49	70	46
7	93	167	258	622	e1100	595	420	334	114	45	54	44
8	84	154	238	464	e960	424	366	388	102	44	46	107
9	78	146	235	e310	e640	329	314	312	87	38	41	534
10	78	140	1600	e250	e480	266	260	256	166	36	36	401
11	90	164	3080	e220	e400	233	230	229	769	33	31	181
12	101	189	956	e200	e330	209	214	433	3940	38	26	106
13	85	221	465	e170	e270	174	261	364	1400	35	22	76
14	98	221	353	e150	e220	157	872	240	4480	34	25	60
15	1390	195	292	e140	e190	151	660	227	3570	33	38	53
16	725	181	303	e130	e180	152	367	266	1090	28	95	57
17	330	169	1070	e120	e170	154	291	238	564	62	40	53
18	234	177	558	e110	e160	176	387	356	665	108	104	45
19	198	346	352	e100	e150	340	367	1230	447	79	931	96
20	171	709	276	e92	e260	467	245	740	297	46	789	56
21	153	358	230	e88	e1600	657	212	3910	240	39	993	45
22	140	248	226	e84	e1000	463	201	4480	195	39	373	39
23	126	211	1500	e80	e500	313	198	1200	160	44	170	36
24	123	198	3260	e78	e320	270	243	610	123	41	90	33
25	131	184	1260	e76	e270	397	221	374	139	36	66	30
26	1150	172	630	e74	e240	424	318	247	156	29	49	30
27	1080	890	439	e74	e220	1300	250	203	114	41	42	31
28	461	4670	399	e72	e200	869	195	176	114	38	42	31
29	338	3790	770	e72	e200	493	165	154	112	34	613	31
30	307	1320	3770	e70	---	3500	147	156	89	50	450	35
31	286	---	1500	e68	---	3690	---	1670	---	3280	194	---
TOTAL	8859	16422	26292	15097	11142	23514	19262	24956	21473	4696	6891	2622
MEAN	286	547	848	487	384	759	642	805	716	151	222	87.4
MAX	1390	4670	3770	5650	1600	3690	4300	4480	4480	3280	993	534
MIN	78	140	226	68	66	151	147	154	87	28	22	30
CFSM	0.77	1.48	2.29	1.31	1.04	2.04	1.73	2.17	1.93	0.41	0.60	0.24
IN.	0.89	1.65	2.64	1.51	1.12	2.36	1.93	2.50	2.15	0.47	0.69	0.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951-2004, BY WATER YEAR (WY)

MEAN	61.5	174	359	456	530	679	580	330	249	179	103	79.5
MAX	402	1259	1909	1302	1422	1697	1536	929	980	1821	749	573
(WY)	1991	1973	1991	1952	1959	1978	1957	1967	1981	1969	1998	1972
MIN	7.86	14.0	9.23	26.8	24.0	117	86.0	46.5	14.9	11.8	11.3	5.76
(WY)	1964	1964	1964	1977	1964	1981	1971	1962	1988	1963	1952	1955

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1951-2004		
ANNUAL TOTAL	153529		181226				
ANNUAL MEAN	421		495		314		
HIGHEST ANNUAL MEAN					530		1997
LOWEST ANNUAL MEAN					145		1953
HIGHEST DAILY MEAN	4760	Apr 5	5650	Jan 5	31400	Jul 5	1969
LOWEST DAILY MEAN	21	Sep 17	22	Aug 13	3.0	Sep 10	1955
ANNUAL SEVEN-DAY MINIMUM	24	Sep 12	31	Aug 9	3.4	Sep 16	1955
MAXIMUM PEAK FLOW			6430	Jan 5a	49600	Jul 5	1969
MAXIMUM PEAK STAGE			16.91	Jan 5	31.10	Jul 5	1969
INSTANTANEOUS LOW FLOW					2.2	Sep 10	1955
ANNUAL RUNOFF (CFSM)	1.13		1.33		0.85		
ANNUAL RUNOFF (INCHES)	15.39		18.17		11.50		
10 PERCENT EXCEEDS	1050		1170		714		
50 PERCENT EXCEEDS	184		210		87		
90 PERCENT EXCEEDS	63		44		16		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Old Woman Creek Basin

04199155 Old Woman Creek at Berlin Road near Huron, Ohio

LOCATION.—Latitude 41°20′54″, longitude 82°30′50″, Erie County, Hydrologic Unit 04100012, on left downstream side of Berlin Road Bridge, 3.8 mi southeast of Huron, Ohio.
DRAINAGE AREA.—22.1 mi^2.
PERIOD OF RECORD.—October 1987 to September 1994, October 1995 to current year. Published as "Old Woman's Creek" prior to 2002.
REVISED RECORDS.—WSP 1912: Drainage area. WDR OH-89-2: 1988.
GAGE.—Water-stage recorder. Datum of gage is 570 ft above sea level. Erie County benchmark.
REMARKS.—Records fair except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	7.4	35	39	e5.8	e15	208	8.9	26	5.1	53	2.3
2	2.7	7.2	20	60	e5.4	e60	429	186	21	3.8	22	1.9
3	2.3	6.3	15	43	e30	37	144	90	79	3.1	12	1.6
4	3.4	5.5	13	136	e60	41	89	32	20	2.7	14	1.5
5	3.0	4.8	15	297	e35	202	50	20	12	2.1	17	1.4
6	2.5	4.1	19	80	e40	55	32	16	8.4	1.7	8.1	1.2
7	2.2	3.5	19	31	e75	27	25	32	6.4	1.5	10	1.0
8	2.0	3.0	16	e16	e25	22	34	45	4.9	2.1	6.5	11
9	1.7	2.6	17	e13	e18	18	32	20	3.9	1.4	4.3	75
10	1.8	2.5	101	e11	e15	15	22	14	10	1.1	3.5	19
11	2.0	4.6	122	e10	e11	15	18	11	72	0.90	2.8	7.5
12	1.9	12	33	e9.6	e9.0	12	17	93	69	2.2	2.6	4.5
13	1.6	17	18	e8.6	e6.4	9.1	39	18	36	2.2	2.2	3.2
14	2.2	8.4	16	e8.0	e5.0	9.7	124	15	260	1.4	2.2	2.5
15	55	6.0	13	e7.2	e4.5	9.5	38	15	113	1.3	2.0	2.2
16	14	6.0	27	e6.6	e3.9	10	23	17	33	0.79	1.8	2.5
17	6.1	6.0	77	e6.0	e3.4	11	19	10	21	91	1.6	2.5
18	4.1	6.5	23	e5.6	e3.0	14	33	19	23	111	1.7	2.1
19	3.3	72	17	e5.0	e3.8	28	19	111	14	15	21	1.7
20	2.7	56	14	e4.7	e15	32	15	25	8.6	6.0	89	1.4
21	2.5	16	12	e4.5	98	45	14	592	6.5	4.2	55	1.2
22	2.4	10	13	e4.2	28	22	12	461	5.3	3.0	15	1.0
23	2.3	8.2	204	e4.0	e16	18	11	88	3.9	2.4	6.8	0.89
24	2.2	7.8	205	e3.9	e12	18	9.1	58	3.2	1.6	4.2	0.77
25	2.7	6.6	98	e3.8	e9.0	53	13	30	4.4	1.1	3.1	0.93
26	150	5.6	52	e3.8	e8.0	36	15	19	4.1	1.3	2.5	1.3
27	58	172	32	e8.0	e7.6	102	11	14	2.9	2.7	2.4	1.4
28	18	449	42	e25	e7.2	38	8.7	17	25	2.7	2.5	1.5
29	17	184	101	e16	e7.0	24	7.0	11	32	1.8	4.5	1.7
30	13	80	322	e9.0	---	319	7.2	10	9.0	3.7	5.0	2.8
31	9.0	---	81	e6.2	---	172	---	92	---	697	3.1	---
TOTAL	395.4	1180.6	1792	885.7	567.0	1489.3	1518.0	2189.9	937.5	977.89	381.4	159.49
MEAN	12.8	39.4	57.8	28.6	19.6	48.0	50.6	70.6	31.2	31.5	12.3	5.32
MAX	150	449	322	297	98	319	429	592	260	697	89	75
MIN	1.6	2.5	12	3.8	3.0	9.1	7.0	8.9	2.9	0.79	1.6	0.77
CFSM	0.58	1.78	2.62	1.29	0.88	2.17	2.29	3.20	1.41	1.43	0.56	0.24
IN.	0.67	1.99	3.02	1.49	0.95	2.51	2.56	3.69	1.58	1.65	0.64	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988-2004, BY WATER YEAR (WY)

MEAN	4.71	14.6	25.3	29.6	31.2	34.6	42.1	22.2	18.7	8.03	6.11	5.86
MAX	20.8	68.4	98.2	74.8	78.6	86.3	66.5	70.6	47.4	35.1	23.7	23.1
(WY)	1997	1993	1991	1993	1990	1993	1998	2004	1997	1992	1992	1996
MIN	0.00	0.31	0.70	8.03	5.70	11.2	18.4	2.20	0.17	0.01	0.00	0.00
(WY)	1995	1992	1992	1988	2003	2001	1988	1988	1988	1991	1991	1991

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1988 - 2004
ANNUAL TOTAL	9483.26	12474.18	
ANNUAL MEAN	26.0	34.1	20.2
HIGHEST ANNUAL MEAN			34.1 1997
LOWEST ANNUAL MEAN			8.48 2001
HIGHEST DAILY MEAN	474 Apr 5	697 Jul 31	838 Jan 8 1998
LOWEST DAILY MEAN	0.09 Sep 18	0.77 Sep 24	0.00 Jun 15 1988
ANNUAL SEVEN-DAY MINIMUM	0.21 Sep 12	1.1 Sep 20	0.00 Jun 15 1988
MAXIMUM PEAK FLOW		2160 Jul 31	2160 Jul 31 2004
MAXIMUM PEAK STAGE		12.08 Jul 31a	12.08 Jul 31 2004
INSTANTANEOUS LOW FLOW		0.63 Jul 16	0.00 Sep 9 1991
ANNUAL RUNOFF (CFSM)	1.18	1.54	0.912
ANNUAL RUNOFF (INCHES)	15.96	21.00	12.39
10 PERCENT EXCEEDS	71	88	44
50 PERCENT EXCEEDS	7.0	11	4.6
90 PERCENT EXCEEDS	1.6	2.0	0.00

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Vermilion River Basin

04199500 Vermilion River near Vermilion, Ohio

LOCATION.—Latitude 41°22′55″, longitude 82°19′01″, in T.6 N., R.19 W., Lorain County, Hydrologic Unit 04100012, on right bank downstream wingwall of bridge on North Ridge Road, 3.5 mi southeast of Vermilion and 4.5 mi upstream from mouth of Lake Erie.
DRAINAGE AREA.—262 mi^2.
PERIOD OF RECORD.—March 1950 to September 1981, November 1, 2000 to current year.
REVISED RECORDS.—WSP 1912: Drainage area. WDR-OH-70-1: 1969.
GAGE.—Water-stage recorder. Datum of gage is 595.14 ft above sea level. Prior to Aug. 3, 1953, nonrecording gage at site 40 ft upstream at same datum.
REMARKS.—Records fair except those for period of estimated record, which are poor. Water-quality data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	111	569	500	e56	e310	2510	124	717	47	529	61
2	110	98	348	430	e56	789	3350	2080	272	40	178	43
3	82	92	237	503	e56	781	2070	3930	290	35	88	33
4	72	90	177	1370	e100	529	1220	1160	163	32	65	26
5	63	84	155	4650	e190	1920	718	480	130	29	56	241
6	57	78	155	2300	e300	1090	446	296	102	24	40	98
7	49	70	152	689	e580	466	317	308	88	24	32	50
8	41	63	141	e460	e1000	319	274	466	77	25	26	136
9	35	56	140	e360	e700	268	236	244	68	22	23	1800
10	31	51	581	e310	e560	225	187	165	87	19	20	934
11	29	54	2160	e250	e470	184	155	127	224	17	15	291
12	26	74	945	e190	e410	160	136	252	3020	25	13	143
13	24	91	365	e130	e360	133	189	237	1410	18	11	91
14	30	118	233	e100	e320	113	1090	147	2500	16	11	67
15	491	119	187	e94	e280	108	887	154	3930	17	10	52
16	806	96	180	e86	e250	115	364	378	1580	15	9.8	43
17	272	83	582	e82	e230	111	240	296	532	20	9.7	39
18	163	78	442	e76	e210	126	260	646	490	262	12	130
19	120	197	243	e74	e200	328	373	1410	533	114	145	149
20	96	525	183	e70	e390	485	210	547	256	63	437	75
21	80	316	164	e68	e1000	913	156	4130	169	42	712	55
22	73	180	143	e64	e760	600	139	4830	126	35	323	43
23	66	134	902	e62	e600	340	450	1940	102	26	118	36
24	59	117	2490	e62	e370	268	733	680	83	20	68	29
25	60	107	1250	e62	e300	408	301	414	71	16	46	25
26	225	103	529	e60	e280	422	395	267	84	15	35	22
27	506	329	338	e60	e260	1180	333	192	77	27	29	20
28	313	3010	283	e58	e250	907	211	173	70	26	28	19
29	195	3340	475	e58	e270	426	155	132	80	22	482	21
30	156	1330	1990	e58	---	2260	128	113	55	23	258	19
31	131	---	1400	e56	---	3490	---	414	---	2010	101	---
TOTAL	4618	11194	18139	13392	10808	19774	18233	26732	17386	3126	3930.5	4791
MEAN	149	373	585	432	373	638	608	862	580	101	127	160
MAX	806	3340	2490	4650	1000	3490	3350	4830	3930	2010	712	1800
MIN	24	51	140	56	56	108	128	113	55	15	9.7	19
CFSM	0.57	1.42	2.23	1.65	1.42	2.43	2.32	3.29	2.21	0.38	0.48	0.61
IN.	0.66	1.59	2.58	1.90	1.53	2.81	2.59	3.80	2.47	0.44	0.56	0.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950-2004, BY WATER YEAR (WY)

MEAN	33.9	121	325	359	456	716	465	274	135	131	43.9	47.2
MAX	231	906	2340	1396	1289	4759	1170	862	629	2045	329	240
(WY)	1973	1973	1978	1952	1976	1978	1957	2004	1981	1969	1958	1972
MIN	0.41	1.60	1.41	17.3	10.8	96.3	68.3	32.7	11.1	2.56	1.54	0.00
(WY)	1964	1964	1964	1964	1964	1953	1971	1976	1963	1963	1952	1953

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1950-2004	
ANNUAL TOTAL	113515.0	152123.5		
ANNUAL MEAN	311	416	262	
HIGHEST ANNUAL MEAN			864	1978
LOWEST ANNUAL MEAN			102	1953
HIGHEST DAILY MEAN	3750 Apr 5	4830 May 22	22900 Dec 15	1977
LOWEST DAILY MEAN	7.1 Sep 18	9.7 Aug 17	0.00 Aug 27	1953
ANNUAL SEVEN-DAY MINIMUM	9.1 Sep 12	11 Aug 12	0.00 Aug 27	1953
MAXIMUM PEAK FLOW		6970 May 22a	40800 Jul 6	1969
MAXIMUM PEAK STAGE		7.58 May 22	17.14 Jul 6	1969
INSTANTANEOUS LOW FLOW		9.6 Aug 16	0.00 Aug 27	1953
ANNUAL RUNOFF (CFSM)	1.19	1.59	1.00	
ANNUAL RUNOFF (INCHES)	16.12	21.60	13.57	
10 PERCENT EXCEEDS	710	1000	600	
50 PERCENT EXCEEDS	107	156	57	
90 PERCENT EXCEEDS	24	26	3.7	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Black River Basin

04200500 Black River at Elyria, Ohio

LOCATION.—Latitude 41°22′49″, longitude 82°06′17″, in T.6 N., R.17 W., Lorain County, Hydrologic Unit 04110001, on left bank in Cascade Park at Elyria, Ohio, 0.8 mi downstream from confluence of east and west branches.

DRAINAGE AREA.—396 mi^2.

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 sea level.

REMARKS.—Records fair except for periods of estimated record and for discharges greater than 1,000 ft^3/s, which are poor. Some regulation at low flow for industrial use. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	142	953	816	e47	e370	3260	174	575	55	377	49
2	125	117	472	705	e46	955	4260	2910	282	46	142	40
3	94	109	307	1020	e80	1160	3690	5570	279	39	78	32
4	89	99	227	1950	e130	869	2350	2480	170	35	62	27
5	79	89	205	5260	e210	2410	1950	844	124	32	55	21
6	76	97	218	3800	e400	1850	1080	404	96	29	38	19
7	65	95	249	853	e600	865	661	352	76	41	29	17
8	56	82	247	e370	e900	557	495	2160	69	37	25	182
9	49	67	247	e250	e400	621	475	1000	58	24	22	1700
10	47	62	1160	e190	e320	505	306	370	138	18	19	1730
11	45	72	3070	e170	e260	361	236	272	825	17	18	496
12	48	93	1910	e150	e210	291	203	446	2270	32	15	177
13	47	90	596	e130	e180	245	456	430	2070	22	14	99
14	67	105	336	e120	e160	209	2540	228	2350	21	14	66
15	839	128	267	e100	e140	188	2000	222	3700	26	13	49
16	1360	109	257	e90	e130	188	786	484	2970	23	12	39
17	480	92	730	e80	e120	191	367	395	983	132	13	206
18	207	88	755	e70	e110	228	268	1170	442	908	28	915
19	139	271	391	e64	e100	871	331	2840	375	277	64	600
20	106	609	272	e60	e300	1320	258	1100	240	102	311	170
21	82	515	194	e56	e900	2000	204	5590	149	53	878	102
22	71	264	233	e54	e1400	1410	229	12200	112	36	396	65
23	60	176	1260	e52	e720	646	884	6150	89	47	156	45
24	57	148	3220	e50	e600	455	1490	e1590	69	48	79	45
25	68	126	2360	e50	e500	848	567	e900	61	27	50	25
26	312	110	1010	e49	e400	1140	719	504	57	29	34	18
27	1410	299	554	e48	e340	2050	1020	271	86	48	33	17
28	709	2950	438	e48	e310	1670	404	269	91	44	90	19
29	326	4640	579	e48	e330	786	260	170	94	38	232	19
30	225	2590	2090	e47	---	3080	194	145	66	39	200	18
31	178	---	2230	e47	---	4580	---	510	---	712	79	---
TOTAL	7705	14434	27037	16797	10343	32919	31943	52150	18966	3037	3576	7007
MEAN	249	481	872	542	357	1062	1065	1682	632	98.0	115	234
MAX	1410	4640	3220	5260	1400	4580	4260	12200	3700	908	878	1730
MIN	45	62	194	47	46	188	194	145	57	17	12	17
CFSM	0.63	1.21	2.20	1.37	0.90	2.68	2.69	4.25	1.60	0.25	0.29	0.59
IN.	0.72	1.36	2.54	1.58	0.97	3.09	3.00	4.90	1.78	0.29	0.34	0.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945-2004, BY WATER YEAR (WY)

MEAN	64.6	223	398	475	584	773	638	385	223	140	75.8	82.7
MAX	463	1238	1885	1825	1505	1866	1728	1682	1245	1472	529	701
(WY)	1997	1986	1991	1952	1959	1978	1957	2004	1947	1969	1958	1972
MIN	2.34	5.78	5.82	8.48	16.6	135	22.0	49.3	10.6	7.42	4.72	2.84
(WY)	1945	1945	1945	1945	1964	1953	1946	1999	1988	1991	1952	1946

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1945-2004		
ANNUAL TOTAL	166528		225914				
ANNUAL MEAN	456		617		337		
HIGHEST ANNUAL MEAN					617		2004
LOWEST ANNUAL MEAN					130		1953
HIGHEST DAILY MEAN	4640	Nov 29	12200	May 22	24900	Jan 22	1959
LOWEST DAILY MEAN	13	Sep 14	12	Aug 16	0.60	Oct 5	1944
ANNUAL SEVEN-DAY MINIMUM	15	Sep 12	14	Aug 11	1.4	Oct 1	1944
MAXIMUM PEAK FLOW			13300	May 22a	51700	Jul 6	1969
MAXIMUM PEAK STAGE			17.29	May 22	26.40	Jul 6	1969
INSTANTANEOUS LOW FLOW			0.34	Aug 16	0.00	Oct 10	1956
ANNUAL RUNOFF (CFSM)	1.15		1.56		0.85		
ANNUAL RUNOFF (INCHES)	15.64		21.22		11.57		
10 PERCENT EXCEEDS	1230		1920		822		
50 PERCENT EXCEEDS	155		206		76		
90 PERCENT EXCEEDS	37		34		11		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Rocky River Basin

04201500 Rocky River near Berea, Ohio

LOCATION.—Latitude 41°24′24″, longitude 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 mi northwest of Berea, Ohio.

DRAINAGE AREA.—267 mi^2.

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. WDR-OH-2-1983: 1978-1982(M).

GAGE.—Water-stage recorder. Datum of gage is 649.9 ft above sea level. Cuyahoga County benchmark. Prior to Sept. 30, 1935, nonrecording gage at same site and datum.

REMARKS.—Records good except for periods of estimated record, which are poor. Some regulation at low flow by small reservoirs on East Branch. Some interbasin transfer of water from Lake Erie for municipal water supply by Cleveland Metro Water District. Water-quality and sediment data formerly collected at this site.

EXTREMES OUTSIDE PERIOD OF RECORD.—Flood in Mar. 1913 reached a stage of 20.9 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	116	721	463	e90	274	2550	219	466	73	389	85
2	98	112	410	844	e90	430	3390	1820	242	63	129	68
3	79	104	263	747	e140	357	1450	3550	e210	52	84	40
4	202	92	202	1660	e230	371	1930	903	e180	75	86	59
5	209	97	193	4000	e380	1690	1430	404	129	99	77	53
6	111	83	278	1190	e600	678	912	252	110	71	53	49
7	74	72	289	426	e1000	309	572	191	96	51	40	40
8	59	64	238	e310	e800	382	536	603	79	49	35	445
9	50	63	254	e250	e340	556	401	286	352	42	30	2300
10	46	58	1100	e210	e250	553	257	179	2770	40	30	603
11	74	88	1940	e190	e210	323	198	165	2730	36	28	189
12	64	235	623	e170	e170	349	e169	485	2170	64	24	114
13	50	237	331	e150	e150	248	644	292	572	62	25	83
14	96	138	251	e140	e130	207	2670	160	3390	52	28	66
15	779	98	238	e130	e120	192	1330	215	1990	94	27	51
16	384	96	248	e120	e120	175	443	389	673	56	26	46
17	163	91	581	e120	e110	216	276	203	400	75	25	840
18	101	88	381	e110	e100	282	241	695	340	82	48	1160
19	79	551	279	e110	e100	831	205	1250	220	59	259	249
20	68	654	248	e110	e410	1560	180	442	154	44	510	132
21	61	282	205	e100	1940	2010	173	7850	121	45	565	92
22	166	177	267	e100	731	637	1030	9960	109	36	193	74
23	196	139	1200	e100	405	375	826	1770	87	40	86	66
24	135	141	2230	e100	549	412	585	824	73	34	57	59
25	117	154	1080	e98	336	1380	375	403	76	31	41	47
26	1240	126	590	e96	255	1370	1040	275	90	61	40	47
27	959	310	441	e96	220	2010	633	307	69	189	46	38
28	365	2620	385	e94	211	704	331	275	141	101	85	42
29	250	2410	515	e94	229	658	228	206	198	66	309	40
30	187	916	2440	e92	---	3210	170	154	110	51	295	37
31	139	---	912	e90	---	2230	---	708	---	665	130	---
TOTAL	6738	10412	19333	12510	10416	24979	25175	35435	18347	2558	3800	7214
MEAN	217	347	624	404	359	806	839	1143	612	82.5	123	240
MAX	1240	2620	2440	4000	1940	3210	3390	9960	3390	665	565	2300
MIN	46	58	193	90	90	175	169	154	69	31	24	37
CFSM	0.81	1.30	2.34	1.51	1.35	3.02	3.14	4.28	2.29	0.31	0.46	0.90
IN.	0.94	1.45	2.69	1.74	1.45	3.48	3.51	4.94	2.56	0.36	0.53	1.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924-2004, BY WATER YEAR (WY)

MEAN	97.1	220	349	407	464	590	513	317	188	119	79.2	108
MAX	935	1080	1534	1398	1245	1253	1374	1143	911	887	553	820
(WY)	1927	1986	1991	1930	1959	1984	1961	2004	1947	1992	1935	1924
MIN	1.25	9.14	8.15	32.4	17.0	141	40.9	17.6	10.1	4.25	0.90	0.94
(WY)	1934	1964	1964	1945	1934	1969	1946	1934	1933	1954	1933	1933

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1924-2004	
ANNUAL TOTAL	152450		176917			
ANNUAL MEAN	418		483		287	
HIGHEST ANNUAL MEAN					484	1997
LOWEST ANNUAL MEAN					79.5	1934
HIGHEST DAILY MEAN	4680	Jul 22	9960	May 22	14300 Jan 22	1959
LOWEST DAILY MEAN	18	Sep 13	24	Aug 12	0.20 Sep 2	1932
ANNUAL SEVEN-DAY MINIMUM	28	Sep 11	26	Aug 11	0.27 Aug 21	1933
MAXIMUM PEAK FLOW			14700	May 22a	21400 Jan 22	1959
MAXIMUM PEAK STAGE			9.12	May 22	18.60 Jun 29	1924
INSTANTANEOUS LOW FLOW			21	Aug 18	0.20 Sep 2	1932
ANNUAL RUNOFF (CFSM)	1.56		1.81		1.07	
ANNUAL RUNOFF (INCHES)	21.24		24.65		14.59	
10 PERCENT EXCEEDS	1090		1210		662	
50 PERCENT EXCEEDS	196		198		87	
90 PERCENT EXCEEDS	60		50		12	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Cuyahoga River Basin

04202000 Cuyahoga River at Hiram Rapids, Ohio

LOCATION.—Latitude 41°20′26″, longitude 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, Ohio, 0.6 mi downstream from Black Brook.

DRAINAGE AREA.—151 mi^2.

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 sea level. Prior to Aug. 26, 1927, nonrecording gage; Aug. 26, 1927-Dec. 31, 1935, water-stage recorder, at site 2.8 mi downstream at different datum; Oct. 20, 1944-Oct. 22, 1946, nonrecording gage at present site and datum.

REMARKS.—Records good except for periods estimated record, which are poor. 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 formerly collected at this site.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 3,670 ft^3/s Jan. 23, 1959, gage height 8.11 ft; minimum daily, 6.6 ft^3/s Sept. 10, 1933.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	454	253	694	523	e200	361	584	242	190	74	472	87
2	405	217	673	549	e180	475	800	277	159	66	670	74
3	345	188	589	532	e190	583	792	338	136	60	730	67
4	305	168	501	526	e210	658	788	419	109	59	638	64
5	273	156	431	617	e220	649	664	444	87	67	522	62
6	254	146	369	661	231	601	518	404	76	69	420	60
7	236	138	318	603	249	536	404	351	72	62	328	60
8	209	132	278	550	264	481	322	300	66	65	243	75
9	174	126	242	466	251	427	266	248	67	64	167	213
10	139	120	237	404	e220	383	216	200	131	58	119	241
11	114	120	327	e320	e210	349	170	167	262	54	92	272
12	95	136	413	e270	e200	328	131	149	355	84	80	287
13	86	165	479	e240	e190	310	154	132	387	121	75	271
14	83	192	461	e220	e180	298	284	114	399	106	76	237
15	129	209	415	e210	e170	295	408	115	417	120	73	193
16	163	217	359	e200	e160	303	459	102	431	134	69	174
17	208	207	339	e190	e150	309	397	92	431	149	66	267
18	244	189	336	e180	e140	297	306	130	403	182	65	354
19	248	185	334	e170	e130	281	243	258	354	182	70	358
20	221	200	326	e200	e140	309	209	323	298	153	82	368
21	183	213	317	293	e200	460	172	394	235	125	100	343
22	155	216	296	200	e330	609	226	605	182	127	94	301
23	141	205	316	e190	453	637	286	815	136	154	81	245
24	146	191	428	e180	487	567	335	993	102	145	72	196
25	157	180	609	e170	464	558	337	942	88	116	67	163
26	172	176	759	e160	429	608	326	771	78	105	64	143
27	208	172	691	e155	364	715	321	606	71	111	66	132
28	268	229	567	e170	317	719	322	505	68	106	76	127
29	313	363	488	e190	315	655	316	399	77	98	95	122
30	314	524	483	e200	---	551	293	312	84	92	128	120
31	290	---	498	e210	---	524	---	244	---	275	110	---
TOTAL	6732	5933	13573	9749	7244	14836	11049	11391	5951	3383	6010	5676
MEAN	217	198	438	314	250	479	368	367	198	109	194	189
MAX	454	524	759	661	487	719	800	993	431	275	730	368
MIN	83	120	237	155	130	281	131	92	66	54	64	60
CFSM	1.44	1.31	2.90	2.08	1.65	3.17	2.44	2.43	1.31	0.72	1.28	1.25
IN.	1.66	1.46	3.34	2.40	1.78	3.65	2.72	2.81	1.47	0.83	1.48	1.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961-2004, BY WATER YEAR (WY)

MEAN	111	192	271	267	342	433	350	210	137	101	95.7	110
MAX	315	616	816	707	883	835	649	569	542	325	307	374
(WY)	1991	1986	1978	1993	1976	1963	1961	1984	1989	1969	1992	1975
MIN	39.0	33.5	45.2	43.5	56.6	174	134	59.8	35.2	48.4	37.1	36.6
(WY)	1984	1992	1961	1961	1963	1989	1986	1987	1991	1991	1961	1967

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1961-2004		
ANNUAL TOTAL	90120		101527				
ANNUAL MEAN	247		277		217		
HIGHEST ANNUAL MEAN					318		1997
LOWEST ANNUAL MEAN					125		1999
HIGHEST DAILY MEAN	896	May 13	993	May 24	3250	Feb 18	1976
LOWEST DAILY MEAN	34	Aug 25	54	Jul 11	12	Sep 19	1967
ANNUAL SEVEN-DAY MINIMUM	37	Aug 19	63	Jul 5	13	Sep 16	1967
MAXIMUM PEAK FLOW			1020	May 24	3320	Feb 18	1976
MAXIMUM PEAK STAGE			4.29	May 24	7.67	Feb 18	1976
INSTANTANEOUS LOW FLOW			53	Jul 11	12	Sep 19	1967
ANNUAL RUNOFF (CFSM)	1.64		1.84		1.44		
ANNUAL RUNOFF (INCHES)	22.20		25.01		19.57		
10 PERCENT EXCEEDS	500		553		505		
50 PERCENT EXCEEDS	200		224		127		
90 PERCENT EXCEEDS	54		77		45		

e Estimated.

04206000 Cuyahoga River at Old Portage, Ohio

LOCATION.—Latitude 41°08′08″, longitude 81°32′50″, Summit County, Hydrologic Unit 04110002, on right bank 230 ft upstream from North Portage Path bridge at Old Portage, Ohio, 1.2 mi downstream from Little Cuyahoga River, and 4 mi northwest of Akron City Hall, Akron, Ohio.

DRAINAGE AREA.—404 mi^2.

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

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

GAGE.—Water-stage recorder. Datum of gage is 740.11 ft above sea level, unadjusted. Prior to Dec. 21, 1923, nonrecording gage at same site and datum.

REMARKS.—Records poor. Natural flow of stream affected by diversions, storage reservoirs, and power plants. An average of 60 ft^3/s was diverted upstream from gage for municipal supply of city of Akron. Sewage from city enters river 2.9 mi downstream from station. Some diversions from the Tuscarawas River Basin drainage into this basin at Portage Lakes (see REMARKS from station 0311700 in volume 1 of this report). Sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	513	1080	1030	e360	526	1710	629	873	127	610	228
2	917	467	1240	1250	e430	641	2290	961	767	122	673	190
3	749	398	1200	2090	841	785	2260	930	786	114	785	159
4	680	354	1040	2470	672	947	2280	796	631	211	889	156
5	599	366	888	3140	616	1190	2230	774	544	159	809	235
6	503	348	806	2640	888	1160	1820	741	482	106	661	195
7	439	296	688	2160	973	1000	1420	737	422	103	517	152
8	400	260	587	1700	793	945	1160	702	380	100	404	697
9	363	248	534	1370	700	854	982	574	360	87	296	1400
10	344	251	696	1010	614	781	805	566	564	82	216	1050
11	291	311	1020	841	556	685	671	511	781	79	176	826
12	250	358	931	689	502	625	642	443	875	89	133	809
13	221	373	831	e580	421	564	946	372	848	89	125	736
14	277	368	885	e500	369	518	1390	324	1270	101	125	571
15	421	364	864	e450	348	459	1270	389	1360	143	142	402
16	431	370	790	e410	280	476	1160	366	1100	100	175	326
17	420	370	832	e370	269	489	1230	357	1030	110	121	1170
18	428	371	766	e360	242	497	1220	662	1110	146	152	1610
19	437	375	671	e340	248	573	940	1030	1020	155	432	1220
20	446	377	654	e330	329	1070	873	1000	903	132	536	1030
21	386	376	589	e320	743	1600	822	2720	710	165	533	998
22	443	373	578	e310	779	1430	827	4870	444	148	374	818
23	409	373	780	e300	753	1340	866	4030	471	139	326	610
24	353	399	1340	e290	839	1370	801	3480	349	144	298	469
25	312	402	1280	e280	794	1350	790	3050	396	142	222	376
26	436	370	1260	e280	715	1430	767	2520	328	199	173	327
27	491	378	1370	e540	624	2130	677	1980	303	181	221	303
28	457	958	1280	e490	550	1830	614	1630	379	148	287	268
29	479	1250	1090	e450	508	1520	568	1340	326	132	320	243
30	526	1080	1360	e410	---	1550	543	1070	161	128	282	236
31	535	---	1230	e380	---	1630	---	1180	---	429	251	---
TOTAL	14563	13097	29160	27780	16756	31965	34574	40734	19973	4310	11264	17810
MEAN	470	437	941	896	578	1031	1152	1314	666	139	363	594
MAX	1120	1250	1370	3140	973	2130	2290	4870	1360	429	889	1610
MIN	221	248	534	280	242	459	543	324	161	79	121	152
CFSM	1.16	1.08	2.33	2.22	1.43	2.55	2.85	3.25	1.65	0.34	0.90	1.47
IN.	1.34	1.21	2.69	2.56	1.54	2.94	3.18	3.75	1.84	0.40	1.04	1.64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922-2004, BY WATER YEAR (WY)

MEAN	220	322	475	569	658	859	741	490	324	241	186	216
MAX	1205	1307	1516	1807	1592	1416	1520	1314	1371	1446	772	1150
(WY)	1927	1986	1928	1952	1976	1927	1940	2004	1989	2003	1992	1926
MIN	50.8	56.5	48.3	83.3	86.1	282	166	77.0	72.4	50.4	56.9	47.1
(WY)	1934	1964	1964	1961	1963	1931	1935	1934	1988	1954	1962	1964

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922-2004		
ANNUAL TOTAL	252317		261986				
ANNUAL MEAN	691		716		441		
HIGHEST ANNUAL MEAN					716		2004
LOWEST ANNUAL MEAN					181		1934
HIGHEST DAILY MEAN	4350	Jul 22	4870	May 22	6040	Jan 22	1959
LOWEST DAILY MEAN	80	Feb 2	79	Jul 11	24	Sep 24	1964
ANNUAL SEVEN-DAY MINIMUM	87	Jan 27	90	Jul 8	40	Oct 30	1944
MAXIMUM PEAK FLOW			5570	May 22	6500	Jan 21	1959
MAXIMUM PEAK STAGE			13.74	May 22	13.74	May 22	2004
INSTANTANEOUS LOW FLOW			76	Jul 12	26	Sep 2	1945
ANNUAL RUNOFF (CFSM)	1.71		1.77		1.09		
ANNUAL RUNOFF (INCHES)	23.23		24.12		14.83		
10 PERCENT EXCEEDS	1400		1360		1040		
50 PERCENT EXCEEDS	504		544		270		
90 PERCENT EXCEEDS	140		164		79		

e Estimated.

04206014 Powers Brook at Hudson, Ohio

LOCATION.—Latitude 41°12′27", longitude 81°24′41", Summit County, Hydrologic Unit 04110002, on left upstream bank 620 ft south of intersection of Stow Road and Barlow Road, 4.7 miles upstream from confluence with Mud Brook, in City of Hudson, 1.0 mi west of Summit/Portage County line.
DRAINAGE AREA.—1.45 mi^2.
PERIOD OF RECORD.—October 2000 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 1,027 ft above sea level (from topographic map).
REMARKS.—Records fair except for discharge less than 1.0 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.75	0.56	3.4	2.1	0.80	2.1	8.8	1.2	1.2	0.08	3.3	0.16
2	0.57	0.54	1.8	6.0	0.56	3.2	14	6.7	1.5	0.08	0.78	0.08
3	0.44	0.47	1.2	4.8	1.1	2.4	4.8	4.8	1.4	0.09	0.40	0.05
4	0.74	0.44	0.92	12	2.5	2.6	5.0	1.6	0.63	0.36	0.30	0.05
5	0.73	0.39	0.84	17	2.7	4.3	5.1	0.97	0.38	0.41	0.26	0.05
6	0.49	0.36	1.1	4.4	2.7	2.5	3.7	0.67	0.31	0.17	0.18	0.04
7	0.36	0.34	1.0	1.8	4.0	1.6	2.4	0.78	0.27	0.10	0.12	0.03
8	0.29	0.28	0.97	1.1	4.2	1.9	1.7	1.1	0.23	0.07	0.06	1.1
9	0.26	0.28	1.1	0.89	1.9	2.5	1.6	0.68	0.32	0.07	0.06	8.8
10	0.24	0.25	7.2	0.57	1.5	2.8	1.2	0.46	4.0	0.09	0.04	2.3
11	0.22	0.41	11	0.40	1.3	2.8	0.89	0.35	8.5	0.09	0.04	0.75
12	0.22	1.8	3.0	0.46	1.1	2.9	1.1	0.48	5.3	0.10	0.04	0.37
13	0.17	1.5	1.4	0.61	0.90	2.1	6.6	0.36	1.9	0.07	0.05	0.24
14	0.32	0.93	1.0	0.62	0.81	1.8	14	0.30	8.7	0.14	0.04	0.19
15	1.8	0.63	1.0	0.59	0.70	1.5	3.8	0.43	3.5	0.31	0.04	0.17
16	1.3	0.56	1.5	0.51	0.43	1.2	1.8	0.49	1.3	0.17	0.05	0.19
17	0.68	0.52	3.8	0.50	0.28	1.4	1.3	0.40	1.0	0.29	0.04	7.1
18	0.44	0.51	2.0	0.45	0.25	1.4	1.1	1.2	0.97	0.26	0.05	8.7
19	0.33	2.8	1.4	0.45	0.31	3.0	1.3	5.6	0.80	0.15	0.21	1.6
20	0.27	3.6	1.2	0.41	2.4	9.6	2.3	2.3	0.46	0.08	0.57	0.69
21	0.24	1.5	1.1	0.41	11	8.9	2.5	12	0.29	0.06	1.5	0.41
22	0.56	1.0	1.5	0.32	3.6	3.3	5.8	70	0.23	0.06	0.53	0.29
23	0.98	0.81	7.7	0.32	2.6	2.4	3.2	12	0.18	0.05	0.23	0.24
24	1.1	0.89	12	0.26	3.5	2.6	1.8	3.3	0.24	0.04	0.11	0.20
25	0.83	1.0	5.0	0.23	2.4	5.1	1.3	1.4	0.39	0.04	0.06	0.16
26	1.6	0.77	2.6	0.24	1.8	6.8	1.4	0.82	0.25	0.16	0.06	0.14
27	2.6	0.89	1.8	0.49	1.6	12	1.1	0.61	0.15	0.09	0.06	0.14
28	1.3	12	1.7	0.49	1.7	3.9	0.86	0.60	0.20	0.06	0.07	0.13
29	0.94	9.0	2.4	0.64	1.9	2.1	0.72	0.45	0.27	0.06	0.23	0.10
30	0.76	4.0	11	0.84	---	4.5	0.66	0.56	0.16	0.18	0.59	0.10
31	0.58	---	4.0	0.91	---	8.0	---	2.8	---	4.7	0.29	---
TOTAL	22.11	49.03	97.63	60.81	60.54	113.2	101.83	135.41	45.03	8.68	10.36	34.57
MEAN	0.71	1.63	3.15	1.96	2.09	3.65	3.39	4.37	1.50	0.28	0.33	1.15
MAX	2.6	12	12	17	11	12	14	70	8.7	4.7	3.3	8.8
MIN	0.17	0.25	0.84	0.23	0.25	1.2	0.66	0.30	0.15	0.04	0.04	0.03
CFSM	0.49	1.13	2.17	1.35	1.44	2.52	2.34	3.01	1.04	0.19	0.23	0.79
IN.	0.57	1.26	2.50	1.56	1.55	2.90	2.61	3.47	1.16	0.22	0.27	0.89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000-2004, BY WATER YEAR (WY)

MEAN	0.28	0.58	1.63	1.14	1.88	2.71	2.33	2.53	1.18	2.18	0.23	0.49
MAX	0.71	1.63	3.15	1.96	2.26	3.65	3.39	4.37	2.01	8.44	0.46	1.22
(WY)	2004	2004	2004	2004	2001	2004	2004	2004	2002	2003	2000	2003
MIN	0.01	0.03	0.41	0.76	1.17	1.34	1.42	0.14	0.04	0.00	0.01	0.01
(WY)	2003	2003	2003	2003	2003	2001	2001	2001	2001	2001	2002	2002

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 2000-2004
ANNUAL TOTAL	804.37	739.20	
ANNUAL MEAN	2.20	2.02	1.43
HIGHEST ANNUAL MEAN			2.02 2004
LOWEST ANNUAL MEAN			0.68 2001
HIGHEST DAILY MEAN	83 Jul 22	70 May 22	83 Jul 22 2003
LOWEST DAILY MEAN	0.02 Jul 5	0.03 Sep 7	0.00 Jun 18 2001
ANNUAL SEVEN-DAY MINIMUM	0.04 Jun 30	0.04 Aug 10	0.00 Jul 9 2001
MAXIMUM PEAK FLOW		115 May 22a	198 Jul 21 2003
MAXIMUM PEAK STAGE		13.13 May 22	14.21 Jul 21 2003
INSTANTANEOUS LOW FLOW		0.02 Sep 7	0.00 Jul 13 2001
ANNUAL RUNOFF (CFSM)	1.52	1.39	0.99
ANNUAL RUNOFF (INCHES)	20.64	18.96	13.43
10 PERCENT EXCEEDS	4.9	4.9	3.4
50 PERCENT EXCEEDS	0.77	0.81	0.32
90 PERCENT EXCEEDS	0.08	0.09	0.00

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04206021 Powers Brook at Stow, Ohio

LOCATION.—Latitude 41°12′04", longitude 81°27′16", Summit County, Hydrologic Unit 04110002, on right upstream bank at Meadowbrook Lake outlet structure, 650 ft south of intersection of Hudson Road and Norton Road, 1.4 mi upstream from confluence with Mud Brook, in City of Stow, 3.25 mi west of Summit/Portage County line.

DRAINAGE AREA.—5.87 mi^2.

PERIOD OF RECORD.—October 2000 to current year.

GAGE.—Water-stage recorder. Elevation of gage is 1,003 ft above sea level (from topographic map).

REMARKS.—Records fair except for discharge less than 4 ft^3/s, affected by regulation Dec. 1 to May 2, and greater than 15 ft^3/s after May 22, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	9.4	13	9.0	8.4	8.4	40	8.4	6.4	1.3	12	1.2
2	0.89	10	8.6	24	8.4	8.4	59	21	21	1.2	4.1	1.1
3	0.73	8.0	8.4	22	8.4	8.4	21	14	12	1.2	2.3	1.0
4	5.0	7.9	8.4	59	8.4	8.4	29	4.2	4.2	8.3	2.0	1.0
5	1.5	8.6	8.4	68	8.4	9.5	23	6.6	2.7	7.8	1.7	0.87
6	0.89	8.1	8.4	19	10	11	17	5.6	2.3	2.3	1.4	0.73
7	0.76	7.1	8.4	9.7	18	8.5	11	9.5	2.0	1.6	1.3	0.82
8	0.88	6.3	8.4	8.4	11	8.5	9.3	8.6	2.0	1.3	1.2	23
9	1.1	6.0	8.4	8.4	8.7	12	8.7	5.7	3.3	1.1	1.2	56
10	1.6	6.3	16	8.4	8.4	13	8.4	6.3	22	1.0	0.92	8.4
11	2.1	14	39	8.4	8.4	11	8.4	5.7	36	1.0	0.88	3.0
12	2.4	23	13	8.4	8.4	14	8.4	6.7	19	1.4	0.83	1.6
13	2.4	17	8.5	8.4	8.4	9.1	26	4.6	7.1	1.4	1.1	1.2
14	5.7	8.2	8.4	8.4	8.4	8.4	51	4.3	46	1.8	1.1	1.3
15	17	5.3	8.4	8.4	8.4	8.4	17	9.1	19	6.5	1.0	1.2
16	3.6	5.6	8.4	8.4	8.4	8.4	9.6	7.0	7.0	1.8	1.1	2.5
17	1.3	5.0	8.4	8.4	8.4	8.4	8.9	6.0	5.5	4.8	0.91	62
18	0.77	6.5	8.4	8.4	8.4	8.4	11	23	7.3	2.2	1.1	31
19	0.86	31	8.4	8.4	8.4	8.4	8.5	48	6.0	2.1	11	6.6
20	0.91	17	8.4	8.4	8.4	40	13	14	4.0	1.7	16	2.9
21	2.1	6.3	8.4	8.4	25	37	16	70	3.0	2.1	16	2.1
22	11	4.5	8.4	8.4	14	15	25	200	2.7	2.1	3.4	1.4
23	6.4	4.1	19	8.4	9.7	11	16	42	2.2	2.2	1.3	1.4
24	3.3	7.0	48	8.4	11	12	9.3	20	2.8	1.7	0.97	1.4
25	3.7	5.8	20	8.4	9.0	21	8.4	10	5.4	1.4	0.85	1.3
26	13	3.0	12	8.4	8.5	32	8.4	7.2	2.9	8.3	0.93	1.3
27	9.0	6.2	8.9	8.4	8.4	51	8.4	6.2	2.0	4.2	1.6	1.3
28	4.6	60	8.4	8.4	8.4	16	8.4	6.4	3.3	1.9	3.0	1.3
29	6.3	34	8.4	8.4	8.4	10	8.4	4.4	4.4	1.4	7.7	1.2
30	6.2	16	40	8.4	---	26	8.4	4.4	1.9	2.9	7.8	1.2
31	7.3	---	15	8.4	---	38	---	19	---	41	2.2	---
TOTAL	124.39	357.2	412.2	412.3	284.5	489.6	504.9	607.9	265.4	121.0	108.89	221.32
MEAN	4.01	11.9	13.3	13.3	9.81	15.8	16.8	19.6	8.85	3.90	3.51	7.38
MAX	17	60	48	68	25	51	59	200	46	41	16	62
MIN	0.73	3.0	8.4	8.4	8.4	8.4	8.4	4.2	1.9	1.0	0.83	0.73
CFSM	0.68	2.03	2.27	2.27	1.67	2.69	2.87	3.34	1.51	0.66	0.60	1.26
IN.	0.79	2.26	2.61	2.61	1.80	3.10	3.20	3.85	1.68	0.77	0.69	1.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000-2004, BY WATER YEAR (WY)

MEAN	3.50	5.96	7.99	6.70	8.75	12.0	10.6	12.7	6.93	16.3	2.98	4.57
MAX	5.29	11.9	13.3	13.3	9.81	17.0	16.8	19.6	11.3	59.1	5.76	7.93
(WY)	2002	2004	2004	2004	2004	2003	2004	2004	2002	2003	2000	2003
MIN	1.51	2.23	4.61	3.70	6.81	6.27	6.52	2.81	2.06	0.87	1.16	1.75
(WY)	2003	2001	2003	2003	2002	2001	2001	2001	2001	2001	2002	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2000 - 2004	
ANNUAL TOTAL	4819.51		3909.60			
ANNUAL MEAN	13.2		10.7		8.22	
HIGHEST ANNUAL MEAN					11.6	2003
LOWEST ANNUAL MEAN					4.00	2001
HIGHEST DAILY MEAN	560	Jul 22	200	May 22	560 Jul 22	2003
LOWEST DAILY MEAN	0.21	Sep 7	0.73	Oct 3	0.12 Sep 12	2002
ANNUAL SEVEN-DAY MINIMUM	0.38	Sep 5	0.96	Sep 1	0.23 Jul 27	2001
MAXIMUM PEAK FLOW			453	May 22a	646 Jul 22	2003
MAXIMUM PEAK STAGE			13.88	May 22	13.88 May 22	2004
INSTANTANEOUS LOW FLOW			0.00	May 2	0.00 May 2	2004
ANNUAL RUNOFF (CFSM)	2.25		1.82		1.40	
ANNUAL RUNOFF (INCHES)	30.54		24.78		19.03	
10 PERCENT EXCEEDS	25		22		17	
50 PERCENT EXCEEDS	4.9		8.4		3.6	
90 PERCENT EXCEEDS	0.84		1.2		0.77	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.

e Estimated.

04206029 Mud Brook at Stow, Ohio

LOCATION.—Latitude 41°11′11", longitude 81°29′21", Summit County, Hydrologic Unit 04110002, on right upstream bank at Wyoga Lake outlet structure, 0.35 mi north of East Steel Corners Road and 0.28 mi east of Wyoga Lake Road, 7.2 mi upstream from confluence with Cuyahoga River, in City of Stow, 5.04 mi west of Summit/Portage County line.
DRAINAGE AREA.—17.2 mi^2.
PERIOD OF RECORD.—October 2000 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 966 ft above sea level (from topographic map).
REMARKS.—Records fair except for discharge less than 1.4 ft^3/s or greater than 150 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	8.1	55	45	8.2	19	112	15	25	6.0	73	5.6
2	8.9	7.9	31	53	7.4	24	159	51	20	4.9	32	4.2
3	7.0	7.4	22	67	15	26	138	88	44	4.4	17	3.7
4	9.4	6.6	18	89	28	27	95	50	16	5.4	11	3.4
5	12	7.8	16	192	27	40	88	22	7.6	15	8.0	3.2
6	8.6	9.6	16	158	31	36	70	13	5.0	8.8	6.3	2.7
7	6.8	9.4	17	73	48	27	50	10	3.6	6.0	5.1	2.4
8	5.6	9.0	16	33	40	26	32	13	2.9	4.9	4.4	9.6
9	5.0	6.7	16	22	29	28	26	9.1	2.7	4.4	4.0	95
10	4.6	5.1	35	16	22	31	20	6.6	16	4.2	3.7	71
11	4.4	7.6	98	13	18	29	15	5.8	65	3.9	3.2	23
12	4.2	16	82	12	16	31	14	6.7	75	4.1	3.1	10
13	5.5	21	41	13	14	27	46	5.4	37	4.9	3.2	6.6
14	6.1	15	25	12	13	22	124	3.8	73	4.5	3.3	4.9
15	24	10	19	10	12	19	111	5.3	82	8.7	3.3	4.2
16	27	8.2	17	8.5	10	18	52	8.2	49	8.1	4.4	3.9
17	15	7.0	26	8.0	8.2	18	27	5.4	33	8.3	3.8	41
18	9.5	7.0	24	8.0	6.4	19	27	15	23	9.3	3.5	131
19	6.8	17	20	7.9	6.3	26	19	89	18	6.6	8.0	75
20	5.2	41	18	7.4	16	57	25	73	14	5.0	20	26
21	5.1	24	16	6.8	69	117	29	111	9.8	4.3	43	12
22	12	14	16	6.5	64	89	80	507	8.7	3.9	21	7.3
23	28	10	43	6.3	39	53	71	516	7.3	3.8	9.8	5.3
24	25	9.6	110	6.1	32	39	41	304	6.4	3.5	6.4	4.2
25	16	13	108	5.6	28	54	24	144	9.7	3.3	5.0	3.5
26	20	11	63	5.9	23	69	21	60	9.2	7.3	4.2	3.3
27	39	10	36	11	19	129	18	27	7.0	11	4.1	3.0
28	26	62	26	16	18	108	16	18	6.3	7.8	5.3	2.9
29	16	136	24	16	18	55	14	13	9.3	5.7	7.7	2.7
30	11	100	68	13	---	60	13	9.1	7.8	5.0	16	2.6
31	8.8	---	80	9.8	---	100	---	34	---	59	9.2	---
TOTAL	395.5	617.0	1202	950.8	685.5	1423	1577	2238.4	693.3	242.0	352.0	573.2
MEAN	12.8	20.6	38.8	30.7	23.6	45.9	52.6	72.2	23.1	7.81	11.4	19.1
MAX	39	136	110	192	69	129	159	516	82	59	73	131
MIN	4.2	5.1	16	5.6	6.3	18	13	3.8	2.7	3.3	3.1	2.4
CFSM	0.74	1.20	2.25	1.78	1.37	2.67	3.06	4.20	1.34	0.45	0.66	1.11
IN.	0.86	1.33	2.60	2.06	1.48	3.08	3.41	4.84	1.50	0.52	0.76	1.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000-2004, BY WATER YEAR (WY)

MEAN	8.75	10.6	22.5	16.1	23.1	32.7	33.9	42.4	20.0	34.7	7.66	12.0
MAX	12.8	20.6	38.8	30.7	25.5	45.9	52.6	72.2	28.9	125	11.4	24.7
(WY)	2004	2004	2004	2004	2002	2004	2004	2004	2002	2003	2004	2003
MIN	2.75	4.89	9.60	7.23	18.1	17.7	19.1	6.98	4.29	1.41	3.15	4.32
(WY)	2003	2001	2003	2002	2003	2001	2001	2001	2001	2001	2002	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 2000-2004
ANNUAL TOTAL	12334.0	10949.7	
ANNUAL MEAN	33.8	29.9	22.1
HIGHEST ANNUAL MEAN			29.9 2004
LOWEST ANNUAL MEAN			10.3 2001
HIGHEST DAILY MEAN	732 Jul 22	516 May 23	732 Jul 22 2003
LOWEST DAILY MEAN	1.3 Jul 3	2.4 Sep 7	0.10 Jul 18 2001
ANNUAL SEVEN-DAY MINIMUM	1.8 Jun 27	3.2 Sep 24	0.16 Jul 17 2001
MAXIMUM PEAK FLOW		614 May 22a	819 Jul 22 2003
MAXIMUM PEAK STAGE		16.91 May 22	18.07 Jul 22 2003
INSTANTANEOUS LOW FLOW		2.2 Sep 6	0.10 Jul 18 2001
ANNUAL RUNOFF (CFSM)	1.96	1.74	1.28
ANNUAL RUNOFF (INCHES)	26.68	23.68	17.45
10 PERCENT EXCEEDS	81	73	57
50 PERCENT EXCEEDS	14	15	8.2
90 PERCENT EXCEEDS	3.7	4.2	2.4

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04206038 Crystal Creek at Stow, Ohio

LOCATION.—Latitude 41°10′19", longitude 81°28′41", Summit County, Hydrologic Unit 04110002, at double box concrete culvert under Hudson Road, 0.6 mi north of intersection of Hudson Road and Graham Road, 0.4 mi upstream from confluence with Mud Brook, in City of Stow, 4.47 mi west of Summit/Portage County line.

DRAINAGE AREA.—3.11 mi^2.

PERIOD OF RECORD.—October 2000 to current year.

GAGE.—Water-stage recorder. Elevation of gage is 969 ft above sea level (from topographic map).

REMARKS.—Records fair except for discharges less than 0.4 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	0.82	5.3	2.8	0.88	2.3	30	5.7	1.0	0.61	3.6	0.61
2	1.3	1.00	4.1	18	0.91	4.5	37	32	7.0	0.58	0.98	0.51
3	1.6	0.88	3.4	16	18	2.0	11	5.9	2.2	1.8	0.70	0.51
4	5.6	1.7	3.2	53	5.9	6.6	22	1.8	0.57	7.7	0.75	0.57
5	1.3	0.65	4.3	44	2.5	8.9	15	1.2	0.39	2.2	0.69	0.52
6	1.1	1.0	5.0	11	17	2.5	9.9	0.87	0.32	0.54	0.57	0.53
7	1.1	0.46	4.8	3.0	8.1	1.8	5.8	4.9	0.21	0.58	0.51	0.55
8	1.0	0.52	3.8	2.3	2.7	5.1	5.2	1.6	0.12	1.4	0.50	23
9	0.84	0.53	6.1	2.1	1.9	6.4	4.1	0.81	1.8	0.73	0.50	34
10	0.83	0.54	36	1.7	1.6	4.0	3.0	2.5	11	0.75	0.47	2.6
11	0.84	2.6	17	1.7	1.3	3.4	2.6	1.1	16	0.68	0.39	1.0
12	0.90	9.5	4.6	2.0	1.1	4.8	7.9	1.8	3.1	1.6	0.39	0.69
13	0.90	4.2	2.8	1.8	0.90	1.8	28	0.48	1.3	1.0	0.55	0.55
14	5.2	1.3	2.7	1.6	0.92	1.6	34	0.46	27	1.7	0.48	0.44
15	11	0.97	2.7	1.6	0.82	1.3	6.1	4.7	7.1	3.2	0.78	0.40
16	1.5	1.3	7.8	1.5	0.63	1.7	3.3	1.3	2.7	0.90	1.3	0.53
17	1.2	2.2	6.9	1.5	0.57	2.5	10	0.68	2.6	3.5	0.39	38
18	1.1	2.7	3.1	1.6	0.63	3.1	5.9	20	3.2	2.7	0.62	12
19	1.4	17	2.7	1.5	2.3	13	3.4	40	1.8	2.8	14	1.6
20	1.2	4.4	2.5	1.5	19	31	5.3	3.7	0.97	0.65	16	0.85
21	1.0	2.6	2.2	1.3	17	13	14	83	0.77	0.58	9.6	0.64
22	13	2.2	6.2	1.3	3.1	5.7	9.7	310	0.81	0.98	1.1	0.57
23	5.2	2.0	27	0.93	3.1	5.0	8.2	172	0.62	2.0	0.60	0.44
24	1.9	5.0	31	0.91	3.5	8.1	2.0	63	0.67	0.84	0.48	0.40
25	1.3	2.5	9.9	0.81	1.9	14	2.1	7.9	1.6	0.57	0.40	0.36
26	10	2.0	5.3	1.0	1.4	28	1.3	2.4	0.83	7.3	0.49	0.35
27	3.1	6.8	3.9	7.2	1.3	30	0.88	1.7	0.60	1.5	1.6	0.32
28	1.5	47	4.0	3.0	1.5	5.5	0.66	2.4	2.2	0.78	3.1	0.34
29	1.5	18	4.6	1.6	1.6	3.1	0.45	1.0	1.7	0.65	12	0.39
30	1.1	8.4	29	1.3	---	26	1.2	2.3	0.65	1.6	4.4	0.40
31	1.4	---	4.6	1.1	---	25	---	9.4	---	32	0.94	---
TOTAL	82.41	150.77	256.5	190.65	122.06	271.7	289.99	786.60	100.83	84.42	78.88	123.67
MEAN	2.66	5.03	8.27	6.15	4.21	8.76	9.67	25.4	3.36	2.72	2.54	4.12
MAX	13	47	36	53	19	31	37	310	27	32	16	38
MIN	0.83	0.46	2.2	0.81	0.57	1.3	0.45	0.46	0.12	0.54	0.39	0.32
CFSM	0.85	1.62	2.66	1.98	1.35	2.82	3.11	8.16	1.08	0.88	0.82	1.33
IN.	0.99	1.80	3.07	2.28	1.46	3.25	3.47	9.41	1.21	1.01	0.94	1.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000-2004, BY WATER YEAR (WY)

MEAN	1.94	2.46	4.45	2.90	3.42	5.27	5.41	11.2	3.54	12.1	1.71	3.10
MAX	2.66	5.03	8.27	6.15	4.21	8.76	9.67	25.4	6.84	44.3	3.19	6.51
(WY)	2004	2004	2004	2004	2004	2004	2004	2004	2002	2003	2000	2003
MIN	1.03	0.72	2.58	1.69	3.01	2.82	2.73	0.98	0.90	0.66	0.88	0.90
(WY)	2003	2001	2002	2001	2001	2001	2001	2001	2001	2002	2001	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 2000-2004
ANNUAL TOTAL	2893.40	2538.48	
ANNUAL MEAN	7.93	6.94	4.80
HIGHEST ANNUAL MEAN			7.05 2003
LOWEST ANNUAL MEAN			1.74 2001
HIGHEST DAILY MEAN	437 Jul 22	310 May 22	437 Jul 22 2003
LOWEST DAILY MEAN	0.12 Aug 24	0.12 Jun 8	0.00 Oct 3 2001
ANNUAL SEVEN-DAY MINIMUM	0.17 Aug 19	0.37 Sep 24	0.04 Sep 2 2001
MAXIMUM PEAK FLOW		437 May 22a	629 Jul 22 2003
MAXIMUM PEAK STAGE		16.35 May 22	17.54 Jul 22 2003
INSTANTANEOUS LOW FLOW		0.08 Jun 9	0.01 Oct 1 2001
ANNUAL RUNOFF (CFSM)	2.55	2.23	1.54
ANNUAL RUNOFF (INCHES)	34.61	30.36	20.98
10 PERCENT EXCEEDS	16	17	9.4
50 PERCENT EXCEEDS	1.6	1.8	1.1
90 PERCENT EXCEEDS	0.47	0.54	0.36

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04206043 Mud Brook at Cuyahoga Falls, Ohio

LOCATION.—Latitude 41°09′10", longitude 81°30′32", Summit County, Hydrologic Unit 04110002, at State Road bridge, 190 feet north of intersection of State Road and Graham Road, 3.3 mi upstream from confluence with Cuyahoga River in City of Cuyahoga Falls, 6.08 mi west of Summit/Portage County line.
DRAINAGE AREA.—25.6 mi^2.
PERIOD OF RECORD.—October 2000 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 942 ft above sea level (from topographic map).
REMARKS.—Records good except for periods of estimated record and discharge less than 2 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	16	72	e51	e13	e25	e120	e25	52	12	105	e8.6
2	12	16	45	e59	e13	e30	e170	e61	49	9.3	48	e7.5
3	8.9	15	32	e74	e21	e33	e148	e98	75	8.3	27	e7.1
4	18	14	27	e97	e35	e34	e104	e61	42	19	e12	e6.9
5	15	14	27	e204	e33	e47	e96	e33	25	25	e10	e6.6
6	12	18	29	e168	e37	e44	e77	e33	20	17	e8.4	e6.2
7	8.6	19	29	e81	e55	e34	e58	34	17	12	e7.6	e6.1
8	6.9	18	26	e40	e47	e33	e40	34	15	10	e7.1	e13
9	6.1	15	28	e28	e35	e35	e34	28	18	7.8	e6.8	e101
10	5.4	11	73	e22	e28	e38	e28	28	55	6.8	e6.6	e76
11	5.4	19	116	e19	e24	e36	e23	24	115	6.5	e6.3	e27
12	5.3	39	102	e18	e23	e39	e22	26	112	8.4	e6.2	e14
13	5.6	38	55	e18	e21	e34	e55	21	73	8.7	e6.4	e9.8
14	15	25	37	e18	e19	e29	e133	18	127	9.2	e6.4	e8.4
15	45	20	29	e16	e18	e26	e120	27	119	16	e6.4	e7.7
16	37	17	31	e14	e16	e25	e61	27	73	13	e7.4	e7.5
17	23	15	e32	e13	e14	e24	e36	21	54	16	e6.9	e46
18	17	15	e30	e13	e12	e25	e36	56	40	16	e6.7	e138
19	12	45	e25	e13	e12	e33	e28	146	29	13	e11	e80
20	9.6	54	e23	e13	e23	e65	e34	111	23	8.0	e23	e30
21	8.6	41	e21	e12	e77	e126	e38	259	18	6.5	e47	e16
22	35	27	e21	e12	e72	e97	e89	577	16	6.8	e23	e11
23	43	21	e50	e11	e46	e62	e80	530	13	8.2	e12	e9.0
24	35	25	e119	e11	e40	e47	e51	363	11	6.1	e9.1	e8.1
25	26	25	e117	e11	e35	e62	e33	203	16	4.8	e8.1	e7.5
26	38	22	e70	e11	e29	e77	e30	95	17	20	e7.5	e7.2
27	48	26	e42	e16	e26	e139	e28	52	13	20	e7.4	e7.0
28	37	116	e31	e21	e24	e116	e26	43	15	14	e8.4	e6.9
29	26	153	e29	e22	e24	e63	e23	32	18	9.4	e10	e6.7
30	20	124	e75	e19	---	e68	e22	30	15	13	e19	e6.6
31	17	---	e87	e15	---	e109	---	66	---	117	e12	---
TOTAL	619.4	1023	1530	1140	872	1655	1843	3162	1285	467.8	488.7	693.4
MEAN	20.0	34.1	49.4	36.8	30.1	53.4	61.4	102	42.8	15.1	15.8	23.1
MAX	48	153	119	204	77	139	170	577	127	117	105	138
MIN	5.3	11	21	11	12	24	22	18	11	4.8	6.2	6.1
CFSM	0.78	1.33	1.93	1.44	1.17	2.09	2.40	3.98	1.67	0.59	0.62	0.90
IN.	0.90	1.49	2.22	1.66	1.27	2.40	2.68	4.59	1.87	0.68	0.71	1.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000-2004, BY WATER YEAR (WY)

MEAN	13.0	18.2	31.8	23.3	31.4	41.7	42.4	56.7	29.2	43.3	12.3	17.4
MAX	20.0	34.1	49.4	36.8	36.5	53.4	61.4	102	42.8	151	18.9	39.0
(WY)	2004	2004	2004	2004	2001	2004	2004	2004	2004	2003	2000	2003
MIN	5.19	8.60	20.4	12.6	28.4	24.9	27.3	10.9	7.78	3.40	5.60	7.03
(WY)	2003	2001	2003	2002	2003	2001	2001	2001	2001	2001	2001	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 2000-2004
ANNUAL TOTAL	16765.5	14779.3	
ANNUAL MEAN	45.9	40.4	30.1
HIGHEST ANNUAL MEAN			40.6 2003
LOWEST ANNUAL MEAN			15.4 2001
HIGHEST DAILY MEAN	727 Jul 22	577 May 22	727 Jul 22 2003
LOWEST DAILY MEAN	2.8 Jul 3	4.8 Jul 25	0.67 Jul 18 2001
ANNUAL SEVEN-DAY MINIMUM	3.4 Sep 8	6.2 Oct 7	0.95 Jul 18 2001
MAXIMUM PEAK FLOW		863 May 22a	1120 Jul 21 2003
MAXIMUM PEAK STAGE		12.60 May 22	12.93 Jul 21 2003
INSTANTANEOUS LOW FLOW		4.5 Jul 25	0.40 Jul 19 2001
ANNUAL RUNOFF (CFSM)	1.79	1.58	1.18
ANNUAL RUNOFF (INCHES)	24.36	21.48	15.98
10 PERCENT EXCEEDS	116	97	74
50 PERCENT EXCEEDS	23	25	14
90 PERCENT EXCEEDS	5.7	7.5	3.5

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04206212 North Fork at Bath Center, Ohio

LOCATION.—Latitude 41°10′08", longitude 81°38′04", Summit County, Hydrologic Unit 04110002, on left upstream side of bridge on Bath Road, 750 ft east of Cleveland-Massillon Road at Bath Center, Ohio, 3.1 mi northwest of Akron corporate boundary.
DRAINAGE AREA.—5.58 mi^2.
PERIOD OF RECORD.—October 1991 to current year.
GAGE.—Water-stage recorder. Datum of gage is 932.57 ft above sea level (North American Vertical Datum of 1988).
REMARKS.—Records good except for discharge less than 2.3 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.5	10	4.6	1.2	7.9	32	8.3	4.3	2.2	6.9	0.87
2	1.4	2.1	5.2	31	1.3	12	53	65	20	2.2	2.3	0.63
3	1.2	2.0	3.2	15	9.5	6.1	18	19	7.3	1.9	1.5	0.63
4	5.2	1.7	2.7	61	6.3	13	32	9.5	3.6	2.2	1.4	0.63
5	2.5	1.5	2.7	39	3.3	19	25	7.0	3.1	2.2	1.3	0.62
6	1.8	1.4	3.3	12	10	7.3	16	5.5	2.8	1.7	1.0	0.54
7	1.4	1.2	3.5	6.4	8.5	5.6	11	8.4	2.6	1.7	1.0	0.50
8	1.2	1.1	3.2	4.3	4.0	9.2	10	6.5	2.2	1.7	0.97	21
9	1.2	0.94	3.2	3.5	3.2	10	8.5	4.8	14	1.6	0.80	32
10	1.2	0.80	15	2.8	2.9	8.0	6.4	4.5	46	1.4	0.76	3.7
11	1.2	2.2	33	2.5	3.2	7.1	5.7	6.8	51	1.4	0.80	1.9
12	1.1	5.9	23	3.0	2.9	8.4	8.8	11	17	1.6	0.72	1.3
13	1.1	3.0	15	3.0	2.6	5.8	38	4.4	15	1.4	0.77	1.0
14	1.7	1.7	9.3	2.8	2.5	5.4	53	3.6	64	1.5	0.79	0.94
15	13	1.3	6.4	2.4	2.1	4.7	12	7.7	17	2.2	0.69	0.80
16	3.1	1.6	5.0	2.5	1.9	5.3	8.1	5.1	8.6	1.5	0.80	2.7
17	1.9	1.5	6.1	2.2	1.8	6.2	8.3	3.8	7.1	2.9	0.68	84
18	1.5	1.3	5.7	2.6	1.8	8.1	8.3	15	5.7	1.8	1.5	11
19	1.4	6.4	4.3	2.1	3.9	18	7.4	31	4.4	1.4	6.9	3.3
20	1.3	4.8	3.5	1.8	21	51	10	8.3	3.7	1.0	8.6	2.1
21	1.6	2.5	2.9	1.7	28	24	35	160	3.2	0.80	5.8	1.6
22	8.9	1.8	3.0	1.8	7.7	13	31	196	3.2	0.79	1.8	1.2
23	7.8	1.7	18	1.4	7.8	10	17	19	2.8	0.73	1.1	1.0
24	3.2	2.2	33	1.6	9.0	15	9.1	12	3.2	0.70	1.1	0.99
25	2.2	2.3	21	1.4	6.3	21	11	8.0	4.3	0.75	0.81	0.98
26	17	1.4	11	1.7	5.7	27	21	6.2	2.9	6.2	0.84	0.94
27	8.3	4.5	6.9	5.3	5.9	41	9.0	5.1	2.4	2.3	0.89	0.83
28	4.1	37	5.3	4.3	6.4	12	6.6	7.7	3.6	1.2	3.6	0.84
29	3.4	32	5.7	2.6	7.2	8.5	5.3	4.2	4.0	1.1	5.5	0.79
30	2.6	13	39	2.1	---	43	6.1	4.2	2.6	1.6	3.1	0.81
31	2.2	---	7.4	1.7	---	45	---	13	---	29	1.3	---
TOTAL	107.5	143.34	316.5	230.1	177.9	477.6	522.6	670.6	331.6	80.67	66.02	180.14
MEAN	3.47	4.78	10.2	7.42	6.13	15.4	17.4	21.6	11.1	2.60	2.13	6.00
MAX	17	37	39	61	28	51	53	196	64	29	8.6	84
MIN	1.1	0.80	2.7	1.4	1.2	4.7	5.3	3.6	2.2	0.70	0.68	0.50
CFSM	0.62	0.86	1.83	1.33	1.10	2.76	3.12	3.88	1.98	0.47	0.38	1.08
IN.	0.72	0.96	2.11	1.53	1.19	3.18	3.48	4.47	2.21	0.54	0.44	1.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992-2004, BY WATER YEAR (WY)

MEAN	2.93	5.72	6.90	9.02	8.10	11.0	11.9	8.08	5.55	4.63	2.23	3.12
MAX	7.75	15.3	18.3	17.4	12.6	22.3	17.5	21.6	11.7	23.3	6.94	7.21
(WY)	1997	1993	1997	1993	1996	1993	1998	2004	1997	2003	1992	1992
MIN	0.66	1.14	1.97	3.32	4.16	4.52	6.97	1.98	1.01	0.44	0.27	1.01
(WY)	1995	1995	1992	2002	1993	2000	2001	1999	1999	2001	1993	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1992-2004	
ANNUAL TOTAL	3312.07		3304.57			
ANNUAL MEAN	9.07		9.03		6.58	
HIGHEST ANNUAL MEAN					9.03	2004
LOWEST ANNUAL MEAN					3.51	2001
HIGHEST DAILY MEAN	271	Jul 21	196	May 22	271 Jul 21	2003
LOWEST DAILY MEAN	0.51	Sep 18	0.50	Sep 7	0.07 Jul 3	1992
ANNUAL SEVEN-DAY MINIMUM	0.93	Sep 12	0.63	Sep 1	0.10 Aug 7	1993
MAXIMUM PEAK FLOW			720	May 22a	1810 Jul 21	2003
MAXIMUM PEAK STAGE			13.41	May 22	15.93 Jul 21	2003
INSTANTANEOUS LOW FLOW			0.30	Sep 6	0.01 Jul 27	1997
ANNUAL RUNOFF (CFSM)	1.63		1.62		1.18	
ANNUAL RUNOFF (INCHES)	22.08		22.03		16.03	
10 PERCENT EXCEEDS	22		21		14	
50 PERCENT EXCEEDS	3.3		3.6		2.8	
90 PERCENT EXCEEDS	1.3		1.00		0.55	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04206220 Yellow Creek at Botzum, Ohio

LOCATION.—Latitude 41°09′47″, longitude 81°35′02″, Summit County, Hydrologic Unit 04110002, on right downstream bank near Bath Road bridge over Yellow Creek, 0.5 mi upstream from confluence with Cuyahoga River, 0.7 mi west of Akron sewage treatment plant.
DRAINAGE AREA.—30.7 mi^2.
PERIOD OF RECORD.—October 1991 to current year.
GAGE.—Water-stage recorder. Datum of gage is 739.09 ft above sea level (North American Vertical Datum of 1988).
REMARKS.—Records fair except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	19	55	40	e19	e28	168	50	44	18	59	22
2	17	18	35	111	e24	e28	242	288	64	17	23	22
3	15	22	28	92	139	e29	110	130	59	16	18	23
4	28	17	24	267	115	e55	156	64	38	17	14	23
5	20	15	27	296	76	93	126	50	34	19	13	23
6	16	14	31	e98	136	50	90	44	27	15	13	24
7	14	14	30	e59	121	37	72	47	26	15	14	24
8	13	13	26	e49	e46	e33	60	49	26	14	14	97
9	12	14	29	e44	e28	e30	52	40	43	14	14	178
10	13	13	172	e41	e22	e29	43	46	171	13	14	46
11	14	18	158	e39	e19	e33	39	42	255	13	14	27
12	15	32	59	e36	e18	e44	44	64	127	15	14	27
13	12	24	33	e35	e17	35	161	38	64	22	14	26
14	16	16	28	e33	e16	34	270	33	284	15	14	26
15	50	14	26	e31	e15	32	90	50	112	20	14	27
16	22	16	31	e30	e15	33	60	44	61	14	15	27
17	17	15	59	e30	e15	37	57	36	52	16	15	315
18	15	15	34	e29	e14	38	58	93	42	16	15	100
19	14	36	27	e28	e14	70	48	137	36	14	39	22
20	13	29	25	e28	e62	190	53	65	30	13	42	16
21	13	20	23	e27	142	145	102	845	27	13	44	16
22	33	18	24	e26	56	74	170	963	25	13	23	15
23	34	16	106	e25	e43	59	97	161	22	13	21	16
24	24	22	149	e24	e39	57	60	122	21	13	21	16
25	19	21	72	e23	e36	106	54	69	24	12	21	15
26	53	19	46	e22	e34	127	86	54	22	30	21	16
27	43	34	36	e22	e32	225	52	43	19	22	21	16
28	26	196	33	e21	e31	83	44	49	22	15	22	16
29	22	113	38	e21	e30	59	37	38	28	13	26	16
30	19	65	182	e21	---	202	39	35	22	19	25	17
31	17	---	62	e20	---	230	---	76	---	207	23	---
TOTAL	659	898	1708	1668	1374	2325	2740	3865	1827	686	660	1254
MEAN	21.3	29.9	55.1	53.8	47.4	75.0	91.3	125	60.9	22.1	21.3	41.8
MAX	53	196	182	296	142	230	270	963	284	207	59	315
MIN	12	13	23	20	14	28	37	33	19	12	13	15
CFSM	0.69	0.98	1.79	1.75	1.54	2.44	2.98	4.06	1.98	0.72	0.69	1.36
IN.	0.80	1.09	2.07	2.02	1.66	2.82	3.32	4.68	2.21	0.83	0.80	1.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 -004, BY WATER YEAR (WY)

MEAN	16.0	29.9	35.9	49.3	43.1	53.6	62.1	49.9	33.5	25.7	15.1	18.7
MAX	40.3	76.2	94.0	98.2	66.8	108	95.4	125	70.5	119	41.1	48.3
(WY)	1997	1993	1997	1993	1997	1993	1994	2004	1997	2003	1992	1992
MIN	6.31	9.23	12.1	17.8	25.4	23.8	34.0	16.3	9.11	8.05	5.68	4.85
(WY)	1995	1992	1992	1992	1995	2000	2001	1999	1999	2001	1993	1995

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1992-2004
ANNUAL TOTAL	18188.8	19664	
ANNUAL MEAN	49.8	53.7	36.0
HIGHEST ANNUAL MEAN			53.7 2004
LOWEST ANNUAL MEAN			20.5 2001
HIGHEST DAILY MEAN	891 Jul 22	963 May 22	963 May 22 2004
LOWEST DAILY MEAN	7.4 Sep 14	12 Oct 9	2.3 Sep 12 2001
ANNUAL SEVEN-DAY MINIMUM	8.3 Sep 8	13 Jul 19	2.6 Sep 6 2001
MAXIMUM PEAK FLOW		2150 May 22a	2960 Jul 21 2003
MAXIMUM PEAK STAGE		17.34 May 22	19.53 Jul 21 2003
INSTANTANEOUS LOW FLOW			2.1 Sep 11 2001
ANNUAL RUNOFF (CFSM)	1.62	1.75	1.17
ANNUAL RUNOFF (INCHES)	22.04	23.83	15.93
10 PERCENT EXCEEDS	132	123	73
50 PERCENT EXCEEDS	23	29	19
90 PERCENT EXCEEDS	10	14	6.3

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04207200 Tinkers Creek at Bedford, Ohio

LOCATION.—Latitude 41°23′04″, longitude 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, Ohio, 5.5 mi upstream from mouth.
DRAINAGE AREA.—83.9 mi^2.
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 sea level.
REMARKS.—Records good except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	60	402	178	e48	181	605	151	153	37	731	41
2	64	55	196	395	e52	213	831	878	101	34	278	34
3	50	71	134	334	150	179	563	483	133	31	104	31
4	161	80	104	624	173	205	597	199	87	62	111	27
5	98	71	109	858	121	375	467	144	63	61	73	212
6	59	62	128	568	140	207	316	106	54	41	55	166
7	48	56	122	216	191	148	214	115	49	45	47	83
8	43	50	108	e170	e140	196	216	121	43	50	40	374
9	39	45	112	e130	e120	235	166	91	507	31	38	806
10	36	44	399	e110	e100	213	107	78	406	27	37	608
11	34	92	480	e94	e95	190	85	83	405	27	33	203
12	31	154	273	e80	e80	221	106	190	286	106	29	119
13	31	117	139	e66	e70	174	443	102	133	68	37	68
14	64	78	109	e56	e60	149	755	73	691	51	31	53
15	486	64	107	e52	e52	153	409	144	441	102	26	46
16	244	68	151	e49	e44	152	170	109	204	58	27	57
17	134	61	209	e47	39	163	121	113	138	151	27	582
18	104	67	151	e46	34	176	100	230	168	127	56	816
19	73	249	125	e45	48	269	106	607	99	54	157	578
20	45	201	117	e44	312	545	164	314	72	42	187	165
21	42	121	108	e43	665	505	236	999	60	39	191	87
22	178	86	148	e42	333	296	447	1810	59	37	87	67
23	150	71	487	e41	197	163	317	1410	51	65	54	57
24	98	117	663	e40	216	159	171	837	45	34	44	50
25	97	103	457	e39	169	494	197	289	53	28	39	44
26	678	76	238	e38	147	429	317	135	48	100	44	38
27	259	176	173	e44	138	691	242	104	36	106	44	39
28	134	792	163	e55	143	399	137	330	66	54	92	36
29	101	747	212	e52	157	189	96	150	69	40	166	34
30	78	571	746	e50	---	528	99	89	45	49	128	36
31	64	---	388	e49	---	623	---	222	---	821	60	---
TOTAL	3799	4605	7458	4655	4234	8820	8800	10706	4765	2578	3073	5557
MEAN	123	154	241	150	146	285	293	345	159	83.2	99.1	185
MAX	678	792	746	858	665	691	831	1810	691	821	731	816
MIN	31	44	104	38	34	148	85	73	36	27	26	27
CFSM	1.46	1.83	2.87	1.79	1.74	3.39	3.50	4.12	1.89	0.99	1.18	2.21
IN.	1.68	2.04	3.31	2.06	1.88	3.91	3.90	4.75	2.11	1.14	1.36	2.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963-2004, BY WATER YEAR (WY)

MEAN	72.7	135	171	150	192	238	197	132	93.0	84.5	64.8	77.6
MAX	261	402	506	396	463	457	323	345	257	378	255	289
(WY)	1991	1986	1991	1993	1976	1963	1998	2004	1975	2003	1992	1990
MIN	8.55	13.4	16.9	33.1	39.0	79.8	54.1	33.4	16.5	13.1	11.3	8.73
(WY)	1964	1965	1964	1977	1963	2000	1971	1965	1964	1967	1963	1964

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1963-2004		
ANNUAL TOTAL	70258		69050				
ANNUAL MEAN	192		189		135		
HIGHEST ANNUAL MEAN					189		2004
LOWEST ANNUAL MEAN					81.7		1964
HIGHEST DAILY MEAN	1900	Jul 23	1810	May 22	2920	Dec 30	1990
LOWEST DAILY MEAN	21	Aug 24	26	Aug 15	5.8	Aug 10	1964
ANNUAL SEVEN-DAY MINIMUM	24	Sep 8	30	Aug 11	6.5	Oct 4	1963
MAXIMUM PEAK FLOW			2890	Jun 9a	7220	Jul 20	1969
MAXIMUM PEAK STAGE			7.22	Jun 9	10.10	Jul 20	1969
INSTANTANEOUS LOW FLOW			21	Feb 18	5.2	Aug 19	1963
ANNUAL RUNOFF (CFSM)	2.29		2.25		1.60		
ANNUAL RUNOFF (INCHES)	31.15		30.62		21.80		
10 PERCENT EXCEEDS	493		489		323		
50 PERCENT EXCEEDS	103		109		65		
90 PERCENT EXCEEDS	33		39		22		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

04208000 Cuyahoga River at Independence, Ohio

LOCATION.—Latitude 41°23′43″, longitude 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, Ohio, and 3.0 mi downstream from Tinkers Creek.

DRAINAGE AREA.—707 mi^2.

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 sea level. Sept. 21, 1903-July 21, 1906, nonrecording gage at bridge 240 ft upstream at present datum; Sept. 28, 1921-May 30, 1923, nonrecording gage at bridge 240 ft upstream at datum 2.42 ft higher; Sept. 29-Oct. 8, 1927, nonrecording gage; Oct. 9, 1927-Dec. 31, 1935 and Mar. 5, 1940-June 19, 1969, water-stage recorder at site 100 ft upstream at present datum.

REMARKS.—Records good except for period of estimated record, which are poor. Natural flow of stream affected by diversion, storage reservoirs, and powerplants. 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 ft^3/s, when channels merge. Satellite telemeter at gage. Water-quality data collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1460	696	1990	1530	e600	1200	3750	1220	1600	415	2210	464
2	1240	652	1550	2430	e660	1450	5280	4570	1250	390	1450	424
3	996	586	1420	2730	e1000	1430	3880	2970	1500	366	1140	381
4	1230	529	1250	3880	1600	1620	4200	1780	1120	391	1270	458
5	944	511	1140	6500	1190	2700	3840	1440	907	614	1160	608
6	722	487	1140	4000	1400	2040	3130	1270	794	394	980	588
7	590	440	1030	2780	1990	1670	2460	1240	695	359	808	431
8	523	378	846	2200	1430	1780	2170	1330	621	394	667	1270
9	472	347	779	1820	1230	1850	1860	1040	1620	327	553	4290
10	442	337	1990	1390	1140	1690	1450	962	2970	309	467	2370
11	399	491	2930	1090	1030	1500	1200	955	2680	299	404	1520
12	356	832	1730	e960	967	1560	1070	1330	2400	404	354	1220
13	311	785	1190	e880	834	1280	2650	792	1470	422	339	1110
14	334	592	1100	e820	735	1140	4420	649	3960	383	324	918
15	1790	520	1120	e740	681	1050	2680	923	3100	682	301	725
16	958	536	1090	e660	548	990	2010	896	2050	406	405	595
17	710	514	1510	e600	536	1120	1810	750	1780	519	332	2930
18	632	517	1160	e560	499	1150	1910	1350	1860	549	390	3770
19	589	1300	964	e540	546	1660	1550	3370	1590	474	856	2490
20	550	1210	889	e520	1330	2780	1690	2120	1360	375	1140	1590
21	522	829	816	e500	3120	3560	1700	6250	1200	409	1700	1360
22	1140	686	858	e490	1920	2570	2980	13000	871	378	819	1150
23	1100	638	2320	e480	1540	2130	2230	9940	804	400	628	922
24	723	696	3580	e470	1730	2170	1650	6010	694	358	530	733
25	604	749	2560	e460	1530	3160	1610	4340	722	346	491	594
26	2550	564	1890	e450	1330	2820	2220	3360	692	603	422	512
27	1450	765	1750	e580	1210	4470	1550	2610	588	635	389	483
28	933	3690	1640	e860	1140	3140	1240	2580	617	450	614	451
29	802	3420	1630	e720	1120	2390	1040	1970	890	383	871	418
30	750	2460	3800	e660	---	3810	967	1540	538	371	858	399
31	734	---	2230	e620	---	4120	---	2260	---	2720	558	---
TOTAL	26556	26757	49892	42920	34586	66000	70197	84817	42943	15525	23430	35174
MEAN	857	892	1609	1385	1193	2129	2340	2736	1431	501	756	1172
MAX	2550	3690	3800	6500	3120	4470	5280	13000	3960	2720	2210	4290
MIN	311	337	779	450	499	990	967	649	538	299	301	381

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922-2004, BY WATER YEAR (WY)

MEAN	389	644	942	1113	1291	1640	1468	984	651	485	373	396
MAX	1747	2713	2889	3585	3217	3008	3175	2736	2450	2799	1363	1866
(WY)	1955	1986	1978	1952	1959	1963	1957	2004	1989	2003	1992	1979
MIN	65.8	74.9	115	191	194	584	244	120	111	82.9	62.3	61.0
(WY)	1934	1931	1964	1945	1934	1931	1946	1934	1934	1954	1933	1933

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922-2004		
ANNUAL TOTAL	498046		518797				
ANNUAL MEAN	1365		1417		866		
HIGHEST ANNUAL MEAN					1417		2004
LOWEST ANNUAL MEAN					278		1934
HIGHEST DAILY MEAN	11400	Jul 22	13000	May 22	16700	Jan 22	1959
LOWEST DAILY MEAN	210	Feb 1	299	Jul 11	21	Aug 28	1933
ANNUAL SEVEN-DAY MINIMUM	226	Jan 27	349	Aug 12	37	Aug 26	1933
MAXIMUM PEAK FLOW			15000	May 22	24800	Jan 22	1959
MAXIMUM PEAK STAGE			21.66	May 22	22.41	Jan 22	1959
INSTANTANEOUS LOW FLOW			274	Aug 15	21	Aug 28	1933
10 PERCENT EXCEEDS	2930		2940		2020		
50 PERCENT EXCEEDS	969		1040		498		
90 PERCENT EXCEEDS	332		406		137		

e Estimated.

04208460 Mill Creek at Garfield Heights, Ohio

LOCATION.—Latitude 41°25′26″, longitude 81°36′16″, Cuyahoga County, Hydrologic Unit 04110002, on left bank 1,000 ft downstream from General Chemical Company plant railroad bridge, 0.6 mi upstream from mouth at Cuyahoga River.
DRAINAGE AREA.—17.9 mi^2.
PERIOD OF RECORD.—August 2001 to current year.
GAGE.—Water-stage recorder. Elevation of gage is 600 ft above sea level (from topographic map)..
REMARKS.—Records fair except for periods of estimated record and discharges above 1,000 ft^3/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	7.7	54	19	e6.8	15	110	64	14	5.8	15	9.0
2	12	7.3	23	49	e19	22	131	314	20	5.2	11	6.5
3	10	6.9	18	23	e24	14	40	46	11	4.8	8.3	5.7
4	40	6.8	14	126	e29	30	75	24	8.6	26	14	5.6
5	17	8.7	17	91	e22	48	34	21	7.7	12	7.4	7.3
6	9.5	7.2	20	26	e25	17	20	17	7.2	9.8	5.6	6.0
7	7.2	6.5	17	e18	e38	14	16	24	7.0	20	5.0	5.5
8	6.6	6.0	12	e11	e23	30	25	14	6.8	14	4.7	138
9	6.6	5.8	13	e9.0	e16	29	17	11	72	9.9	4.6	118
10	6.5	5.9	46	e8.2	e15	21	13	11	50	8.0	4.6	18
11	6.3	17	36	e7.8	e13	19	11	12	53	5.6	4.5	14
12	6.2	31	18	e7.6	e11	26	22	14	25	19	4.4	11
13	5.9	18	15	e7.2	e9.8	16	80	10	17	9.4	5.9	8.3
14	16	11	13	e7.0	e9.2	16	e100	9.0	102	15	5.3	7.0
15	55	8.2	12	e6.8	e8.4	14	27	29	37	14	4.7	6.0
16	17	9.7	17	e6.6	e7.8	14	21	15	18	6.9	4.5	6.1
17	7.7	8.1	19	e6.4	e7.2	19	18	17	29	20	4.3	116
18	6.7	14	14	e6.2	e6.6	24	13	28	22	12	5.7	19
19	6.3	72	13	e6.0	e13	37	20	94	12	8.3	41	12
20	6.2	22	13	e6.0	76	130	16	21	7.7	5.8	30	8.8
21	6.1	16	12	e5.8	85	44	65	224	6.1	5.4	22	6.6
22	41	11	21	e5.8	24	19	40	301	6.7	5.3	11	5.8
23	20	8.8	118	e5.6	21	14	23	55	6.1	10	7.3	5.5
24	12	17	99	e5.6	24	20	17	35	6.3	9.7	5.2	5.5
25	18	13	40	e5.4	17	104	40	23	6.7	6.8	4.5	5.3
26	159	8.8	26	e5.4	14	55	38	18	6.5	14	5.9	5.3
27	32	38	20	e8.0	13	95	39	11	5.5	14	8.7	5.3
28	18	302	20	e11	13	25	23	44	25	7.9	82	5.3
29	11	93	36	e9.6	13	17	17	15	14	5.7	53	5.3
30	8.1	65	179	e8.4	---	107	22	13	8.7	6.0	17	5.3
31	7.2	---	26	e7.6	---	70	---	24	---	103	11	---
TOTAL	597.1	852.4	1001	526.0	603.8	1125	1133	1558.0	618.6	419.3	418.1	583.0
MEAN	19.3	28.4	32.3	17.0	20.8	36.3	37.8	50.3	20.6	13.5	13.5	19.4
MAX	159	302	179	126	85	130	131	314	102	103	82	138
MIN	5.9	5.8	12	5.4	6.6	14	11	9.0	5.5	4.8	4.3	5.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001-2004, BY WATER YEAR (WY)

MEAN	19.3	25.1	27.5	15.9	23.2	37.8	34.6	53.3	20.2	24.1	17.3	29.2
MAX	31.1	29.6	32.3	17.0	26.5	38.8	37.8	64.2	27.3	38.5	34.1	42.7
(WY)	2002	2003	2004	2004	2003	2003	2004	2003	2003	2003	2001	2003
MIN	7.56	17.4	24.4	13.9	20.8	36.3	30.9	45.5	12.6	13.5	8.73	19.4
(WY)	2003	2002	2002	2002	2004	2004	2003	2002	2002	2004	2003	2004

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 2001-2004	
ANNUAL TOTAL	11396.6	9435.3		
ANNUAL MEAN	31.2	25.8	26.9	
HIGHEST ANNUAL MEAN			29.8	2003
LOWEST ANNUAL MEAN			25.1	2002
HIGHEST DAILY MEAN	464 May 10	314 May 2	479 Aug 31	2001
LOWEST DAILY MEAN	3.8 Jul 20	4.3 Aug 17	0.00 Oct 3	2001
ANNUAL SEVEN-DAY MINIMUM	4.3 Sep 8	4.8 Aug 6	3.3 Sep 8	2002
MAXIMUM PEAK FLOW		1770 May 21	3900 Aug 31	2001
MAXIMUM PEAK STAGE		5.66 May 21	7.64 Aug 31	2001
INSTANTANEOUS LOW FLOW			0.00 Oct 3	2001
10 PERCENT EXCEEDS	67	55	65	
50 PERCENT EXCEEDS	15	14	12	
90 PERCENT EXCEEDS	5.5	5.8	4.5	

e Estimated.

04208504 Cuyahoga River near Newburgh Heights, Ohio

LOCATION.—Latitude 41°27′45″, longitude 81°40′52″, Cuyahoga County, Hydrologic Unit 04110002, on left bank at ISG Steel Company footbridge, 1.2 mi downstream from Big Creek, and 5.5 mi upstream from mouth at Cleveland, Ohio.
DRAINAGE AREA.—788 mi^2.
PERIOD OF RECORD.—October 1991 to current year.
GAGE.—Water-stage and acoustic velocity meter recorder. Elevation of gage is 583.57 ft above sea level (from topographic map).
REMARKS.—Records fair except for periods of estimated record, which are poor. Previously puvlished as Cuyahoga River at LTV Steel at Cleveland.
EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, estimated 18,500 ft^3/s May 22, 2004; minimum daily discharge, 310 ft^3/s Aug. 29, 1993.
EXTREMES FOR CURRENT YEAR.—Maximum daily discharge, 16,000 ft^3/s May 22; minimum daily discharge, 447 ft^3/s July 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1600	952	2400	1970	892	1470	3910	1410	e2200	569	2260	e708
2	1400	892	1930	2820	901	1680	5160	5620	e1600	558	1570	e580
3	1200	836	1790	2960	1800	1660	3660	3550	e1800	526	1240	e510
4	1610	775	1550	4360	1890	1900	3860	2000	e1500	644	1390	e650
5	1210	809	1500	7370	1410	3140	3840	1650	e1220	783	1220	e800
6	980	735	1640	4400	1770	2260	3330	1450	e1040	544	1070	e710
7	855	690	1460	2980	2480	1890	2630	1490	e890	530	944	e1300
8	789	637	1240	2350	1830	2110	2340	1530	e1000	564	808	e2300
9	743	603	1270	2000	1570	2190	2040	1260	e1810	492	719	e5400
10	701	597	2980	1630	1440	2000	1650	1150	e3650	472	629	e3950
11	656	892	3060	1360	1340	1780	1410	1230	e3300	447	567	e3150
12	628	1280	1960	1340	1260	1890	1350	1590	e3000	623	507	e2320
13	603	1070	1480	1290	1160	1580	3040	1040	e2700	630	517	e1620
14	864	859	1440	1170	1050	1440	5330	906	e4900	641	488	e1300
15	2070	807	e1460	1110	1010	1340	2970	1370	e3850	971	475	e1020
16	1130	818	1480	1030	889	1290	2150	1200	e3100	570	550	e1900
17	926	701	1890	910	875	1470	1920	996	e2410	700	505	e4100
18	862	854	1540	997	834	1550	1960	1620	e2290	778	625	e4600
19	825	1960	1360	975	889	2050	1720	3690	e2020	631	1240	e3800
20	790	1410	1300	906	1620	3320	1860	2220	e1760	524	1610	e2950
21	831	1070	1230	837	3770	4180	1920	e7080	e1590	535	1960	e2300
22	1640	955	1300	902	2230	2860	3270	e16000	e1310	537	1040	e1820
23	1300	900	3100	811	1810	2330	2390	e11500	e1100	554	847	e1350
24	942	1070	4360	836	1990	2370	1790	e8400	e870	510	715	e1050
25	1120	979	3070	770	1790	3740	1930	e5600	e880	502	701	e880
26	3380	837	2330	822	1600	2950	2460	e4400	e860	788	653	e750
27	1620	1450	2170	1140	1490	4480	1820	e3200	e740	940	685	e670
28	1170	5100	2040	1310	1410	3070	1470	e3150	917	622	e860	e620
29	1070	4050	2080	1090	1380	2330	1260	e2500	1050	536	e1110	e570
30	986	3140	4630	1020	---	3860	1240	e2300	718	508	e1100	e520
31	965	---	2680	928	---	4170	---	e2800	---	3160	e880	---
TOTAL	35466	37728	63720	54394	44380	74350	75680	103902	56075	21389	29485	54198
MEAN	1144	1258	2055	1755	1530	2398	2523	3352	1869	690	951	1807
MAX	3380	5100	4630	7370	3770	4480	5330	16000	4900	3160	2260	5400
MIN	603	597	1230	770	834	1290	1240	906	718	447	475	510

e Estimated.

Surface-Water Records—Chagrin River Basin

04209000 Chagrin River at Willoughby, Ohio

LOCATION.—Latitude 41°37′51″, longitude 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 mi southeast of Willoughby, and 5 mi upstream from mouth.

DRAINAGE AREA.—246 mi^2.

PERIOD OF RECORD.—July 1925 to November 1935, October 1939 to 1984, March 25, 1988 to September 1994, October 1995 to September 1996, October 1997 to October 1999, October 2001 to current year. (July 1925 to September 1932 monthly runoff in inches, adjusted for diversion, published in WSP 1307; previously published runoff 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 sea level. Prior to Dec. 20, 1939, nonrecording gage at site 150 ft upstream at datum 7 ft higher.

REMARKS.—Records fair except for periods of estimated record, which are poor. Water diverted 200 ft upstream from station for municipal supply of City of Willoughby until 1988. Water-quality and sediment data formerly collected at this site.

REVISIONS.—The maximum discharge for the water year 2003 has been revised to 7,130 ft^3/s, Sept. 27, 2003, gage height 8.37 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354	97	1610	882	e270	1170	1890	245	222	76	2400	80
2	147	98	1110	947	e250	1540	3460	2380	176	68	1310	71
3	116	90	475	1110	e350	1360	1920	1970	156	65	332	64
4	612	83	308	1000	1420	818	1110	518	132	63	118	60
5	577	72	280	2220	1230	1380	1130	380	117	79	97	81
6	160	65	293	1550	679	1070	619	293	105	75	84	80
7	118	59	284	390	1050	456	363	230	102	68	76	71
8	101	52	270	291	939	465	290	227	100	69	72	67
9	86	48	254	e220	e380	628	308	205	174	70	70	1070
10	73	47	452	e180	e310	703	255	188	2660	65	68	1200
11	63	82	1600	e160	e260	473	217	181	1520	61	68	621
12	52	446	975	e150	e210	615	200	209	1360	69	68	261
13	47	652	393	e140	e180	529	627	189	480	208	68	143
14	48	219	283	e130	e150	523	2810	169	851	142	70	98
15	852	136	269	e125	e130	743	1630	180	1790	224	70	80
16	663	121	276	e120	e110	397	599	204	822	175	69	70
17	146	118	834	e115	e100	318	270	205	241	152	68	117
18	103	113	531	e110	e96	309	224	1260	327	337	68	1680
19	87	438	309	e105	e180	423	204	1090	226	175	72	1300
20	74	904	301	e100	308	1670	242	705	132	110	84	389
21	60	263	291	e98	2740	2900	271	1400	99	89	104	168
22	62	155	295	e96	1750	1360	1290	e5400	91	83	102	115
23	107	135	1780	e94	1050	650	774	e3600	89	90	88	102
24	104	153	2720	e92	937	425	371	e1200	83	86	77	97
25	91	261	1900	e90	594	1470	307	e760	78	73	71	95
26	1130	155	1130	e88	403	1730	910	370	80	68	67	93
27	1490	160	681	e150	339	2740	554	246	76	86	65	90
28	408	2790	461	e330	466	1600	434	671	75	92	70	90
29	170	3970	675	e490	795	698	272	415	118	85	109	90
30	135	1950	3100	e390	---	1200	219	218	93	77	102	90
31	111	---	1830	e320	---	1860	---	205	---	1630	93	---
TOTAL	8347	13932	25970	12283	17676	32223	23770	25513	12575	4810	6280	8633
MEAN	269	464	838	396	610	1039	792	823	419	155	203	288
MAX	1490	3970	3100	2220	2740	2900	3460	5400	2660	1630	2400	1680
MIN	47	47	254	88	96	309	200	169	75	61	65	60
CFSM	1.09	1.89	3.41	1.61	2.48	4.23	3.22	3.35	1.70	0.63	0.82	1.17
IN.	1.26	2.11	3.93	1.86	2.67	4.87	3.59	3.86	1.90	0.73	0.95	1.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925-2004, BY WATER YEAR (WY)

MEAN	159	310	419	466	541	681	554	370	220	130	123	134
MAX	976	850	1284	1312	1242	1234	1409	1088	781	698	602	641
(WY)	1927	1984	1991	1952	1982	1963	1957	1989	1947	1969	1992	1926
MIN	21.9	44.3	60.4	115	48.1	179	120	53.4	23.1	20.3	16.8	17.6
(WY)	1954	1965	1964	1977	1934	1990	1946	1934	1934	1934	1930	1933

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1925-2004	
ANNUAL TOTAL	164010		192012			
ANNUAL MEAN	449		525		342	
HIGHEST ANNUAL MEAN					525	2004
LOWEST ANNUAL MEAN					148	1934
HIGHEST DAILY MEAN	3970	Nov 29	5400	May 22	12300 Mar 22	1948
LOWEST DAILY MEAN	40	Sep 14	47	Oct 13	3.0 Jul 25	1934
ANNUAL SEVEN-DAY MINIMUM	46	Aug 20	61	Nov 5	7.0 Aug 25	1933
MAXIMUM PEAK FLOW			8050	May 22a	28000 Mar 22	1948
MAXIMUM PEAK STAGE			9.00	May 22	17.95 Mar 22	1948
INSTANTANEOUS LOW FLOW			44	Oct 14	3.0 Jul 25	1934
ANNUAL RUNOFF (CFSM)	1.83		2.13		1.39	
ANNUAL RUNOFF (INCHES)	24.80		29.04		18.91	
10 PERCENT EXCEEDS	1220		1500		779	
50 PERCENT EXCEEDS	183		220		150	
90 PERCENT EXCEEDS	66		70		37	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Grand River Basin

04212100 Grand River near Painesville, Ohio

LOCATION.—Latitude 41°43′08″, longitude 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, Ohio.
DRAINAGE AREA.—685 mi^2.
PERIOD OF RECORD.—October 1974 to current year.
GAGE.—Water-stage recorder. Datum of gage is 596.37 ft above sea level. Previously published in error as 620.37 ft above sea level.
REMARKS.—Records good except for periods of estimated record, which are poor. Water-quality data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3430	388	3560	1930	e720	2860	4460	363	276	69	6080	283
2	1920	313	2770	1600	e640	4050	7220	1890	230	65	4890	218
3	969	274	2130	1910	e860	3630	5650	3690	201	61	2350	143
4	1140	255	1330	2170	e1600	2570	3730	2290	176	56	1230	112
5	1280	225	796	3610	e2800	2810	3150	1530	153	59	526	98
6	996	188	580	3910	3700	2410	2240	1220	136	66	266	76
7	594	160	505	2790	4190	1770	1330	804	124	72	187	70
8	342	137	460	e1500	4180	1530	870	499	110	114	153	112
9	213	118	427	e800	e2700	1470	664	350	100	123	121	1820
10	145	99	921	e520	e1800	1360	550	281	1390	87	98	4390
11	105	126	2540	e400	e1200	1190	496	230	2220	67	83	2110
12	77	797	2700	e330	e800	1080	413	204	1620	150	75	1430
13	58	1830	1860	e290	e660	972	939	173	1240	328	74	1220
14	50	1580	1500	e260	e400	1130	4610	255	674	216	76	698
15	1530	954	1150	e240	e310	1510	4190	259	1530	311	71	306
16	2790	637	887	e220	e250	1190	2480	177	1710	407	65	183
17	1510	474	1710	e210	e220	975	1880	204	849	240	61	980
18	803	373	1940	e200	e200	858	1210	548	606	190	58	4410
19	458	674	1420	e190	e400	1000	706	1390	406	150	55	3890
20	273	1060	1230	e180	e1400	3180	544	1320	318	125	56	2220
21	183	1140	997	e170	e3700	6050	591	4000	237	111	60	1970
22	156	822	970	e160	4480	4270	1380	10000	177	112	56	1480
23	334	586	3450	e155	3290	2710	1480	9760	138	255	64	705
24	457	506	6820	e150	2910	2570	1220	6530	110	173	78	316
25	387	617	5830	e145	2270	2920	1060	4100	96	116	76	198
26	1650	607	3250	e140	1900	3090	1230	2890	88	91	67	148
27	2330	555	2120	e270	1630	3480	1030	1680	76	98	63	121
28	1500	3190	1550	e800	1670	3010	711	805	71	85	153	103
29	985	7690	1270	e1300	2210	2300	488	596	84	78	216	93
30	713	5700	2670	e1000	---	2330	374	402	71	84	349	83
31	511	---	2900	e820	---	3290	---	323	---	1840	262	---
TOTAL	27889	32075	62243	28370	53090	73565	56896	58763	15217	5999	18019	29986
MEAN	900	1069	2008	915	1831	2373	1897	1896	507	194	581	1000
MAX	3430	7690	6820	3910	4480	6050	7220	10000	2220	1840	6080	4410
MIN	50	99	427	140	200	858	374	173	71	56	55	70
CFSM	1.31	1.56	2.93	1.34	2.67	3.46	2.77	2.77	0.74	0.28	0.85	1.46
IN.	1.51	1.74	3.38	1.54	2.88	4.00	3.09	3.19	0.83	0.33	0.98	1.63

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975-2004, BY WATER YEAR (WY)

MEAN	458	1118	1496	1357	1758	1941	1525	879	647	273	250	409
MAX	1880	4026	3816	3327	4044	3753	2598	3214	2851	1128	1106	1854
(WY)	1991	1986	1978	1993	1981	1993	1987	1989	1986	2003	1980	1990
MIN	42.1	67.1	141	109	322	577	450	106	39.8	30.5	17.0	11.0
(WY)	1992	1979	1999	1977	1987	1990	1975	1987	1988	1991	1991	1995

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1975-2004	
ANNUAL TOTAL	468117		462112			
ANNUAL MEAN	1283		1263		1004	
HIGHEST ANNUAL MEAN					1406	1997
LOWEST ANNUAL MEAN					524	1999
HIGHEST DAILY MEAN	8640	Jun 14	10000	May 22	15300 Nov 6	1985
LOWEST DAILY MEAN	28	Sep 14	50	Oct 14	4.7 Sep 12	2002
ANNUAL SEVEN-DAY MINIMUM	35	Aug 20	59	Aug 17	5.1 Sep 8	2002
MAXIMUM PEAK FLOW			12100	May 22a	18700 Jun 11	1986
MAXIMUM PEAK STAGE			10.10	May 22	13.16 Dec 25	1979
INSTANTANEOUS LOW FLOW					4.2 Sep 10	2002
ANNUAL RUNOFF (CFSM)	1.87		1.84		1.47	
ANNUAL RUNOFF (INCHES)	25.42		25.10		19.92	
10 PERCENT EXCEEDS	3310		3330		2750	
50 PERCENT EXCEEDS	671		662		400	
90 PERCENT EXCEEDS	81		84		38	

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Surface-Water Records—Conneaut Creek Basin

04213000 Conneaut Creek at Conneaut, Ohio

LOCATION.—Latitude 41°55′37″, longitude 80°36′15″, Ashtabula County, Hydrologic Unit 04120101, on right bank at downstream side of Keefus Road bridge at Conneaut, Ohio, and 6.4 mi upstream from mouth.
DRAINAGE AREA.—175 mi^2.
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 610.3 ft above sea level. Prior to Aug. 17, 1924, nonrecording gage at same site and datum.
REMARKS.—Records fair except for periods of estimated record, which are poor. Water-quality and sediment data formerly collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	206	744	496	e190	797	899	138	120	54	1880	149
2	395	160	544	402	e170	1760	1840	606	113	39	1010	81
3	298	153	338	695	e250	2500	1880	1840	97	30	281	54
4	263	159	238	556	e400	1030	692	713	92	30	143	42
5	478	139	198	753	e600	989	532	361	79	43	105	36
6	298	116	189	825	e840	898	550	265	65	34	78	34
7	151	109	181	395	e1200	494	569	204	49	29	58	50
8	101	94	161	e320	e720	406	472	167	46	29	45	56
9	75	80	139	e220	e440	456	338	149	41	33	38	3700
10	63	71	148	e160	e290	424	271	131	50	31	34	9060
11	53	76	422	e130	e240	351	201	132	706	26	33	1190
12	45	172	612	e110	e200	304	166	177	426	72	44	324
13	39	749	328	e96	e160	307	310	139	245	230	41	173
14	49	733	214	e88	e130	312	1430	107	142	201	35	111
15	1250	368	177	e84	e105	548	1250	117	211	211	41	84
16	2380	227	168	e80	e86	470	487	136	373	291	37	76
17	632	180	476	e76	e78	281	286	148	391	245	30	1080
18	307	179	675	e72	e72	256	208	146	433	109	30	2720
19	187	189	375	e70	e260	295	179	332	274	68	31	2090
20	132	580	315	e68	e450	773	185	205	139	83	32	376
21	102	467	277	e64	e1500	2190	303	1300	90	58	34	197
22	135	253	311	e62	e1400	1290	573	5280	65	240	33	127
23	476	183	763	e60	990	484	629	6200	52	147	36	95
24	314	158	2710	e58	647	530	448	2260	45	68	30	75
25	241	213	2340	e56	564	770	295	801	42	43	25	61
26	496	262	708	e54	463	814	385	432	38	36	21	56
27	980	197	429	e88	398	930	463	307	35	38	33	47
28	648	671	318	e200	387	783	266	228	36	41	538	43
29	461	2590	320	e410	472	442	189	218	37	40	539	39
30	528	2170	837	e260	---	367	156	165	77	36	539	37
31	336	---	1220	e210	---	762	---	136	---	1000	343	---
TOTAL	12423	11904	16875	7218	13702	23013	16452	23540	4609	3635	6197	22263
MEAN	401	397	544	233	472	742	548	759	154	117	200	742
MAX	2380	2590	2710	825	1500	2500	1880	6200	706	1000	1880	9060
MIN	39	71	139	54	72	256	156	107	35	26	21	34
CFSM	2.29	2.27	3.11	1.33	2.70	4.24	3.13	4.34	0.88	0.67	1.14	4.24
IN.	2.64	2.53	3.59	1.53	2.91	4.89	3.50	5.00	0.98	0.77	1.32	4.73

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922-2004, BY WATER YEAR (WY)

MEAN	136	314	413	414	457	529	395	246	140	76.8	70.1	111
MAX	804	1373	1049	929	1115	987	839	759	1013	415	493	742
(WY)	1927	1986	1928	1990	1981	1972	1957	2004	1986	1969	1980	2004
MIN	4.95	17.1	35.1	81.0	39.6	147	69.9	20.2	5.46	2.79	3.19	3.56
(WY)	1924	1954	1961	1977	1934	2000	1935	1934	1934	1934	1923	1932

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1922-2004		
ANNUAL TOTAL	127063		161831				
ANNUAL MEAN	348		442		275		
HIGHEST ANNUAL MEAN					442		2004
LOWEST ANNUAL MEAN					140		1931
HIGHEST DAILY MEAN	4990	Jun 14	9060	Sep 10	11000	Jan 31	1968
LOWEST DAILY MEAN	14	Sep 14	21	Aug 26	0.30	Jul 30	1933
ANNUAL SEVEN-DAY MINIMUM	16	Sep 10	30	Aug 20	0.64	Aug 27	1933
MAXIMUM PEAK FLOW			13300	Sep 10a	17000	Jan 22	1959
MAXIMUM PEAK STAGE			11.25	Sep 10	12.94	Mar 4	1934
INSTANTANEOUS LOW FLOW			20	Aug 27	0.20	Jul 31	1933
ANNUAL RUNOFF (CFSM)	1.99		2.53		1.57		
ANNUAL RUNOFF (INCHES)	27.01		34.40		21.33		
10 PERCENT EXCEEDS	775		945		687		
50 PERCENT EXCEEDS	180		210		100		
90 PERCENT EXCEEDS	33		39		11		

a Peaks above base shown in table of peak discharges and stages at continuous-record surface-water-discharge stations.
e Estimated.

Peak Discharge and Stage at Continuous-Record Surface Discharge Stations

For continuous-record surface-water-discharge stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented in this table. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. The peaks are listed in chronological order. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by human intervention. 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.

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[ft^3/s, cubic feet per second; ft, feet; *, maximum peak discharge and gage height; --, no data; b, ice jam; e, estimated]

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
OTTAWA RIVER BASIN							
04177000 Ottawa River at Toledo University, Toledo, Ohio							
(Base discharge: 1,150 ft^3/s)							
June 19	0300	*1,050	*9.43				
MAUMEE RIVER BASIN							
04184500 Bean Creek at Powers, Ohio							
(Base discharge: 1,200 ft^3/s)							
May 24	0545	*1,610	*16.29	June 18	0030	1,390	15.39
04185000 Tiffin River at Stryker, Ohio							
(Base discharge: 1,850 ft^3/s)							
June 15	0330	*1,740	*12.82				
04185440 Unnamed Tributary to Lost Creek near Farmer, Ohio							
(Base discharge: 120 ft^3/s)							
Dec. 23	1045	144	3.52	May 24	0100	125	3.37
Mar. 4	2315	154	3.59	May 31	0345	*303	*4.33
May 11	2130	187	3.78	June 12	1245	248	4.09
04186500 Auglaize River near Fort Jennings, Ohio							
(Base discharge: 2,700 ft^3/s)							
Nov. 29	1330	3,230	11.45	June 1	0900	3,210	11.41
Dec. 24	1900	3,570	12.09	June 15	0030	4,600	13.84
Jan. 6	0430	*4,610	*13.86	Aug. 30	0000	2,770	10.59
May 23	0400	3,000	11.03	Sept. 5	0700	3,440	11.85
04189000 Blanchard River near Findlay, Ohio							
(Base discharge: 2,800 ft^3/s)							
Nov. 29	0800	4,720	9.79	Mar. 5	1400	3,370	7.94
Dec. 11	0700	3,310	7.86	May 22	1530	*6,750	*12.21
Dec. 24	0830	3,970	8.79	June 1	0200	4,940	10.07
Jan. 5	1900	5,790	11.12	June 15	0430	5,250	10.46
PORTAGE RIVER BASIN							
04195500 Portage River at Woodville, Ohio							
(Base discharge: 3,500 ft^3/s)							
June 1	0200	3,550	8.42	Aug. 30	1630	3,810	8.66
June 15	1100	*4,530	*9.34				

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[ft^3/s, cubic feet per second; ft, feet; *, maximum peak discharge and gage height; --, no data; b, ice jam; e, estimated]

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
PORTAGE RIVER BASIN—Continued							
04195820 Portage River at Elmore, Ohio							
(Base discharge: 3,800 ft^3/s)							
Dec. 24	1630	4,030	8.13	June 15	1300	*5,120	*9.20
Jan. 6	0130	3,980	8.08	Aug. 30	2030	4,010	8.11
June 1	0400	3,850	7.94				
SANDUSKY RIVER BASIN							
04196000 Sandusky River near Bucyrus, Ohio							
(Base discharge: 1,200 ft^3/s)							
Nov. 28	1000	1,510	6.66	May 3	0300	1,550	6.76
Dec. 30	1730	1,350	6.27	May 22	1800	1,840	7.45
Jan. 5	1400	2,190	8.06	June 14	1800	*4,230	*9.50
Mar. 30	2230	1,440	6.50				
04196500 Sandusky River near Upper Sandusky, Ohio							
(Base discharge: 2,500 ft^3/s)							
Nov. 29	0530	3,730	7.52	Mar. 31	1215	2,980	6.29
Dec. 24	1400	2,500	5.98	May 3	1715	2,830	6.11
Dec. 31	0115	2,520	6.00	May 22	1015	4,950	8.46
Jan. 5	2030	4,960	8.86	June 1	0300	2,650	5.88
Jan. 7	0945	--	*10.29b	June 16	0130	*5,760	9.27
04196800 Tymochtee Creek at Crawford, Ohio							
(Base discharge: 1,800 ft^3/s)							
Nov. 29	2300	2,810	6.97	June 2	0545	2,870	7.03
Jan. 6	1245	3,870	7.87	June 15	2300	4,130	8.07
May 23	0845	*4,590	*8.41				
04197100 Honey Creek at Melmore, Ohio							
(Base discharge: 1,500 ft^3/s)							
Nov. 29	0630	1,800	7.59	June 13	2330	*2,700	*8.97
Jan. 5	1530	2,250	8.32				
04198000 Sandusky River near Fremont, Ohio							
(Base discharge: 10,000 ft^3/s)							
Nov. 29	0630	11,500	6.56	May 22	1030	13,800	7.23
Jan. 5	2030	*14,000	*7.30	June 14	2130	13,700	7.21
HURON RIVER BASIN							
04199000 Huron River at Milan, Ohio							
(Base discharge: 4,700 ft^3/s)							
Nov. 28	2330	5,980	16.41	May 22	0430	6,160	16.62
Dec. 30	1130	4,790	15.02	June 12	0545	4,710	14.91
Jan. 5	0800	*6,430	*16.91	June 15	0200	5,170	15.48
Mar. 30	1945	5,490	15.86	July 31	1015	5,290	15.62
Apr. 2	1215	5,060	15.35				

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[ft^3/s, cubic feet per second; ft, feet; *, maximum peak discharge and gage height; --, no data; b, ice jam; e, estimated]

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
OLD WOMAN CREEK BASIN							
04199155 Old Woman Creek at Berlin Road near Huron, Ohio							
(Base discharge: 400 ft^3/s)							
Nov. 28	1630	687	8.75	May 21	1015	1,500	11.11
Dec. 30	0715	578	8.80	May 22	0830	902	9.89
Jan. 5	0300	527	8.56	June 14	0530	583	8.82
Mar. 30	1030	513	8.49	July 17	2300	540	8.62
Apr. 2	1015	635	9.05	July 31	0800	*2,160	*12.08
VERMILION RIVER BASIN							
04199500 Vermilion River near Vermilion, Ohio							
(Base discharge: 3,200 ft^3/s)							
Nov. 28	2215	4,170	6.03	May 22	0645	*6,970	*7.58
Jan. 5	1000	5,390	6.62	June 12	1745	3,890	6.05
Mar. 31	0045	4,080	6.16	June 15	0745	4,330	6.30
Apr. 2	1015	3,950	6.09	July 31	0600	4,200	6.23
May 3	0145	4,870	6.59				
BLACK RIVER BASIN							
04200500 Black River at Elyria, Ohio							
(Base discharge: 3,200 ft^3/s)							
Nov. 29	0330	4,760	10.08	Apr. 2	1500	4,650	10.62
Dec. 11	1300	3,270	8.30	May 3	0500	5,730	11.87
Dec. 29	1600	3,480	8.58	May 19	0830	3,840	9.58
Jan. 6	0230	5,830	11.19	May 22	1200	*13,300	*17.29
Mar. 31	1230	4,880	10.89	June 15	0500	3,980	9.77
ROCKY RIVER BASIN							
04201500 Rocky River near Berea, Ohio							
(Base discharge: 4,000 ft^3/s)							
Nov. 28	2100	4,480	4.84	May 3	0230	5,060	5.27
Jan. 5	0300	5,340	5.24	May 22	0000	*14,700	*9.12
Apr. 2	0430	4,000	4.63	June 14	1130	4,530	4.96
CUYAHOGA RIVER BASIN							
04206014 Powers Brook at Hudson, Ohio							
(Base discharge: 30 ft^3/s)							
May 22	0205	*115	*13.13	No other peaks above base			
04206021 Powers Brook at Stow, Ohio							
(Base discharge: 70 ft^3/s)							
Jan. 4	2330	141	11.33	Sept. 9	0230	113e	11.41
May 22	0455	*453e	*13.88	Sept. 17	1710	137e	11.67

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[ft^3/s, cubic feet per second; ft, feet; *, maximum peak discharge and gage height; --, no data; b, ice jam; e, estimated]

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
CUYAHOGA RIVER BASIN—Continued							
04206029 Mud Brook at Stow, Ohio							
(Base discharge: 140 ft^3/s)							
Nov. 29	1125	141	12.79	Apr. 14	1825	141	12.80
Jan. 5	1320	203	13.54	May 22	1835	*614	*16.91
Apr. 2	1715	170	13.16				
04206038 Crystal Creek at Stow, Ohio							
(Base discharge: 90 ft^3/s)							
Nov. 28	1130	101	13.12	May 22	0655	*437	16.35
Jan. 4	2150	119	13.38	Sept. 17	1715	94	13.02
04206043 Mud Brook at Cuyahoga Falls, Ohio							
(Base discharge: 220 ft^3/s)							
May 22	0250	*863	*12.60	No other peaks above base			
04206212 North Fork at Bath Center, Ohio							
(Base discharge: 230 ft^3/s)							
May 22	0340	*720	*13.41	Sept. 17	1505	255	11.83
June 14	0035	257	11.84				
04206220 Yellow Creek at Botzum, Ohio							
(Base discharge: 650 ft^3/s)							
May 22	0415	*2,150	*17.34	Sept. 17	1550	814	13.86
June 14	0130	674	13.51				
04207200 Tinkers Creek at Bedford, Ohio							
(Base discharge: 1,500 ft^3/s)							
Dec. 30	0445	1,510	5.96	June 9	2045	*2,890	*7.22
May 22	0345	2,810	7.16	July 31	0715	1,770	6.24
CHAGRIN RIVER BASIN							
04209000 Chagrin River at Willoughby, Ohio							
(Base discharge: 4,800 ft^3/s)							
Nov. 29	0030	7,170	8.40	May 22	1030	*8,050	*9.00
Dec. 30	0730	4,840	6.75				
GRAND RIVER BASIN							
04212100 Grand River near Painesville, Ohio							
(Base discharge: 6,500 ft^3/s)							
Nov. 29	0330	8,850	8.54	Apr. 2	0700	7,760	7.98
Dec. 24	2130	7,250	7.70	May 22	1100	*12,100	*10.10
Feb. 21	--	--	9.32b	Aug. 1	1930	6,710	7.39
Mar. 20	2030	7,040	7.58				

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[ft^3/s, cubic feet per second; ft, feet; *, maximum peak discharge and gage height; --, no data; b, ice jam; e, estimated]

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
CONNEAUT CREEK BASIN							
04213000 Conneaut Creek at Conneaut, Ohio							
(Base discharge: 2,900 ft^3/s)							
Nov. 30	0300	3,160	6.01	May 23	0530	7,990	9.18
Dec. 24	2300	3,380	6.21	Sept. 10	0500	*13,300	*11.25
Jan. 9	--	--	6.43b	Sept. 19	0300	3,760	6.55
Feb. 22	--	--	8.87b				

Ground-Water Records—Crawford County

404838082563100. Local Number, CR-1

LOCATION.—Latitude 40°48′38″, longitude 82°56′31″, Crawford County, Hydrologic Unit 04100011, Timken Roller Bearing Company, U.S. 30 in Bucyrus. Owner: Timken Roller Bearing Company.

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 sea level. Measuring point: Floor of instrument shelter 3.50 ft above land-surface datum.

REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

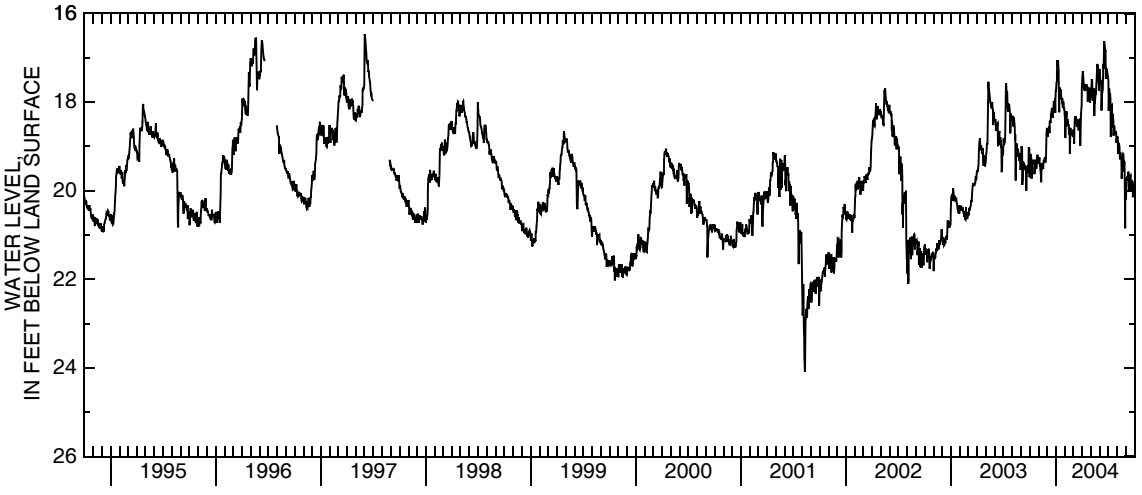
PERIOD OF RECORD.—January 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 37.64 ft below land-surface datum, Dec. 11, 1962; minimum daily low, 16.04 ft below land-surface datum, Apr. 29, 1993.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.70	19.39	18.72	17.74	18.35	18.62	17.44	17.82	17.25	17.49	18.80	19.99
2	19.48	19.31	18.77	17.58	18.81	18.66	17.35	17.75	17.40	18.20	18.78	19.76
3	19.23	19.31	18.77	17.53	18.49	18.67	17.30	17.58	17.51	17.93	19.17	19.71
4	19.17	19.25	18.64	17.52	18.55	18.94	17.39	17.48	17.52	17.69	18.98	19.71
5	19.21	19.39	18.61	17.05	18.52	18.55	17.47	17.55	17.50	17.81	18.93	19.71
6	19.25	19.42	18.65	17.11	18.21	18.38	17.54	17.53	17.56	17.81	18.94	19.67
7	19.27	19.49	18.61	17.10	18.46	18.34	17.73	17.95	18.19	17.83	18.95	19.71
8	19.73	19.56	18.55	17.09	18.54	18.32	17.59	17.97	17.90	17.94	18.99	19.69
9	19.55	19.58	18.70	17.25	18.38	18.42	17.66	17.83	17.80	18.79	19.18	19.57
10	19.40	19.81	18.44	17.30	18.44	18.44	17.69	17.72	17.77	18.45	19.29	20.02
11	19.39	19.51	18.42	18.01	18.47	18.33	17.73	17.76	17.72	18.21	19.17	19.81
12	19.39	19.38	18.46	18.23	18.52	18.48	17.73	17.69	17.49	18.07	19.14	19.67
13	19.41	19.53	18.47	17.83	18.52	18.56	17.63	18.31	17.14	18.06	19.20	19.68
14	19.30	19.49	18.26	17.67	18.52	18.44	17.63	17.89	17.25	18.56	19.24	19.69
15	19.34	19.44	18.35	17.75	18.68	18.51	17.64	18.04	17.01	18.28	19.28	19.68
16	19.34	19.46	18.22	17.78	18.73	18.41	17.60	17.91	16.66	18.28	19.73	19.66
17	19.35	19.51	18.16	17.72	18.69	18.41	17.63	17.81	16.62	18.58	19.56	20.00
18	19.63	19.37	18.13	17.74	19.17	18.49	17.65	17.71	16.72	18.39	19.26	19.83
19	19.45	19.32	18.22	17.86	18.85	18.64	17.66	17.82	16.82	18.76	19.26	19.83
20	19.42	19.36	18.36	17.94	18.58	18.46	17.99	17.64	16.85	18.58	19.23	19.78
21	19.30	19.30	18.30	17.91	18.70	18.42	17.79	17.54	16.82	18.53	19.17	19.78
22	19.34	19.27	18.23	17.98	18.74	18.47	17.84	17.24	17.48	18.56	19.18	19.79
23	19.43	19.26	18.11	17.97	18.69	18.40	17.78	17.14	17.31	18.67	19.57	19.80
24	19.50	19.34	18.01	18.13	18.71	18.37	17.85	17.21	17.25	18.70	19.44	20.15
25	19.48	19.35	18.02	18.11	18.73	18.99	17.69	17.19	17.26	18.74	19.35	19.97
26	19.46	19.31	18.09	17.98	18.71	18.75	17.69	17.20	17.30	18.70	19.36	19.90
27	19.29	19.28	18.04	18.04	18.76	18.44	17.92	17.53	17.32	18.65	20.35	19.85
28	19.19	18.91	17.92	18.14	18.77	18.25	18.01	17.48	17.37	18.71	20.85	19.88
29	19.31	18.71	18.24	18.14	18.71	18.15	17.92	17.75	17.41	18.92	19.96	19.90
30	19.31	18.58	17.97	18.17	---	18.07	17.89	17.58	17.47	18.86	19.74	19.92
31	19.34	---	17.74	18.30	---	17.66	---	17.34	---	18.77	20.20	---
MAX	19.73	19.81	18.77	18.30	19.17	18.99	18.01	18.31	18.19	18.92	20.85	20.15

CAL YR 2003 LOW 20.65
WTR YR 2004 LOW 20.85



Ground-Water Records—Geauga County

412518081221500. Local Number, GE-3A

LOCATION.—Latitude 41°25′18″, longitude 81°22′15″, Geauga County, Hydrologic Unit 04110003, 1.2 miles southeast of Chagrin Falls, Ohio. 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 1,130 ft above sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR. Water level affected by pumping wells nearby.

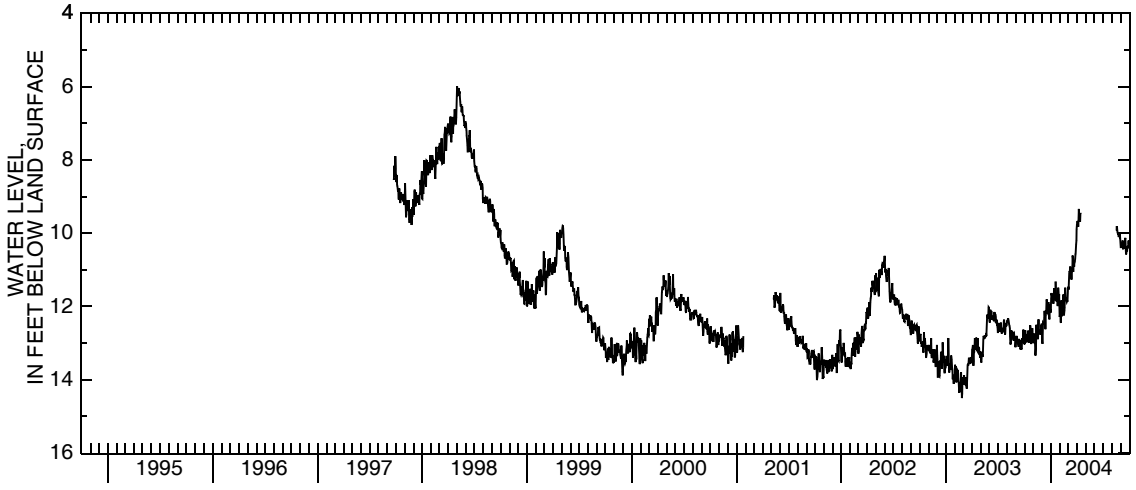
PERIOD OF RECORD.—October 1951 to September 1991 continuous. Discontinued October 1991 to March 1996. Periodic measurements April 1996 to September 1997. Continuous September 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 52.85 ft below land-surface datum, Oct. 18, 1965; minimum daily low, 5.99 ft below land-surface datum, May 2, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.02	13.00	12.74	12.17	12.29	11.52	9.78	---	---	---	---	10.38
2	13.00	12.98	12.95	11.79	12.24	11.46	9.71	---	---	---	---	10.38
3	12.99	12.85	13.02	11.63	11.97	11.54	9.67	---	---	---	---	10.32
4	12.65	12.74	12.87	11.70	12.41	11.34	9.71	---	---	---	---	10.32
5	12.84	12.85	12.45	11.67	12.45	11.09	9.83	---	---	---	---	10.35
6	12.93	12.87	12.47	11.82	11.84	11.06	9.78	---	---	---	---	10.29
7	12.93	12.98	12.47	11.81	11.99	11.06	9.51	---	---	---	---	10.22
8	12.96	13.28	12.44	11.81	12.27	10.91	9.34	---	---	---	---	10.22
9	12.98	13.34	12.30	11.87	12.11	11.15	9.57	---	---	---	---	10.29
10	12.92	13.14	12.12	11.92	11.84	11.22	9.65	---	---	---	---	10.42
11	12.90	12.77	12.14	11.78	11.91	11.03	9.67	---	---	---	---	10.41
12	12.75	12.50	12.45	11.51	11.88	11.00	9.69	---	---	---	---	10.34
13	12.81	12.77	12.62	11.69	11.85	11.27	9.45	---	---	---	---	10.37
14	12.66	12.77	12.24	11.69	11.67	11.07	9.47	---	---	---	---	10.35
15	12.71	12.75	12.18	11.67	12.08	10.97	---	---	---	---	---	10.29
16	12.89	12.75	12.15	11.79	12.24	10.89	---	---	---	---	---	10.16
17	12.99	12.89	11.85	11.78	12.11	10.61	---	---	---	---	9.93	10.13
18	12.96	12.77	11.81	11.33	12.03	10.68	---	---	---	---	9.81	10.41
19	12.93	12.35	11.91	11.61	11.63	11.06	---	---	---	---	9.87	10.58
20	12.93	12.65	12.17	11.84	11.49	10.91	---	---	---	---	9.95	10.55
21	12.51	12.67	12.18	11.84	11.60	10.79	---	---	---	---	9.99	10.50
22	12.60	12.67	12.05	11.64	11.82	10.91	---	---	---	---	10.02	10.47
23	12.77	12.67	11.96	11.70	11.82	10.82	---	---	---	---	10.02	10.47
24	13.00	12.65	11.88	11.94	11.75	10.79	---	---	---	---	10.08	10.40
25	13.00	12.77	12.09	11.99	11.85	10.77	---	---	---	---	10.08	10.35
26	12.98	12.75	12.30	11.90	11.87	10.70	---	---	---	---	10.08	10.41
27	12.81	12.75	12.35	11.49	11.85	10.58	---	---	---	---	10.09	10.34
28	12.59	12.51	12.18	11.70	11.87	10.55	---	---	---	---	10.05	10.20
29	12.69	12.53	11.94	11.81	11.72	10.31	---	---	---	---	10.05	10.29
30	12.85	12.47	12.11	11.66	---	10.20	---	---	---	---	10.19	10.41
31	12.85	---	12.09	12.11	---	9.89	---	---	---	---	10.32	---
MAX	13.02	13.34	13.02	12.17	12.45	11.54	9.83	---	---	---	10.32	10.58

CAL YR 2003 LOW 14.50
WTR YR 2004 LOW 13.34



Ground-Water Records—Hancock County

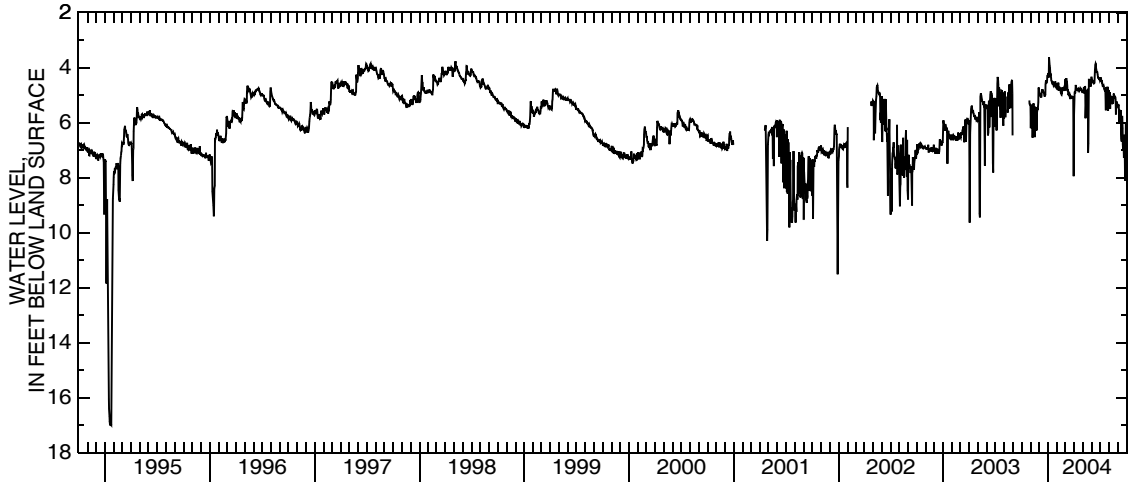
405940083275500. Local Number, HA-3

LOCATION.—Latitude 40°59′40″, longitude 83°27′55″, Hancock County, Hydrologic Unit 0410008, 2 miles north of Vanlue, Ohio. 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 sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
PERIOD OF RECORD.—May 1947 to September 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, 3.62 ft below land-surface datum, Jan. 5, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	5.38	4.89	4.29	4.72	4.57	5.77	4.85	4.32	4.43	4.93	5.38
2	---	6.20	4.96	4.20	4.70	4.41	5.09	4.85	4.45	4.42	5.27	5.36
3	---	5.44	5.00	4.31	4.66	4.82	4.89	4.85	4.53	4.42	4.90	5.35
4	---	5.34	4.95	4.35	4.78	4.70	4.88	4.81	4.53	4.35	4.89	5.40
5	---	5.42	4.99	3.62	4.81	4.38	4.89	4.74	4.52	4.48	5.49	5.97
6	---	5.42	5.05	3.77	4.54	4.51	4.82	4.75	4.49	4.50	5.08	5.77
7	---	5.43	5.06	3.92	4.73	4.51	4.62	4.94	4.52	4.46	5.04	5.76
8	---	6.54	5.06	4.00	4.83	4.66	4.67	4.81	4.57	4.55	5.08	5.53
9	---	6.41	5.06	4.21	4.75	4.82	4.78	4.67	4.57	4.62	5.09	5.73
10	---	5.63	5.00	4.28	4.69	4.85	4.78	4.70	4.56	4.65	5.04	5.79
11	---	5.34	4.78	4.27	4.75	4.79	4.79	5.84	4.54	4.64	5.09	5.55
12	---	5.29	4.86	4.37	4.76	4.95	4.78	5.56	4.38	4.63	5.33	6.36
13	---	5.47	4.88	4.46	4.79	4.99	4.73	5.08	4.07	4.68	5.24	6.58
14	---	5.47	4.79	4.48	4.74	4.94	4.80	4.83	3.91	4.70	5.27	6.68
15	---	5.40	4.90	4.54	4.91	4.98	4.82	4.90	3.85	4.75	5.30	6.25
16	---	6.52	4.88	4.57	4.95	4.95	4.78	4.91	3.89	4.79	5.10	5.75
17	---	5.54	4.89	4.56	4.92	4.98	4.79	4.87	4.02	4.80	4.95	6.20
18	---	5.43	4.90	4.50	4.93	5.07	4.77	4.81	4.09	4.82	4.94	6.77
19	---	5.64	4.95	4.56	4.79	5.14	4.81	4.79	4.16	4.82	5.07	7.00
20	---	5.47	5.03	4.63	4.71	5.04	4.79	7.09	4.18	5.34	5.10	6.70
21	---	5.46	5.03	4.61	4.76	5.06	4.75	6.75	4.14	5.55	5.02	6.95
22	---	6.26	4.97	4.58	4.82	5.09	4.81	4.74	4.25	4.70	5.06	7.27
23	---	6.28	4.97	4.61	4.81	5.05	4.80	4.43	4.31	4.73	5.09	6.65
24	---	5.52	4.60	4.64	4.79	5.05	4.83	4.43	4.34	4.81	5.14	6.44
25	---	5.54	4.45	4.66	4.80	5.08	4.76	4.43	4.39	4.78	5.70	7.65
26	---	5.50	4.55	4.50	4.69	5.08	4.78	4.44	4.35	4.71	5.28	8.01
27	---	5.50	4.55	4.53	4.71	5.09	4.84	4.46	4.40	4.69	5.25	8.11
28	5.19	5.25	4.50	4.61	4.71	5.07	4.86	4.63	4.39	4.76	5.25	6.37
29	5.31	4.76	4.45	4.61	4.65	5.03	4.89	4.68	4.41	5.56	5.28	6.01
30	5.33	4.71	4.30	4.57	---	7.11	4.89	4.63	4.45	4.86	5.32	6.23
31	5.34	---	4.26	4.68	---	7.94	---	4.41	---	4.81	5.36	---
MAX	5.34	6.54	5.06	4.68	4.95	7.94	5.77	7.09	4.57	5.56	5.70	8.11

CAL YR 2003 LOW 9.63
WTR YR 2004 LOW 8.11



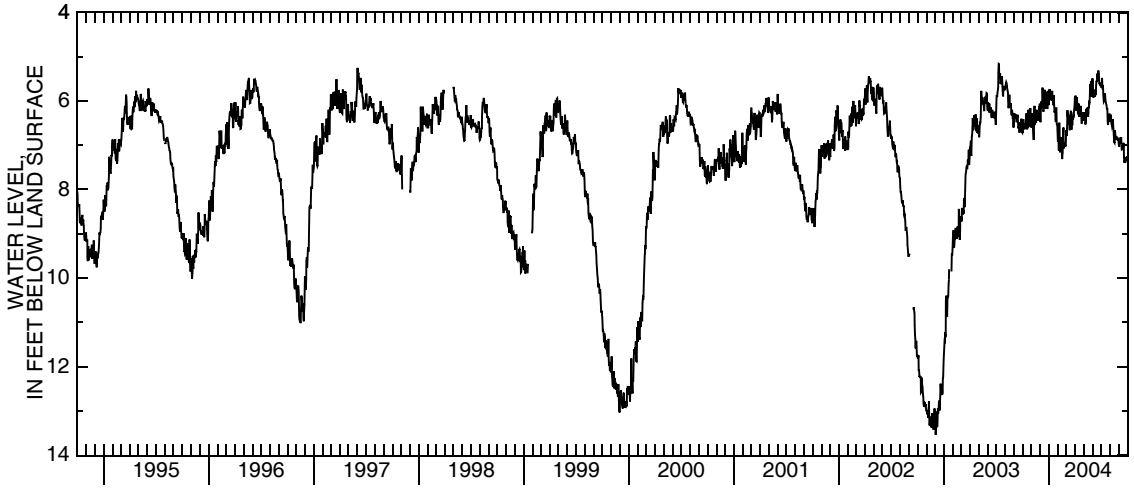
Ground-Water Records—Hardin County

404648083412600. Local Number, HN-2A

LOCATION.—Latitude 40°46′48″, longitude 83°41′26″, Hardin County, Hydrologic Unit 04100007, at southeast edge of Dola, Ohio. Owner: Kevin Eikenbary.
AQUIFER.—Limestone of Silurian Age.
WELL CHARACTERISTICS.—Drilled unused artesian well, diameter 6 in., depth 51 ft, cased.
INSTRUMENTATION.—Electronic data logger, 60-minute log interval. Satellite telemeter at site.
DATUM.—Elevation of land-surface datum is 945 ft above sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
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, 5.16 ft below land-surface datum, July 10, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.69	6.60	6.36	6.09	6.92	6.66	5.92	6.25	5.53	5.63	6.47	7.03
2	6.72	6.47	6.48	5.77	6.85	6.75	5.93	6.34	5.76	5.63	6.39	6.97
3	6.57	6.40	6.46	5.73	6.87	6.79	5.88	6.40	5.91	5.59	6.31	6.89
4	6.41	6.28	6.24	5.75	7.12	6.54	6.08	6.37	5.91	5.48	6.33	6.93
5	6.51	6.48	6.01	5.77	7.10	6.21	6.22	6.25	5.80	5.72	6.49	6.92
6	6.59	6.53	6.14	5.93	6.49	6.35	6.11	6.27	5.74	5.72	6.55	6.82
7	6.58	6.66	6.14	5.89	6.96	6.31	5.94	6.53	5.83	5.65	6.52	6.84
8	6.64	6.84	6.04	5.78	7.16	6.31	5.94	6.46	5.90	5.87	6.59	6.82
9	6.61	6.88	5.93	5.94	6.91	6.48	6.14	6.20	5.88	5.96	6.58	6.98
10	6.55	6.62	5.70	5.99	6.84	6.53	6.21	6.20	5.80	6.01	6.41	7.09
11	6.54	6.21	5.98	5.82	6.91	6.33	6.26	6.28	5.77	5.99	6.50	7.08
12	6.52	6.11	6.20	5.77	6.96	6.50	6.24	6.23	5.87	5.88	6.56	7.04
13	6.55	6.54	6.24	5.92	6.95	6.66	6.06	6.20	5.65	5.89	6.72	7.07
14	6.28	6.51	5.85	5.87	6.81	6.41	6.25	6.15	5.54	5.83	6.85	7.05
15	6.48	6.39	5.95	6.03	7.19	6.47	6.36	6.30	5.55	5.92	6.93	7.04
16	6.57	6.40	5.75	6.09	7.31	6.30	6.30	6.36	5.55	5.98	6.94	6.94
17	6.64	6.49	5.79	6.00	7.18	6.22	6.32	6.26	5.38	6.04	6.83	7.03
18	6.56	6.27	5.75	5.87	7.17	6.34	6.33	6.13	5.46	6.08	6.66	7.26
19	6.50	6.20	5.93	6.12	6.81	6.65	6.33	6.16	5.51	6.10	6.79	7.39
20	6.48	6.33	6.17	6.26	6.60	6.38	6.32	6.03	5.50	6.16	6.81	7.35
21	6.20	6.33	6.14	6.22	6.94	6.43	6.11	6.04	5.31	6.20	6.82	7.34
22	6.27	6.29	5.96	6.24	7.07	6.55	6.29	5.86	5.42	6.16	6.83	7.36
23	6.41	6.29	5.79	6.24	7.00	6.43	6.35	5.62	5.48	6.44	6.80	7.34
24	6.56	6.41	5.88	6.45	6.99	6.35	6.51	5.70	5.60	6.54	6.86	7.27
25	6.55	6.44	6.06	6.46	7.03	6.41	6.27	5.67	5.61	6.48	6.86	7.32
26	6.50	6.37	6.18	6.15	6.97	6.31	6.27	5.58	5.59	6.34	6.88	7.35
27	6.35	6.33	6.15	6.27	7.01	6.32	6.34	5.55	5.62	6.29	6.88	7.27
28	6.16	6.11	5.95	6.51	7.01	6.27	6.37	5.80	5.61	6.35	6.85	7.27
29	6.33	6.19	5.77	6.54	6.85	6.18	6.44	5.91	5.65	6.37	6.83	7.31
30	6.37	6.06	6.04	6.52	---	6.06	6.39	5.79	5.69	6.29	6.92	7.39
31	6.46	---	6.06	6.83	---	5.93	---	5.49	---	6.37	6.99	---
MAX	6.72	6.88	6.48	6.83	7.31	6.79	6.51	6.53	5.91	6.54	6.99	7.39
CAL YR 2003		LOW 11.75										
WTR YR 2004		LOW 7.39										



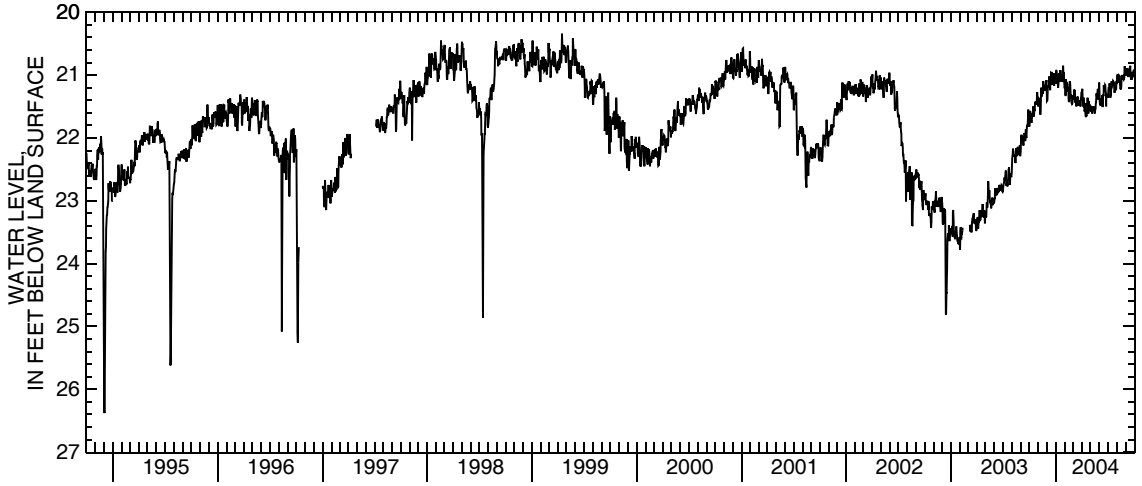
Ground-Water Records—Henry County

412123083574000. Local Number, HY-2

LOCATION.—Latitude 41°21′23″, longitude 83°57′40″, Henry County, Hydrologic Unit 04100009, 1.4 mi southwest of McClure, Ohio. 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 sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
PERIOD OF RECORD.—June 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 26.38 ft below land-surface datum, Dec. 3, 1994; minimum daily low, 14.55 ft below land-surface datum, Mar. 22, 1978.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.82	21.50	21.26	21.14	21.21	21.32	21.26	21.49	21.13	21.36	21.14	21.00
2	21.80	21.45	21.41	20.96	21.20	21.36	21.24	21.50	21.29	21.33	21.11	20.94
3	21.74	21.41	21.40	20.93	21.16	21.39	21.22	21.58	21.43	21.24	21.04	20.95
4	21.57	21.36	21.34	20.93	21.32	21.34	21.35	21.54	21.48	21.19	20.99	20.93
5	21.68	21.43	21.16	20.96	21.32	21.24	21.50	21.54	21.43	21.22	21.10	20.96
6	21.72	21.47	21.20	21.04	21.07	21.24	21.43	21.52	21.37	21.22	21.12	20.89
7	21.72	21.50	21.19	21.06	21.12	21.25	21.45	21.61	21.44	21.13	21.09	20.92
8	21.72	21.62	21.17	21.12	21.26	21.25	21.36	21.59	21.46	21.20	21.09	20.91
9	21.76	21.62	21.14	21.17	21.20	21.39	21.51	21.50	21.49	21.26	21.10	20.92
10	21.70	21.56	21.02	21.20	21.15	21.44	21.51	21.53	21.42	21.36	21.01	21.01
11	21.66	21.35	21.08	21.14	21.14	21.36	21.58	21.55	21.32	21.32	21.02	21.03
12	21.60	21.20	21.18	20.97	21.22	21.41	21.54	21.55	21.44	21.22	21.08	20.96
13	21.65	21.33	21.24	21.07	21.20	21.50	21.45	21.53	21.51	21.23	21.21	20.99
14	21.56	21.34	21.11	21.07	21.21	21.42	21.61	21.50	21.33	21.10	21.21	20.97
15	21.50	21.28	21.05	21.07	21.37	21.45	21.67	21.54	21.32	21.15	21.22	20.95
16	21.54	21.26	20.97	21.10	21.43	21.40	21.65	21.60	21.32	21.17	21.22	20.87
17	21.66	21.30	20.98	21.07	21.41	21.36	21.64	21.60	21.16	21.15	21.18	20.85
18	21.59	21.25	20.95	20.92	21.40	21.34	21.64	21.54	21.21	21.13	21.05	20.96
19	21.56	21.10	21.02	21.05	21.22	21.49	21.56	21.53	21.26	21.09	21.00	21.05
20	21.56	21.21	21.14	21.09	21.10	21.40	21.61	21.46	21.25	21.10	21.03	21.07
21	21.44	21.24	21.14	21.11	21.17	21.41	21.36	21.43	21.16	21.16	21.02	21.04
22	21.43	21.24	21.04	20.99	21.32	21.48	21.48	21.31	21.17	21.11	21.07	21.07
23	21.43	21.19	21.04	21.05	21.31	21.44	21.52	21.29	21.25	21.19	21.01	21.04
24	21.47	21.18	20.97	21.03	21.39	21.47	21.61	21.34	21.28	21.28	21.06	20.95
25	21.44	21.21	21.05	21.11	21.43	21.47	21.51	21.32	21.50	21.26	21.07	20.97
26	21.45	21.18	21.15	20.99	21.45	21.43	21.41	21.27	21.36	21.19	21.04	20.99
27	21.45	21.25	21.17	20.85	21.46	21.50	21.46	21.22	21.34	21.17	21.05	21.00
28	21.30	21.10	21.08	20.99	21.45	21.44	21.51	21.33	21.30	21.17	20.88	20.94
29	21.27	21.12	20.97	21.02	21.41	21.38	21.53	21.39	21.33	21.21	20.86	20.94
30	21.34	21.08	21.08	20.96	---	21.35	21.52	21.34	21.35	21.24	20.91	20.91
31	21.36	---	21.09	21.12	---	21.28	---	21.12	---	21.09	20.95	---
MAX	21.82	21.62	21.41	21.20	21.46	21.50	21.67	21.61	21.51	21.36	21.22	21.07
CAL YR 2003		LOW 23.78										
WTR YR 2004		LOW 21.82										



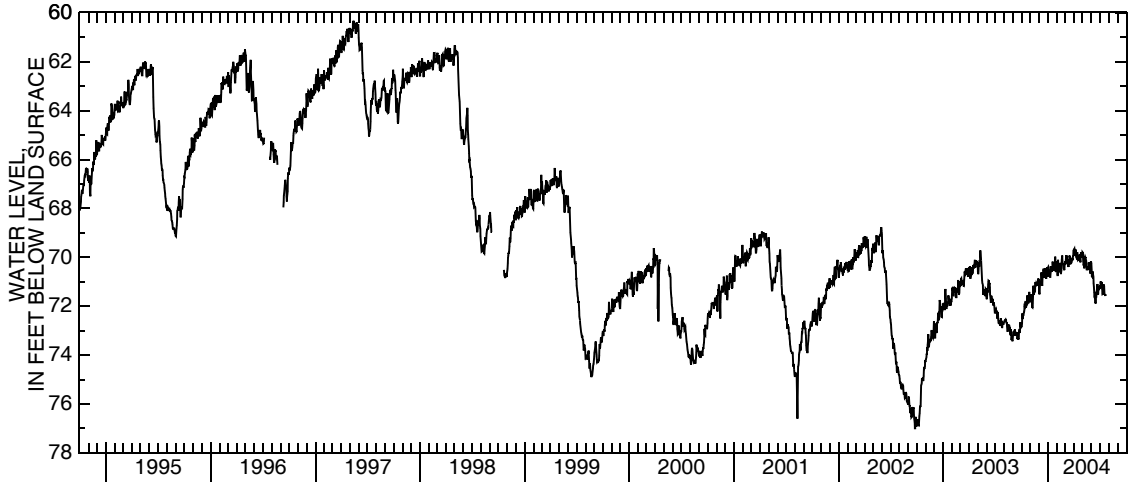
Ground-Water Records—Lucas County

413704083362200. Local Number, LU-1

LOCATION.—Latitude 41°37′04″, longitude 83°36′22″, Lucas County, Hydrologic Unit 04100001, at Toledo State Hospital, Toledo, Ohio. 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 ft, cased to 93 ft.
INSTRUMENTATION.—Type F continuous recorder.
DATUM.—Elevation of land-surface datum is 624 ft above sea level (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 Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR. Prior to Aug. 23, 1978, measuring point was 3.10 ft above land-surface datum. Reported in 1979 as 3 ft above land-surface datum.
PERIOD OF RECORD.—June 1950 to July 1982 continuous, November 1982 to January 1985 periodic, continuous thereafter. This well replaced LU-1A, which has continuous record from March 1946 to June 1950.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 117.80 ft below land-surface datum, Nov. 5-7, 1957; minimum daily low, 56.87 ft below land-surface datum, Apr. 16, 1987.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.85	71.84	71.30	70.80	70.60	70.16	69.71	69.79	70.25	71.16	---	---
2	72.84	71.68	71.45	70.42	70.54	70.26	69.66	69.81	70.52	71.27	---	---
3	72.69	71.65	71.52	70.39	70.39	70.30	69.65	70.01	70.79	71.20	---	---
4	72.30	71.51	71.34	70.43	70.74	70.15	69.80	70.16	70.81	70.99	---	---
5	72.41	71.66	71.08	70.50	70.74	69.91	69.95	70.34	70.70	71.19	---	---
6	72.53	71.71	71.10	70.69	70.11	69.99	69.88	70.27	70.58	71.20	---	---
7	72.40	71.89	71.10	70.67	70.45	69.98	69.68	70.46	70.68	71.01	---	---
8	72.37	72.06	71.01	70.65	70.62	69.98	69.75	70.36	70.81	71.18	---	---
9	72.31	72.07	70.88	70.81	70.33	70.21	69.99	70.01	71.06	71.33	---	---
10	72.24	71.88	70.62	70.84	70.25	70.26	70.03	69.97	71.21	71.51	---	---
11	72.19	71.38	70.83	70.59	70.31	70.08	70.02	70.03	71.44	71.50	---	---
12	72.01	71.17	71.11	70.36	70.33	70.23	70.01	69.99	71.60	71.36	---	---
13	72.03	71.51	71.18	70.52	70.30	70.40	69.79	70.12	71.59	71.31	---	---
14	71.83	71.50	70.82	70.48	70.23	70.19	70.02	70.16	71.67	71.11	---	---
15	71.83	71.37	70.80	70.54	70.59	70.19	70.11	70.43	71.90	71.21	---	---
16	71.98	71.34	70.55	70.60	70.69	70.12	70.09	70.53	71.87	71.21	---	---
17	72.06	71.44	70.49	70.50	70.56	69.93	70.09	70.49	71.58	71.49	---	---
18	72.00	71.19	70.47	70.18	70.53	70.01	70.09	70.37	71.51	71.54	---	---
19	71.94	71.01	70.63	70.42	70.11	70.29	70.04	70.52	71.54	71.58	---	---
20	71.92	71.12	70.85	70.52	69.93	70.10	70.09	70.41	71.47	71.51	---	---
21	71.57	71.16	70.81	70.52	70.13	70.14	69.89	70.50	71.20	71.59	---	---
22	71.64	71.15	70.52	70.35	70.28	70.28	70.12	70.35	71.10	---	---	---
23	71.69	71.07	70.45	70.36	70.28	70.14	70.13	70.21	71.13	---	---	---
24	71.85	71.11	70.48	70.49	70.33	70.10	70.21	70.40	71.52	---	---	---
25	71.82	71.17	70.69	70.51	70.43	70.13	70.00	70.36	71.49	---	---	---
26	71.83	71.10	70.85	70.19	70.43	70.04	69.80	70.25	71.30	---	---	---
27	71.66	71.10	70.88	69.98	70.50	70.13	69.94	70.24	71.31	---	---	---
28	71.42	70.88	70.66	70.20	70.49	70.11	69.94	70.53	71.19	---	---	---
29	71.54	70.97	70.40	70.27	70.32	69.96	70.01	70.67	71.22	---	---	---
30	71.60	70.88	70.66	70.18	---	69.92	69.96	70.55	71.23	---	---	---
31	71.65	---	70.72	70.50	---	69.72	---	70.18	---	---	---	---
MAX	72.85	72.07	71.52	70.84	70.74	70.40	70.21	70.67	71.90	71.59	---	---
CAL YR 2003		LOW 73.44										
WTR YR 2004		LOW 72.85										



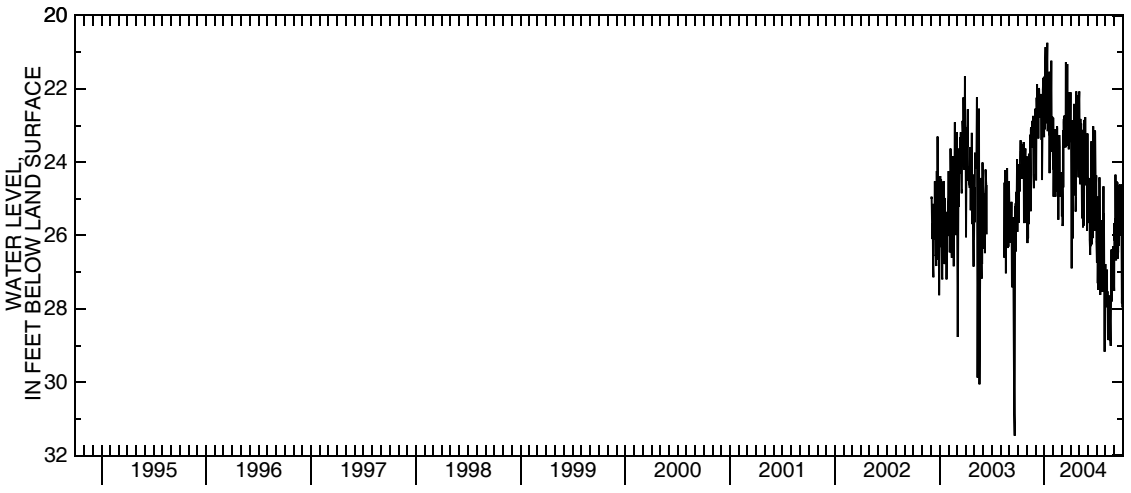
Ground-Water Records—Medina County

410142082005700. Local Number, MD-1A

LOCATION.—Latitude 41°01′42″, longitude 82°00′57″, Medina County, Hydrologic Unit 04110001, at Lodi, Ohio. Owner: Village of Lodi.
AQUIFER.—Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.—Drilled unused water-table well, diameter 6 in., depth 77 ft, cased to 71 ft.
INSTRUMENTATION.—Digital recorder, 60-minute punch.
DATUM.—Elevation of land-surface datum is 910 ft above sea level (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 (ODNR), Division of Water.
PERIOD OF RECORD.—December 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 31.46 ft below land-surface datum, Sept. 19, 2003; minimum daily low, 20.74 ft below land-surface datum, Jan. 11, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.60	25.00	22.78	21.67	22.79	24.52	22.09	22.31	25.37	26.17	26.78	25.66
2	24.61	24.00	22.68	23.11	24.94	25.47	22.86	22.07	25.33	26.74	27.82	26.14
3	24.28	26.21	24.50	21.67	23.74	24.58	23.00	23.71	24.64	26.12	27.14	25.54
4	25.65	24.02	23.27	21.35	23.50	25.74	26.31	24.60	24.77	24.94	27.61	26.27
5	24.06	26.07	22.24	20.86	24.71	25.65	26.90	24.41	25.66	27.30	27.86	24.34
6	24.46	24.71	22.74	22.94	24.94	23.14	24.32	22.82	24.43	26.38	26.93	25.19
7	24.80	25.69	21.87	22.48	23.11	24.69	22.86	24.10	26.12	27.49	27.96	26.68
8	24.41	23.78	23.18	21.35	24.27	22.91	23.08	22.97	26.39	26.72	27.52	24.51
9	23.67	23.77	22.50	21.80	24.19	22.82	26.08	22.95	26.53	25.94	28.02	25.16
10	23.40	24.94	22.47	21.35	23.99	23.59	24.63	24.10	26.09	26.79	28.85	25.73
11	23.63	24.55	23.35	20.74	23.79	22.73	23.60	25.53	26.29	24.41	28.46	24.79
12	23.58	23.25	22.63	23.15	23.33	23.01	24.01	23.94	25.44	26.75	27.87	24.55
13	24.10	23.75	21.98	22.90	24.80	22.81	22.41	25.26	23.43	27.18	28.31	26.63
14	24.18	25.34	22.02	22.12	23.02	23.08	23.81	25.64	26.24	27.62	27.64	26.43
15	24.45	23.10	22.54	22.71	23.08	23.60	22.53	25.78	25.65	27.46	27.84	24.86
16	24.00	23.05	22.25	21.79	24.94	21.27	24.79	23.12	25.67	27.21	28.86	26.28
17	24.13	23.48	22.78	23.26	24.39	23.46	24.90	24.03	24.31	27.24	28.34	25.37
18	23.60	23.25	22.22	21.53	23.80	22.45	23.13	25.73	26.07	25.58	28.84	25.15
19	23.51	23.03	22.43	24.30	25.57	23.55	25.35	23.00	23.02	27.49	29.01	24.64
20	23.80	22.87	22.14	22.38	23.51	23.01	24.94	22.85	23.61	27.39	28.50	24.61
21	23.45	23.60	22.54	22.90	24.43	21.32	22.07	23.99	24.70	27.02	28.03	26.00
22	25.66	23.18	23.39	22.99	23.26	23.29	22.42	23.60	23.36	27.54	26.38	25.18
23	25.31	22.74	22.73	23.10	23.59	22.26	22.96	22.77	25.33	27.46	27.80	25.96
24	24.43	24.32	24.49	22.42	24.53	22.10	23.66	24.14	25.87	27.23	27.37	25.29
25	25.38	24.71	23.06	21.23	24.94	22.85	22.17	24.51	23.14	24.66	27.26	24.61
26	23.84	23.55	22.50	22.29	24.62	23.65	22.57	24.63	23.17	26.97	26.55	25.10
27	23.63	23.67	22.01	23.72	24.47	22.09	24.10	24.49	23.80	25.40	27.19	27.85
28	24.14	23.41	21.70	22.96	24.94	23.45	23.95	23.71	25.14	26.36	26.98	27.10
29	24.15	22.83	23.28	22.76	24.28	23.14	24.41	25.87	24.64	29.17	26.29	27.96
30	25.66	22.54	22.91	23.26	---	23.24	23.79	23.22	24.36	27.41	27.13	26.13
31	23.84	---	23.32	24.19	---	22.50	---	25.13	---	27.22	27.51	---
MAX	25.66	26.21	24.50	24.30	25.57	25.74	26.90	25.87	26.53	29.17	29.01	27.96
CAL YR 2003		LOW 31.46										
WTR YR 2004		LOW 29.17										



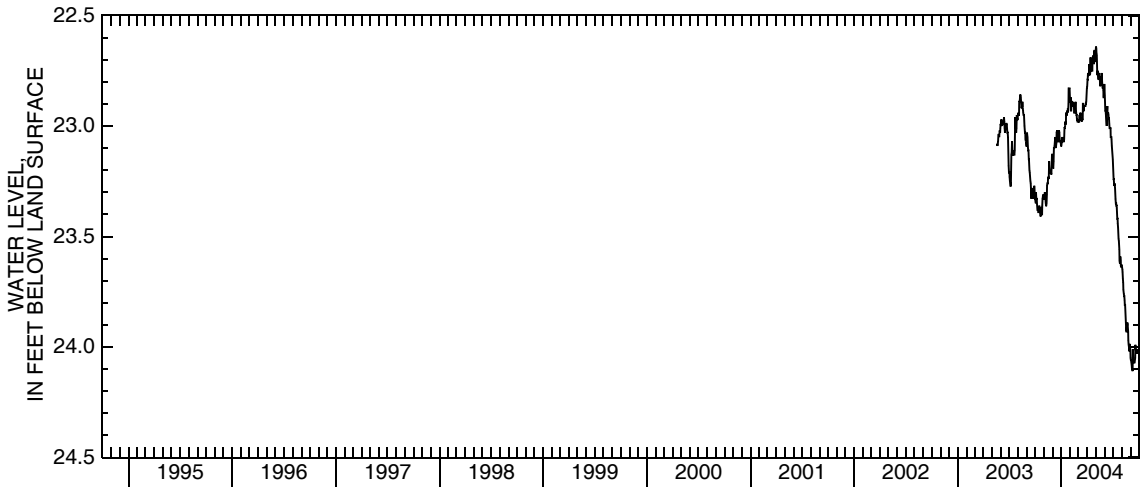
411233081474200. Local Number, MD-6

LOCATION.—Latitude 41°12′33″, longitude 81°47′42″, Medina County, Hydrologic Unit 04110001, south of Brunswick. Owner: State of Ohio.
AQUIFER.—Sandstone of Mississippian Age.
WELL CHARACTERISTICS.—Drilled unused water-table well, diameter 6 in., depth 170 ft, cased to 70 ft.
INSTRUMENTATION.—Electronic data logger, 60-minute log interval.
DATUM.—Elevation of land-surface datum is 1,090 ft above sea level (from topographic map). Measuring point: Floor of instrument shelter 3.50 ft above land-surface datum.
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water.
PERIOD OF RECORD.—May 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 24.11 ft below land-surface datum, Sept. 8, 2004; minimum daily low, 22.64 ft below land-surface datum, May 2, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.33	23.33	23.17	23.09	22.89	22.98	22.82	22.66	22.83	23.17	23.63	24.05
2	23.34	23.33	23.18	23.08	22.89	22.97	22.79	22.64	22.86	23.21	23.64	24.06
3	23.35	23.32	23.19	23.07	22.87	22.98	22.79	22.65	22.89	23.24	23.65	24.06
4	23.30	23.30	23.19	23.06	22.93	22.98	22.76	22.67	22.93	23.24	23.66	24.07
5	23.33	23.32	23.16	23.05	22.93	22.95	22.77	22.68	22.93	23.26	23.69	24.08
6	23.33	23.32	23.10	23.06	22.89	22.97	22.77	22.71	22.94	23.27	23.71	24.10
7	23.35	23.35	23.10	23.07	22.89	22.97	22.76	22.77	22.97	23.26	23.74	24.10
8	23.37	23.36	23.09	23.07	22.90	22.94	22.72	22.75	22.99	23.28	23.76	24.11
9	23.38	23.36	23.07	23.07	22.91	22.96	22.76	22.76	23.00	23.31	23.77	24.01
10	23.38	23.35	23.06	23.07	22.89	22.97	22.76	22.77	22.93	23.33	23.77	24.03
11	23.38	23.31	23.05	23.06	22.91	22.97	22.77	22.79	22.91	23.35	23.79	24.04
12	23.39	23.27	23.09	23.01	22.91	22.97	22.76	22.76	22.94	23.35	23.81	24.05
13	23.39	23.26	23.10	23.01	22.91	22.98	22.69	22.77	22.95	23.36	23.81	24.06
14	23.39	23.26	23.08	23.00	22.90	22.97	22.72	22.78	22.94	23.36	23.85	24.07
15	23.36	23.24	23.03	22.98	22.94	22.97	22.73	22.78	22.95	23.37	23.88	24.07
16	23.37	23.23	23.03	22.99	22.94	22.97	22.74	22.80	22.97	23.42	23.91	24.06
17	23.39	23.24	23.02	22.99	22.94	22.90	22.75	22.82	22.96	23.42	23.93	24.05
18	23.39	23.23	23.03	22.94	22.94	22.90	22.75	22.81	22.99	23.44	23.93	23.99
19	23.38	23.16	23.04	22.95	22.91	22.93	22.75	22.79	23.01	23.46	23.91	24.01
20	23.41	23.18	23.07	22.95	22.89	22.93	22.71	22.80	23.01	23.49	23.90	24.02
21	23.37	23.20	23.07	22.95	22.92	22.91	22.69	22.79	23.01	23.51	23.89	24.01
22	23.37	23.21	23.06	22.93	22.94	22.91	22.69	22.76	23.01	23.52	23.90	24.02
23	23.37	23.21	23.05	22.94	22.95	22.91	22.68	22.78	23.05	23.56	23.93	24.03
24	23.40	23.20	23.02	22.92	22.95	22.91	22.72	22.81	23.05	23.61	23.97	24.02
25	23.40	23.21	23.03	22.93	22.97	22.91	22.71	22.82	23.05	23.62	23.99	24.01
26	23.36	23.21	23.06	22.90	22.97	22.91	22.66	22.83	23.06	23.62	24.00	24.02
27	23.33	23.22	23.07	22.83	22.98	22.90	22.66	22.82	23.09	23.59	24.02	24.02
28	23.32	23.18	23.07	22.83	22.98	22.90	22.68	22.84	23.11	23.61	24.01	24.01
29	23.31	23.13	23.07	22.83	22.98	22.89	22.71	22.87	23.12	23.63	23.99	24.02
30	23.33	23.13	23.08	22.83	---	22.85	22.70	22.87	23.15	23.64	23.99	24.02
31	23.33	---	23.09	22.87	---	22.83	---	22.81	---	23.63	24.02	---
MAX	23.41	23.36	23.19	23.09	22.98	22.98	22.82	22.87	23.15	23.64	24.02	24.11

CAL YR 2003 LOW 23.41
WTR YR 2004 LOW 24.11



Ground-Water Records—Ottawa County

413434082494000. Local Number, O-2

LOCATION.—Latitude 41°34′34″, longitude 82°49′40″, Ottawa County, Hydrologic Unit 04100010. Catawba Island near Port Clinton, Ohio. 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 sea level (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 (ODNR), Division of Water.

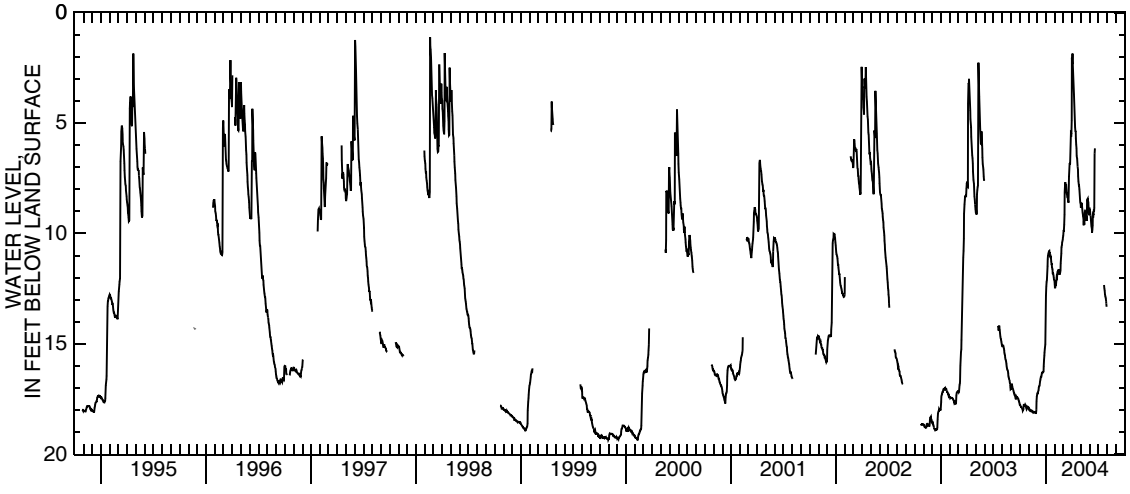
PERIOD OF RECORD.—March 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 19.34 ft below land-surface datum, Oct. 31, 1999, Feb. 9, and 10, 2000; minimum daily low, 1.12 ft below land-surface datum, Feb. 18, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.71	17.92	17.28	12.82	12.45	10.11	2.34	8.84	8.89	---	---	---
2	17.76	17.96	17.24	12.42	12.45	9.88	1.86	8.80	9.00	---	---	---
3	17.77	17.98	17.24	12.20	12.35	9.88	2.21	8.64	9.12	---	---	---
4	17.79	17.95	17.18	12.11	12.37	9.60	2.67	8.61	9.20	---	---	---
5	17.85	17.98	17.13	11.82	12.30	9.15	3.10	8.72	9.38	---	---	---
6	17.86	17.98	17.09	11.48	12.05	8.13	3.34	8.81	9.46	---	---	---
7	17.86	18.00	16.99	11.16	11.97	7.84	3.70	9.06	9.67	---	---	---
8	17.88	18.03	16.92	10.97	12.00	7.68	4.11	9.15	9.79	---	---	---
9	17.90	18.04	16.89	10.93	11.84	7.81	4.54	9.26	9.97	---	---	---
10	17.93	18.05	16.84	10.89	11.73	7.85	4.86	9.30	9.84	---	---	---
11	17.97	18.02	16.70	10.80	11.70	7.78	5.19	9.63	9.64	---	---	---
12	18.01	18.01	16.63	10.79	11.69	8.01	5.37	9.45	9.21	---	---	---
13	17.99	18.03	16.58	10.88	11.66	8.19	5.39	9.61	9.12	---	---	---
14	17.97	18.05	16.50	10.85	11.62	8.19	5.69	9.16	9.15	---	---	---
15	17.84	18.07	16.49	11.04	11.79	8.34	5.98	9.05	8.96	---	---	---
16	17.72	18.08	16.43	11.07	11.84	8.37	6.15	9.08	8.96	---	---	---
17	17.77	18.11	16.36	11.04	11.84	8.45	6.49	9.04	8.84	---	---	---
18	17.79	18.10	16.30	11.08	11.84	8.53	6.63	9.07	6.39	---	---	---
19	17.79	18.07	16.28	11.28	11.76	8.61	6.86	9.20	6.15	---	---	---
20	17.79	18.08	16.30	11.39	11.68	8.29	6.98	9.23	---	---	---	---
21	17.76	18.10	16.28	11.39	11.35	7.42	7.10	9.43	---	12.33	---	---
22	17.79	18.10	16.26	11.54	11.13	6.95	7.40	9.02	---	12.49	---	---
23	17.83	18.10	16.24	11.62	10.90	6.81	7.64	8.53	---	12.59	---	---
24	17.86	18.10	16.00	11.80	10.62	6.85	7.83	8.45	---	12.76	---	---
25	17.94	18.12	15.72	11.80	10.52	6.84	7.83	8.42	---	12.84	---	---
26	17.93	18.13	15.53	11.85	10.42	6.38	8.00	8.53	---	12.90	---	---
27	17.87	18.13	15.38	11.90	10.34	5.82	8.24	8.59	---	12.94	---	---
28	17.84	17.99	15.22	12.00	10.28	5.46	8.35	8.92	---	13.06	---	---
29	17.84	17.59	15.02	12.08	10.19	5.49	8.57	9.10	---	13.17	---	---
30	17.86	17.38	14.48	12.12	---	4.88	8.66	9.17	---	13.32	---	---
31	17.89	---	13.30	12.31	---	2.05	---	8.90	---	---	---	---
MAX	18.01	18.13	17.28	12.82	12.45	10.11	8.66	9.63	9.97	13.32	---	---

CAL YR 2003 LOW 18.13
WTR YR 2004 LOW 18.13



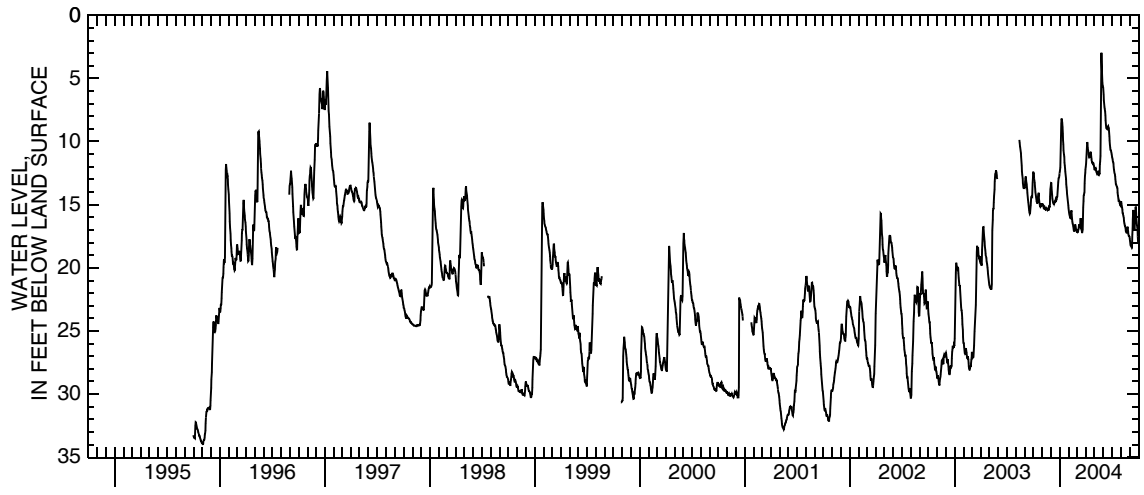
Ground-Water Records—Portage County

410931081192900. Local Number, PO-123

LOCATION.—Latitude 41°09′31″, longitude 81°19′29″, Portage County, Hydrologic Unit 04110002, east of Kent, Ohio. Owner: City of Kent.
AQUIFER.—Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.—Drilled unused artesian well, diameter 6 in., cased.
INSTRUMENTATION.—Digitial recorder, 60-minute punch.
DATUM.—Elevation of land-surface datum is 1,042 ft above sea level (from topographic map). Measuring point: Floor of instrument shelter 3.5 ft above land-surface datum.
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 33.97 ft below land-surface datum, Nov. 3, 1995; minimum daily low, 2.97 ft below land-surface datum, May 25, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.46	15.06	13.43	12.54	15.27	17.07	12.02	12.21	5.95	11.09	15.03	17.71
2	12.46	15.05	13.29	12.37	15.45	17.17	11.77	12.23	6.30	11.26	14.74	17.91
3	12.56	14.92	13.31	12.05	15.66	17.18	11.21	12.19	6.72	11.40	14.89	18.13
4	12.90	15.03	13.62	11.74	15.79	17.17	10.73	12.15	7.01	11.56	15.04	18.22
5	13.11	15.09	13.97	10.88	15.88	17.12	10.24	12.10	7.27	11.61	15.23	18.21
6	13.27	15.18	14.26	9.51	16.03	17.00	10.04	12.14	7.38	11.70	15.42	18.26
7	13.49	15.31	14.51	8.57	16.07	16.94	10.14	12.36	7.62	11.93	15.65	18.37
8	13.76	15.32	14.72	8.19	16.08	16.58	10.46	12.45	7.95	12.20	15.69	18.43
9	14.00	15.27	14.86	8.41	15.80	16.65	10.76	12.49	8.32	12.45	15.87	18.40
10	14.25	15.20	14.91	8.50	15.61	16.69	11.03	12.42	8.65	12.55	15.89	17.38
11	14.46	15.31	14.90	8.85	15.46	16.72	11.10	12.44	8.90	12.61	16.05	16.86
12	14.55	15.34	14.89	9.40	15.78	16.76	11.17	12.42	8.97	12.79	16.29	16.15
13	14.73	15.40	14.93	9.89	16.08	16.45	11.26	12.49	9.00	12.99	16.46	15.42
14	14.83	15.39	14.83	10.24	16.33	16.07	11.25	12.57	9.02	13.19	16.56	15.94
15	14.91	15.37	14.79	10.71	16.43	16.46	11.01	12.65	9.00	13.38	16.66	16.39
16	14.79	15.35	14.75	11.04	16.54	16.70	10.91	12.66	8.98	13.44	16.72	16.85
17	14.61	15.28	14.75	11.23	16.69	16.91	10.87	12.49	8.81	13.55	16.87	17.04
18	14.40	15.32	14.64	11.66	16.82	17.07	10.87	12.55	8.77	13.57	17.07	16.96
19	14.22	15.42	14.55	11.89	17.00	17.19	11.03	12.54	8.90	13.62	17.16	16.31
20	14.07	15.46	14.61	12.17	17.09	17.18	11.16	11.84	8.95	13.71	17.21	15.79
21	14.47	15.43	14.57	12.37	17.09	16.97	11.38	11.59	9.27	14.05	17.21	15.21
22	14.68	15.39	14.47	12.76	17.06	15.81	11.55	11.15	9.61	14.28	17.07	15.20
23	14.89	15.36	14.38	12.97	16.71	15.22	11.68	8.04	9.93	14.52	16.89	15.64
24	15.05	15.45	14.37	13.37	16.58	14.71	11.72	4.76	10.26	14.69	16.75	16.04
25	15.13	15.26	13.93	13.62	16.70	14.29	11.61	2.97	10.50	14.70	16.93	16.39
26	15.17	15.14	13.53	13.91	16.78	14.19	11.70	3.68	10.66	14.68	17.15	16.63
27	15.14	15.15	13.21	14.13	16.92	14.01	11.75	4.36	10.70	14.70	17.32	16.80
28	15.06	14.98	12.96	14.36	17.08	13.31	11.74	4.97	10.82	14.89	17.42	17.08
29	14.97	14.36	12.83	14.59	17.11	12.74	11.91	5.34	10.87	14.94	17.48	17.50
30	14.98	13.78	12.88	14.82	---	12.48	12.07	5.57	11.01	15.05	17.48	18.00
31	14.97	---	12.68	15.07	---	12.21	---	5.72	---	15.09	17.54	---
MAX	15.17	15.46	14.93	15.07	17.11	17.19	12.07	12.66	11.01	15.09	17.54	18.43
CAL YR 2003		LOW 28.08										
WTR YR 2004		LOW 18.43										



Ground-Water Records—Putnam County

405505084032900. Local Number, PU-1

LOCATION.—Latitude 40°55′05″, longitude 84°03′29″, Putnam County, Hydrologic Unit 04100007, Center and Broadway Street, Columbus Grove, Ohio. Owner: Village of Columbus Grove.

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 sea level (from topographic map). Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.

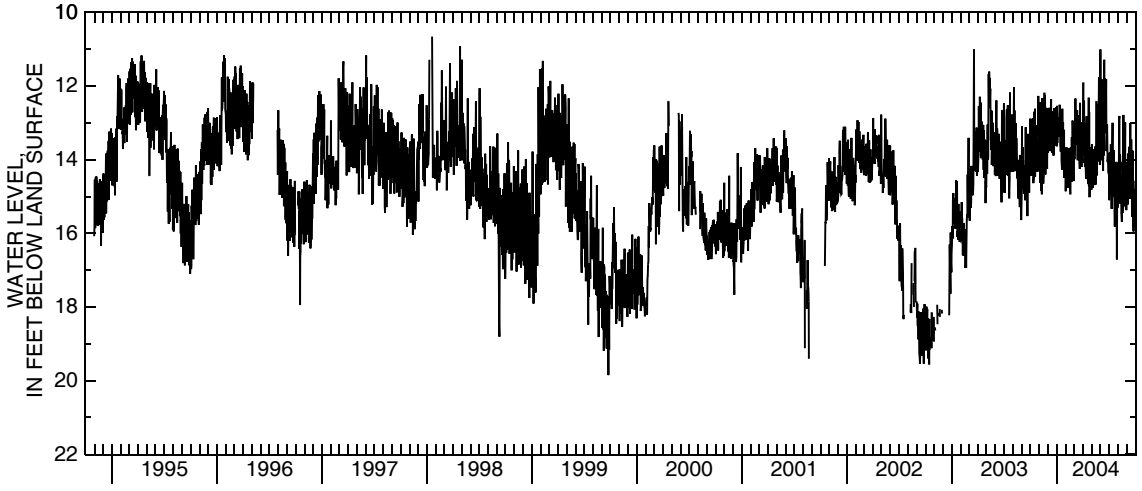
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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, 8.80 ft below land-surface datum, Dec. 30, 1990.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.89	14.31	13.81	13.64	14.86	14.15	13.05	14.82	11.01	14.50	15.30	14.59
2	13.22	12.78	13.73	12.54	14.30	13.37	11.91	13.59	12.62	15.10	14.09	14.74
3	13.68	13.67	13.01	13.55	14.34	13.99	13.72	14.58	13.37	13.81	15.13	15.22
4	14.40	14.63	12.61	13.35	13.66	13.11	13.85	14.60	13.53	14.37	14.92	15.00
5	14.44	12.44	13.64	12.85	14.54	12.93	12.40	13.85	13.85	14.94	12.91	13.96
6	12.95	13.79	13.32	13.00	14.48	12.34	13.91	14.76	13.27	14.28	12.81	13.83
7	13.78	14.21	12.59	13.38	13.81	13.41	13.03	14.43	14.02	13.59	15.19	15.07
8	12.91	14.84	13.77	13.30	14.77	13.60	14.20	14.63	11.83	14.03	13.86	13.94
9	13.78	14.44	13.25	13.29	14.70	12.68	14.14	13.71	13.92	14.81	14.16	13.71
10	12.88	14.94	13.73	12.78	14.63	13.00	13.52	14.38	14.30	15.34	14.26	13.65
11	13.69	14.01	12.85	12.51	14.37	13.16	14.21	13.86	13.17	14.89	14.06	14.88
12	14.64	12.33	12.36	12.65	13.69	12.66	14.51	14.52	13.89	14.31	15.00	14.20
13	14.44	13.55	13.42	13.61	14.68	13.87	13.32	14.69	13.16	13.00	15.45	13.01
14	12.70	12.38	12.69	13.71	14.77	14.02	12.82	13.64	11.29	14.89	15.69	15.07
15	12.80	14.65	13.81	13.78	14.03	13.07	14.40	13.77	12.46	14.86	15.58	15.03
16	13.83	14.44	13.50	13.67	14.82	13.25	13.72	14.67	11.79	14.97	14.52	13.45
17	12.62	12.62	12.75	13.10	14.94	13.07	13.61	14.22	12.73	14.96	15.44	14.08
18	14.46	13.53	12.87	14.01	14.90	12.80	14.52	12.42	12.83	13.74	15.40	15.04
19	13.52	12.19	13.68	14.28	13.66	13.88	14.66	14.28	13.28	14.76	15.29	15.56
20	13.07	13.62	13.17	12.62	14.37	14.04	14.43	14.43	12.56	15.75	12.79	14.62
21	13.73	12.26	13.89	13.65	14.61	14.25	12.32	13.94	11.81	15.82	15.00	13.76
22	13.49	14.40	13.51	14.18	13.39	12.46	14.72	13.41	13.77	15.57	14.31	15.52
23	13.54	14.38	12.60	12.99	14.30	13.73	12.71	13.40	13.64	14.13	15.08	15.87
24	13.72	12.61	13.61	14.05	14.29	13.93	15.02	13.57	13.05	15.01	14.99	15.95
25	14.29	12.69	13.51	14.20	12.94	12.98	14.38	12.49	13.86	15.19	14.34	15.58
26	14.33	12.59	12.64	13.19	13.09	13.88	13.66	12.63	14.07	14.06	12.99	15.81
27	13.59	13.54	13.53	14.50	14.32	14.20	14.72	11.76	13.91	15.04	15.27	14.82
28	13.84	14.25	13.55	14.08	14.53	13.24	14.32	14.05	14.31	16.71	15.08	14.80
29	12.27	13.82	12.58	14.12	14.58	13.78	13.97	13.23	14.37	14.99	14.21	15.36
30	12.99	12.86	13.47	14.39	---	14.04	14.76	14.14	14.40	14.16	15.37	14.57
31	13.77	---	13.17	13.91	---	14.09	---	13.03	---	14.83	14.06	---
MAX	14.64	14.94	13.89	14.50	14.94	14.25	15.02	14.82	14.40	16.71	15.69	15.95
CAL YR 2003		LOW 16.94										
WTR YR 2004		LOW 16.71										



Ground-Water Records—Sandusky County

411914083045300. Local Number, S-3

LOCATION.—Latitude 41°19′14″, longitude 83°04′53″, Sandusky County, Hydrologic Unit 04100011, 2.6 mi southeast of Fremont Post Office, Fremont, Ohio. 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 sea level (from topographic map). Measuring point: Floor of instrument shelter 3.00 ft above land-surface datum.

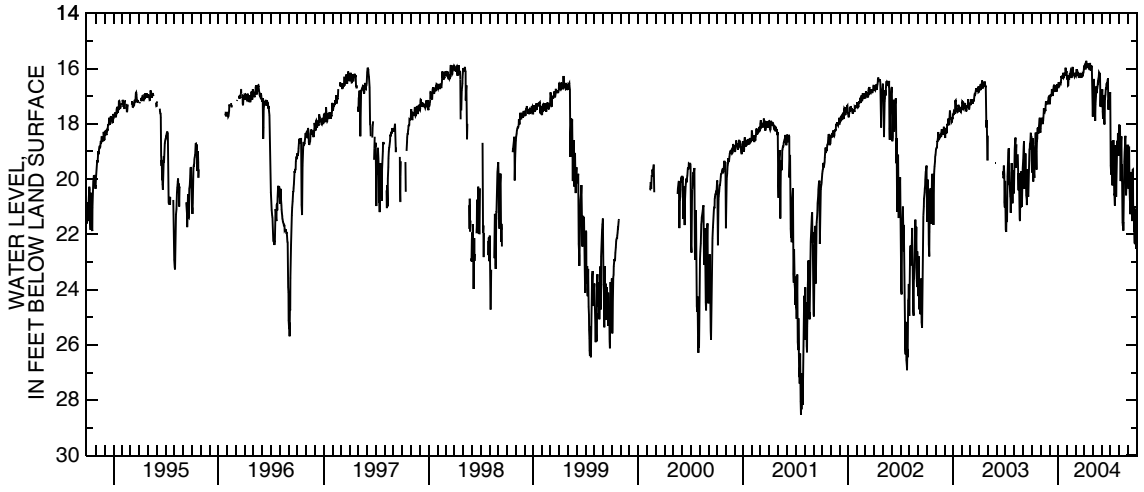
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

PERIOD OF RECORD.—December 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 28.53 ft below land-surface datum, July 20, 2001; minimum daily low, 14.02 ft below land-surface datum, Mar. 24, 1975.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.34	18.17	17.22	16.66	16.39	16.15	15.91	17.19	16.92	17.85	18.87	19.78
2	19.76	18.01	17.27	16.49	16.34	16.25	15.85	16.66	16.74	19.51	18.40	20.36
3	19.06	17.92	17.27	16.53	16.38	16.26	15.84	16.49	16.79	19.84	18.06	19.41
4	18.52	17.78	17.15	16.50	16.62	16.18	15.93	16.37	17.56	18.63	19.57	18.83
5	19.51	17.86	16.94	16.54	16.61	16.02	16.03	16.69	17.82	19.45	20.08	20.19
6	20.09	17.82	16.98	16.59	16.25	16.09	15.96	17.21	17.25	19.89	19.12	20.79
7	19.41	17.88	16.98	16.58	16.31	16.09	15.87	17.60	17.03	19.75	18.60	20.74
8	18.99	17.98	16.96	16.52	16.41	16.12	15.72	17.65	16.97	20.23	18.45	21.27
9	19.74	17.98	16.89	16.50	16.29	16.23	15.88	17.89	17.79	19.58	19.81	20.05
10	19.96	17.87	16.74	16.51	16.17	16.27	15.91	17.29	18.02	19.05	19.47	20.20
11	19.33	17.62	16.78	16.41	16.20	16.15	15.98	17.00	17.45	18.59	20.31	19.74
12	18.90	17.44	16.93	16.27	16.19	16.23	15.92	16.80	17.12	19.04	21.57	20.16
13	18.76	17.58	16.99	16.34	16.13	16.34	15.81	16.64	16.94	19.68	21.70	21.13
14	18.53	17.59	16.87	16.30	16.06	16.24	15.92	16.89	16.76	20.58	21.56	21.52
15	18.32	17.48	16.80	16.31	16.07	16.32	15.96	16.78	16.71	20.54	21.87	20.40
16	19.24	17.44	16.66	16.36	16.34	16.24	15.94	16.71	16.71	20.96	20.69	19.66
17	19.66	17.54	16.61	16.27	16.29	16.16	15.93	16.63	16.56	19.86	19.90	19.65
18	19.00	17.34	16.61	16.15	16.26	16.19	15.98	16.48	16.54	19.15	19.36	20.87
19	18.63	17.19	16.66	16.26	16.05	16.34	15.95	16.50	16.57	18.77	19.02	21.43
20	18.52	17.28	16.83	16.32	15.94	16.24	16.01	16.37	16.51	19.62	18.80	21.00
21	18.18	17.28	16.78	16.31	16.08	16.23	15.79	16.31	16.39	20.65	18.54	21.91
22	18.18	17.26	16.67	16.19	16.21	16.33	15.98	16.14	16.35	19.77	18.44	21.86
23	18.12	17.24	16.63	16.19	16.20	16.26	15.97	16.15	17.15	19.03	20.06	22.33
24	18.35	17.26	16.63	16.23	16.20	16.21	16.07	16.20	17.49	18.82	20.59	21.07
25	18.23	17.27	16.74	16.26	16.26	16.28	15.93	16.16	17.13	18.61	20.30	21.85
26	18.13	17.21	16.81	16.07	16.24	16.19	15.89	16.90	17.32	18.78	19.92	22.28
27	17.99	17.22	16.83	15.97	16.29	16.21	15.95	17.38	17.35	18.35	19.26	22.26
28	17.83	17.05	16.69	16.15	16.26	16.17	16.59	16.89	17.02	19.15	18.84	22.53
29	17.78	17.03	16.56	16.14	16.22	16.12	17.33	16.74	16.93	18.96	18.79	21.42
30	18.28	16.98	16.62	16.09	---	16.04	17.74	17.35	16.86	18.33	18.79	21.14
31	18.32	---	16.65	16.30	---	15.92	---	17.39	---	18.03	18.79	---
MAX	20.09	18.17	17.27	16.66	16.62	16.34	17.74	17.89	18.02	20.96	21.87	22.53
CAL YR 2003		LOW 21.91										
WTR YR 2004		LOW 22.53										



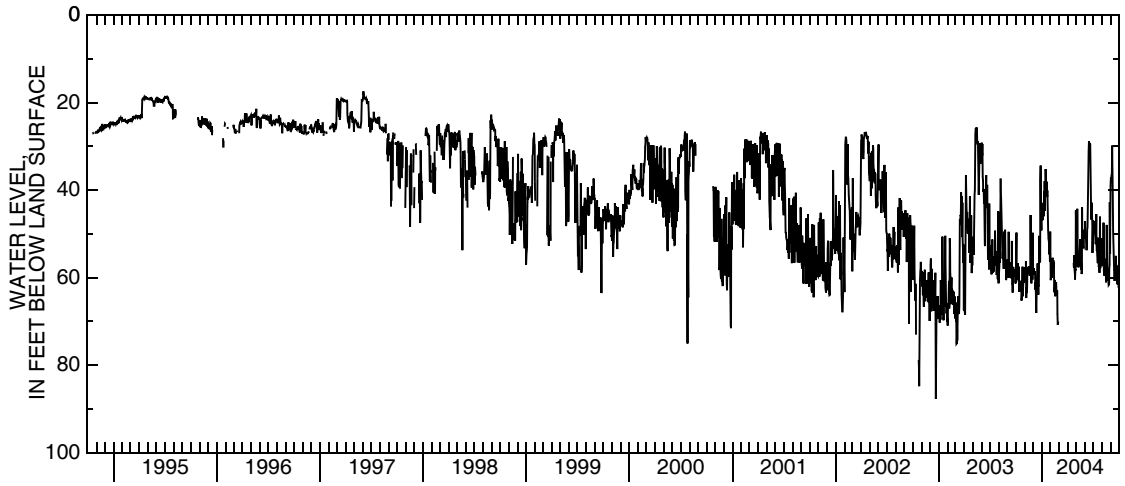
412703083213600. Local Number, S-2

LOCATION.—Latitude 41°27′03″, longitude 83°21′36″, Sandusky County, Hydrologic Unit 04100010, at Woodville, Ohio. Owner: Village of Woodville.
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 sea level (from topographic map). Measuring point: Top of casing at land-surface datum.
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
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, 17.43 ft below land-surface datum, June 3, 1997.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59.58	58.86	58.81	44.59	53.41	---	---	44.64	50.49	46.88	51.09	38.88
2	57.43	59.91	58.66	44.10	60.61	---	---	53.19	51.02	48.06	53.85	37.25
3	49.76	60.84	57.87	43.65	58.91	---	---	57.53	47.15	47.11	54.53	37.27
4	58.02	59.69	58.40	45.83	58.85	---	---	52.29	49.27	47.63	57.42	36.63
5	57.58	60.20	59.24	46.90	57.60	---	---	50.88	50.70	47.30	56.92	36.31
6	60.40	56.27	58.64	42.92	58.68	---	---	44.32	51.73	48.54	56.28	29.86
7	58.31	64.70	59.26	45.38	60.01	---	---	52.50	53.77	49.10	47.46	36.83
8	57.50	62.28	58.51	46.01	55.48	---	---	53.75	53.58	50.53	58.21	40.14
9	56.74	63.34	62.74	40.29	55.78	---	---	55.36	53.42	51.13	59.53	41.47
10	58.76	63.24	61.11	42.93	58.01	---	---	57.69	48.95	52.40	58.93	49.39
11	60.90	58.74	63.17	37.99	56.09	---	---	56.68	48.57	50.50	58.44	51.56
12	57.53	59.15	67.34	44.76	57.66	---	---	56.60	46.18	45.54	58.60	53.82
13	63.29	57.64	68.13	40.19	56.56	---	---	56.16	42.93	52.30	57.21	57.98
14	62.14	58.27	63.55	40.00	63.40	---	---	56.56	39.07	53.85	55.75	58.26
15	61.32	58.34	63.89	35.25	62.99	---	---	54.34	31.15	53.33	58.76	60.79
16	62.37	57.39	60.45	38.82	62.76	---	---	55.82	28.82	54.96	61.12	56.93
17	63.15	58.91	56.76	40.60	60.59	---	---	51.21	29.37	56.74	59.04	60.59
18	60.78	57.95	62.69	38.08	64.31	---	---	55.45	29.60	50.88	48.01	57.29
19	62.24	59.58	62.26	40.51	61.44	---	---	58.21	29.41	52.26	53.98	55.03
20	61.84	58.42	63.91	41.60	61.22	---	---	56.73	29.41	54.59	59.31	57.08
21	65.28	59.30	61.95	40.09	61.08	---	---	59.21	29.57	57.59	58.05	58.71
22	64.87	45.70	61.88	43.57	63.62	---	---	58.69	36.61	57.20	59.49	58.65
23	64.05	51.33	50.47	47.19	64.10	---	56.66	43.92	42.60	58.11	60.76	60.26
24	63.44	58.72	55.81	49.24	63.15	---	57.73	51.35	46.73	58.94	60.47	59.67
25	57.53	61.32	56.52	51.03	63.15	---	54.93	49.36	44.92	46.11	61.72	61.56
26	64.29	60.68	56.30	51.95	68.34	---	58.21	49.08	42.90	57.90	61.53	60.29
27	61.78	59.47	37.79	53.22	70.84	---	59.07	53.05	45.22	56.90	57.91	61.57
28	60.37	57.82	34.44	54.71	70.04	---	60.44	53.18	47.86	52.97	57.03	57.21
29	61.24	60.51	47.23	52.06	---	---	58.20	51.08	54.40	55.98	42.78	62.26
30	57.61	49.78	47.01	56.29	---	---	58.21	50.69	49.38	56.44	54.60	62.35
31	60.12	---	49.23	49.51	---	---	---	51.00	---	53.97	45.98	---
MAX	65.28	64.70	68.13	56.29	70.84	---	60.44	59.21	54.40	58.94	61.72	62.35

CAL YR 2003 LOW 75.13
WTR YR 2004 LOW 70.84



Ground-Water Records—Seneca County

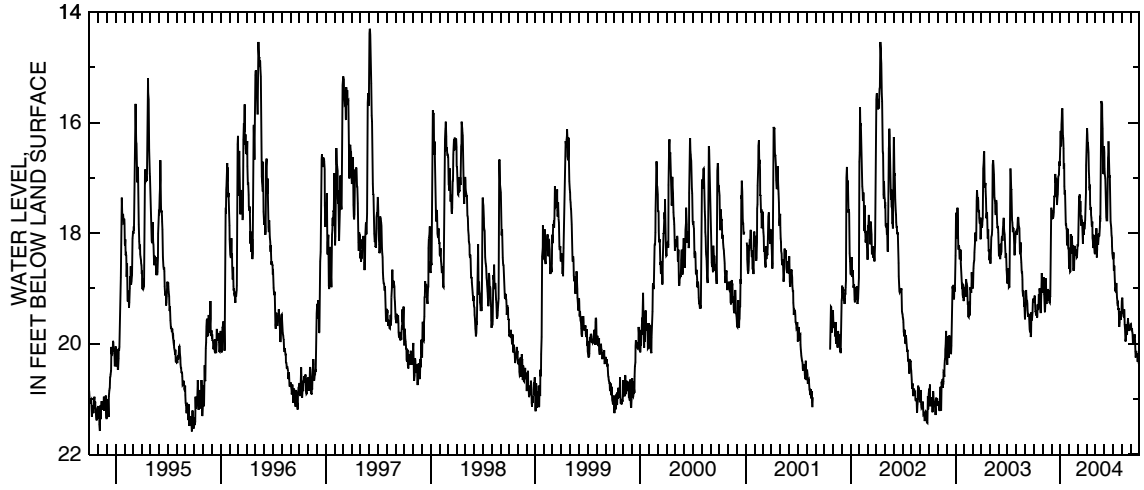
410802083093900. Local Number, SE-2

LOCATION.—Latitude 41°08′02″, longitude 83°09′39″, Seneca County, Hydrologic Unit 04100011, Tiffin State Hospital, Tiffin, Ohio. 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 sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
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, 14.11 ft below land-surface datum, Jan. 2, 1991.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.19	19.08	17.57	16.43	18.65	18.20	16.43	18.32	16.43	18.39	19.43	19.66
2	19.25	18.95	17.70	16.15	18.60	18.24	16.19	18.34	16.54	18.47	19.23	19.67
3	19.14	18.94	17.75	16.43	18.58	18.22	16.10	18.35	16.83	18.45	19.17	19.66
4	19.13	18.80	17.61	16.41	18.70	17.93	16.21	18.08	16.94	18.35	19.19	19.72
5	19.28	19.07	17.59	16.03	18.69	17.58	16.41	17.91	17.01	18.66	19.38	19.77
6	19.41	19.11	17.72	15.91	18.02	17.35	16.35	17.95	17.15	18.66	19.46	19.72
7	19.41	19.25	17.72	15.76	18.28	17.35	16.44	18.44	17.37	18.59	19.45	19.78
8	19.48	19.42	17.69	15.74	18.37	17.30	16.54	18.30	17.56	18.83	19.51	19.81
9	19.48	19.43	17.62	16.12	18.16	17.53	16.87	18.03	17.71	18.97	19.52	19.87
10	19.46	19.21	17.48	16.24	18.05	17.61	17.00	18.06	17.77	19.04	19.38	20.02
11	19.43	18.87	17.32	16.28	18.17	17.42	17.18	18.21	17.77	19.05	19.51	19.90
12	19.53	18.82	17.34	16.47	18.25	17.69	17.17	18.16	17.77	18.98	19.65	19.85
13	19.51	19.26	17.35	16.79	18.22	17.86	17.16	18.08	17.36	19.02	19.73	19.88
14	19.29	19.28	16.93	16.78	18.24	17.68	17.48	18.00	16.93	18.90	19.87	19.88
15	19.39	19.11	17.08	17.15	18.64	17.85	17.58	18.06	16.64	19.06	19.96	19.85
16	19.37	19.10	17.00	17.30	18.68	17.76	17.53	18.04	16.56	19.17	19.90	19.83
17	19.27	19.23	17.05	17.22	18.63	17.78	17.67	17.89	16.34	19.22	19.78	19.95
18	19.12	19.01	17.01	17.32	18.63	17.93	17.72	17.73	16.53	19.27	19.65	20.14
19	19.12	19.04	17.18	17.66	18.32	18.19	17.84	17.74	16.85	19.26	19.82	20.25
20	19.15	19.18	17.49	17.84	18.23	17.99	17.88	17.40	17.00	19.33	19.84	20.19
21	19.00	19.12	17.44	17.84	18.37	17.94	17.79	17.16	16.96	19.39	19.68	20.13
22	19.10	19.09	17.34	17.92	18.40	18.03	18.09	16.30	17.32	19.36	19.65	20.18
23	19.30	19.08	17.30	17.93	18.34	17.86	18.13	15.61	17.52	19.58	19.54	20.24
24	19.43	19.25	17.21	18.16	18.29	17.80	18.27	15.65	17.79	19.70	19.65	20.18
25	19.43	19.26	16.97	18.22	18.38	17.93	18.06	15.66	17.87	19.62	19.67	20.24
26	19.29	19.14	16.95	17.92	18.34	17.82	18.03	15.92	17.91	19.46	19.72	20.33
27	19.04	19.16	16.94	18.02	18.44	17.77	18.21	16.11	18.04	19.42	19.77	20.23
28	18.72	18.81	16.78	18.27	18.43	17.66	18.26	16.74	18.08	19.52	19.73	20.24
29	18.85	18.05	16.70	18.28	18.32	17.42	18.36	16.93	18.24	19.57	19.73	20.30
30	18.93	17.54	16.78	18.28	---	17.27	18.38	16.91	18.36	19.53	19.72	20.36
31	18.94	---	16.59	18.58	---	16.77	---	16.66	---	19.48	19.69	---
MAX	19.53	19.43	17.75	18.58	18.70	18.24	18.38	18.44	18.36	19.70	19.96	20.36

CAL YR 2003 LOW 19.88
WTR YR 2004 LOW 20.36



Ground-Water Records—Summit County

410330081282000. Local Number, SU-6

LOCATION.—Latitude 41°03′30″, longitude 81°28′20″, Summit County, Hydrologic Unit 04110002, Seiberling Street, Akron, Ohio. Owner: Goodyear Tire and Rubber Company.

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 1,000 ft above sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

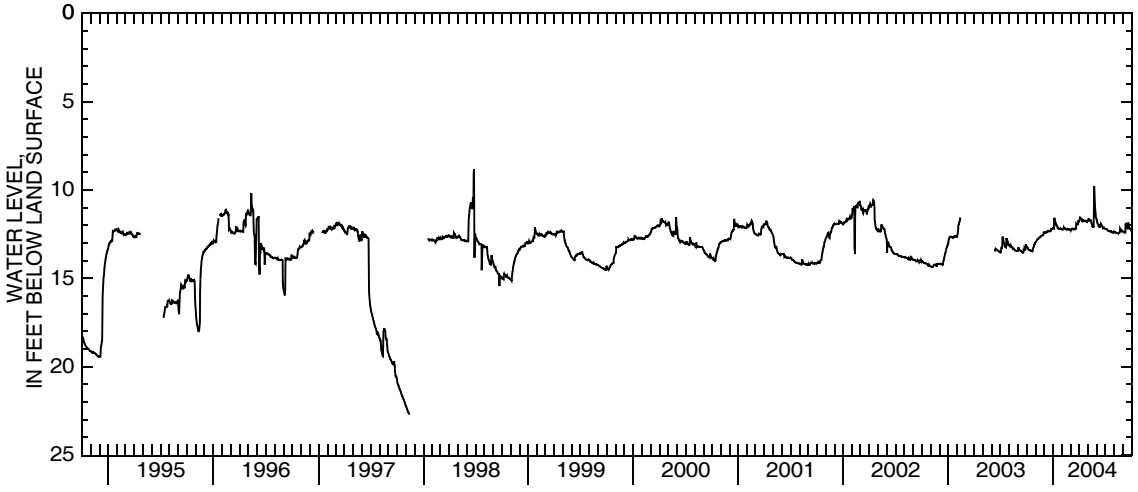
PERIOD OF RECORD.—July 1941 to February 1944 periodic, March 1944 to current year continuous. Records for May 14-Sept. 30, 1980, published in USGS-WDR-OH-80-1, are unreliable and should not be used.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 59.47 ft below land-surface datum, Oct. 18, 1946; minimum daily low, 8.82 ft below land-surface datum, June 26, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.22	12.95	12.42	12.18	12.25	12.24	11.72	11.73	11.76	12.21	12.35	12.38
2	13.24	12.93	12.43	12.15	12.25	12.25	11.66	11.66	11.81	12.22	12.37	12.39
3	13.25	12.90	12.44	12.17	12.23	12.28	11.55	11.64	11.86	12.22	12.39	12.40
4	13.26	12.87	12.43	11.92	12.22	12.25	11.56	11.65	11.91	12.22	12.41	12.40
5	13.31	12.83	12.41	11.57	12.23	12.21	11.58	11.68	11.95	12.23	12.42	12.41
6	13.35	12.81	12.42	11.64	12.19	12.20	11.59	11.70	11.99	12.24	12.43	12.40
7	13.37	12.79	12.41	11.73	12.12	12.21	11.62	11.73	12.07	12.24	12.43	12.41
8	13.39	12.79	12.41	11.80	12.16	12.20	11.65	11.72	12.07	12.26	12.43	12.41
9	13.40	12.79	12.41	11.86	12.15	12.22	11.72	11.72	12.08	12.30	12.44	11.93
10	13.41	12.77	12.39	11.92	12.17	12.23	11.75	11.72	12.07	12.31	12.44	11.91
11	13.41	12.74	12.33	11.94	12.19	12.21	11.77	11.72	12.07	12.31	12.45	11.98
12	13.42	12.72	12.34	11.98	12.20	12.22	11.78	11.76	12.03	12.31	12.45	12.07
13	13.43	12.70	12.35	12.04	12.21	12.24	11.74	11.87	12.07	12.32	12.45	12.09
14	13.42	12.70	12.33	12.04	12.21	12.23	11.70	11.94	12.04	12.32	12.45	12.13
15	13.42	12.68	12.34	12.09	12.24	12.23	11.72	11.97	11.91	12.33	12.46	12.16
16	13.44	12.67	12.33	12.13	12.25	12.23	11.73	12.07	11.94	12.34	12.43	12.19
17	13.45	12.67	12.31	12.13	12.26	12.20	11.74	12.09	11.97	12.35	12.43	12.19
18	13.46	12.65	12.32	12.13	12.26	12.20	11.74	12.07	12.00	12.35	12.43	11.85
19	13.47	12.61	12.33	12.17	12.24	12.21	11.74	12.07	12.07	12.34	12.42	11.95
20	13.48	12.60	12.35	12.19	12.23	12.17	11.74	12.09	12.07	12.36	12.32	12.03
21	13.46	12.60	12.34	12.19	12.21	11.90	11.73	12.11	12.09	12.34	12.19	12.08
22	13.39	12.59	12.33	12.21	12.23	11.93	11.75	11.01	12.13	12.36	12.23	12.13
23	13.31	12.58	12.33	12.22	12.23	11.94	11.75	9.79	12.17	12.39	12.26	12.16
24	13.25	12.57	12.28	12.22	12.23	11.95	11.78	10.36	12.15	12.41	12.30	12.19
25	13.23	12.57	12.20	12.22	12.24	11.95	11.78	10.76	12.13	12.41	12.33	12.21
26	13.20	12.57	12.21	12.19	12.25	11.95	11.79	11.01	12.15	12.40	12.34	12.23
27	13.10	12.56	12.21	12.17	12.25	11.89	11.81	11.20	12.17	12.41	12.35	12.24
28	13.07	12.53	12.20	12.20	12.26	11.79	11.82	11.42	12.19	12.42	12.33	12.26
29	13.11	12.40	12.19	12.22	12.25	11.81	11.78	11.57	12.20	12.42	12.31	12.31
30	12.99	12.39	12.18	12.23	---	11.81	11.76	11.63	12.21	12.42	12.33	12.34
31	12.97	---	12.17	12.25	---	11.77	---	11.66	---	12.41	12.35	---
MAX	13.48	12.95	12.44	12.25	12.26	12.28	11.82	12.11	12.21	12.42	12.46	12.41

CAL YR 2003 LOW 13.55
WTR YR 2004 LOW 13.48



410846081271600. Local Number, SU-7

LOCATION.—Latitude 41°08′46″, longitude 81°27′16″, Summit County, Hydrologic Unit 04110002, Monroe Falls Road, Cuyahoga Falls, Ohio. Owner: City of Cuyahoga Falls.

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 sea level (from topographic map). Measuring point: Floor of instrument shelter 5.00 ft above land-surface datum.

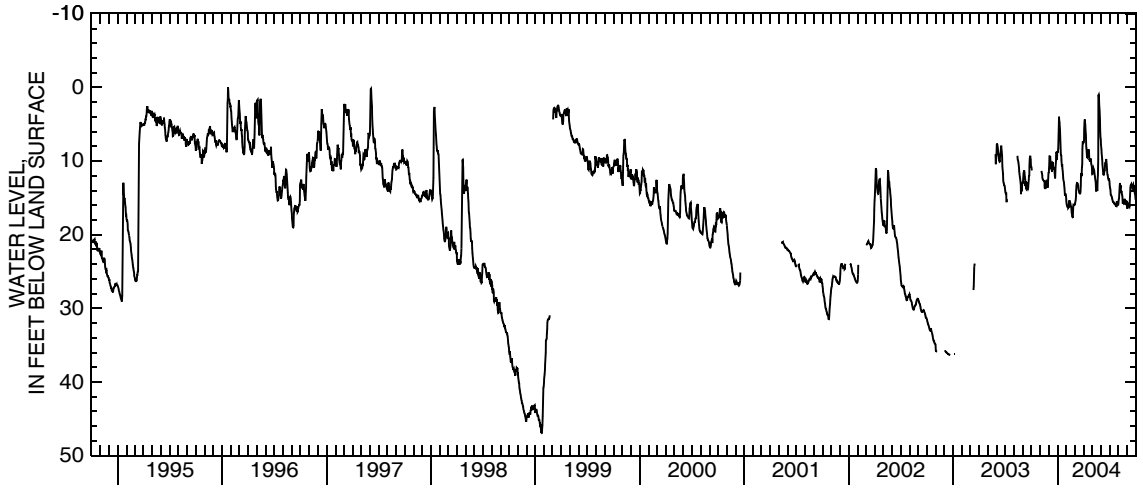
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

PERIOD OF RECORD.—August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 46.90 ft below land-surface datum, Jan. 22, 1999; minimum daily low, 0.67 ft above land-surface datum, Apr. 15, 1994.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.70	---	11.56	8.80	15.60	15.91	7.51	11.79	7.74	13.11	15.79	16.46
2	10.97	---	11.10	8.75	15.90	15.78	7.26	11.77	8.42	13.54	15.27	15.76
3	11.27	---	10.40	8.27	16.12	15.65	5.76	10.84	8.89	13.79	15.06	15.75
4	---	---	9.35	7.73	16.16	15.33	4.78	10.79	9.33	13.87	14.24	15.81
5	---	11.34	9.37	6.10	16.14	14.79	4.35	10.97	9.85	14.52	13.46	15.90
6	---	11.40	9.41	3.98	16.00	13.96	4.68	11.04	10.39	14.67	12.97	15.89
7	---	11.64	9.95	4.44	16.36	13.33	5.04	11.25	10.88	14.72	13.38	16.10
8	---	11.92	10.71	4.75	16.31	13.11	5.96	11.31	11.34	14.83	13.66	16.21
9	---	12.38	10.86	5.74	16.25	13.00	6.44	11.59	11.84	14.98	13.32	16.02
10	---	12.49	10.97	6.72	16.18	13.02	8.15	11.92	11.88	15.11	14.34	14.90
11	---	12.58	10.94	7.97	16.14	13.05	8.21	12.20	11.76	15.28	14.05	14.00
12	---	12.60	11.45	8.93	15.33	13.20	8.88	12.45	11.59	15.45	14.29	13.62
13	---	12.66	10.49	9.18	16.07	13.41	9.50	12.83	11.32	15.56	14.47	13.27
14	---	12.68	10.20	9.24	15.65	13.66	9.52	13.86	11.23	15.62	14.67	13.13
15	---	12.72	10.24	9.85	15.88	13.99	9.00	14.03	10.71	15.64	14.84	13.30
16	---	12.79	10.58	10.70	16.08	14.10	8.97	13.99	10.19	15.65	15.76	13.57
17	---	13.70	10.79	10.46	16.18	14.31	8.92	13.25	10.78	15.76	15.49	13.69
18	---	12.90	11.03	10.98	16.20	14.38	8.43	13.95	10.06	15.73	15.67	13.64
19	---	13.70	10.99	11.38	16.99	14.44	8.58	13.95	9.73	15.83	15.73	13.31
20	---	13.70	11.12	11.91	16.97	14.42	8.49	12.59	10.07	15.85	15.62	13.25
21	---	12.78	11.26	12.32	17.51	14.25	9.76	11.93	10.48	15.96	15.46	13.15
22	---	12.67	11.69	12.70	17.63	13.33	9.77	9.78	11.16	16.08	15.28	13.84
23	---	12.65	12.36	12.91	17.62	12.21	10.06	1.06	11.82	16.09	15.12	13.25
24	---	12.67	12.26	13.28	17.13	11.65	9.64	0.99	11.92	16.10	15.79	13.54
25	---	12.69	10.86	13.68	16.12	12.05	9.75	1.49	12.18	16.13	15.79	13.75
26	---	12.84	10.03	14.40	15.94	10.92	9.77	2.33	12.36	15.46	15.37	13.93
27	---	13.63	9.35	14.70	15.99	10.43	10.02	3.27	12.48	15.51	15.84	14.30
28	---	12.92	8.75	14.36	15.95	8.36	10.35	4.48	12.45	15.69	15.89	14.56
29	---	12.57	9.01	14.52	15.94	7.47	10.61	5.72	12.44	15.84	15.41	14.97
30	---	11.59	9.87	14.67	---	7.49	10.95	6.80	12.72	15.94	15.50	15.27
31	---	---	8.73	15.18	---	7.58	---	7.10	---	15.91	15.72	---
MAX	11.27	13.70	12.36	15.18	17.63	15.91	10.95	14.03	12.72	16.13	15.89	16.46
CAL YR 2003		LOW 36.25										
WTR YR 2004		LOW 17.63										



Ground-Water Records—Van Wert County

405215084335400. Local Number, VW-1

LOCATION.—Latitude 40°52′15″, longitude 84°33′54″, Van Wert County, Hydrologic Unit 04100007, Ridge Road near Van Wert, Ohio. 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 sea level. Measuring point: Floor of instrument shelter 6.15 ft above land-surface datum.

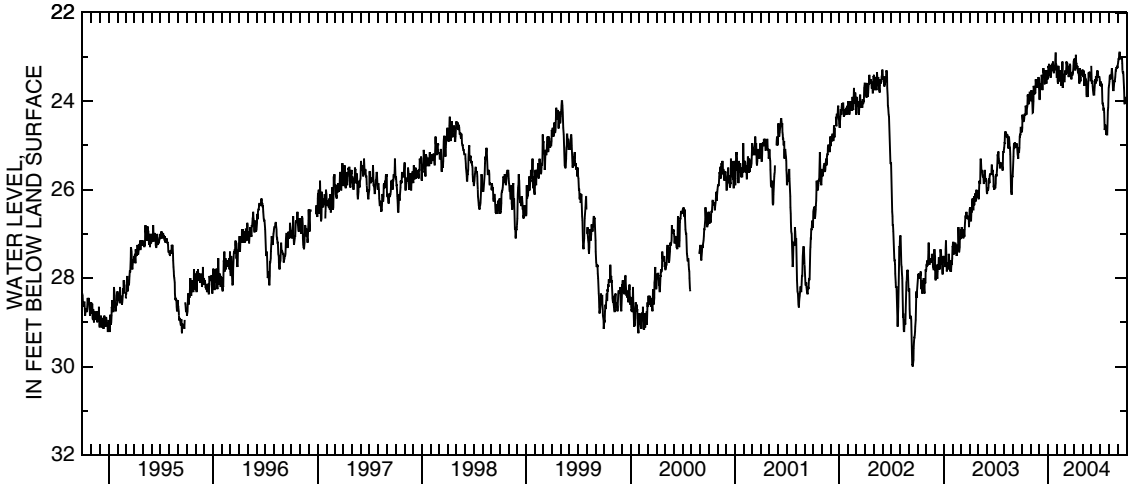
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

PERIOD OF RECORD.—August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low 33.20 ft below land-surface datum, Dec. 20-21, 1991; minimum daily low, 18.85 ft below land-surface datum, Mar. 6, 1959.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.65	24.00	23.70	23.50	23.45	23.35	23.10	23.30	23.35	23.55	23.70	23.20
2	24.70	23.95	23.95	23.30	23.45	23.30	23.05	23.30	23.55	23.65	23.65	23.15
3	24.60	23.85	23.95	23.20	23.20	23.40	23.05	23.45	23.60	23.60	23.55	23.10
4	24.30	23.75	23.85	23.25	23.55	23.35	23.15	23.30	23.55	23.55	23.45	23.05
5	24.40	23.85	23.60	23.15	23.60	23.25	23.30	23.35	23.55	23.65	23.40	23.05
6	24.45	23.90	23.70	23.40	23.55	23.10	23.25	23.35	23.65	23.65	23.45	22.95
7	24.45	23.95	23.70	23.40	23.20	23.15	23.05	23.65	23.75	23.60	23.50	22.90
8	24.40	24.15	23.65	23.35	23.50	23.15	22.95	23.60	23.85	23.65	23.45	22.90
9	24.45	24.26	23.50	23.35	23.55	23.15	23.15	23.40	23.85	23.95	23.45	22.95
10	24.40	24.25	23.40	23.45	23.35	23.35	23.15	23.40	23.85	24.05	23.40	23.05
11	24.30	24.00	23.45	23.45	23.30	23.35	23.20	23.50	23.85	24.05	23.30	23.00
12	24.30	23.65	23.65	23.20	23.35	23.20	23.25	23.50	23.75	24.10	23.25	23.00
13	24.30	23.70	23.75	23.20	23.40	23.40	23.20	23.55	23.65	24.20	23.35	23.00
14	24.30	23.85	23.50	23.30	23.40	23.45	23.25	23.55	23.50	24.20	23.45	23.00
15	24.10	23.80	23.45	23.15	23.30	23.30	23.35	23.85	23.55	24.15	23.55	23.00
16	24.15	23.75	23.25	23.30	23.55	23.35	23.35	23.90	23.60	24.25	23.75	23.00
17	24.25	23.80	23.35	23.30	23.65	23.25	23.30	23.85	23.45	24.50	23.75	23.15
18	24.30	23.80	23.30	23.15	23.60	23.15	23.40	23.75	23.45	24.65	23.75	23.30
19	24.20	23.50	23.45	23.10	23.60	23.20	23.45	23.90	23.55	24.60	23.65	23.35
20	24.15	23.55	23.60	23.25	23.35	23.45	23.60	23.80	23.45	24.55	23.55	23.35
21	24.10	23.60	23.60	23.35	23.10	23.35	23.25	23.65	23.35	24.55	23.55	23.40
22	23.85	23.60	23.40	23.35	23.70	23.45	23.50	23.45	23.30	24.70	23.55	23.55
23	23.90	23.55	23.35	23.20	23.40	23.50	23.45	23.35	23.35	24.75	23.45	23.70
24	23.85	23.50	23.30	23.25	23.40	23.40	23.55	23.45	23.35	24.70	23.40	23.85
25	24.05	23.55	23.45	23.25	23.40	23.35	23.40	23.40	23.45	24.75	23.30	24.05
26	24.05	23.70	23.55	23.30	23.50	23.40	23.30	23.35	23.45	24.75	23.30	24.05
27	24.05	23.55	23.60	23.05	23.55	23.40	23.35	23.35	23.45	24.65	23.25	23.95
28	23.95	23.60	23.45	22.90	23.55	23.35	23.35	23.40	23.45	24.40	23.25	23.90
29	23.80	23.45	23.30	23.20	23.50	23.35	23.40	23.55	23.45	24.20	23.25	23.95
30	23.80	23.50	23.45	23.15	---	23.20	23.40	---	23.50	24.15	23.20	23.95
31	23.85	---	23.45	23.35	---	23.10	---	23.20	---	23.90	23.25	---
MAX	24.70	24.26	23.95	23.50	23.70	23.50	23.60	23.90	23.85	24.75	23.75	24.05
CAL YR 2003		LOW 27.85										
WTR YR 2004		LOW 24.75										



Ground-Water Records—Williams County

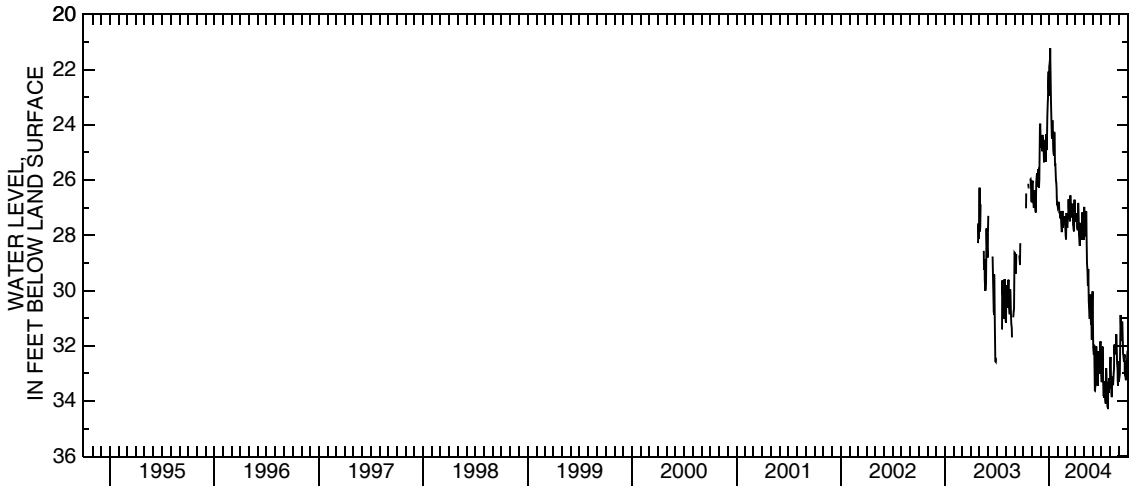
412819084323800. Local Number, WM-1A

LOCATION.—Latitude 41°28′19″, longitude 84°32′38″, Williams County, Hydrologic Unit 04100006, at Bryan, Ohio. Owner: City of Bryan.
AQUIFER.—Sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.—Drilled unused production well, diameter 8 in., depth 143 ft, cased to 126 ft.
INSTRUMENTATION.—Electronic data logger. 60-minute log interval.
DATUM.—Elevation of land-surface datum is 745ft above sea level (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 (ODNR), Division of Water.
PERIOD OF RECORD.—April 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 34.30 ft below land-surface datum, July 24, 2004; minimum daily low, 21.24 ft below land-surface datum, Jan. 4, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	26.40	24.65	21.90	27.03	27.20	27.38	27.04	30.88	33.13	32.69	33.26
2	---	26.07	24.73	21.75	26.79	27.36	27.44	26.97	31.54	33.32	32.41	33.13
3	---	26.03	24.72	21.60	26.88	27.62	27.51	27.18	32.06	33.14	32.82	33.04
4	---	26.25	24.82	21.24	26.80	27.72	27.21	27.12	32.30	32.56	33.26	32.28
5	---	26.75	24.64	21.92	27.18	27.46	27.27	27.39	32.30	32.03	33.72	31.41
6	26.31	26.74	24.96	22.58	27.18	27.36	27.38	27.68	31.97	32.53	33.86	30.89
7	---	26.98	24.44	23.20	27.20	27.25	27.50	28.04	32.87	33.02	33.44	31.15
8	26.65	26.98	24.37	23.57	27.39	26.70	27.72	27.96	33.62	33.79	33.16	31.43
9	---	26.57	24.52	24.39	27.15	26.98	27.82	27.13	33.63	33.79	33.13	31.43
10	---	26.37	24.46	24.50	27.22	27.17	27.26	28.04	33.40	33.88	33.32	31.79
11	27.03	26.55	24.68	23.84	27.45	27.33	26.83	28.62	33.14	33.30	33.43	31.79
12	26.49	26.58	25.08	23.87	27.54	27.38	27.10	29.02	32.74	33.36	33.33	31.13
13	---	27.05	25.36	24.12	27.89	27.50	27.65	29.28	32.02	33.73	32.98	31.59
14	---	27.18	24.55	24.58	27.83	26.56	27.98	29.78	32.52	33.84	32.85	31.88
15	---	26.78	24.70	24.89	27.36	26.58	28.22	29.82	32.70	33.96	32.11	32.26
16	26.97	26.08	24.87	25.09	27.12	27.02	28.38	29.22	32.54	34.09	31.96	32.40
17	---	25.92	24.85	25.12	27.49	26.86	28.12	29.78	33.14	33.73	32.32	32.52
18	---	25.85	25.20	24.26	27.74	26.95	27.55	30.36	33.46	32.82	32.28	32.58
19	26.14	25.75	25.34	24.31	27.44	27.36	27.97	30.61	32.88	33.14	32.23	32.44
20	26.27	25.98	25.08	24.94	27.32	27.27	28.09	30.69	32.20	33.50	32.17	32.32
21	26.31	26.05	24.34	25.47	27.38	26.97	27.78	31.03	32.56	33.93	31.96	32.96
22	---	26.24	24.59	25.40	27.38	26.86	27.94	30.61	32.78	34.17	31.59	33.09
23	---	25.64	24.92	25.86	27.37	27.24	28.12	30.15	32.41	34.16	31.84	33.14
24	---	25.62	24.60	26.02	27.50	27.61	28.16	30.78	33.01	34.30	32.15	33.20
25	---	26.05	23.70	26.10	27.59	27.65	27.18	31.03	32.86	33.31	32.61	33.25
26	26.00	26.27	23.15	26.30	27.72	27.83	27.46	31.20	32.52	33.71	32.85	32.79
27	25.98	25.99	23.08	26.61	28.02	27.86	27.92	31.20	31.89	33.36	33.23	32.55
28	26.13	24.53	22.41	26.91	28.15	27.23	27.79	31.78	31.84	33.44	33.45	32.88
29	26.21	24.00	22.07	26.78	27.70	26.72	28.13	31.50	32.23	33.17	32.57	32.52
30	26.73	23.96	22.63	26.96	---	27.14	28.17	30.35	32.59	33.55	33.07	32.18
31	26.81	---	22.95	27.04	---	27.28	---	30.03	---	33.27	33.30	---
MAX	27.03	27.18	25.36	27.04	28.15	27.86	28.38	31.78	33.63	34.30	33.86	33.26

CAL YR 2003 LOW 32.58
WTR YR 2004 LOW 34.30



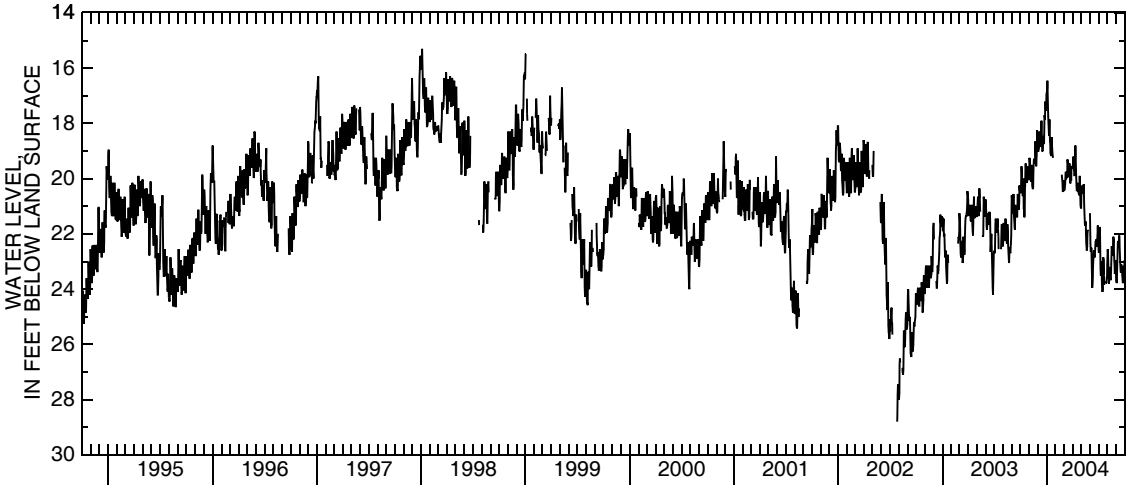
412930084320900. Local Number, WM-3

LOCATION.—Latitude 41°29′30″, longitude 84°32′09″, Williams County, Hydrologic Unit 04100006, Union Street, Bryan, Ohio. 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 sea level (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 (ODNR), Division of Water.
PERIOD OF RECORD.—October 1984 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 28.80 ft below land-surface datum, July 26, 2002; minimum daily low, 15.15 ft below land-surface datum, Jan. 4, 1987.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.50	19.80	18.95	16.95	---	20.05	19.55	21.05	21.25	22.45	23.10	23.70
2	20.50	19.25	19.00	16.85	---	20.30	19.55	20.40	21.85	22.65	22.55	23.75
3	20.35	19.35	19.00	16.70	---	20.40	19.35	20.30	22.35	22.65	22.75	23.75
4	20.05	19.45	19.00	16.45	---	20.40	19.20	20.35	22.65	22.25	22.95	23.40
5	19.55	19.65	18.90	17.10	---	20.25	19.50	20.25	22.60	21.75	23.25	22.85
6	19.75	19.85	18.75	17.55	---	20.20	19.65	20.30	22.50	22.00	23.70	22.35
7	20.00	20.10	18.30	17.75	---	19.90	19.70	20.45	23.10	22.70	23.80	22.25
8	20.35	19.85	18.45	18.00	---	19.75	19.90	20.55	23.75	23.25	23.40	22.35
9	20.60	19.50	18.45	18.45	---	19.90	19.55	20.35	23.95	23.50	23.20	22.35
10	20.60	19.85	18.45	18.25	---	19.95	19.15	20.20	23.80	23.40	23.45	22.50
11	20.45	20.00	18.70	17.85	---	19.90	18.80	20.70	23.60	23.00	23.65	22.40
12	20.00	20.25	18.85	18.25	---	19.95	19.15	21.00	23.25	23.40	23.65	22.05
13	21.10	20.35	18.30	18.65	---	19.90	19.60	21.30	22.80	23.85	23.65	22.45
14	21.05	20.35	17.90	18.75	---	19.30	19.95	21.60	22.60	23.95	23.35	22.80
15	21.40	20.30	18.35	19.10	---	19.35	20.25	21.70	22.85	24.10	23.00	23.05
16	21.35	19.65	18.75	19.15	---	19.50	20.45	21.65	22.75	24.00	22.45	23.25
17	20.25	19.35	19.00	19.15	---	19.60	20.35	21.55	22.80	23.75	22.60	23.40
18	20.25	19.30	19.00	18.55	---	19.70	20.15	22.00	22.85	22.85	22.75	23.25
19	19.50	19.30	18.95	18.50	---	19.95	20.35	22.35	22.65	22.95	22.75	23.10
20	19.45	19.35	18.45	18.90	---	19.75	20.45	22.40	22.40	23.50	22.60	23.40
21	19.65	19.45	18.55	18.90	---	19.45	20.40	22.60	22.25	23.85	22.55	23.25
22	19.80	19.20	18.70	19.10	---	19.75	20.45	22.45	22.35	---	22.10	23.50
23	20.10	18.65	18.75	19.25	19.85	20.10	20.55	22.05	22.20	---	22.20	23.65
24	20.15	19.15	18.15	---	19.95	20.15	20.60	21.85	22.40	---	22.65	23.75
25	20.05	19.30	17.70	---	20.05	20.15	20.25	21.90	22.45	---	22.95	23.75
26	19.60	19.55	17.85	---	20.10	20.05	19.90	---	22.30	---	23.15	23.45
27	19.55	19.15	17.45	---	20.45	20.05	20.30	---	22.05	23.80	23.45	23.15
28	19.70	18.50	17.20	---	20.45	19.70	20.50	---	21.70	23.75	23.40	23.40
29	19.90	18.25	17.40	---	20.20	19.55	20.95	---	21.95	23.75	22.95	23.40
30	20.05	18.45	17.55	---	---	19.60	21.05	---	22.05	23.60	23.20	22.95
31	20.00	---	17.25	---	---	19.60	---	---	---	23.55	23.55	---
MAX	21.40	20.35	19.00	19.25	20.45	20.40	21.05	22.60	23.95	24.10	23.80	23.75

CAL YR 2003 LOW 24.20
WTR YR 2004 LOW 24.10



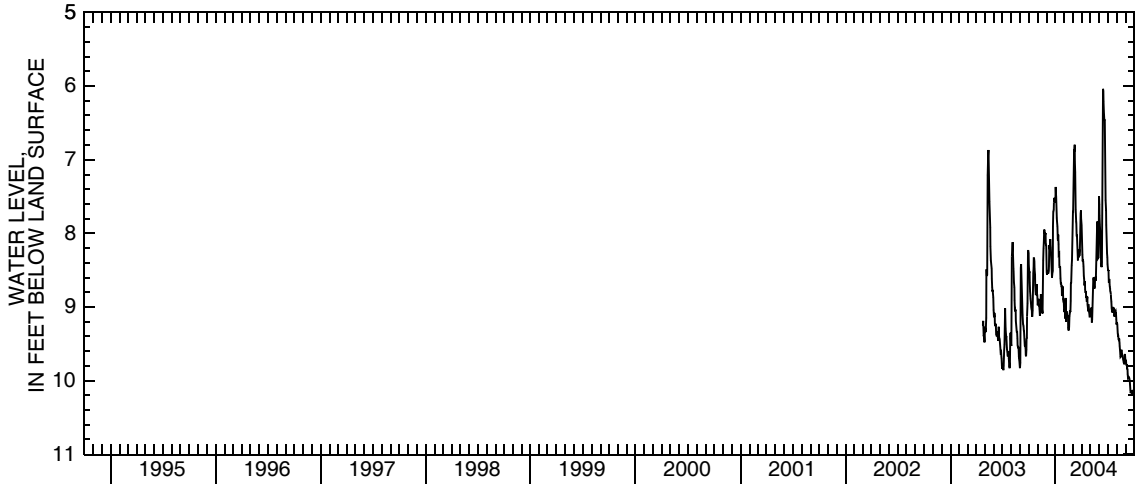
413108084415300. Local Number, WM-12

LOCATION.—Latitude 41°31′08″, longitude 84°41′53″, Williams County, Hydrologic Unit 04100003, 1.7 mi east of Blakeslee, Ohio. 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 85 ft, screened 85 ft to 115 ft.
INSTRUMENTATION.—Electronic data logger. 60-minute log interval.
DATUM.—Elevation of land-surface datum is 830 ft above sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.
PERIOD OF RECORD.—December 1974 to October 1982 continuous, periodic November 1982 to December 1984, continuous January 1985 to November 1986, periodic December 1986 to April 2003, continuous thereafter.
EXTREMES FOR PERIOD OF RECORD.—Maximum measured low, 10.75 ft below land-surface datum, Nov. 29, 1999; minimum daily low, 3.83 ft below land-surface datum, Mar. 17, 1982.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.43	8.98	8.44	7.58	9.07	8.04	7.89	9.11	7.50	8.42	9.24	9.73
2	8.53	8.92	8.53	7.37	9.04	7.71	8.01	9.06	7.61	8.49	9.22	9.73
3	8.53	8.91	8.56	7.47	9.03	7.71	8.07	9.07	7.76	8.51	9.23	9.74
4	8.67	8.89	8.51	7.50	9.16	7.55	8.29	9.02	7.88	8.50	9.28	9.78
5	8.79	8.98	8.51	7.65	9.15	7.20	8.38	9.02	8.00	8.66	9.36	9.80
6	8.85	8.98	8.54	7.79	8.88	6.88	8.36	9.03	8.14	8.66	9.39	9.78
7	8.89	9.03	8.55	7.83	9.13	6.88	8.38	9.21	8.29	8.62	9.39	9.84
8	8.96	9.11	8.53	7.91	9.20	6.80	8.45	9.17	8.41	8.72	9.44	9.85
9	9.00	9.11	8.51	8.07	9.06	7.03	8.58	9.10	8.45	8.75	9.45	9.91
10	9.03	9.02	8.45	8.10	9.07	7.17	8.62	8.98	8.46	8.79	9.43	9.96
11	9.05	8.84	8.16	8.02	9.10	7.34	8.69	8.74	8.39	8.80	9.49	9.95
12	9.12	8.84	8.21	8.15	9.14	7.68	8.71	8.63	7.78	8.83	9.53	9.95
13	9.13	9.06	8.22	8.29	9.13	7.84	8.65	8.60	6.91	8.88	9.59	9.97
14	9.05	9.06	8.08	8.28	9.13	7.86	8.77	8.64	6.45	8.93	9.64	9.97
15	8.77	9.00	8.17	8.43	9.28	8.03	8.81	8.72	6.04	9.02	9.68	9.98
16	8.54	9.04	8.19	8.47	9.32	8.03	8.79	8.75	6.07	9.05	9.67	10.00
17	8.47	9.09	8.30	8.45	9.27	8.11	8.86	8.72	6.21	9.07	9.62	10.06
18	8.34	9.00	8.34	8.46	9.28	8.22	8.86	8.62	6.34	9.07	9.58	10.13
19	8.34	8.59	8.47	8.61	9.13	8.37	8.92	8.64	6.46	9.00	9.64	10.17
20	8.38	8.37	8.60	8.68	9.09	8.28	8.92	8.59	6.46	9.03	9.65	10.15
21	8.48	8.21	8.58	8.68	9.05	8.30	8.86	8.64	6.47	9.07	9.65	10.13
22	8.56	8.12	8.53	8.72	9.07	8.33	8.97	8.54	6.91	9.01	9.66	10.16
23	8.70	7.96	8.51	8.72	8.92	8.24	9.00	8.46	7.20	9.07	9.70	10.16
24	8.78	7.96	7.91	8.84	8.68	8.22	9.06	8.14	7.55	9.12	9.73	10.13
25	8.84	8.00	7.71	8.85	8.67	8.31	8.96	7.88	7.69	9.12	9.74	10.18
26	8.83	8.00	7.68	8.72	8.56	8.24	9.00	7.84	7.89	9.09	9.76	10.20
27	8.77	8.01	7.58	8.77	8.44	8.07	9.07	7.93	8.02	9.06	9.77	10.16
28	8.69	8.00	7.52	8.88	8.36	7.91	9.08	8.25	8.15	9.05	9.77	10.15
29	8.82	8.14	7.55	8.90	8.19	7.73	9.13	8.34	8.27	9.09	9.67	10.13
30	8.84	8.17	7.57	8.89	---	7.69	9.13	8.33	8.33	9.09	9.64	10.12
31	8.92	---	7.57	9.02	---	7.80	---	7.82	---	9.17	9.70	---
MAX	9.13	9.11	8.60	9.02	9.32	8.37	9.13	9.21	8.46	9.17	9.77	10.20

CAL YR 2003 LOW 9.86
WTR YR 2004 LOW 10.20



Ground-Water Records—Wyandot County

405009083172600. Local Number, WY-1

LOCATION.—Latitude 40°50'09", longitude 83°17'26", Wyandot County, Hydrologic Unit 04100011, State Route 199, Upper Sandusky, Ohio. Owner: Karg Supply Company.

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 sea level (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 (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

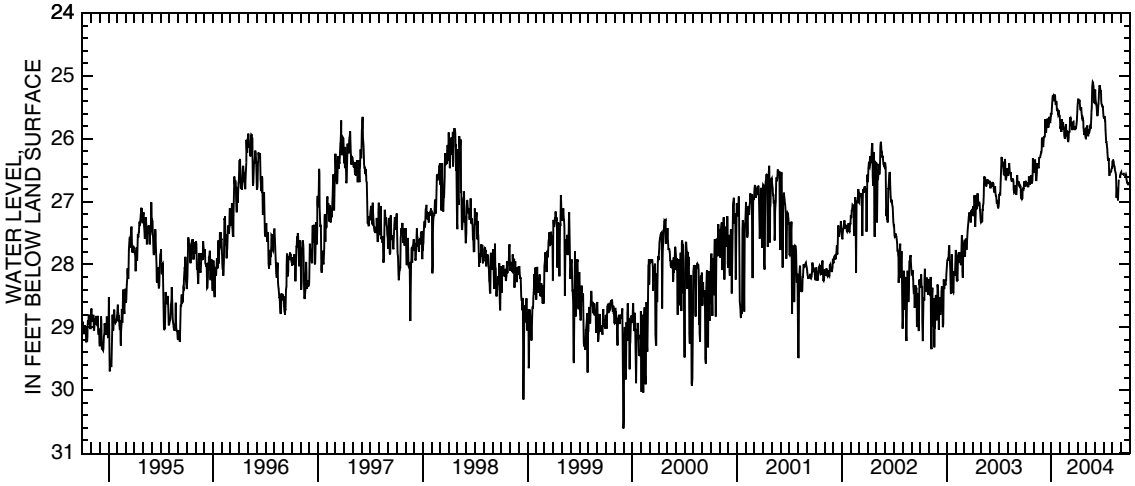
PERIOD OF RECORD.—September 1951 to current year.

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, 25.10 ft below land-surface datum, May 24, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.74	26.52	26.01	25.61	25.83	26.02	25.49	25.98	25.25	25.64	26.36	26.57
2	26.74	26.53	26.09	25.60	25.84	25.90	25.42	25.92	25.22	25.67	26.35	---
3	26.76	26.53	26.12	25.50	25.80	25.89	25.39	25.85	25.34	25.67	26.34	---
4	26.70	26.40	26.12	25.43	25.84	25.89	25.36	25.83	25.41	25.64	26.34	---
5	26.71	26.33	26.04	25.34	25.89	25.80	25.43	25.79	25.45	25.66	26.37	---
6	26.73	26.38	25.96	25.31	25.79	25.66	25.44	25.83	25.47	25.71	26.42	26.58
7	26.70	26.49	25.97	25.32	25.69	25.68	25.41	25.92	25.51	25.71	26.43	26.57
8	26.71	26.61	25.97	25.31	25.84	25.67	25.38	25.96	25.61	25.86	26.44	26.57
9	26.73	26.66	25.95	25.33	25.84	25.68	25.43	25.95	25.63	25.99	26.47	26.54
10	26.75	26.66	25.85	25.39	25.78	25.78	25.49	25.89	25.63	26.05	26.51	26.57
11	26.77	26.54	25.69	25.39	25.74	25.78	25.53	25.90	25.61	26.05	26.53	26.59
12	---	26.44	25.82	25.32	25.78	25.75	25.54	25.90	25.51	26.09	26.54	---
13	26.77	26.39	25.89	25.30	25.81	25.85	25.53	25.88	25.44	26.12	26.57	---
14	26.70	26.44	25.89	25.33	25.83	25.85	25.50	25.86	25.35	26.16	26.71	---
15	26.60	26.45	25.78	25.37	25.94	25.82	25.58	25.82	25.27	26.22	26.94	---
16	26.67	26.45	25.76	25.45	25.98	25.83	25.64	25.83	25.20	26.33	26.93	26.59
17	26.72	26.46	25.71	25.45	25.99	25.74	25.65	25.83	25.15	26.35	26.79	26.57
18	26.73	26.46	25.69	25.40	25.99	25.73	25.68	25.77	25.16	26.32	26.80	26.58
19	26.71	26.32	25.68	25.42	25.97	25.84	25.67	25.67	25.21	26.31	26.93	26.65
20	26.70	26.29	25.79	25.53	25.87	25.84	25.70	25.58	25.24	26.49	26.98	26.68
21	26.66	26.31	25.81	25.56	25.77	25.80	25.71	25.51	25.24	26.58	26.92	26.70
22	26.58	---	25.81	25.52	25.91	25.85	25.81	25.34	25.28	26.58	26.75	26.71
23	26.61	26.31	25.77	25.55	25.94	25.85	25.86	25.17	25.39	26.54	26.65	26.70
24	26.68	26.27	25.67	25.57	25.87	25.85	25.93	25.10	25.45	---	---	26.70
25	26.70	26.24	25.65	25.63	25.92	25.83	25.94	25.11	25.47	---	26.60	26.74
26	26.70	26.22	25.71	25.62	25.94	25.83	25.87	25.13	25.47	26.54	26.60	26.73
27	26.66	26.22	25.74	25.55	26.01	25.82	25.86	25.17	25.49	26.52	26.61	26.72
28	26.52	26.18	25.74	25.60	26.04	25.80	25.91	25.29	25.49	26.51	26.61	---
29	26.31	26.02	25.68	25.64	26.04	25.76	25.98	25.42	25.52	26.47	26.57	---
30	26.37	25.98	25.59	25.64	---	25.71	25.99	25.43	25.60	26.46	26.54	26.75
31	26.46	---	25.60	25.71	---	25.60	---	25.40	---	26.46	26.53	---
MAX	26.77	26.66	26.12	25.71	26.04	26.02	25.99	25.98	25.63	26.58	26.98	26.75

CAL YR 2003 LOW 28.47
WTR YR 2004 LOW 26.98



Project Data—City of Akron Water Diversion

The Ohio and Erie Canal runs from the Little Cuyahoga River through the City of Akron, through Summit Lake, past Lake Nesmith to Wolf Creek, a tributary to the Tuscarawas River. Water is diverted from Long Lake, one of the Portage Lakes, into the canal system at the Long Lake Feeder Water Control structure near Lake Nesmith. The water can either flow north into the Little Cuyahoga River or south to the Tuscarawas River. The following three discharge gaging stations are on the Ohio and Erie Canal system in the Akron area. The Long Lake Feeder gage measures water flow into the canal, while the Ohio and Erie Canal at Lock 1 gage and the Wolf Creek Outlet gage measure water flow to the north and south, respectively. The tables contain the daily mean discharges at each gaging station.

410121081330300 Long Lake Feeder to Ohio & Erie Canal at Akron, Ohio

LOCATION.—Latitude 41°01′21″, longitude 81°33′03″, Summit County, Hydrologic Unit 05040001, in canal feeder gate house control structure at north end of Long Lake Channel on west side of State Route 93 (Manchester Road), 0.1 mi south of Lake Nesmith, at Akron, Ohio.

DRAINAGE AREA.—Not determined.

PERIOD OF RECORD.—June 12, 1998 to current year.

GAGE.—Acoustic Doppler Flow meter records water depth, discharge, and velocity.

REMARKS.—Records good except for periods of estimated record, which are poor. Flow is completely regulated by operation of gates at flow control structure upstream of gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e23	23	23	20	22	20	21	19	17	20	21	e19
2	e23	24	22	20	22	20	21	19	e17	20	21	e19
3	28	e23	22	21	22	19	21	20	e18	19	17	e21
4	e23	e22	22	20	24	17	20	18	17	19	18	e20
5	25	21	26	23	23	17	21	18	17	18	e18	e19
6	24	21	22	21	23	17	20	19	17	18	e24	e19
7	28	26	23	20	24	16	20	19	16	18	e21	e19
8	27	22	23	21	22	15	20	19	16	18	e21	e19
9	27	22	21	21	22	15	20	18	16	18	e21	e22
10	e26	22	21	20	22	15	20	18	16	18	20	e20
11	e30	21	23	21	22	15	20	19	e16	18	20	e19
12	25	21	23	21	22	15	20	20	16	e19	20	e19
13	26	22	20	20	22	14	20	20	16	e19	20	e19
14	e26	26	20	20	22	14	21	19	18	e19	20	e19
15	e35	23	20	21	23	e14	19	19	20	e25	20	e19
16	e26	23	22	20	e23	e13	22	20	18	e19	20	e19
17	e26	23	23	21	e23	13	19	18	16	19	20	e20
18	e23	22	24	20	e23	13	19	19	19	18	19	e20
19	e23	21	24	20	e23	13	19	19	18	18	e19	e20
20	e26	22	22	20	e26	13	19	19	18	19	19	e20
21	e30	27	21	20	23	13	20	18	19	19	18	e22
22	e30	22	21	21	22	11	19	19	19	19	e19	e20
23	e26	22	22	21	20	12	19	13	19	e19	e18	e20
24	e23	22	22	21	21	12	20	10	20	e19	e18	e20
25	e23	e22	23	e21	20	13	20	11	20	e19	e18	e20
26	e23	e22	21	e21	21	13	20	12	20	e19	e18	e20
27	e23	22	21	e21	22	14	e19	12	16	19	e18	e20
28	22	23	21	29	21	11	e19	12	20	18	e18	e20
29	22	23	21	23	21	21	e19	15	20	19	e18	e20
30	22	22	21	22	---	21	19	18	20	19	e20	e20
31	28	---	22	22	---	21	---	17	---	19	e19	---
TOTAL	792	677	682	653	646	470	596	536	535	587	601	593
MEAN	25.5	22.6	22.0	21.1	22.3	15.2	19.9	17.3	17.8	18.9	19.4	19.8
MAX	35	27	26	29	26	21	22	20	20	25	24	22
MIN	22	21	20	20	20	11	19	10	16	18	17	19
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998-2004, BY WATER YEAR (WY)												
MEAN	20.8	19.0	21.2	21.6	21.4	20.7	22.0	20.5	20.8	21.7	19.9	20.0
MAX	27.0	22.6	25.7	26.4	24.5	29.0	30.4	23.8	22.2	36.5	23.9	31.2
(WY)	1999	2004	2003	2003	1999	2003	2003	2003	2003	2003	2003	2003
MIN	10.8	10.9	17.5	17.6	18.6	15.2	18.4	17.3	17.8	17.7	18.3	12.7
(WY)	2001	2001	2002	2002	2002	2004	2001	2004	2004	2002	2001	2000

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998-2004		
ANNUAL TOTAL	9594		7368				
ANNUAL MEAN	26.3		20.1		20.8		
HIGHEST ANNUAL MEAN					26.1		2003
LOWEST ANNUAL MEAN					17.8		2001
HIGHEST DAILY MEAN	60	Jul 8	35	Oct 15	73	Oct 16	1998
LOWEST DAILY MEAN	16	Feb 12	10	May 24	9.0	Nov 21	2000
ANNUAL SEVEN-DAY MINIMUM	17	Feb 7	12	May 23	9.2	Nov 19	2000
MAXIMUM PEAK FLOW			65	Oct 1	85	Jul 8	2003
MAXIMUM PEAK STAGE			4.54	May 22	4.54	May 22	2004
INSTANTANEOUS LOW FLOW			10	May 24	8.8	Nov 19	2002
10 PERCENT EXCEEDS	36		23		26		
50 PERCENT EXCEEDS	25		20		20		
90 PERCENT EXCEEDS	21		16		15		

e Estimated.

410433081312500 Ohio & Erie Canal at Lock 1 at Akron, Ohio

LOCATION.—Latitude 41°04′33″, longitude 81°31′25″, Summit County, Hydrologic Unit 05040001, at lower pool level of Lock 1, at south end of culvert under West Exchange Street, 1.6 mi northeast of Summit Lake, at Akron, Ohio.
DRAINAGE AREA.—Not determined.
PERIOD OF RECORD.—June 1, 1998 to current year.
GAGE.—Water-stage recorder. Datum of gage approximately 954 ft above sea level.
REMARKS.—Record good except for periods of estimated record, flows greater than 175 ft^3/s, and a period of significant in-channel weed growth (May 5 to September 30), which are fair. Flow is completely regulated by operation of gate at Lock 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	15	23	22	18	14	22	31	28	4.8	11	14	18
2	15	19	20	23	21	15	32	43	21	19	4.1	18
3	30	11	8.4	61	43	11	23	28	21	19	22	18
4	24	14	12	65	25	11	28	20	17	21	18	18
5	21	19	17	56	21	26	24	14	19	20	12	18
6	15	19	25	16	27	16	21	8.5	20	16	13	19
7	15	18	18	21	28	7.0	15	28	19	15	14	18
8	15	16	12	20	19	7.0	12	18	16	12	14	64
9	15	16	12	20	14	15	15	14	28	12	16	67
10	16	19	24	15	15	17	19	28	45	12	17	32
11	23	25	27	6.6	15	15	18	31	29	12	17	28
12	24	25	17	20	23	5.0	21	14	28	13	17	18
13	22	19	13	18	17	5.4	36	23	27	13	18	18
14	29	15	10	18	14	6.0	35	19	61	15	14	18
15	22	16	26	16	15	5.9	20	23	49	21	17	11
16	14	16	28	13	15	25	14	17	30	18	26	18
17	16	18	26	10	21	17	11	19	22	18	22	63
18	19	23	23	12	18	17	19	44	25	26	22	35
19	19	17	6.5	12	18	16	15	22	21	41	47	18
20	27	17	6.7	12	22	34	17	19	19	23	43	26
21	21	17	6.8	23	24	24	26	93	23	22	42	24
22	32	18	13	18	16	7.0	26	126	18	19	29	18
23	31	18	25	15	16	7.4	13	14	18	15	17	18
24	24	22	34	15	16	20	12	23	20	12	16	18
25	20	21	19	15	16	23	19	18	29	14	12	18
26	33	18	19	15	16	17	21	16	17	26	16	18
27	18	18	19	30	16	33	10	12	17	18	29	18
28	14	53	18	29	16	17	9.5	19	28	14	35	17
29	13	33	18	23	16	9.5	11	17	29	19	28	13
30	14	20	29	14	---	31	25	18	11	18	17	16
31	22	---	18	13	---	34	---	43	---	66	17	---
TOTAL	638	603	572.4	662.6	557	516.2	598.5	859.5	731.8	600	645.1	721
MEAN	20.6	20.1	18.5	21.4	19.2	16.7	19.9	27.7	24.4	19.4	20.8	24.0
MAX	33	53	34	65	43	34	36	126	61	66	47	67
MIN	13	11	6.5	6.6	14	5.0	9.5	8.5	4.8	11	4.1	11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998-2004, BY WATER YEAR (WY)

MEAN	18.4	13.9	15.7	17.7	17.2	17.2	20.2	24.3	22.0	24.2	21.3	20.3
MAX	21.7	20.1	21.8	21.4	22.6	26.0	26.2	34.5	33.2	51.5	26.0	28.0
(WY)	2002	2004	2003	2004	2003	2003	2003	2003	2003	2003	2003	2003
MIN	13.1	6.28	11.4	13.2	14.7	13.0	17.6	15.5	15.4	15.4	16.4	14.5
(WY)	2001	2001	2001	2001	2001	2001	2001	1999	1998	2001	2002	2001

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998-2004		
ANNUAL TOTAL	9996.3		7705.1				
ANNUAL MEAN	27.4		21.1		19.7		
HIGHEST ANNUAL MEAN					27.1		2003
LOWEST ANNUAL MEAN					14.5		2001
HIGHEST DAILY MEAN	214	Jul 8	126	May 22	214	Jul 8	2003
LOWEST DAILY MEAN	5.8	Aug 26	4.1	Aug 2	0.70	Dec 15	2000
ANNUAL SEVEN-DAY MINIMUM	15	Dec 3	9.9	Mar 9	2.2	Nov 12	2000
MAXIMUM PEAK FLOW			270	May 22	337	Aug 25	1998
MAXIMUM PEAK STAGE			2.94	May 22	3.44	Aug 25	1998
INSTANTANEOUS LOW FLOW			1.0	Aug 24	0.60	Nov 21	2001
10 PERCENT EXCEEDS	44		31		32		
50 PERCENT EXCEEDS	23		18		17		
90 PERCENT EXCEEDS	15		12		8.9		

410014081362600 Wolf Creek Outlet of Ohio & Erie Canal at Barberton, Ohio

LOCATION. —Latitude 41°00′14″, longitude 81°36′26″, Summit County, Hydrologic Unit 05040001, at Wolf Road culvert for the Ohio and Erie Canal outlet, 0.1 mi above confluence with Wolf Creek, 0.2 mi from confluence of Wolf Creek and Tuscarawas River, 0.6 mi east of Columbia Lake, at Barberton, Ohio.
DRAINAGE AREA.—Not determined.
PERIOD OF RECORD.—June 1, 1998 to current year.
GAGE.—Water-stage recorder. Datum of gage approximately 954 ft above sea level. Prior to Apr. 24, 2001 at site 150 ft downstream at datum 2.46 ft lower.
REMARKS.—Records good except for periods of estimated record, which are poor. Flow is completely regulated by operation of gate at outlet structure and by canal operations at other locations.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	4.6	e3.8	3.9	3.6	3.6	3.0	4.3	4.1	2.0	3.3	5.2	4.7
2	4.8	e3.8	3.6	3.7	3.7	2.4	5.0	5.5	3.2	3.6	4.9	4.7
3	4.9	e4.0	3.6	4.6	4.3	2.5	4.1	4.3	3.5	3.4	5.0	4.9
4	4.7	e4.0	4.0	5.4	3.2	3.0	4.7	3.8	2.9	3.7	4.8	5.0
5	4.5	4.1	4.7	4.5	2.8	2.8	4.1	3.7	2.9	4.1	4.5	4.9
6	4.4	4.0	4.4	3.1	4.2	2.1	3.5	3.9	2.7	3.7	4.5	4.8
7	4.5	3.8	3.7	3.5	4.2	2.3	3.4	5.1	2.6	3.7	4.7	4.8
8	4.6	3.8	3.7	3.3	3.5	3.4	3.8	4.3	2.6	4.0	4.7	8.7
9	4.8	3.8	4.0	3.1	3.6	3.8	4.0	4.3	3.3	4.1	4.8	10
10	4.8	3.7	4.7	2.9	3.7	3.4	3.9	4.5	4.1	4.1	4.8	7.1
11	4.8	3.4	4.1	3.5	3.9	2.8	3.6	4.1	3.9	4.3	4.7	5.8
12	4.9	3.0	3.4	4.0	3.7	3.0	3.8	2.9	3.8	4.4	4.7	5.2
13	4.5	2.5	3.5	3.7	3.0	3.7	4.4	3.3	3.2	4.4	4.9	5.2
14	4.5	2.6	3.8	3.6	3.3	3.7	4.5	2.5	4.6	4.3	4.9	5.3
15	4.8	2.8	3.7	3.6	3.7	4.2	3.5	3.5	5.0	5.2	5.4	e12
16	4.6	3.1	2.5	3.5	3.7	4.5	3.2	3.2	3.8	5.0	5.6	e17
17	5.1	3.1	2.1	3.8	3.5	3.1	3.6	3.6	3.3	4.9	5.3	7.4
18	5.0	3.0	1.4	4.3	3.0	2.7	3.3	3.9	3.7	5.1	5.3	7.8
19	4.9	3.3	1.2	4.5	2.9	2.8	2.9	3.4	3.8	6.7	7.2	6.2
20	4.8	3.8	2.1	4.5	3.4	3.6	3.5	3.1	3.8	5.6	7.7	5.6
21	5.3	4.2	2.8	4.2	3.4	3.2	3.3	6.4	3.5	5.4	8.4	4.5
22	6.1	4.2	3.1	3.3	3.4	2.8	3.2	7.8	3.3	5.1	6.0	4.1
23	5.5	4.1	3.8	3.1	3.5	3.0	3.5	3.4	3.3	4.8	5.0	4.0
24	5.1	4.1	4.6	3.2	3.6	2.8	3.7	3.3	3.4	4.7	4.7	3.9
25	4.0	3.9	3.9	3.3	3.6	1.9	3.7	2.8	4.4	4.9	4.7	3.9
26	3.8	3.7	4.0	3.5	3.5	2.3	3.0	2.6	3.7	5.3	4.8	3.7
27	3.2	4.1	3.9	4.4	3.5	3.6	3.1	2.6	3.6	5.1	5.2	3.7
28	3.2	5.9	3.7	4.1	3.3	2.6	3.2	3.0	3.9	4.8	5.9	3.7
29	e3.7	4.6	3.6	3.2	3.2	2.6	3.6	2.5	3.6	4.8	5.2	3.8
30	e3.7	3.8	4.6	3.1	---	4.8	4.1	2.7	2.9	4.9	4.9	3.8
31	e3.8	---	3.8	3.4	---	4.7	---	3.2	---	6.3	4.8	---
TOTAL	141.9	112.0	109.9	115.5	101.9	97.1	111.5	117.3	104.3	143.7	163.2	176.2
MEAN	4.58	3.73	3.55	3.73	3.51	3.13	3.72	3.78	3.48	4.64	5.26	5.87
MAX	6.1	5.9	4.7	5.4	4.3	4.8	5.0	7.8	5.0	6.7	8.4	17
MIN	3.2	2.5	1.2	2.9	2.8	1.9	2.9	2.5	2.0	3.3	4.5	3.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998-2004, BY WATER YEAR (WY)

MEAN	4.42	4.00	4.30	4.39	4.17	3.63	3.54	3.28	3.30	4.04	4.57	4.44
MAX	7.98	7.19	8.31	7.59	6.52	4.14	3.98	4.23	4.91	5.55	6.03	6.15
(WY)	1999	1999	1999	1999	1999	2003	2002	2003	1998	2002	2002	1998
MIN	2.72	2.93	3.00	2.88	3.29	3.03	3.08	2.64	1.92	2.80	2.92	1.66
(WY)	2000	2000	2000	2002	2000	2000	2001	2000	2000	2001	2000	2000

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998-2004		
ANNUAL TOTAL	1581.0		1494.5				
ANNUAL MEAN	4.33		4.08		3.95		
HIGHEST ANNUAL MEAN					5.15		1999
LOWEST ANNUAL MEAN					2.81		2000
HIGHEST DAILY MEAN	8.9	Jul 22	17	Sep 16	17	Sep 16	2004
LOWEST DAILY MEAN	1.2	Dec 19	1.2	Dec 19	0.07	Jul 2	2000
ANNUAL SEVEN-DAY MINIMUM	2.2	Dec 16	2.2	Dec 16	1.2	Sep 12	2000
MAXIMUM PEAK FLOW			21	Sep 15	34	Mar 17	1999
MAXIMUM PEAK STAGE			10.98	Sep 8	10.98	Sep 8	2004
INSTANTANEOUS LOW FLOW			0.83	Dec 18	0.01	Jul 2	2000
10 PERCENT EXCEEDS	5.6		5.2		5.9		
50 PERCENT EXCEEDS	4.3		3.8		3.6		
90 PERCENT EXCEEDS	3.1		2.9		2.3		

e Estimated.

Project Data—Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages

The data described in the following tables were collected and analyzed as part of NAWQA (National Water-Quality Assessment Program) project in the Lake Erie and Lake St. Clair Drainages (LERI). The objectives of the NAWQA program are to broadly characterize the water quality of the Nation's streams and aquifers in relation to human and natural factors. The period of high-intensity data collection in the LERI drainage was in the water years 1996-1998. The following stream-water-quality data are being reported in this publication as part of the NAWQA National Surface-Water Trend Network for water year 2004: Clinton River at Sterling Heights, Michigan (04161820), River Raisin near Manchester, Michigan (04175600), St. Joseph River near Newville, Indiana (04178000), Auglaize River near Ft. Jennings, Ohio (04186500), and Maumee River at Waterville, Ohio (04193500).

Water-Quality Records

04161820 Clinton River at Sterling Heights, Michigan

LOCATION.—Latitude 40°36′52″, longitude 83°01′36″, Macomb County, Michigan, Hydrologic Unit 04090003, on right bank at upstream side of bridge on Riverland Road, in Sterling Heights, Michigan.
DRAINAGE AREA.—309 mi^2.
REMARKS.—Discharge is measured at this site and is published in the Michigan Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; cfs, cubic feet per second; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; std, standard; mm, millimeter; mg/L, milligrams per liter]

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf µS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
Oct. 22	1015	67	1040	8.0	6.0	10.5	743	9.9	91
Nov. 25	1100	296	814	8.0	1.0	4.9	748	12.5	100
Dec. 9	1130	161	898	8.1	3.5	2.0	745	12.6	93
Jan. 29	1115	E150	1600	7.0	-11.0	.0	747	14.0	98
Feb. 25	1000	82	2640	8.2	-2.5	1.2	755	14.1	102
Apr. 21	1400	139	1260	8.1	18.5	13.4	738	11.0	109
May 12	1000	527	913	8.0	22.0	18.2	748	9.0	98
June 23	1200	323	797	8.1	23.0	19.1	735	9.4	106
July 28	1030	293	822	8.1	19.5	17.6	743	8.4	90
Aug. 25	0900	66	1030	8.1	24.5	20.1	749	8.9	100

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc. titr. field, mg/L as $CaCO_3$ (39086)	Sulfate, water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Ammonia, water, fltrd, mg/L as N (00608)	Phosphorus, water, unfltrd mg/L (00665)	Orthophosphate, water, fltrd, mg/L as P (00671)
Oct. 22	233	191	47.6	172	.036	2.30	<.04	.100	.052
Nov. 25	184	151	39.4	127	.015	.88	<.04	.063	<.006
Dec. 9	215	176	41.1	140	.019	1.51	.12	.043	.014
Jan. 29	249	204	48.5	354	.025	1.50	.14	.028	.011
Feb. 25	273	224	54.3	671	.018	1.40	.07	.042	.008
Apr. 21	256	210	51.6	238	.043	1.75	.17	.070	E.005
May 12	217	178	38.7	150	.023	.57	E.03	.142	<.006
June 23	238	195	31.2	125	.017	.72	.05	.073	.018
July 28	201	165	31.4	140	.024	1.56	<.04	.140	.032
Aug. 25	248	215	42.5	161	.040	2.52	.08	.059	.027

04161820 Clinton River at Sterling Heights, Michigan—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(80154), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; --, no data; <, concentration or value reported is less than that indicated]

Date	Suspended sediment concentration mg/L (80154)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	CIAT, water, fltrd, µg/L (04040)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Butylate, water, fltrd, µg/L (04028)
Oct. 22	6	<.006	<.004	.020	E.007	<.050	<.010	<.002
Nov. 25	15	--	--	--	--	--	--	--
Dec. 9	14	E.006	<.005	.016	E.005	<.050	<.010	<.004
Jan. 29	1	--	--	--	--	--	--	--
Feb. 25	17	<.006	<.005	.016	E.007	<.050	<.010	<.004
Apr. 21	22	.015	<.005	.040	E.012	<.050	<.010	<.004
May 12	50	.038	<.005	.169	E.058	<.050	<.010	<.004
June 23	33	.013	<.005	.158	E.030	<.050	<.010	<.004
July 28	59	E.005	<.005	.070	E.011	<.050	<.010	<.004
Aug. 25	15	<.006	<.005	.068	E.015	<.050	<.010	<.004

Date	Carbaryl, water, fltrd 0.7µ GF µg/L (82680)	Carbofuran, water, fltrd 0.7µ GF µg/L (82674)	Chlorpyrifos, water, fltrd, µg/L (38933)	Cyanazine, water, fltrd, µg/L (04041)	DCPA, water fltrd 0.7µ GF µg/L (82682)	p,p'-DDE, water, fltrd, µg/L (34653)	Diazinon, water, fltrd, µg/L (39572)	Dieldrin, water, fltrd, µg/L (39381)
Oct. 22	E.012	<.020	<.005	<.018	<.003	<.003	.006	<.007
Nov. 25	--	--	--	--	--	--	--	--
Dec. 9	E.005	<.020	<.005	<.018	<.003	<.003	E.004	<.009
Jan. 29	--	--	--	--	--	--	--	--
Feb. 25	<.041	<.020	<.005	<.018	<.003	<.003	<.006	<.009
Apr. 21	E.024	<.020	<.005	<.018	<.003	<.003	<.005	<.009
May 12	E.023	<.020	<.005	<.018	<.003	<.003	.010	<.009
June 23	<.051	<.020	<.005	<.018	<.003	<.003	.005	<.009
July 28	E.028	<.020	<.005	<.018	<.003	<.003	.009	<.009
Aug. 25	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009

04161820 Clinton River at Sterling Heights, Michigan—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82660), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; --, no data; <, concentration or value reported is less than that indicated]

Date	2,6-Diethylaniline water fltrd 0.7µ GF µg/L (82660)	Disulfoton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethalfluralin, water, fltrd 0.7µ GF µg/L (82663)	Ethoprop, water, fltrd 0.7µ GF µg/L (82672)	Fonofos, water, fltrd, µg/L (04095)	alpha-HCH, water, fltrd, µg/L (34253)	Lindane, water, fltrd, µg/L (39341)
Oct. 22	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Nov. 25	--	--	--	--	--	--	--	--
Dec. 9	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Jan. 29	--	--	--	--	--	--	--	--
Feb. 25	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Apr. 21	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
May 12	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
June 23	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
July 28	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Aug. 25	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004

Date	Linuron water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Parathion, water, fltrd, µg/L (39542)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 22	<.035	<.075	E.007	<.006	<.002	<.007	<.010	<.006
Nov. 25	--	--	--	--	--	--	--	--
Dec. 9	<.035	<.027	E.009	<.006	<.003	<.007	<.010	<.015
Jan. 29	--	--	--	--	--	--	--	--
Feb. 25	<.035	<.027	<.013	<.006	<.003	<.007	<.010	<.015
Apr. 21	<.035	<.027	.013	<.006	<.003	<.007	<.010	<.015
May 12	<.035	<.027	.030	<.006	<.003	<.007	<.010	<.015
June 23	<.035	<.027	.105	<.006	<.003	<.007	<.010	<.015
July 28	<.035	<.027	.034	<.006	<.003	<.007	<.010	<.015
Aug. 25	<.035	<.027	<.024	<.006	<.003	<.007	<.010	<.015

04161820 Clinton River at Sterling Heights, Michigan—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82669), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; --, no data; <, concentration or value reported is less than that indicated]

Date	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	cis-Permethrin, water, fltrd 0.7µ GF µg/L (82687)	Phorate, water, fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
Oct. 22	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
Nov. 25	--	--	--	--	--	--	--	--
Dec. 9	<.004	<.022	<.006	<.011	.01	<.004	<.025	E.006
Jan. 29	--	--	--	--	--	--	--	--
Feb. 25	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
Apr. 21	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
May 12	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
June 23	<.004	<.022	<.006	<.011	E.01	<.004	<.025	<.011
July 28	<.004	<.022	<.006	<.011	.03	<.025	<.025	<.007
Aug. 25	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011

Date	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water, fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)
Oct. 22	<.02	.006	<.02	<.040	<.02	<.005	<.002	<.009
Nov. 25	--	--	--	--	--	--	--	--
Dec. 9	<.02	.008	<.02	<.034	<.02	<.010	<.002	<.009
Jan. 29	--	--	--	--	--	--	--	--
Feb. 25	<.02	<.007	<.02	<.034	<.02	<.010	<.002	<.009
Apr. 21	<.02	.011	<.02	<.034	<.02	<.010	<.002	E.005
May 12	<.02	.183	<.02	<.034	<.02	<.010	<.002	<.009
June 23	<.02	.020	<.02	<.034	<.02	<.010	<.002	<.009
July 28	<.02	.014	<.02	<.075	<.02	<.010	<.002	<.009
Aug. 25	<.02	.015	<.02	<.034	<.02	<.010	<.002	<.009

04175600 River Raisin near Manchester, Michigan

LOCATION.—Latitude 42°10′05″, longitude 84°04′34″, Washtenaw County, Michigan, Hydrologic Unit 04100002, on left bank at downstream side of bridge on Sharon Valley Road, 2.5 miles northwest of Manchester, Michigan.
DRAINAGE AREA.—132 mi^2.
REMARKS.—Discharge is measured at this site and is published in the Michigan Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; cfs, cubic feet per second; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; std, standard; mm, millimeter; mg/L, milligrams per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf µS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
Oct. 22	1445	39	521	8.0	9.0	10.2	743	11.0	101
Dec. 9	1330	58	537	8.1	2.0	2.5	745	12.5	94
Feb. 25	1330	58	563	8.0	3.5	1.4	745	13.8	100
Apr. 21	1130	54	537	8.2	13.5	14.0	745	10.8	107
May 12	1400	146	482	7.9	23.0	20.4	748	8.6	97
June 23	0930	122	503	7.9	23.0	18.4	735	7.1	79
July 28	1330	73	505	7.9	21.0	19.3	744	8.2	91
Aug. 26	0800	33	539	8.0	23.0	22.6	740	8.3	99

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc. titr. field, mg/L as $CaCO_3$ (39086)	Sulfate, water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Nitrite, water, fltrd, mg/L as N (00613)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Ammonia, water, fltrd, mg/L as N (00608)	Phosphorus, water, unfltrd mg/L (00665)	Orthophosphate, water, fltrd, mg/L as P (00671)
Oct. 22	227	186	33.3	28.1	E.004	.21	<.04	.013	<.006
Dec. 9	224	184	34.9	27.8	E.006	.58	E.03	.011	<.006
Feb. 25	273	224	35.3	29.4	.010	.72	.05	.016	<.006
Apr. 21	254	208	30.8	28.6	E.007	.34	<.04	.025	<.006
May 12	224	184	24.6	23.8	.009	.31	<.04	.029	<.006
June 23	249	204	25.0	27.3	E.004	.18	E.02	.030	E.004
July 28	251	206	19.9	23.9	<.008	.21	<.04	.025	E.004
Aug. 26	260	213	24.2	27.7	E.005	.28	<.04	.023	<.006

04175600 River Raisin near Manchester, Michigan—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(80154), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Suspended sediment concentration mg/L (80154)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	CIAT, water, fltrd, µg/L (04040)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Butylate, water, fltrd, µg/L (04028)
Oct. 22	4	<.006	<.004	.027	E.008	<.050	<.010	<.002
Dec. 9	9	.006	<.005	.020	E.005	<.050	<.010	<.004
Feb. 25	7	<.006	<.005	.019	E.008	<.050	<.010	<.004
Apr. 21	6	.014	<.005	.034	E.009	<.050	<.010	<.004
May 12	11	.103	<.005	.319	E.039	<.050	<.010	<.004
June 23	38	.017	<.005	.150	E.020	<.050	<.010	<.004
July 28	7	.006	<.005	.053	E.008	<.050	<.010	<.004
Aug. 26	15	<.006	<.005	.039	E.009	<.050	<.010	<.004

Date	Carbaryl, water, fltrd 0.7µ GF µg/L (82680)	Carbofuran, water, fltrd 0.7µ GF µg/L (82674)	Chlorpyrifos, water, fltrd, µg/L (38933)	Cyanazine, water, fltrd, µg/L (04041)	DCPA, water, fltrd 0.7µ GF µg/L (82682)	p,p'-DDE, water, fltrd, µg/L (34653)	Diazinon, water, fltrd, µg/L (39572)	Dieldrin, water, fltrd, µg/L (39381)
Oct. 22	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.005
Dec. 9	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Feb. 25	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Apr. 21	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
May 12	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
June 23	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
July 28	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Aug. 26	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009

04175600 River Raisin near Manchester, Michigan—Continued

[(82660), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	Disulfoton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethalfluralin, water, fltrd 0.7µ GF µg/L (82663)	Ethoprop, water, fltrd 0.7µ GF µg/L (82672)	Fonofos, water, fltrd, µg/L (04095)	alpha-HCH, water, fltrd, µg/L (34253)	Lindane, water, fltrd, µg/L (39341)
Oct. 22	<.006	<.02	<.002	<.009	<.005	<.003	<.005	<.004
Dec. 9	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Feb. 25	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Apr. 21	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
May 12	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
June 23	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
July 28	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Aug. 26	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004

Date	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Parathion, water, fltrd, µg/L (39542)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 22	<.035	<.027	E.006	<.006	<.002	<.007	<.010	<.006
Dec. 9	<.035	<.027	E.008	<.006	<.003	<.007	<.010	<.015
Feb. 25	<.035	<.027	<.013	<.006	<.003	<.007	<.010	<.015
Apr. 21	<.035	<.027	E.011	<.006	<.003	<.007	<.010	<.015
May 12	<.035	<.027	.021	<.006	<.003	<.007	<.010	<.015
June 23	<.035	<.027	E.011	<.006	<.003	<.007	<.010	<.015
July 28	<.035	<.027	E.006	<.006	<.003	<.007	<.010	<.015
Aug. 26	<.035	<.027	<.013	<.006	<.003	<.007	<.010	<.015

04175600 River Raisin near Manchester, Michigan—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82669), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Date	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	cis-Permethrin, water, fltrd 0.7µ GF µg/L (82687)	Phorate, water, fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
Oct. 22	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011
Dec. 9	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
Feb. 25	<.004	<.022	<.006	<.011	<.01	<.004	<.025	<.011
Apr. 21	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
May 12	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011
June 23	<.004	<.022	<.006	<.011	E.04	<.004	<.025	<.011
July 28	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011
Aug. 26	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011

Date	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water, fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)
Oct. 22	<.02	.015	<.02	<.034	<.02	<.005	<.002	<.009
Dec. 9	<.02	.012	<.02	<.034	<.02	<.010	<.002	<.009
Feb. 25	<.02	.010	<.02	<.034	<.02	<.010	<.002	<.009
Apr. 21	<.02	.014	<.02	<.034	<.02	<.010	<.002	<.009
May 12	<.02	.014	<.02	<.034	<.02	<.010	<.002	<.009
June 23	<.02	3.64	<.02	<.034	<.02	<.010	<.002	<.009
July 28	<.02	.070	<.02	<.034	<.02	<.010	<.002	<.009
Aug. 26	<.02	.087	<.02	<.034	<.02	<.010	<.002	<.009

04178000 St. Joseph River near Newville, Indiana

LOCATION.—Latitude 41°23′08″, longitude 84°48′06″, Defiance County, Ohio, Hydrologic Unit 04100003, on left bank at bridge on State Highway 249, 3.5 miles northeast of Newville, Indiana at mile 42.3.
DRAINAGE AREA.—610 mi^2.
REMARKS.—Discharge is measured at this site and is published in the Indiana Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00095), USGS National Water Information System parameter code; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; std, standard; mm, millimeter; mg/L, milligrams per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Time	Specif. conduc-tance, wat unf µS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Baro-metric pres-sure, mm Hg (00025)	Dis-solved oxygen, mg/L (00300)	Dis-solved oxygen, percent of sat-uration (00301)	Bicar-bonate, wat flt incrm. titr., field, mg/L (00453)
Oct. 21	1245	580	7.8	14.5	11.8	743	10.6	101	237
Dec. 8	1500	647	8.3	1.5	1.3	746	12.5	91	266
Feb. 26	0845	510	7.9	-2.0	.1	747	12.7	89	210
Apr. 20	1315	646	8.3	14.0	15.9	745	10.1	105	301
May 11	1330	469	7.6	26.0	18.6	750	7.8	85	159
June 22	1400	457	7.7	23.0	19.7	737	7.1	80	228
July 27	1300	564	7.9	20.5	19.3	748	9.0	100	244
Aug. 24	1245	651	8.0	23.0	20.0	712	8.6	67	282

Date	Alka-linity, wat flt inc. titr. field, mg/L as $CaCO_3$ (39086)	Sulfate, water, fltrd, mg/L (00945)	Chlor-ide, water, fltrd, mg/L (00940)	Nitrite, water, fltrd, mg/L as N (00613)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Ammonia water, fltrd, mg/L as N (00608)	Phos-phorus, water, unfltrd mg/L (00665)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)
Oct. 21	194	50.3	28.0	.044	1.02	<.04	.150	.041
Dec. 8	218	55.9	34.2	.012	1.61	.05	.058	.018
Feb. 26	172	39.8	35.5	.021	2.00	.15	.187	.070
Apr. 20	247	48.8	32.9	.019	.39	<.04	.118	<.006
May 11	130	30.9	27.6	.132	6.46	.37	.53	.213
June 22	187	24.5	18.0	.041	1.63	<.04	.171	.062
July 27	200	35.1	30.7	E.006	.86	<.04	.166	.057
Aug. 24	231	44.0	38.1	.046	.40	<.04	.130	.036

04178000 St. Joseph River near Newville, Indiana—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(80154), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Suspended sediment concentration mg/L (80154)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	CIAT, water, fltrd, µg/L (04040)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Butylate, water, fltrd, µg/L (04028)
Oct. 21	24	.015	<.004	.122	E.013	<.050	<.010	<.002
Dec. 8	28	.009	<.010	.070	E.008	<.050	<.010	<.004
Feb. 26	28	<.006	<.005	.071	E.015	<.050	<.010	<.004
Apr. 20	50	.009	<.005	.077	E.012	<.050	<.010	<.004
May 11	48	5.15	.088	E38.1	E.628	<.050	<.010	<.004
June 22	43	.162	E.021	2.00	E.232	<.050	<.010	<.004
July 27	50	.015	E.004	.479	E.064	<.050	<.010	<.004
Aug. 24	66	.020	<.005	.400	E.039	<.050	<.010	<.004

Date	Carbaryl, water, fltrd 0.7µ GF µg/L (82680)	Carbofuran, water, fltrd 0.7µ GF µg/L (82674)	Chlorpyrifos, water, fltrd, µg/L (38933)	Cyanazine, water, fltrd, µg/L (04041)	DCPA, water, fltrd 0.7µ GF µg/L (82682)	p,p'-DDE, water, fltrd, µg/L (34653)	Diazinon, water, fltrd, µg/L (39572)	Dieldrin, water, fltrd, µg/L (39381)
Oct. 21	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.005
Dec. 8	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Feb. 26	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Apr. 20	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
May 11	<.041	<.020	.034	.019	.031	<.003	<.005	<.009
June 22	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
July 27	<.041	<.020	<.005	<.018	E.003	<.003	<.005	<.009
Aug. 24	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009

04178000 St. Joseph River near Newville, Indiana—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82660), USGS National Water Information System parameter code; µg/L, micrograms per liter; <, concentration or value reported is less than that indicated]

Date	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	Disulfoton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethalfluralin, water, fltrd 0.7µ GF µg/L (82663)	Ethoprop, water, fltrd 0.7µ GF µg/L (82672)	Fonofos, water, fltrd, µg/L (04095)	alpha-HCH, water, fltrd, µg/L (34253)	Lindane, water, fltrd, µg/L (39341)
Oct. 21	<.006	<.02	<.002	<.009	<.005	<.003	<.005	.006
Dec. 8	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Feb. 26	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.006
Apr. 20	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
May 11	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
June 22	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
July 27	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Aug. 24	<.006	<.02	.014	<.009	<.005	<.003	<.005	<.004

Date	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Parathion, water, fltrd, µg/L (39542)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 21	<.035	<.027	.050	<.006	<.002	<.007	<.010	<.006
Dec. 8	<.035	<.027	.032	.016	<.003	<.007	<.010	<.015
Feb. 26	<.035	<.027	.034	.018	<.003	<.007	<.010	<.015
Apr. 20	<.035	<.027	.028	<.006	<.003	<.007	<.010	<.015
May 11	<.035	<.027	14.3	.272	<.003	<.007	<.010	<.015
June 22	<.035	<.027	.852	.023	<.003	<.007	<.010	<.015
July 27	<.035	<.027	.209	.007	<.003	<.007	<.010	<.015
Aug. 24	<.035	<.027	.352	.009	<.003	<.007	<.010	<.015

04178000 St. Joseph River near Newville, Indiana—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82669), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	cis-Permethrin, water, fltrd 0.7µ GF µg/L (82687)	Phorate, water, fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
Oct. 21	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
Dec. 8	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
Feb. 26	<.004	<.022	<.006	<.011	<.01	<.004	<.025	<.011
Apr. 20	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
May 11	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011
June 22	<.004	<.022	<.006	<.011	E.01	<.004	<.025	<.011
July 27	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011
Aug. 24	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011

Date	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water, fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)
Oct. 21	<.02	.072	E.01	<.034	<.02	<.005	<.002	<.009
Dec. 8	<.02	.060	<.02	<.034	<.02	<.010	<.002	<.009
Feb. 26	<.02	.087	<.02	<.034	<.02	<.010	<.002	<.009
Apr. 20	<.02	.047	<.02	<.034	<.02	<.010	<.002	<.009
May 11	<.02	6.60	E.01	<.034	<.02	<.010	<.002	<.009
June 22	<.02	.127	E.02	<.034	<.02	<.010	<.002	<.009
July 27	<.02	.064	.02	<.034	<.02	<.010	<.002	<.009
Aug. 24	<.02	.256	<.02	<.034	<.02	<.010	<.002	<.009

04186500 Auglaize River near Ft. Jennings, Ohio

LOCATION.—Latitude 40°56′55″, longitude 84°15′58″, Putnam County, Ohio, Hydrologic Unit 04100007, on left bank 200 feet upstream from bridge on US Highway 224, 3.5 miles northeast of Ft. Jennings, Ohio.
DRAINAGE AREA.—332 mi^2.
REMARKS.—Discharge is measured at this site and is published in surface-water records.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; cfs, cubic feet per second; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; std, standard; mm, millimeter; mg/L, milligrams per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf µS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
Oct. 21	0945	163	721	7.9	13.2	14.0	743	11.3	113
Dec. 8	1130	439	587	8.3	2.0	2.2	746	13.5	100
Feb. 26	1100	310	575	8.0	.0	2.1	747	13.3	99
Apr. 20	1030	38	911	8.4	13.0	15.6	745	11.8	121
May 11	1015	191	628	7.8	22.0	20.6	748	7.7	88
June 22	1130	194	642	8.1	23.5	21.5	737	8.2	96
July 27	1000	176	545	7.9	19.0	19.3	745	8.9	99
Aug. 24	1015	93	542	7.9	22.0	21.7	747	8.1	94

Date	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc. titr. field, mg/L as $CaCO_3$ (39086)	Sulfate, water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Nitrite, water, fltrd, mg/L as N (00613)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Ammonia, water, fltrd, mg/L as N (00608)	Phosphorus, water, unfltrd mg/L (00665)	Orthophosphate, water, fltrd, mg/L as P (00671)
Oct. 21	275	225	69.5	38.3	.024	4.01	<.04	.137	.081
Dec. 8	204	167	56.4	34.8	.015	3.84	.06	.174	.091
Feb. 26	212	174	55.3	40.5	.023	3.34	E.02	.129	.062
Apr. 20	250	205	125	94.1	.028	.60	<.04	.154	<.006
May 11	220	180	58.6	37.1	.126	6.18	E.02	.153	.052
June 22	266	218	59.8	29.9	.012	4.43	<.04	.185	.106
July 27	211	173	50.5	29.9	.014	2.05	<.04	.23	.128
Aug. 24	248	215	52.4	31.6	.026	1.57	<.04	.22	.126

04186500 Auglaize River near Ft. Jennings, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(80154), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Suspended sediment concentration mg/L (80154)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	Atrazine, water, fltrd, µg/L (39632)	CIAT, water, fltrd, µg/L (04040)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Butylate, water, fltrd, µg/L (04028)
Oct. 21	15	.009	<.004	.137	E.052	<.050	<.010	<.002
Dec. 8	27	.164	.005	.134	E.011	<.050	<.010	<.004
Feb. 26	16	.017	<.005	.087	E.022	<.050	<.010	<.004
Apr. 20	18	.128	.008	.392	E.021	<.050	<.010	<.004
May 11	32	7.00	.017	18.7	E.251	<.050	<.010	<.004
June 22	49	.149	E.013	1.01	<.006	<.050	<.010	<.004
July 27	68	.061	<.005	.373	E.075	<.050	E.005	<.004
Aug. 24	38	.933	.015	.906	E.061	<.050	<.010	<.004

Date	Carbaryl, water, fltrd 0.7µ GF µg/L (82680)	Carbofuran, water, fltrd 0.7µ GF µg/L (82674)	Chlorpyrifos, water, fltrd, µg/L (38933)	Cyanazine, water, fltrd, µg/L (04041)	DCPA, water fltrd 0.7µ GF µg/L (82682)	p,p'-DDE, water, fltrd, µg/L (34653)	Diazinon, water, fltrd, µg/L (39572)	Dieldrin, water, fltrd, µg/L (39381)
Oct. 21	E.005	<.020	<.005	<.018	<.003	<.003	<.005	<.020
Dec. 8	<.041	<.020	<.005	<.018	<.003	<.003	E.003	<.009
Feb. 26	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Apr. 20	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
May 11	<.041	<.020	.008	<.018	<.003	<.003	<.007	<.009
June 22	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
July 27	E.008	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Aug. 24	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009

04186500 Auglaize River near Ft. Jennings, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82660), USGS National Water Information System parameter code; µg/L, micrograms per liter; <, concentration or value reported is less than that indicated]

Date	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	Disulfoton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethalfluralin, water, fltrd 0.7µ GF µg/L (82663)	Ethoprop, water, fltrd 0.7µ GF µg/L (82672)	Fonofos, water, fltrd, µg/L (04095)	alpha-HCH, water, fltrd, µg/L (34253)	Lindane, water, fltrd, µg/L (39341)
Oct. 21	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Dec. 8	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Feb. 26	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Apr. 20	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
May 11	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
June 22	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
July 27	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Aug. 24	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004

Date	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Parathion, water, fltrd, µg/L (39542)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 21	<.035	<.027	.053	<.006	<.002	<.007	<.010	<.006
Dec. 8	<.035	<.027	.126	.042	<.003	<.007	<.010	<.015
Feb. 26	<.035	<.027	.046	.008	<.003	<.007	<.010	<.015
Apr. 20	<.035	<.027	.204	<.006	<.003	<.007	<.010	<.015
May 11	<.035	<.027	1.94	.085	<.003	<.007	<.010	<.015
June 22	<.035	<.027	.446	.026	<.003	<.007	<.010	<.015
July 27	<.035	<.027	.339	.012	<.003	<.007	<.010	<.015
Aug. 24	<.035	<.027	.199	.008	<.003	<.007	<.010	<.015

04186500 Auglaize River near Ft. Jennings, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82669), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	cis-Permethrin, water, fltrd 0.7µ GF µg/L (82687)	Phorate, water fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
Oct. 21	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
Dec. 8	<.004	<.022	<.006	<.011	.01	<.004	E.004	<.011
Feb. 26	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
Apr. 20	<.004	<.022	<.006	<.011	.02	<.004	<.025	<.011
May 11	<.004	<.022	<.006	<.011	.04	<.004	<.025	<.011
June 22	<.004	<.022	<.006	<.011	E.02	<.004	<.025	<.011
July 27	<.004	<.022	<.006	<.011	.06	<.007	<.025	<.011
Aug. 24	<.004	<.022	<.006	<.011	.08	<.004	<.025	<.011

Date	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water, fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)
Oct. 21	<.02	.016	<.02	<.034	<.02	<.005	<.002	<.009
Dec. 8	<.02	.064	<.02	<.034	<.02	<.010	<.002	<.009
Feb. 26	<.02	.026	<.02	<.034	<.02	<.010	<.002	<.009
Apr. 20	<.02	.080	<.02	<.034	<.02	<.010	<.002	<.009
May 11	<.02	.543	<.02	<.034	<.02	<.010	<.002	<.009
June 22	<.02	.051	<.02	<.034	<.02	<.010	<.002	<.009
July 27	<.02	.032	<.02	<.034	<.02	<.010	<.002	E.005
Aug. 24	<.02	.016	<.02	<.034	<.02	<.010	<.002	<.009

04193500 Maumee River at Waterville, Ohio

LOCATION.—Latitude 41°30′00″, longitude 83°42′46″, Lucas County, Ohio, Hydrologic Unit 04100009, on downstream side of first pier from left end of bridge on State Highway 64 at Waterville, Ohio, river mile 20.7.
DRAINAGE AREA.—6,330 mi^2.
REMARKS.—Discharge is measured at this site and is published in surface-water records.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; cfs, cubic feet per second; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; std, standard; mm, millimeter; mg/L, milligrams per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Time	Instantaneous discharge, cfs (00061)	Specif. conductance, wat unf µS/cm 25 deg C (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)
Oct. 23	0930	2540	575	8.1	5.0	11.3	744	11.0	103
Dec. 10	0930	4240	641	7.7	6.0	3.1	745	13.0	99
Feb. 24	1330	14100	490	8.1	4.5	.2	750	3.1	92
Apr. 22	0915	1530	640	8.7	13.0	14.8	750	11.8	119
May 12	0830	5860	592	7.9	22.0	20.9	743	8.5	98
June 24	0930	4700	482	8.1	23.0	22.5	747	8.8	104
July 29	0900	2710	418	8.0	22.9	23.6	750	7.8	94
Aug. 26	1230	1400	571	8.8	28.0	--	743	8.0	--

Date	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Alkalinity, wat flt inc. titr. field, mg/L as $CaCO_3$ (39086)	Sulfate, water, fltrd, mg/L (00945)	Chloride, water, fltrd, mg/L (00940)	Nitrite water, fltrd, mg/L as N (00613)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Ammonia, water, fltrd, mg/L as N (00608)	Phosphorus, water, unfltrd mg/L (00665)
Oct. 23	--	201	165	50.7	31.9	.053	4.57	<.04	.24
Dec. 10	--	206	169	58.6	34.1	.020	5.39	.06	.188
Feb. 24	--	132	108	42.6	62.7	.036	2.24	.09	.41
Apr. 22	8	188	168	78.8	50.6	.024	1.76	<.04	.080
May 12	--	177	145	50.4	36.2	.148	9.04	.22	.177
June 24	--	200	164	31.6	19.6	.023	4.30	<.04	.21
July 29	--	151	124	37.2	28.0	.033	1.22	E.02	.61
Aug. 26	19	142	148	68.0	46.2	.009	.42	<.04	.158

04193500 Maumee River at Waterville, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(80154), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Sus-pended sedi-ment concen-tration mg/L (80154)	Aceto-chlor, water, fltrd, µg/L (49260)	Ala-chlor, water, fltrd, µg/L (46342)	Atra-zine, water, fltrd, µg/L (39632)	CIAT, water, fltrd, µg/L (04040)	Azin-phos-methyl, water, fltrd 0.7µ GF µg/L (82686)	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)
Oct. 23	.148	29	.023	<.004	.144	E.065	<.050	<.010	<.002
Dec. 10	.100	23	.023	.006	.099	E.011	<.050	<.010	<.004
Feb. 24	.197	90	<.006	<.005	<.007	<.006	<.050	<.010	<.004
Apr. 22	<.006	12	.054	<.005	.186	E.025	<.050	<.010	<.004
May 12	.062	33	4.17	.086	E23.4	E.377	<.050	<.010	<.004
June 24	.110	38	.323	E.035	2.96	E.300	<.050	<.010	<.004
July 29	.090	43	.045	.005	.484	E.072	<.050	<.010	<.004
Aug. 26	.010	27	.045	<.005	.434	E.064	<.050	<.010	<.004

Date	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor-pyrifos, water, fltrd, µg/L (38933)	Cyana-zine, water, fltrd, µg/L (04041)	DCPA, water fltrd 0.7µ GF µg/L (82682)	p,p'-DDE, water, fltrd, µg/L (34653)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)
Oct. 23	<.041	<.020	<.005	<.018	<.003	<.003	E.006	<.005
Dec. 10	E.005	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Feb. 24	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
Apr. 22	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
May 12	E.009	<.020	.019	E.017	<.003	<.003	.008	<.009
June 24	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009
July 29	E.013	<.020	<.005	.035	<.003	<.003	.007	<.009
Aug. 26	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.009

04193500 Maumee River at Waterville, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82660), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	Disulfoton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethalfluralin, water, fltrd 0.7µ GF µg/L (82663)	Ethoprop, water, fltrd 0.7µ GF µg/L (82672)	Fonofos, water, fltrd, µg/L (04095)	alpha-HCH, water, fltrd, µg/L (34253)	Lindane, water, fltrd, µg/L (39341)
Oct. 23	<.006	<.02	<.002	<.009	<.005	<.003	<.005	<.004
Dec. 10	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Feb. 24	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Apr. 22	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
May 12	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
June 24	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
July 29	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004
Aug. 26	<.006	<.02	<.004	<.009	<.005	<.003	<.005	<.004

Date	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	Parathion, water, fltrd, µg/L (39542)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 23	<.035	<.027	.083	<.010	<.002	<.007	<.010	<.006
Dec. 10	<.035	E.019	.059	.028	<.003	<.007	<.010	<.015
Feb. 24	<.035	<.027	<.013	<.006	<.003	<.007	<.010	<.015
Apr. 22	<.035	<.027	.073	<.006	<.003	<.007	<.010	<.015
May 12	<.035	<.027	5.85	.845	<.003	<.007	<.010	<.015
June 24	<.035	<.027	1.24	.071	<.003	<.007	<.010	<.015
July 29	<.035	<.027	.301	.022	<.003	<.007	<.010	<.015
Aug. 26	<.035	<.027	.232	.011	<.003	<.007	<.010	<.015

04193500 Maumee River at Waterville, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82669), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Date	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	cis-Permethrin, water, fltrd 0.7µ GF µg/L (82687)	Phorate,water fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)
Oct. 23	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
Dec. 10	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
Feb. 24	<.004	<.022	<.006	<.011	<.01	<.004	<.025	<.011
Apr. 22	<.004	<.022	<.006	<.011	.01	<.004	<.025	<.011
May 12	<.004	<.022	<.006	<.011	.06	<.004	<.025	<.011
June 24	<.004	<.022	<.006	<.011	E.02	<.004	<.025	<.011
July 29	<.004	<.022	<.006	<.011	.07	.009	<.025	<.011
Aug. 26	<.004	<.022	<.006	<.011	.09	<.004	<.025	<.011

Date	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water fltrd 0.7µ GF µg/L (82670)	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)
Oct. 23	<.02	.026	E.01	<.034	<.02	<.005	<.002	<.009
Dec. 10	<.02	.117	<.02	<.034	<.02	<.010	<.002	<.009
Feb. 24	<.02	<.005	<.02	<.034	<.02	<.010	<.002	<.009
Apr. 22	<.02	.055	E.01	<.034	<.02	<.010	<.002	<.009
May 12	<.02	1.71	E.01	<.034	<.02	<.010	<.002	<.009
June 24	<.02	.243	<.02	<.034	<.02	<.010	<.002	<.009
July 29	<.02	.057	E.01	<.034	<.02	<.010	<.002	<.009
Aug. 26	<.02	.045	<.02	<.034	<.02	<.010	<.002	<.009

Fish-Community Results

Fish community surveys were conducted at five sites in the Lake Erie-Lake St. Clair Drainages as part of the National Water-Quality Assessment Program (NAWQA). Fish were collected by electrofishing with pulsed-DC current in a mapped reach at each site. Two electrofishing passes and haul seining were completed at each reach in a single day. Electrofishing was done by use of a barge electroshocker at all sites. Fish were identified, measured, weighed, and checked for external anomalies such as parasites, lesions, and skeletal anomalies. Representative specimens were preserved, identified, and vouchered in the field. Vouchers were verified by icthyologist Terry Keiser of Ohio Northern University. More details regarding collection methods can be found in: Meador, M.R., Cuffney, T.R., and Gurtz, M.E., 1993, *Methods for collecting samples of fish communities as part of the National Water-Quality Assessment Program*: U.S. Geological Survey Open-File Report 93-104, 40 p. Taxonomy is based on Robins, C.R., Bailey, R.M., Bond, C.E., Brooker, J.R., Lachner, E.A., Lea, R.N., and Scott, W.B., 1991, *Common and scientific names of fishes from the United States and Canada, fifth edition*: American Fisheries Society Special Publication 20: Bethesda, M., 183 p.

CALENDER YEAR 2004

Station number	Station name	Date sampled	Drainage area (square miles)	Reach length (meters)
04161820	Clinton River at Sterling Heights, Michigan	09/10/04	309	286
04193500	Maumee River at Waterville, Ohio	09/15/04	6,330	300
04175600	River Raisin near Manchester, Michigan	09/07/04	132	247
04178000	St. Joseph River near Newville, Indiana	09/12/04	610	300
04186500	Auglaize River near Fort Jennings, Ohio	09/09/04	332	241

[g, grams; --, not present at indicated site]

Family	Scientific name	Common name	STATION NAME					
			River Raisin near Manchester, Michigan		Maumee River at Waterville, Ohio		Clinton River at Sterling Heights, Michigan	
			Abundance	Batch weight (g)	Abundance	Batch weight (g)	Abundance	Batch weight (g)
Petromyzontidae	*Ichthyomyzon fossor*	northern brook lamprey	2	14	--	--	--	--
Clupeidae	*Dorosoma cepedianum*	gizzard shad	--	--	4	46	--	--
Cyprinidae	*Campostoma anomalum*	central stoneroller	5	42	--	--	1	2
	Cyprinella spiloptera	spotfin shiner	2	11	15	22	3	14
	Cyprinus carpio	common carp	--	--	6	6682	--	--
	Luxilus chrysocephalus	striped shiner	91	404	5	3	--	--
	Nocomis biguttatus	hornyhead chub	11	208	--	--	--	--
	Nocomis micropogon	river chub	17	455	--	--	--	--
	Notropis atherinoides	emerald shiner	9	19	39	40	--	--
	Phenacobius mirabilis	suckermouth minnow	--	--	1	12	--	--
	Pimephales notatus	bluntnose minnow	50	213	16	16	39	93
	Semotilus atromaculatus	creek chub	1	2	--	--	6	18
Catostomidae	*Carpiodes cyprinus*	quillback	--	--	7	5588	--	--
	Catostomus commersoni	white sucker	13	515	--	--	11	1679
	Hypentelium nigricans	northern hog sucker	62	2110	6	4055	19	861
	Minytrema melanops	spotted sucker	--	--	--	--	--	--
	Moxostoma spp.	redhorses	--	--	7	2242	--	--

[g, grams; --, not present at indicated site]

Family	Scientific name	Common name	STATION NAME: River Raisin near Manchester, Michigan		Maumee River at Waterville, Ohio		Clinton River at Sterling Heights, Michigan	
			Abundance	Batch weight (g)	Abundance	Batch weight (g)	Abundance	Batch weight (g)
Catostomidae—continued								
	Moxostoma anisurum	silver redhorse	--	--	--	--	--	--
	Moxostoma duquesnei	black redhorse	2	100	1	1090	--	--
	Moxostoma erythrurum	golden redhorse	--	--	5	56	--	--
	Moxostoma macrolepidotum	shorthead redhorse	--	--	4	2444	--	--
Ictaluridae	*Ameiurus natalis*	yellow bullhead	--	--	--	--	--	--
	Ictalurus punctatus	channel catfish	--	--	9	2126	--	--
	Noturus flavus	stonecat	--	--	3	9	--	--
	Noturus miurus	brindled madtom	1	14	--	--	--	--
Esocidae	*Esox americanus vermiculatus*	grass pickerel	2	109	--	--	--	--
	Esox lucius	northern pike	1	710	--	--	--	--
Atherinidae	*Labidesthes sicculus*	brook silverside	2	1	--	--	--	--
Percichthyidae	*Morone chrysops*	white bass	--	--	3	321	--	--
Centrarchidae	*Ambloplites rupestris*	rock bass	21	1754	--	--	10	1028
	Lepomis cyanellus	green sunfish	1	21	1	1	2	7
	Lepomis gibbosus	pumpkinseed	1	22	--	--	2	40
	Lepomis humilis	orangespotted sunfish	--	--	1	1	--	--
	Lepomis macrochirus	bluegill	2	105	1	12	29	246
	Lepomis megalotis	longear sunfish	--	--	--	--	--	--
	Micropterus dolomieu	smallmouth bass	5	555	12	1985	--	--
	Micropterus salmoides	largemouth bass	--	--	1	11	3	10
	Pomoxis nigromaculatus	black crappie	--	--	--	--	1	44
Percidae	*Etheostoma blennioides*	greenside darter	10	26	13	43	3	7
	Etheostoma caeruleum	rainbow darter	1	2	--	--	--	--
	Etheostoma nigrum	johnny darter	4	4	--	--	7	12
	Etheostoma zonale	banded darter	1	2	--	--	--	--
	Perca flavescens	yellow perch	--	--	--	--	3	109
	Percina caprodes	logperch	--	--	16	468	1	9
	Percina maculata	blackside darter	--	--	--	--	--	--
Sciaenidae	*Aplodinotus grunniens*	freshwater drum	--	--	29	4190	--	--
Gobiidae	*Neogobius melanostomus*	round goby	--	--	--	--	32	166
NUMBER OF SPECIES			25		24		17	
HYBRIDS			--	--	--	--	1	--
TOTAL NUMBER OF FISH			317		205		176	

[g, grams; --, not present at indicated site]

Family	Scientific name	Common name	STATION NAME			
			Auglaize River near Fort Jennings, Ohio		St. Joseph River near Newville, Indiana	
			Abundance	Batch weight (g)	Abundance	Batch weight (g)
Petromyzontidae	*Ichthyomyzon fossor*	northern brook lamprey	--	--	--	--
Clupeidae	*Dorosoma cepedianum*	gizzard shad	--	--	6	23
Cyprinidae	*Campostoma anomalum*	central stoneroller	1	1	--	--
	Cyprinella spiloptera	spotfin shiner	25	100	1	3
	Cyprinus carpio	common carp	1	1982	9	19173
	Luxilus chrysocephalus	striped shiner	12	50	--	--
	Nocomis biguttatus	hornyhead chub	--	--	--	--
	Nocomis micropogon	river chub	--	--	--	--
	Notropis atherinoides	emerald shiner	--	--	--	--
	Phenacobius mirabilis	suckermouth minnow	3	36	--	--
	Pimephales notatus	bluntnose minnow	25	34	--	--
	Semotilus atromaculatus	creek chub	4	6	--	--
Catostomidae	*Carpiodes cyprinus*	quillback	1	738	--	--
	Catostomus commersoni	white sucker	5	628	1	2
	Hypentelium nigricans	northern hog sucker	1	200	--	--
	Minytrema melanops	spotted sucker	3	670	2	530
	Moxostoma spp.	redhorses	--	--	--	--
	Moxostoma anisurum	silver redhorse	--	--	4	1449
	Moxostoma duquesnei	black redhorse	--	--	--	--
	Moxostoma erythrurum	golden redhorse	2	582	1	52
	Moxostoma macrolepidotum	shorthead redhorse	--	--	--	--
Ictaluridae	*Ameiurus natalis*	yellow bullhead	2	326	--	--
	Ictalurus punctatus	channel catfish	3	2338	1	804
	Noturus flavus	stonecat	1	2	--	--
	Noturus miurus	brindled madtom	--	--	--	--
Esocidae	*Esox americanus vermiculatus*	grass pickerel	--	--	--	--
	Esox lucius	northern pike	--	--	1011	1
Atherinidae	*Labidesthes sicculus*	brook silverside	--	--	--	--
Percichthyidae	*Morone chrysops*	white bass	--	--	--	--
Centrarchidae	*Ambloplites rupestris*	rock bass	18	1466	10	1668
	Lepomis cyanellus	green sunfish	4	102	68	469
	Lepomis gibbosus	pumpkinseed	--	--	--	--
	Lepomis humilis	orangespotted sunfish	--	--	--	--
	Lepomis macrochirus	bluegill	7	98	--	--
	Lepomis megalotis	longear sunfish	46	766	--	--
	Micropterus dolomieu	smallmouth bass	12	991	--	--
	Micropterus salmoides	largemouth bass	1	10	2	3
	Pomoxis nigromaculatus	black crappie	--	--	1	20

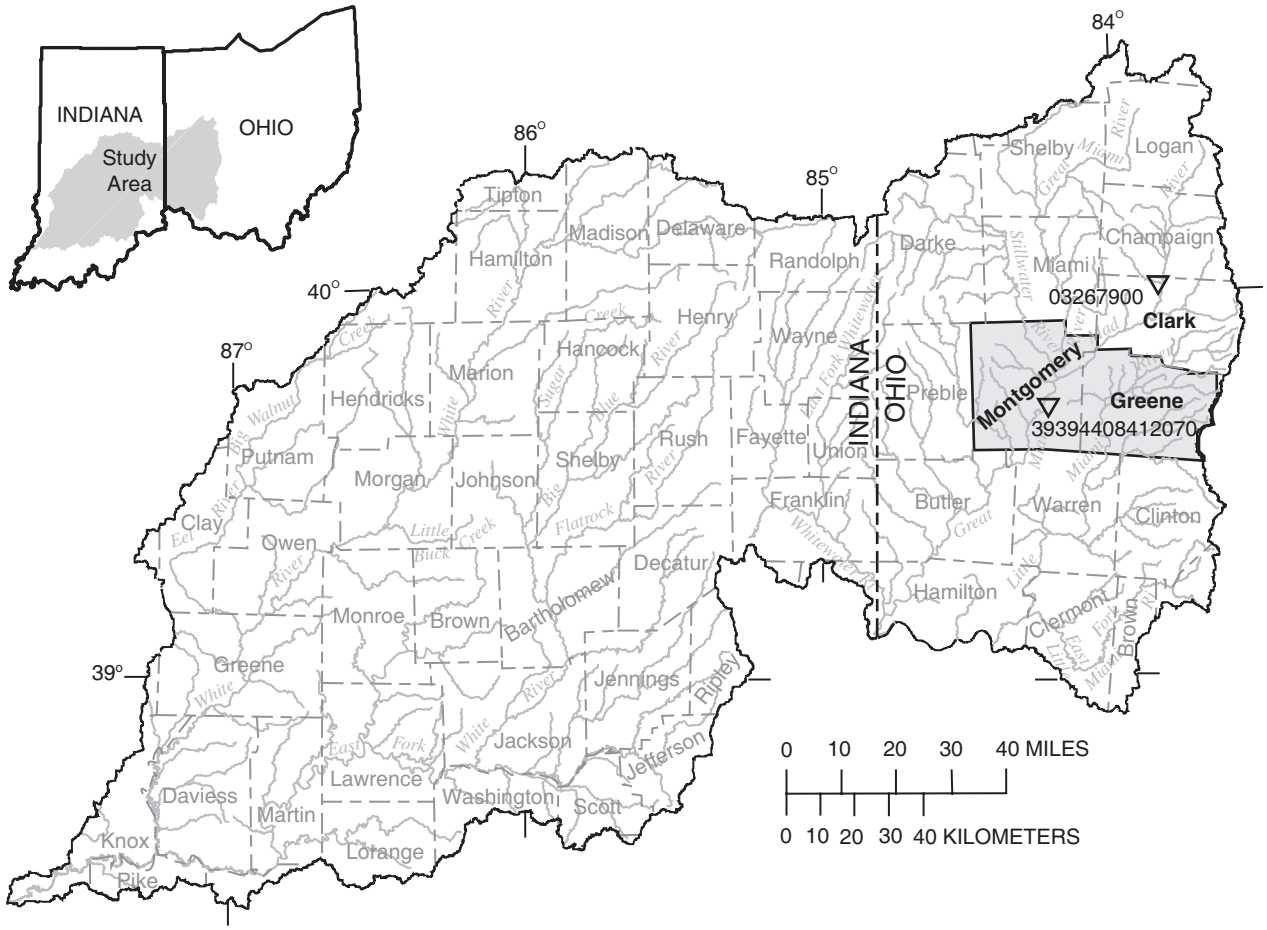
[g, grams; --, not present at indicated site]

Family	Scientific name	Common name	STATION NAME			
			Auglaize River near Fort Jennings, Ohio		St. Joseph River near Newville, Indiana	
			Abundance	Batch weight (g)	Abundance	Batch weight (g)
Percidae	*Etheostoma blennioides*	greenside darter	19	59	--	--
	Etheostoma caeruleum	rainbow darter	--	--	--	--
	Etheostoma nigrum	johnny darter	--	--	1	2
	Etheostoma zonale	banded darter	--	--	--	--
	Perca flavescens	yellow perch	--	--	--	--
	Percina caprodes	logperch	1	20	1	17
	Percina maculata	blackside darter	1	9	--	--
Sciaenidae	*Aplodinotus grunniens*	freshwater drum	1	438	--	--
Gobiidae	*Neogobius melanostomus*	round goby	--	--	--	--
NUMBER OF SPECIES			25		15	
HYBRIDS			--	--	--	--
TOTAL NUMBER OF FISH			199		109	

Project Data—Results from Selected Sites in the White, Great, and Little Miami River Basins

The data described in the following tables were collected and analyzed as part of the NAWQA (National Water-Quality Assessment Program) project in the White, Great, and Little Miami River Basins. The objectives of the NAWQA program are to broadly characterize the water quality of the Nation's streams and aquifers in relation to human and natural factors.

Data for two stream sites in Ohio are being reported in this publication as part of the NAWQA study: Mad River at St. Paris Pike near Eagle City, Ohio (03267900), and Holes Creek at Huffman Park near Kettering, Ohio (393944084120700). Also reported are water-quality data for selected public-supply wells in the glacial deposits aquifer near Dayton.



Water-Quality Records

03267900 Mad River at St. Paris Pike near Eagle City, Ohio

LOCATION.—Latitude 39°57′51″, longitude 83°49′54″, Clark County, Hydrologic Unit 05080001, and at mile 28.8.
DRAINAGE AREA.—310 mi^2.
REMARKS.—Ten discharge measurements were made at this site. This station is maintained by the Miami Conservancy District. Continuous discharge data and water-quality-monitor data for this site are located in the surface-water section in volume 1 of this report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; mm, millimeter; mg/L, milligrams per liter; std, standard; µS/cm, microsiemens per centimeter; deg C, degree Celsius; --, no data; <, concentration or value reported is less than that indicated]

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf, µS/cm 25 deg C (00095)	Temperature, air, deg C (00020)
Oct. 29	1300	487	735	12.0	111	8.2	692	10.5
Nov. 21	1130	433	740	11.0	101	8.1	703	17.0
Dec. 16	1430	534	734	11.6	99	8.0	705	8.0
Jan. 28	1400	398	744	10.2	77	8.1	744	-5.0
Mar. 29	1030	369	745	14.3	137	8.1	709	13.0
Apr. 15	1410	432	747	15.5	145	8.4	668	22.0
May 18	1200	578	744	8.5	89	7.9	616	26.5
June 30	1115	396	743	9.9	101	8.1	734	25.0
July 28	1130	284	742	9.8	100	8.2	726	22.5
Sept. 7	1100	216	740	8.9	97	8.1	741	23.0

Date	Temperature, water, deg C (00010)	Alkalinity, wat flt, inc. titr. field, mg/L as $CaCO_3$ (39086)	Bicarbonate, wat flt, incrm. titr., field, mg/L (00453)	Carbonate, wat flt, incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia, water, fltrd, mg/L as N (00608)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)
Oct. 29	10.4	291	350	2	20.1	55.0	<.04	3.86
Nov. 21	10.0	288	347	3	21.6	54.0	<.04	3.88
Dec. 16	6.9	291	350	2	22.1	54.9	<.04	4.13
Jan. 28	2.7	310	374	2	30.5	51.6	<.04	4.01
Mar. 29	12.4	292	340	8	21.6	51.7	<.04	3.75
Apr. 15	11.3	295	349	5	21.1	44.9	<.04	3.80
May 18	16.3	--	--	--	18.1	32.2	E.02	4.14
June 30	14.9	303	362	3	21.0	53.0	<.04	4.09
July 28	15.1	304	363	4	22.8	54.5	<.04	4.05
Sept. 7	17.8	301	359	4	23.2	54.4	<.04	4.13

03267900 Mad River at St. Paris Pike near Eagle City, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00613), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Nitrite, water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unf, by analysis, mg/L (62855)	Total carbon, suspnd sediment total, mg/L (00694)	Inorganic carbon, suspnd sediment total, mg/L (00688)	Organic carbon, suspnd sediment total, mg/L (00689)
Oct. 29	.008	.06	.023	.043	4.13	.3	<.1	.3
Nov. 21	.013	.04	<.006	.039	4.28	.4	<.1	.4
Dec. 16	.008	.04	E.005	.024	4.23	.5	<.1	.5
Jan. 28	<.008	.05	.031	.048	4.46	.4	<.1	.4
Mar. 29	.017	.08	E.004	.028	3.93	.8	<.1	.8
Apr. 15	.014	.06	.007	.022	4.26	.5	<.1	.5
May 18	.053	1.21	.033	.40	5.82	13.8	1.2	12.6
June 30	E.007	.06	.023	.072	1.69	.7	<.1	.7
July 28	.008	.08	.030	.054	4.27	.7	<.1	.7
Sept. 7	.009	.06	.02	.044	--	.4	<.1	.4

Date	Organic carbon, water, fltrd, mg/L (00681)	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atrazine, water, fltrd, µg/L (39632)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)
Oct. 29	2.8	--	--	--	--	--	--	--
Nov. 21	3.0	<.006	E.008	<.006	<.005	<.005	.035	<.050
Dec. 16	2.1	--	--	--	--	--	--	--
Jan. 28	1.9	<.006	E.009	<.006	<.005	<.005	.013	<.050
Mar. 29	2.2	<.006	E.014	<.006	<.005	<.005	.029	<.050
Apr. 15	2.3	<.006	E.019	<.006	<.005	<.005	.174	<.050
May 18	4.5	<.006	E.218	1.03	.010	<.005	7.47	<.050
June 30	2.1	<.006	E.015	.011	<.005	<.005	.076	<.050
July 28	1.6	<.006	E.005	<.006	<.005	<.005	.024	<.050
Sept. 7	1.7	<.006	<.006	<.006	<.005	<.005	.013	<.050

03267900 Mad River at St. Paris Pike near Eagle City, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82673), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

Date	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor-pyrifos, water, fltrd, µg/L (38933)	cis-Per-methrin, water, fltrd 0.7µ GF µg/L (82687)	Cyana-zine, water, fltrd, µg/L (04041)	DCPA, water fltrd 0.7µ GF µg/L (82682)
Oct. 29	--	--	--	--	--	--	--	--
Nov. 21	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Dec. 16	--	--	--	--	--	--	--	--
Jan. 28	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Mar. 29	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Apr. 15	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
May 18	<.010	<.004	<.041	<.020	.007	<.006	<.018	<.003
June 30	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
July 28	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Sept. 7	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003

Date	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)	Disul-foton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethal-flur-alin, water, fltrd 0.7µ GF µg/L (82663)	Etho-prop, water, fltrd 0.7µ GF µg/L (82672)	Desulf-inyl-fipro-nil amide, wat flt, µg/L (62169)
Oct. 29	--	--	--	--	--	--	--	--
Nov. 21	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Dec. 16	--	--	--	--	--	--	--	--
Jan. 28	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Mar. 29	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Apr. 15	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
May 18	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
June 30	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
July 28	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Sept. 7	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029

03267900 Mad River at St. Paris Pike near Eagle City, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(62167), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Fipronil sulfide, water, fltrd, µg/L (62167)	Fipronil sulfone, water, fltrd, µg/L (62168)	Fipronil, water, fltrd, µg/L (62166)	Fonofos, water, fltrd, µg/L (04095)	Lindane, water, fltrd, µg/L (39341)	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Oct. 29	--	--	--	--	--	--	--	--
Nov. 21	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Dec. 16	--	--	--	--	--	--	--	--
Jan. 28	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Mar. 29	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Apr. 15	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
May 18	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
June 30	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
July 28	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Sept. 7	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015

Date	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	p,p'-DDE, water, fltrd, µg/L (34653)	Parathion, water, fltrd, µg/L (39542)	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)
Oct. 29	--	--	--	--	--	--	--	--
Nov. 21	E.012	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Dec. 16	--	--	--	--	--	--	--	--
Jan. 28	E.006	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Mar. 29	E.009	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Apr. 15	.063	<.010	<.003	<.007	<.003	<.010	<.004	<.022
May 18	1.67	.020	<.003	<.007	<.003	<.010	<.004	<.022
June 30	.035	<.006	<.003	<.007	<.003	<.010	<.004	<.022
July 28	E.010	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Sept. 7	E.005	<.006	<.003	<.007	<.003	<.010	<.004	<.022

03267900 Mad River at St. Paris Pike near Eagle City, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82664), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Date	Phorate, water, fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)
Oct. 29	--	--	--	--	--	--	--	--
Nov. 21	<.011	<.01	<.004	<.025	<.011	<.02	.015	<.02
Dec. 16	--	--	--	--	--	--	--	--
Jan. 28	<.011	<.01	<.004	<.025	<.011	<.02	.015	E.01
Mar. 29	<.011	<.01	<.004	<.025	<.011	<.02	.011	<.02
Apr. 15	<.011	<.01	<.004	<.025	<.011	<.02	.149	<.02
May 18	<.011	.01	<.004	<.025	<.011	<.02	.456	<.02
June 30	<.011	<.01	<.004	<.025	<.011	<.02	.014	<.02
July 28	<.011	M	<.004	<.025	<.011	<.02	.005	<.02
Sept. 7	<.011	<.01	<.004	<.025	<.011	<.02	E.003	<.02

Date	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb, water, fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)	Suspended sediment concentration mg/L (80154)
Oct. 29	--	--	--	--	--	4
Nov. 21	<.034	<.02	<.010	<.002	<.009	19
Dec. 16	--	--	--	--	--	12
Jan. 28	<.034	<.02	<.010	<.002	<.009	13
Mar. 29	<.034	<.02	<.010	<.002	<.009	17
Apr. 15	<.034	<.02	<.010	<.002	<.009	8
May 18	<.034	<.02	<.010	<.002	<.009	303
June 30	<.034	<.02	<.010	<.002	<.009	24
July 28	<.034	<.02	<.010	<.002	<.009	23
Sept. 7	<.034	<.02	<.010	<.002	<.009	18

393944084120700 Holes Creek at Huffman Park near Kettering, Ohio

LOCATION.—Latitude 39°39′44″, longitude 84°12′07″, Montgomery County, Hydrologic Unit 05080001, and at mile 2.6.
DRAINAGE AREA.—20 mi^2.
REMARKS.—Ten discharge measurements were made at this site. Continuous stage data are collected at Holes Creek at Mad River Road (03271300), a station 0.6 mile upstream of the sampling site that is maintained by the Miami Conservancy District. Continuous discharge data and water-quality-monitor data for this site (03271300) are located in the surface-water section in volume 1 of this report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; mm, millimeter; mg/L, milligrams per liter; std, standard; µS/cm, microsiemens per centimeter; deg C, degree Celsius; --, no data; <, concentration or value reported is less than that indicated]

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf, µS/cm 25 deg C (00095)	Temperature, air, deg C (00020)
Nov. 21	1030	10	744	11.3	101	8.3	708	16.0
Dec. 17	1130	25	742	13.1	100	8.3	1360	-2.0
Jan. 29	1230	12	746	15.1	108	8.3	2290	-12.0
Feb. 25	1130	11	752	13.1	101	8.4	1390	3.5
Mar. 25	1230	13	754	16.2	155	8.6	1200	20.5
Apr. 15	1150	21	750	12.6	114	8.5	804	20.0
May 19	1115	185	744	--	--	8.1	461	24.5
June 29	1200	3.7	748	10.5	117	8.3	770	21.3
July 29	1130	1.2	746	9.1	102	8.4	699	27.5
Sept. 7	1400	1.5	743	8.7	101	8.3	781	26.5

Date	Temperature, water, deg C (00010)	Alkalinity, wat flt, inc. titr. field, mg/L as $CaCO_3$ (39086)	Bicarbonate, wat flt, incrm. titr., field, mg/L (00453)	Carbonate, wat flt, incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia, water, fltrd, mg/L as N (00608)	Nitrite + nitrate, water, fltrd, mg/L as N (00631)
Nov. 21	9.1	224	268	2	75.4	35.6	<.04	.77
Dec. 17	2.6	221	262	4	285	40.2	<.04	.91
Jan. 29	.5	254	306	2	580	43.1	.23	1.65
Feb. 25	3.8	272	324	4	275	48.0	<.04	.94
Mar. 25	12.5	248	286	8	231	46.5	<.04	.89
Apr. 15	10.1	217	256	4	116	32.0	<.04	.81
May 19	20.5	--	--	--	55.4	15.0	.05	.69
June 29	19.5	203	240	4	103	35.5	<.04	1.35
July 29	19.7	184	218	3	91.6	32.4	<.04	1.02
Sept. 7	21.3	214	253	4	97.0	30.8	<.04	1.25

393944084120700 Holes Creek at Huffman Park near Kettering, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00613), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Nitrite, water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unf, by analysis, mg/L (62855)	Total carbon, suspnd sediment total, mg/L (00694)	Inorganic carbon, suspnd sediment total, mg/L (00688)	Organic carbon, suspnd sediment total, mg/L (00689)
Nov. 21	.012	.06	E.003	.033	1.11	.6	<.1	.6
Dec. 17	.011	.07	<.006	.039	1.27	1.1	<.1	1.1
Jan. 29	.009	.08	.030	.060	2.17	.7	<.1	.7
Feb. 25	.015	.10	E.004	.029	1.43	.8	<.1	.7
Mar. 25	.016	.12	<.006	.033	1.26	1.2	<.1	1.2
Apr. 15	.012	.14	E.004	.058	1.23	1.1	<.1	1.1
May 19	.040	.50	.007	.198	1.95	5.8	.5	5.3
June 29	.018	.05	E.003	.045	4.21	.6	<.1	.6
July 29	E.005	.04	E.004	.030	1.33	.7	<.1	.7
Sept. 7	.019	.05	.019	.041	1.48	.4	<.1	.3

Date	Organic carbon, water, fltrd, mg/L (00681)	2,6-Diethylaniline, water, fltrd 0.7µ GF µg/L (82660)	CIAT, water, fltrd, µg/L (04040)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	alpha-HCH, water, fltrd, µg/L (34253)	Atrazine, water, fltrd, µg/L (39632)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)
Nov. 21	4.5	<.006	E.004	E.005	<.005	<.005	.014	<.050
Dec. 17	3.8	--	--	--	--	--	--	--
Jan. 29	3.5	<.006	E.007	<.006	<.005	<.005	.010	<.050
Feb. 25	3.1	--	--	--	--	--	--	--
Mar. 25	3.7	<.006	E.007	<.006	<.005	<.005	.014	<.050
Apr. 15	4.6	<.006	E.008	.011	<.005	<.005	.023	<.050
May 19	6.5	<.006	E.098	.125	.018	<.005	2.25	<.050
June 29	5.8	<.006	E.050	.016	<.005	<.005	.316	<.050
July 29	3.6	<.006	E.009	E.006	<.005	<.005	.047	<.050
Sept. 7	2.9	<.006	<.006	<.006	<.005	<.005	.022	<.050

393944084120700 Holes Creek at Huffman Park near Kettering, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82673), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Ben-flur-alin, water, fltrd 0.7µ GF µg/L (82673)	Butyl-ate, water, fltrd, µg/L (04028)	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carbo-furan, water, fltrd 0.7µ GF µg/L (82674)	Chlor-pyrifos, water, fltrd, µg/L (38933)	cis-Per-methrin, water, fltrd 0.7µ GF µg/L (82687)	Cyana-zine, water, fltrd, µg/L (04041)	DCPA, water, fltrd, 0.7µ GF µg/L (82682)
Nov. 21	<.010	<.004	E.012	<.020	<.010	<.006	<.018	<.003
Dec. 17	--	--	--	--	--	--	--	--
Jan. 29	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Feb. 25	--	--	--	--	--	--	--	--
Mar. 25	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Apr. 15	E.006	<.004	E.057	<.020	<.005	<.006	<.018	<.003
May 19	E.006	<.004	E.020	<.020	<.010	<.006	<.018	<.003
June 29	<.010	<.004	E.153	<.020	<.005	<.006	<.018	<.003
July 29	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003
Sept. 7	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003

Date	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diazi-non, water, fltrd, µg/L (39572)	Diel-drin, water, fltrd, µg/L (39381)	Disul-foton, water, fltrd 0.7µ GF µg/L (82677)	EPTC, water, fltrd 0.7µ GF µg/L (82668)	Ethal-flur-alin, water, fltrd 0.7µ GF µg/L (82663)	Etho-prop, water, fltrd 0.7µ GF µg/L (82672)	Desulf-inyl-fipro-nil amide, wat flt, µg/L (62169)
Nov. 21	E.004	E.004	<.009	<.02	<.004	<.009	<.005	<.029
Dec. 17	--	--	--	--	--	--	--	--
Jan. 29	<.012	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Feb. 25	--	--	--	--	--	--	--	--
Mar. 25	E.005	<.005	<.009	<.02	<.004	<.009	<.005	<.029
Apr. 15	E.004	.018	<.009	<.02	<.004	<.009	<.005	<.029
May 19	<.012	.020	<.009	<.02	<.004	<.009	<.005	<.029
June 29	E.004	<.005	<.009	<.02	<.004	<.009	<.005	<.029
July 29	E.003	E.004	<.009	<.02	<.004	<.009	<.005	<.029
Sept. 7	E.003	E.002	<.009	<.02	<.004	<.009	<.005	<.029

393944084120700 Holes Creek at Huffman Park near Kettering, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(62167), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Fipronil sulfide, water, fltrd, µg/L (62167)	Fipronil sulfone, water, fltrd, µg/L (62168)	Fipronil, water, fltrd, µg/L (62166)	Fonofos, water, fltrd, µg/L (04095)	Lindane, water, fltrd, µg/L (39341)	Linuron, water, fltrd 0.7µ GF µg/L (82666)	Malathion, water, fltrd, µg/L (39532)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)
Nov. 21	E.005	E.006	E.009	<.003	<.004	<.035	<.027	<.015
Dec. 17	--	--	--	--	--	--	--	--
Jan. 29	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Feb. 25	--	--	--	--	--	--	--	--
Mar. 25	E.005	E.005	E.018	<.003	<.004	<.035	<.027	<.015
Apr. 15	<.013	<.024	E.018	<.003	<.004	<.035	<.027	<.015
May 19	<.013	<.024	E.019	<.003	<.004	<.035	<.027	<.015
June 29	<.013	<.024	E.009	<.003	<.004	<.035	<.027	<.015
July 29	<.013	<.024	<.016	<.003	<.004	<.035	<.027	<.015
Sept. 7	E.003	<.024	<.016	<.003	<.004	<.035	<.027	<.015

Date	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7µ GF µg/L (82671)	Napropamide, water, fltrd 0.7µ GF µg/L (82684)	p,p'-DDE, water, fltrd, µg/L (34653)	Parathion, water, fltrd, µg/L (39542)	Pebulate, water, fltrd 0.7µ GF µg/L (82669)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)
Nov. 21	E.008	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Dec. 17	--	--	--	--	--	--	--	--
Jan. 29	<.013	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Feb. 25	--	--	--	--	--	--	--	--
Mar. 25	E.006	<.006	<.003	<.007	<.003	<.010	<.004	.051
Apr. 15	E.011	<.006	<.003	<.007	<.003	<.010	<.004	.090
May 19	.103	<.006	<.003	<.007	<.003	<.010	<.004	.044
June 29	.024	<.006	<.003	<.007	<.003	<.010	<.004	<.022
July 29	E.009	<.006	<.003	<.007	<.003	<.010	<.004	<.022
Sept. 7	E.004	<.006	<.003	<.007	<.003	<.010	<.004	<.022

393944084120700 Holes Creek at Huffman Park near Kettering, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82664), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Date	Phorate, water, fltrd 0.7µ GF µg/L (82664)	Prometon, water, fltrd, µg/L (04037)	Propyzamide, water, fltrd 0.7µ GF µg/L (82676)	Propachlor, water, fltrd, µg/L (04024)	Propanil, water, fltrd 0.7µ GF µg/L (82679)	Propargite, water, fltrd 0.7µ GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron, water, fltrd 0.7µ GF µg/L (82670)
Nov. 21	<.011	.02	<.004	<.025	<.011	<.02	.008	<.02
Dec. 17	--	--	--	--	--	--	--	--
Jan. 29	<.011	.01	<.004	<.025	<.011	<.02	<.006	<.02
Feb. 25	--	--	--	--	--	--	--	--
Mar. 25	<.011	.01	<.004	<.025	<.011	<.02	.006	<.02
Apr. 15	<.011	.08	<.004	<.025	<.011	<.02	.007	<.02
May 19	<.011	.05	<.004	<.025	<.011	<.03	.603	E.00
June 29	<.011	.27	<.020	<.025	<.011	<.02	.013	<.02
July 29	<.011	.09	<.025	<.025	<.011	<.02	.006	<.02
Sept. 7	<.011	.03	<.010	<.025	<.011	<.02	E.003	<.02

Date	Terbacil, water, fltrd 0.7µ GF µg/L (82665)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Thiobencarb water fltrd 0.7µ GF µg/L (82681)	Triallate, water, fltrd 0.7µ GF µg/L (82678)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)	Suspended sediment concentration mg/L (80154)
Nov. 21	<.034	<.02	<.010	<.002	<.009	7
Dec. 17	--	--	--	--	--	24
Jan. 29	<.034	<.02	<.010	<.002	<.009	4
Feb. 25	--	--	--	--	--	6
Mar. 25	<.034	<.02	<.010	<.002	E.006	10
Apr. 15	<.034	<.02	<.010	<.002	.009	14
May 19	<.034	<.02	<.010	<.002	E.008	125
June 29	<.034	<.02	<.010	<.002	<.009	34
July 29	<.034	<.02	<.010	<.002	<.009	14
Sept. 7	<.034	<.02	<.010	<.002	<.009	5

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio

The following tables include water-quality data from five public-supply wells that derive water from glacial valley-fill deposits in the vicinity of Dayton, Ohio. Samples of raw and treated water were collected from each well. The wells selected for sampling were interpreted to be minimally influenced by infiltration of surface water. Wells were sampled for field parameters, pesticides, and volatile organic compounds. This is one of several networks of public-supply wells in urban areas throughout the Nation included in the National Water-Quality Assessement (NAWQA) Source-Water-Quality Assessment (SWQA).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(72008), USGS National Water Information System parameter code; LSD, land surface datum; mm, millimeter; mg/L, milligrams per liter; std, standard; deg C, degree Celsius; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Station number	Date	Depth of well, feet below LSD (72008)	Altitude of land surface feet (72000)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd, field, std units (00400)
			Greeene County				
GR-673	394842084024300	07-07-04	61	809	732	3.8	6.7
GR-674	394818084023500	07-07-04	--	--	732	9.4	7.7
			Montgomery County				
MT-1271	393810084174400	06-28-04	123	692	743	.2	6.8
MT-1273	394922084090800	07-01-04	146	758	740	.4	6.7
MT-1277	394724084061300	07-08-04	60	792	736	4.1	7.2
MT-1279	395140084161700	07-02-04	84	780	737	.8	7.1
MT-1281	395145084164800	07-02-04	--	--	733	.7	6.8
MT-1282	393812084174900	06-28-04	--	--	740	.4	6.8
MT-1283	394926084090200	07-01-04	--	--	734	9.4	7.5
MT-1284	394737084052100	07-08-04	--	--	732	9.9	7.3

Station name	Specif. conductance, wat unf, uS/cm 25 deg C (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt, inc. titr. field, mg/L as $CaCO_3$ (39086)	Bicarbonate, wat flt, incrm. titr., field, mg/L (00453)	1,4-Dichlorobenzene,water, fltrd, µg/L (34572)	1-Methylnaphthalene, water, fltrd, µg/L (62054)	1-Naphthol, water, fltrd 0.7µ GF µg/L (49295)
				Greeene County				
GR-673	1060	23.5	14.4	320	389	<.5	<.5	<.09
GR-674	1080	--	15.5	347	419	<.5	<.5	<.09
				Montgomery County				
MT-1271	949	26.5	15.8	317	386	<.5	<.5	<.09
MT-1273	808	32.0	13.8	304	370	<.5	<.5	<.09
MT-1277	937	24.0	14.1	273	E333	--	--	<.09
MT-1279	826	32.0	15.7	277	338	--	--	--
MT-1281	867	33.0	13.8	301	367	<.5	<.5	--
MT-1282	1060	24.6	16.1	304	370	<.5	<.5	<.09
MT-1283	767	33.5	16.0	269	325	<.5	<.5	<.09
MT-1284	850	27.5	19.7	279	339	--	--	<.09

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(50470), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound but concentration not quantified]

Station name	2,4-D methyl ester, water, fltrd, µg/L (50470)	2,4-D water, fltrd, µg/L (39732)	2,4-DB water, fltrd 0.7µ GF µg/L (38746)	2,6-Di-ethyl-aniline, water, fltrd 0.7µ GF µg/L (82660)	2,6-Di-methyl-naphth-alene, water, fltrd, µg/L (62055)	2-[(2-Ethyl-6methyl phenyl) amino]2 oxoESA µg/L (62850)	2Chloro -2',6'-diethyl acet-anilide, wat flt, µg/L (61618)	CIAT, water, fltrd, µg/L (04040)
Greene County								
GR-673	<.009	<.02	<.02	<.006	<.5	<.02	<.005	<.006
GR-674	<.009	<.02	<.02	<.006	<.5	<.02	<.005	<.006
Montgomery County								
MT-1271	<.009	<.02	<.02	<.006	<.5	<.02	<.005	E.002
MT-1273	<.009	<.02	<.02	<.006	<.5	.10	<.005	E.015
MT-1277	<.009	<.02	<.02	<.006	--	<.02	<.005	E.010
MT-1279	<.009	<.02	<.02	--	--	<.02	--	<.03
MT-1281	<.009	<.02	<.02	--	<.5	<.02	--	<.03
MT-1282	<.009	<.02	<.02	<.006	<.5	<.02	<.005	E.006
MT-1283	<.009	<.02	<.02	<.006	<.5	.12	<.005	E.018
MT-1284	<.009	<.02	<.02	<.006	--	.03	<.005	E.018

Station name	CEAT, water, fltrd, µg/L (04038)	2-Ethyl -6-methyl-aniline, water, fltrd, µg/L (61620)	OIET, water, fltrd, µg/L (50355)	2-Methyl-naphth-alene, water, fltrd, µg/L (62056)	3,4-Di-chloro-aniline, water, fltrd, µg/L (61625)	3-beta-Copros-tanol, water, fltrd, µg/L (62057)	3-Hydroxy carbo-furan, wat flt, 0.7µ GF µg/L (49308)	3-Keto-carbo-furan, water, fltrd, µg/L (50295)
Greene County								
GR-673	<.01	<.004	<.008	<.5	<.004	<2	<.006	<.014
GR-674	<.01	<.004	<.008	<.5	<.004	<2	<.006	<.014
Montgomery County								
MT-1271	M	<.004	<.008	<.5	<.004	<2	<.006	<.014
MT-1273	E.02	<.004	E.022	<.5	<.004	<2	<.006	<.014
MT-1277	E.01	<.004	E.005	--	<.004	--	<.006	<.014
MT-1279	<.01	--	<.008	--	--	--	<.006	<.014
MT-1281	<.01	--	E.006	<.5	--	<2	<.006	<.014
MT-1282	M	<.004	E.023	<.5	<.004	<2	<.006	<.014
MT-1283	E.01	<.004	E.022	<.5	<.004	<2	<.006	<.014
MT-1284	E.01	<.004	E.016	--	<.004	--	<.006	<.014

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(62058), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

Station name	3-Methyl-1H-indole, water, fltrd, µg/L (62058)	3-tert-Butyl-4-hydroxyanisole, wat flt, µg/L (62059)	4Chloro 2methyl phenol, water, fltrd, µg/L (61633)	4-Cumylphenol, water, fltrd, µg/L (62060)	4-Octylphenol, water, fltrd, µg/L (62061)	4-Nonylphenol, water, fltrd, µg/L (62085)	4-tert-Octylphenol, water, fltrd, µg/L (62062)	5-Methyl-1H-benzotriazole, wat flt, µg/L (62063)
Greene County								
GR-673	<1	<5	<.006	<1	<1	<5	<1	<2
GR-674	<1	<5	<.006	<1	<1	E1	<1	<2
Montgomery County								
MT-1271	<1	<5	<.006	<1	<1	<5	<1	<2
MT-1273	<1	<5	<.006	<1	<1	<5	<1	<2
MT-1277	--	--	<.006	--	--	--	--	--
MT-1279	--	--	--	--	--	--	--	--
MT-1281	<1	<5	--	<1	<1	<5	<1	<2
MT-1282	<1	<5	<.006	<1	<1	<5	<1	<2
MT-1283	<1	<5	<.006	<1	<1	<5	<1	<2
MT-1284	--	--	<.006	--	--	--	--	--

Station name	9,10-Anthraquinone water, fltrd, µg/L (62066)	Acetochlor ESA, water, fltrd 0.7µ GF µg/L (61029)	Acetochlor OA, water, fltrd 0.7µ GF µg/L (61030)	Acetochlor SAA, water, fltrd, µg/L (62847)	Acetochlor, water, fltrd, µg/L (49260)	Acetophenone water, fltrd, µg/L (62064)	AHTN, water, fltrd, µg/L (62065)	Acifluorfen, water, fltrd 0.7µ GF µg/L (49315)
Greene County								
GR-673	<.5	<.02	<.02	<.02	<.006	<.5	<.5	<.007
GR-674	<.5	<.02	<.02	<.02	<.006	<.5	<.5	<.007
Montgomery County								
MT-1271	<.5	.02	<.02	<.02	<.006	<.5	<.5	<.007
MT-1273	<.5	.77	.41	<.02	<.006	<.5	<.5	<.007
MT-1277	--	<.02	<.02	<.02	<.006	--	--	<.007
MT-1279	--	.02	.02	<.02	--	--	--	<.007
MT-1281	<.5	.03	.02	<.02	--	<.5	<.5	<.007
MT-1282	<.5	.03	.02	<.02	<.006	<.5	<.5	<.007
MT-1283	<.5	.80	.53	<.02	<.006	<.5	<.5	<.007
MT-1284	--	.08	.05	<.02	<.006	--	--	<.007

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(62849), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Alachlor ESA SA, water, fltrd, µg/L (62849)	Alachlor ESA, water, fltrd 0.7µ GF µg/L (50009)	Alachlor OA, water, fltrd 0.7µ GF µg/L (61031)	Alachlor SAA, water, fltrd, µg/L (62848)	Alachlor, water, fltrd, µg/L (46342)	Aldicarb sulfone, water, fltrd 0.7µ GF µg/L (49313)	Aldicarb sulfoxide, wat flt, 0.7µ GF µg/L (49314)	Aldicarb, water, fltrd 0.7µ GF µg/L (49312)
Greene County								
GR-673	<.02	<.02	<.02	<.02	<.005	<.02	<.008	<.04
GR-674	<.02	.02	.02	<.02	<.005	<.02	<.008	<.04
Montgomery County								
MT-1271	<.02	<.02	<.02	<.02	<.005	<.02	<.008	<.04
MT-1273	<.02	.13	.04	<.02	<.005	<.02	<.008	<.04
MT-1277	<.02	.04	<.02	<.02	<.005	<.02	<.008	<.04
MT-1279	<.02	.04	.02	<.02	--	<.02	<.008	<.04
MT-1281	<.02	.02	<.02	<.02	--	<.02	<.008	<.04
MT-1282	<.02	<.02	<.02	<.02	<.005	<.02	<.008	<.04
MT-1283	<.02	.12	.06	<.02	<.005	<.02	<.008	<.04
MT-1284	<.02	.05	<.02	<.02	<.005	<.02	<.008	<.04

Station name	Anthracene, water, fltrd, µg/L (34221)	Atrazine, water, fltrd, µg/L (39632)	Azinphosmethyl oxon, water, fltrd, µg/L (61635)	Azinphosmethyl, water, fltrd 0.7µ GF µg/L (82686)	Bendiocarb, water, fltrd, µg/L (50299)	Benfluralin, water, fltrd 0.7µ GF µg/L (82673)	Benomyl, water, fltrd, µg/L (50300)	Bensulfuron, water, fltrd, µg/L (61693)
Greene County								
GR-673	<.5	<.007	<.07	<.050	<.03	<.010	<.004	<.02
GR-674	<.5	<.007	<.07	<.050	<.03	<.010	<.004	<.02
Montgomery County								
MT-1271	<.5	E.001	<.02	<.050	<.03	<.010	<.004	<.02
MT-1273	<.5	.025	<.07	<.050	<.03	<.010	<.004	<.02
MT-1277	--	.009	<.07	<.050	<.03	<.010	<.004	<.02
MT-1279	--	<.009	--	--	<.03	--	<.004	<.02
MT-1281	<.5	<.009	--	--	<.03	--	<.004	<.02
MT-1282	<.5	.016	<.02	<.050	<.03	<.010	<.004	<.02
MT-1283	<.5	.032	<.07	<.050	<.03	<.010	<.004	<.02
MT-1284	--	.027	<.07	<.050	<.03	<.010	<.004	<.02

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(38711), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound but concentration not quantified]

Station name	Ben-tazon, water, fltrd 0.7µ GF µg/L (38711)	Benzo-[a]-pyrene, water, fltrd, µg/L (34248)	Benzo-phenone water, fltrd, µg/L (62067)	beta-Sitos-terol, water, fltrd, µg/L (62068)	beta-Stigma-stanol, water, fltrd, µg/L (62086)	Bisphe-nol A, water, fltrd, µg/L (62069)	Broma-cil, water, fltrd, µg/L (04029)	Brom-oxynil, water, fltrd 0.7µ GF µg/L (49311)
Greene County								
GR-673	<.01	<.5	<.5	<2	M	<1	E.01	<.02
GR-674	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
Montgomery County								
MT-1271	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
MT-1273	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
MT-1277	<.01	--	--	--	--	--	<.03	<.02
MT-1279	<.01	--	--	--	--	--	<.03	<.02
MT-1281	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
MT-1282	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
MT-1283	<.01	<.5	<.5	<2	<2	<1	<.03	<.02
MT-1284	<.01	--	--	--	--	--	<.03	<.02

Station name	Caf-feine, water, fltrd, µg/L (50305)	Camphor, water, fltrd, µg/L (62070)	Car-baryl, water, fltrd 0.7µ GF µg/L (49310)	Car-baryl, water, fltrd 0.7µ GF µg/L (82680)	Carba-zole, water, fltrd, µg/L (62071)	Carbo-furan, water, fltrd 0.7µ GF µg/L (49309)	Chlor-amben methyl ester, water, fltrd, µg/L (61188)	Chlori-muron, water, fltrd, µg/L (50306)
Greene County								
GR-673	<.5	<.5	<.03	<.041	<.5	<.006	<.02	<.010
GR-674	<.5	<.5	<.03	<.041	<.5	<.006	<.02	<.010
Montgomery County								
MT-1271	<.5	<.5	<.03	<.041	<.5	<.006	<.02	<.010
MT-1273	<.5	<.5	<.03	<.041	<.5	<.006	<.02	.016
MT-1277	<.0096	--	<.03	<.041	--	<.006	<.02	<.010
MT-1279	<.0096	--	<.03	--	--	<.006	<.02	<.010
MT-1281	<.5	<.5	<.03	<1	<.5	<.006	<.02	<.010
MT-1282	<.5	<.5	<.03	<.041	<.5	<.006	<.02	<.010
MT-1283	<.5	<.5	<.03	<.041	<.5	<.006	<.02	.019
MT-1284	<.0096	--	<.03	<.041	--	<.006	<.02	<.010

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(04039), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Chloro-di-amino-s-tri-azine, wat flt, µg/L (04039)	Chloro-thalo-nil, water, fltrd 0.7µ GF µg/L (49306)	Chlor-pyrifos, oxon, water, fltrd, µg/L (61636)	Chlor-pyrifos, water, fltrd, µg/L (38933)	Choles-terol, water, fltrd, µg/L (62072)	cis-Per-methrin, water, fltrd 0.7µ GF µg/L (82687)	Clopyr-alid, water, fltrd 0.7µ GF µg/L (49305)	Cot-inine, water, fltrd, µg/L (62005)
Greene County								
GR-673	<.04	<.04	<.06	<.005	<2	<.006	<.01	<1.00
GR-674	<.04	<.04	<.06	<.005	<2	<.006	<.01	<1.00
Montgomery County								
MT-1271	<.04	<.04	<.06	<.005	<2	<.006	<.01	<1.00
MT-1273	<.04	<.04	<.06	<.005	<2	<.006	<.01	<1.00
MT-1277	<.04	<.04	<.06	<.005	--	<.006	<.01	--
MT-1279	<.04	<.04	--	--	--	--	<.01	--
MT-1281	<.04	<.04	--	<.5	<2	--	<.01	<1.00
MT-1282	E.01	<.04	<.06	<.005	<2	<.006	<.01	<1.00
MT-1283	<.04	<.04	<.06	<.005	<2	<.006	<.01	<1.00
MT-1284	<.04	<.04	<.06	<.005	--	<.006	<.01	--

Station name	Cyclo-ate, water, fltrd, µg/L (04031)	Cyflu-thrin, water, fltrd, µg/L (61585)	Cyper-methrin, water, fltrd, µg/L (61586)	Dacthal mono-acid, water, fltrd 0.7µ GF µg/L (49304)	DCPA, water fltrd 0.7µ GF µg/L (82682)	DEET, water, fltrd, µg/L (62082)	Desulf-inyl fipro-nil, water, fltrd, µg/L (62170)	Diaz-inon oxon, water, fltrd, µg/L (61638)
Greene County								
GR-673	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
GR-674	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
Montgomery County								
MT-1271	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
MT-1273	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
MT-1277	<.01	<.008	<.009	<.01	<.003	--	<.012	<.01
MT-1279	<.01	--	--	<.01	--	--	--	--
MT-1281	<.01	--	--	<.01	--	<.5	--	--
MT-1282	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
MT-1283	<.01	<.008	<.009	<.01	<.003	<.5	<.012	<.01
MT-1284	<.01	<.008	<.009	<.01	<.003	--	<.012	<.01

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(39572), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

Station name	Diazinon, water, fltrd, µg/L (39572)	Dicamba, water, fltrd 0.7µ GF µg/L (38442)	Dichlorprop, water, fltrd 0.7µ GF µg/L (49302)	Dicrotophos, water, fltrd, µg/L (38454)	Dieldrin, water, fltrd, µg/L (39381)	Diethoxynonylphenol, water, fltrd, µg/L (62083)	Diethoxyoctylphenol, water, fltrd µg/L (61705)	Dimethenamid ESA, water, fltrd, µg/L (61951)
Greene County								
GR-673	<.005	<.01	<.01	<.08	<.009	E2	<1	<.02
GR-674	<.005	<.01	<.01	<.08	<.009	<5	<1	<.02
Montgomery County								
MT-1271	<.005	<.01	<.01	<.08	<.009	<5	<1	<.02
MT-1273	<.005	<.01	<.01	<.08	<.009	<5	<1	.02
MT-1277	<.005	<.01	<.01	<.08	<.009	--	--	<.02
MT-1279	--	<.01	<.01	--	--	--	--	<.02
MT-1281	<.5	<.01	<.01	--	--	<5	<1	<.02
MT-1282	<.005	<.01	<.01	<.08	<.009	<5	<1	<.02
MT-1283	<.005	<.01	<.01	<.08	<.009	<5	<1	<.02
MT-1284	<.005	<.01	<.01	<.08	<.009	--	--	<.02

Station name	Dimethenamid OA, water, fltrd, µg/L (62482)	Dimethenamid, water, fltrd, µg/L (61588)	Dimethoate, water, fltrd 0.7µ GF µg/L (82662)	Dinoseb, water, fltrd 0.7µ GF µg/L (49301)	Diphenamid, water, fltrd, µg/L (04033)	Diuron, water, fltrd 0.7µ GF µg/L (49300)	D-Limonene, water, fltrd, µg/L (62073)	Ethion monoxon water, fltrd, µg/L (61644)
Greene County								
GR-673	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.0020
GR-674	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.0020
Montgomery County								
MT-1271	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.03
MT-1273	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.0020
MT-1277	<.02	<.02	<.006	<.01	<.03	<.01	--	<.0020
MT-1279	<.02	<.02	--	<.01	<.03	<.01	--	--
MT-1281	<.02	<.02	--	<.01	<.03	<.01	<.5	--
MT-1282	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.03
MT-1283	<.02	<.02	<.006	<.01	<.03	<.01	<.5	<.0020
MT-1284	<.02	<.02	<.006	<.01	<.03	<.01	--	<.0020

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(82346), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Ethion, water, fltrd, µg/L (82346)	Ethoxy-octyl-phenol, water, fltrd µg/L (61706)	Fenami-phos sulfone, water, fltrd, µg/L (61645)	Fenami-phos sulf-oxide, water, fltrd, µg/L (61646)	Fenami-phos, water, fltrd, µg/L (61591)	Fenuron water, fltrd 0.7µ GF µg/L (49297)	Desulf-inyl-fipro-nil amide, wat flt, µg/L (62169)	Fipro-nil sulfide, water, fltrd, µg/L (62167)
Greene County								
GR-673	<.004	<1	<.049	<.04	<.03	<.03	<.029	<.013
GR-674	<.004	<1	<.049	<.04	<.03	<.03	<.029	<.013
Montgomery County								
MT-1271	<.004	<1	<.008	<.03	<.03	<.03	<.029	<.013
MT-1273	<.004	<1	<.049	<.04	<.03	<.03	<.029	<.013
MT-1277	<.004	--	<.049	<.04	<.03	<.03	<.029	<.013
MT-1279	--	--	--	--	--	<.03	--	--
MT-1281	--	<1	--	--	--	<.03	--	--
MT-1282	<.004	<1	<.008	<.03	<.03	<.03	<.029	<.013
MT-1283	<.004	<1	<.049	<.04	<.03	<.03	<.029	<.013
MT-1284	<.004	--	<.049	<.04	<.03	<.03	<.029	<.013

Station name	Fipro-nil sulfone, water, fltrd, µg/L (62168)	Fipro-nil, water, fltrd, µg/L (62166)	Flufen-acet ESA, water, fltrd, µg/L (61952)	Flufe-nacet OA, water, fltrd, µg/L (62483)	Flufe-nacet, water, fltrd, µg/L (62481)	Flumet-sulam, water, fltrd, µg/L (61694)	Fluo-meturon water fltrd 0.7µ GF µg/L (38811)	Fluor-anthene water, fltrd, µg/L (34377)
Greene County								
GR-673	<.024	<.016	<.02	<.02	<.02	<.01	<.03	<.5
GR-674	<.024	<.016	<.02	<.02	<.02	<.01	<.03	<.5
Montgomery County								
MT-1271	<.024	<.016	<.02	<.02	<.02	<.01	<.03	<.5
MT-1273	<.024	<.016	<.02	<.02	<.02	E.02	<.03	<.5
MT-1277	<.024	<.016	<.02	<.02	<.02	<.01	<.03	--
MT-1279	--	--	<.02	<.02	<.02	<.01	<.03	--
MT-1281	--	--	<.02	<.02	<.02	<.01	<.03	<.5
MT-1282	<.024	<.016	<.02	<.02	<.02	<.01	<.03	<.5
MT-1283	<.024	<.016	<.02	<.02	<.02	E.01	<.03	<.5
MT-1284	<.024	<.016	<.02	<.02	<.02	<.01	<.03	--

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(61649), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound but concentration not quantified]

Station name	Fonofos oxon, water, fltrd, µg/L (61649)	Fonofos, water, fltrd, µg/L (04095)	HHCB, water, fltrd, µg/L (62075)	Hexazinone, water, fltrd, µg/L (04025)	Imazaquin, water, fltrd, µg/L (50356)	Imazethapyr, water, fltrd, µg/L (50407)	Imidacloprid, water, fltrd, µg/L (61695)	Indole, water, fltrd, µg/L (62076)
Greene County								
GR-673	<.003	<.003	<.5	<.013	<.02	<.02	<.007	<.5
GR-674	<.003	<.003	<.5	<.013	<.02	<.02	<.007	<.5
Montgomery County								
MT-1271	<.002	<.003	<.5	<.013	<.02	<.02	<.007	<.5
MT-1273	<.003	<.003	<.5	<.013	E.02	<.02	<.007	<.5
MT-1277	<.003	<.003	--	<.013	<.02	<.02	<.007	--
MT-1279	--	--	--	--	<.02	<.02	<.007	--
MT-1281	--	--	<.5	--	<.02	<.02	<.007	<.5
MT-1282	<.002	<.003	<.5	<.013	<.02	M	<.007	<.5
MT-1283	<.003	<.003	<.5	<.013	E.02	<.02	<.007	<.5
MT-1284	<.003	<.003	--	<.013	E.01	<.02	<.007	--

Station name	Iprodione, water, fltrd, µg/L (61593)	Isoborneol, water, fltrd, µg/L (62077)	Isofenphos, water, fltrd, µg/L (61594)	Isophorone, water, fltrd, µg/L (34409)	Isopropylbenzene, water, fltrd, µg/L (62078)	Isoquinoline, water, fltrd, µg/L (62079)	Linuron, water, fltrd 0.7µ GF µg/L (38478)	Malaoxon, water, fltrd, µg/L (61652)
Greene County								
GR-673	<.387	<.5	<.003	<.5	<.5	<.5	<.01	<.030
GR-674	<.387	<.5	<.003	<.5	<.5	<.5	<.01	<.030
Montgomery County								
MT-1271	<1	<.5	<.003	<.5	<.5	<.5	<.01	<.008
MT-1273	<.387	<.5	<.003	<.5	<.5	<.5	<.01	<.030
MT-1277	<.387	--	<.003	--	--	--	<.01	<.030
MT-1279	--	--	--	--	--	--	<.01	--
MT-1281	--	<.5	--	<.5	<.5	<.5	<.01	--
MT-1282	<1	<.5	<.003	<.5	<.5	<.5	<.01	<.008
MT-1283	<.387	<.5	<.003	<.5	<.5	<.5	<.01	<.030
MT-1284	<.387	--	<.003	--	--	--	<.01	<.030

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(39532), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Malathion, water, fltrd, µg/L (39532)	MCPA, water, fltrd 0.7µ GF µg/L (38482)	MCPB, water, fltrd 0.7µ GF µg/L (38487)	Menthol, water, fltrd, µg/L (62080)	Metalaxyl, water, fltrd, µg/L (50359)	Metalaxyl, water, fltrd, µg/L (61596)	Methialthion water, fltrd, µg/L (61598)	Methiocarb, water, fltrd 0.7µ GF µg/L (38501)
Greene County								
GR-673	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
GR-674	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
Montgomery County								
MT-1271	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
MT-1273	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
MT-1279	--	<.02	<.01	--	<.02	--	--	<.008
MT-1281	--	<.02	<.01	<.5	<.02	--	--	<.008
MT-1282	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
MT-1283	<.027	<.02	<.01	<.5	<.02	<.005	<.006	<.008
MT-1284	<.027	<.02	<.01	--	<.02	<.005	<.006	<.008

Station name	Methomyl, water, fltrd 0.7µ GF µg/L (49296)	Methyl paraoxon, water, fltrd, µg/L (61664)	Methyl parathion, water, fltrd 0.7µ GF µg/L (82667)	Methyl salicylate, water, fltrd, µg/L (62081)	Metolachlor ESA, water, fltrd 0.7µ GF µg/L (61043)	Metolachlor OA, water, fltrd 0.7µ GF µg/L (61044)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)
Greene County								
GR-673	<.004	<.03	<.015	<.5	.03	.02	<.013	<.006
GR-674	<.004	<.03	<.015	<.5	.03	.02	<.013	<.006
Montgomery County								
MT-1271	<.004	<.03	<.015	<.5	.10	.03	<.013	<.006
MT-1273	<.004	<.03	<.015	<.5	.50	.28	.020	<.006
MT-1277	<.004	<.03	<.015	--	.13	.04	<.013	<.006
MT-1279	<.004	--	--	--	.08	.03	--	--
MT-1281	<.004	--	--	<.5	.12	.04	<.5	--
MT-1282	<.004	<.03	<.015	<.5	.13	.04	E.005	<.006
MT-1283	<.004	<.03	<.015	<.5	.48	.33	.021	E.004
MT-1284	<.004	<.03	<.015	--	.19	.10	<.013	<.006

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(61697), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Metsulfuron, water, fltrd, µg/L (61697)	Myclobutanil, water, fltrd, µg/L (61599)	N-(4-Chlorophenyl)-N'-methylurea, µg/L (61692)	Naphthalene, water, fltrd, µg/L (34443)	Neburon, water, fltrd 0.7µ GF µg/L (49294)	Nicosulfuron, water, fltrd, µg/L (50364)	Norflurazon, water, fltrd 0.7µ GF µg/L (49293)	Oryzalin, water, fltrd 0.7µ GF µg/L (49292)
Greene County								
GR-673	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
GR-674	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
Montgomery County								
MT-1271	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
MT-1273	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
MT-1277	<.03	<.008	<.02	--	<.01	<.01	<.02	<.02
MT-1279	<.03	--	<.02	--	<.01	<.01	<.02	<.02
MT-1281	<.03	--	<.02	<.5	<.01	<.01	<.02	<.02
MT-1282	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
MT-1283	<.03	<.008	<.02	<.5	<.01	<.01	<.02	<.02
MT-1284	<.03	<.008	<.02	--	<.01	<.01	<.02	<.02

Station name	Oxamyl, water, fltrd 0.7µ GF µg/L (38866)	p-Cresol, water, fltrd, µg/L (62084)	Pendimethalin, water, fltrd 0.7µ GF µg/L (82683)	Pentachlorophenol, water, fltrd, µg/L (34459)	Phenanthrene, water, fltrd, µg/L (34462)	Phenol, water, fltrd, µg/L (34466)	Phorate oxon, water, fltrd, µg/L (61666)	Phorate, water, fltrd 0.7µ GF µg/L (82664)
Greene County								
GR-673	<.01	<1	<.022	<2	<.5	.5	<.10	<.011
GR-674	<.01	<1	<.022	<2	<.5	<.5	<.10	<.011
M ontgomery County								
MT-1271	<.01	<1	<.022	<2	<.5	E.5	<.10	<.011
MT-1273	<.01	<1	<.022	<2	<.5	E.2	<.10	<.011
MT-1277	<.01	--	<.022	--	--	--	<.10	<.011
MT-1279	<.01	--	--	--	--	--	--	--
MT-1281	<.01	<1	--	<2	<.5	<.5	--	--
MT-1282	<.01	<1	<.022	<2	<.5	<.5	<.10	<.011
MT-1283	<.01	<1	<.022	<2	<.5	<.5	<.10	<.011
MT-1284	<.01	--	<.022	--	--	--	<.10	<.011

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(61668), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound but concentration not quantified]

Station name	Phosmet oxon, water, fltrd, µg/L (61668)	Phosmet, water, fltrd, µg/L (61601)	Pic-loram, water, fltrd 0.7µ GF µg/L (49291)	Prome-ton, water, fltrd, µg/L (04037)	Prome-tryn, water, fltrd, µg/L (04036)	Propy-zamide, water, fltrd 0.7µ GF µg/L (82676)	Propa-chlor ESA, water, fltrd 0.7µ GF µg/L (62766)	Propa-chlor OA, water, fltrd 0.7µ GF µg/L (62767)
Greene County								
GR-673	<.05	<.008	<.02	.01	<.005	<.004	<.05	<.02
GR-674	<.05	<.008	<.02	.02	<.005	<.004	<.05	<.02
Montgomery County								
MT-1271	<.06	<.008	<.02	M	<.005	<.004	<.05	<.02
MT-1273	<.05	--	<.02	.01	<.005	<.004	<.05	<.02
MT-1277	<.05	<.008	<.02	.02	<.005	<.004	<.05	<.02
MT-1279	--	--	<.02	--	--	--	<.05	<.02
MT-1281	--	--	<.02	<.5	--	--	<.05	<.02
MT-1282	<.06	<.008	<.02	.01	<.005	<.004	<.05	<.02
MT-1283	--	--	<.02	.02	<.005	<.004	<.05	<.02
MT-1284	<.05	<.008	<.02	.03	<.005	<.004	<.05	<.02

Station name	Propham, water, fltrd 0.7µ GF µg/L (49236)	Propi-cona-zole, water, fltrd, µg/L (50471)	Pro-poxur, water, fltrd 0.7µ GF µg/L (38538)	Pyrene, water, fltrd, µg/L (34470)	Siduron, water, fltrd, µg/L (38548)	Sima-zine, water, fltrd, µg/L (04035)	Sulfo-met-ruron, water, fltrd, µg/L (50337)	Tebu-thiuron, water, fltrd 0.7µ GF µg/L (82670)
Greene County								
GR-673	<.010	<.02	<.008	<.5	<.02	<.005	<.009	<.02
GR-674	<.010	<.02	<.008	<.5	<.02	<.005	<.009	<.02
Montgomery County								
MT-1271	<.010	<.02	<.008	<.5	<.02	<.005	<.009	<.02
MT-1273	<.010	<.02	<.008	<.5	<.02	.008	<.009	<.02
MT-1277	<.010	<.02	<.008	--	<.02	.006	.035	<.02
MT-1279	<.010	<.02	<.008	--	<.02	--	<.009	<.006
MT-1281	<.010	<.02	<.008	<.5	<.02	--	<.009	<.006
MT-1282	<.010	<.02	<.008	<.5	<.02	E.002	<.009	<.02
MT-1283	<.010	<.02	<.008	<.5	<.02	.009	<.009	<.02
MT-1284	<.010	<.02	<.008	--	<.02	.012	E.007	<.02

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(04032), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Terbacil, water, fltrd, µg/L (04032)	Terbufos oxon sulfone, water, fltrd, µg/L (61674)	Terbufos, water, fltrd 0.7µ GF µg/L (82675)	Terbuthylazine, water, fltrd, µg/L (04022)	Tetrachloroethene, water, fltrd, µg/L (34476)	Tribromomethane, water, fltrd, µg/L (34288)	Tributyl phosphate, water, fltrd, µg/L (62089)	Triclopyr, water, fltrd 0.7µ GF µg/L (49235)
Greene County								
GR-673	<.010	<.07	<.02	<.01	E.1	<.5	<.5	<.02
GR-674	<.010	<.07	<.02	<.01	<.5	E1.2	<.5	<.02
Montgomery County								
MT-1271	<.010	<.07	<.02	<.01	<.5	<.5	<.5	<.02
MT-1273	<.010	<.07	<.02	<.01	<.5	<.5	<.5	<.02
MT-1277	<.010	<.07	<.02	<.01	--	--	--	<.02
MT-1279	<.010	--	--	--	--	--	--	<.02
MT-1281	<.010	--	--	--	E.1	E.3	<.5	<.02
MT-1282	<.010	<.07	<.02	<.01	E.3	E1.4	<.5	<.02
MT-1283	<.010	<.07	<.02	<.01	<.5	E.2	<.5	<.02
MT-1284	<.010	<.07	<.02	<.01	--	--	--	<.02

Station name	Triclosan, water, fltrd, µg/L (62090)	Triethyl citrate, water, fltrd, µg/L (62091)	Trifluralin, water, fltrd 0.7µ GF µg/L (82661)	Triphenyl phosphate, water, fltrd, µg/L (62092)	Tris(2-butoxyethyl) phosphate, wat flt, µg/L (62093)	Tris(2-chloroethyl) phosphate, wat flt, µg/L (62087)	Tris(dichloro-i-Pr) phosphate, wat flt, µg/L (62088)	1,1,1,2-Tetrachloroethane, water, unfltrd µg/L (77562)
Greene County								
GR-673	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
GR-674	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
Montgomery County								
MT-1271	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
MT-1273	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
MT-1277	--	--	<.009	--	--	--	--	<.03
MT-1279	--	--	--	--	--	--	--	<.03
MT-1281	<1	<.5	--	<.5	<.5	<.5	<.5	<.03
MT-1282	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
MT-1283	<1	<.5	<.009	<.5	<.5	<.5	<.5	<.03
MT-1284	--	--	<.009	--	--	--	--	<.03

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(34506), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Station name	1,1,1-Tri-chloro-ethane, water, unfltrd µg/L (34506)	1,1,2,2-Tetra-chloro-ethane, water, unfltrd µg/L (34516)	CFC-113 water unfltrd µg/L (77652)	1,1,2-Tri-chloro-ethane, water, unfltrd µg/L (34511)	1,1-Di-chloro-ethane, water unfltrd µg/L (34496)	1,1-Di-chloro-ethene, water, unfltrd µg/L (34501)	1,1-Di-chloro-propene, water, unfltrd µg/L (77168)	1,2,3,4 Tetra-methyl-benzene, water, unfltrd µg/L (49999)
Greene County								
GR-673	.20	<.16	<.04	<.06	<.04	<.02	<.03	<.1
GR-674	<.03	<.16	<.04	<.06	<.04	<.02	<.03	<.1
Montgomery County								
MT-1271	E.08	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1273	<.03	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1277	E.05	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1279	E.05	<.16	<.04	<.06	E.04	<.02	<.03	<.1
MT-1281	E.02	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1282	E.09	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1283	<.03	<.16	<.04	<.06	<.04	<.02	<.03	<.1
MT-1284	<.03	<.16	<.04	<.06	<.04	<.02	<.03	<.1

Station name	1,2,3,5 Tetra-methyl-benzene, water, unfltrd µg/L (50000)	1,2,3-Tri-chloro-benzene, water, unfltrd µg/L (77613)	1,2,3-Tri-chloro-propane, water, unfltrd µg/L (77443)	1,2,3-Tri-methyl-benzene, water, unfltrd µg/L (77221)	1,2,4-Tri-chloro-benzene, water, unfltrd µg/L (34551)	1,2,4-Tri-methyl-benzene, water, unfltrd µg/L (77222)	Dibromo chloro-propane, water, unfltrd µg/L (82625)	1,2-Di-bromo-ethane, water, unfltrd µg/L (77651)
Greene County								
GR-673	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
GR-674	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
Montgomery County								
MT-1271	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1273	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1277	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1279	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1281	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1282	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1283	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04
MT-1284	<.1	<.3	<.18	<.1	<.1	<.06	<.5	<.04

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(34536), USGS National Water Information System parameter code; µg/L, micrograms per liter; <, concentration or value reported is less than that indicated]

Station name	1,2-Di-chloro-benzene, water, unfltrd µg/L (34536)	1,2-Di-chloro-ethane, water, unfltrd µg/L (32103)	1,2-Di-chloro-propane, water, unfltrd µg/L (34541)	1,3,5-Tri-methyl-benzene, water, unfltrd µg/L (77226)	1,3-Di-chloro-benzene, water, unfltrd µg/L (34566)	1,3-Di-chloro-propane, water, unfltrd µg/L (77173)	1,4-Di-chloro-benzene, water, unflt,rd µg/L (34571)	2,2-Di-chloro-propane, water, unfltrd µg/L (77170)
Greene County								
GR-673	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
GR-674	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
Montgomery County								
MT-1271	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1273	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1277	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1279	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1281	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1282	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1283	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05
MT-1284	<.05	<.1	<.03	<.04	<.03	<.1	<.03	<.05

Station name	2-Chloro-toluene, water, unfltrd µg/L (77275)	2-Ethyl-toluene, water, unfltrd µg/L (77220)	3-Chloro-propene, water, unfltrd µg/L (78109)	4-Chloro-toluene, water, unfltrd µg/L (77277)	4-Iso-propyl-toluene, water, unfltrd µg/L (77356)	Acetone, water, unfltrd µg/L (81552)	Acrylo-nitrile, water, unfltrd µg/L (34215)	Benzene, water, unfltrd µg/L (34030)
Greene County								
GR-673	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
GR-674	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
Montgomery County								
MT-1271	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1273	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1277	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1279	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1281	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1282	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1283	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02
MT-1284	<.04	<.06	<.50	<.05	<.08	<6	<1	<.02

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(81555), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Bromo-benzene, water, unfltrd µg/L (81555)	Bromo-chloro-methane, water, unfltrd µg/L (77297)	Bromo-di-chloro-methane, water, unfltrd µg/L (32101)	Bromo-ethene, water, unfltrd µg/L (50002)	Bromo-methane, water, unfltrd µg/L (34413)	Carbon di-sulfide, water, unfltrd µg/L (77041)	Chloro-benzene, water, unfltrd µg/L (34301)	Chloro-ethane, water, unfltrd µg/L (34311)
Greene County								
GR-673	<.03	<.12	<.03	<.1	<.3	<.04	<.03	<.1
GR-674	<.03	<.12	1.36	<.1	<.3	<.04	<.03	<.1
Montgomery County								
MT-1271	<.03	<.12	<.03	<.1	<.3	<.04	<.03	<.1
MT-1273	<.03	<.12	<.03	<.1	<.3	<.04	<.03	<.1
MT-1277	<.03	<.12	<.03	<.1	<.3	<.04	<.03	<.1
MT-1279	<.03	<.12	<.03	<.1	<.3	<.04	<.03	<.1
MT-1281	<.03	<.12	.51	<.1	<.3	<.04	<.03	<.1
MT-1282	<.03	<.12	2.12	<.1	<.3	<.04	<.03	<.1
MT-1283	<.03	<.12	1.49	<.1	<.3	<.04	<.03	<.1
MT-1284	<.03	<.12	1.53	<.1	<.3	<.04	<.03	<.1

Station name	Chloro-methane, water, unfltrd µg/L (34418)	cis-1,2-Di-chloro-ethene, water, unfltrd µg/L (77093)	cis-1,3-Di-chloro-propene, water, unfltrd µg/L (34704)	Di-bromo-chloro-methane, water, unfltrd µg/L (32105)	Di-bromo-methane, water, unfltrd µg/L (30217)	Di-chloro-di-fluoro-methane, wat unf, µg/L (34668)	Di-chloro-methane, water, unfltrd µg/L (34423)	Di-ethyl ether, water, unfltrd µg/L (81576)
Greene County								
GR-673	<.2	<.02	<.05	<.1	<.05	<.18	<.1	<.1
GR-674	<.2	<.02	<.05	2.4	<.05	<.18	<.1	<.1
Montgomery County								
MT-1271	<.2	E.02	<.05	<.1	<.05	<.18	<.1	<.1
MT-1273	<.2	E.08	<.05	<.1	<.05	<.18	<.1	<.1
MT-1277	<.2	<.02	<.05	<.1	<.05	<.18	<.1	<.1
MT-1279	<.2	<.02	<.05	<.1	<.05	<.18	<.1	<.1
MT-1281	<.2	<.02	<.05	.7	<.05	<.18	<.1	<.1
MT-1282	<.2	.19	<.05	4.0	<.05	<.18	<.1	<.1
MT-1283	<.2	1.20	<.05	1.0	<.05	<.18	<.1	<.1
MT-1284	<.2	<.02	<.05	2.0	<.05	<.18	<.1	<.1

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(81577), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Diisopropyl ether, water, unfltrd µg/L (81577)	Ethyl methacrylate, water, unfltrd µg/L (73570)	Ethyl methyl ketone, water, unfltrd µg/L (81595)	Ethylbenzene, water, unfltrd µg/L (34371)	Hexachlorobutadiene, water, unfltrd µg/L (39702)	Hexachloroethane, water, unfltrd µg/L (34396)	Iodomethane, water, unfltrd µg/L (77424)	Isobutyl methyl ketone, water, unfltrd µg/L (78133)
Greene County								
GR-673	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
GR-674	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
Montgomery County								
MT-1271	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1273	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1277	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1279	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1281	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1282	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1283	<.10	<.2	<4.0	<.03	<.1	<.1	<.35	<.4
MT-1284	<.10	<.2	<4.0	E.02	<.1	<.1	<.35	<.4

Station name	Isopropylbenzene, water, unfltrd µg/L (77223)	Methyl acrylonitrile, water, unfltrd µg/L (81593)	Methyl acrylate, water, unfltrd µg/L (49991)	Methyl methacrylate, water, unfltrd µg/L (81597)	Methyl tert-pentyl ether, water, unfltrd µg/L (50005)	meta- + para-Xylene, water, unfltrd µg/L (85795)	Naphthalene, water, unfltrd µg/L (34696)	Methyl n-butyl ketone, water, unfltrd µg/L (77103)
Greene County								
GR-673	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
GR-674	<.04	<.8	<2.0	<.3	<.08	E.05	<.5	<.7
Montgomery County								
MT-1271	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1273	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1277	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1279	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1281	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1282	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1283	<.04	<.8	<2.0	<.3	<.08	<.06	<.5	<.7
MT-1284	<.04	<.8	<2.0	<.3	<.08	E.08	<.5	<.7

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(77342), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; <, concentration or value reported is less than that indicated]

Station name	n-Butyl benzene, water, unfltrd µg/L (77342)	n-propyl-benzene, water, unfltrd µg/L (77224)	o-Xylene, water, unfltrd µg/L (77135)	sec-Butyl-benzene, water, unfltrd µg/L (77350)	Styrene, water, unfltrd µg/L (77128)	t-Butyl ethyl ether, water, unfltrd µg/L (50004)	Methyl t-butyl ether, water, unfltrd µg/L (78032)	tert-Butyl-benzene, water, unfltrd µg/L (77353)
Greene County								
GR-673	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
GR-674	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
Montgomery County								
MT-1271	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1273	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1277	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1279	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1281	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1282	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1283	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06
MT-1284	<.1	<.04	<.04	<.06	<.04	<.05	<.2	<.06

Station name	Tetra-chloro-ethene, water, unfltrd µg/L (34475)	Tetra-chloro-methan, water, unfltrd µg/L (32102)	Tetra-hydro-furan, water, unfltrd µg/L (81607)	Toluene, water, unfltrd µg/L (34010)	trans-1,2-Di-chloro-ethene, water, unfltrd µg/L (34546)	trans-1,3-Di-chloro-propene, water, unfltrd µg/L (34699)	trans-1,4-Di-chloro-2-butene, wat unf, µg/L (73547)	Tri-bromo-methane, water, unfltrd µg/L (32104)
Greene County								
GR-673	E.06	.52	<2	E.01	<.03	<.09	<.7	<.10
GR-674	E.03	E.02	<2	E.01	<.03	<.09	<.7	1.53
Montgomery County								
MT-1271	<.06	<.06	<2	E.01	<.03	<.09	<.7	<.10
MT-1273	<.06	<.06	<2	E.01	<.03	<.09	<.7	<.10
MT-1277	.11	<.06	<2	<.05	<.03	<.09	<.7	<.10
MT-1279	.15	<.06	<2	<.05	<.03	<.09	<.7	<.10
MT-1281	E.06	<.06	<2	<.05	<.03	<.09	<.7	.35
MT-1282	.56	<.06	<2	<.05	E.02	<.09	<.7	1.98
MT-1283	<.06	<.06	<2	E.01	<.03	<.09	<.7	.18
MT-1284	<.06	<.06	<2	<.05	<.03	<.09	<.7	.73

Water Quality of Public-Supply Wells in the Glacial Deposits Aquifer near Dayton, Ohio—Continued

[(39180), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Trichloroethene, water, unfltrd µg/L (39180)	Trichlorofluoromethane, water, unfltrd µg/L (34488)	Trichloromethane, water, unfltrd µg/L (32106)	Vinyl chloride, water, unfltrd µg/L (39175)	Dichlorvos, water, fltrd, µg/L (38775)
Greene County					
GR-673	3.29	<.16	1.33	<.1	<.01
GR-674	.21	<.16	.56	<.1	<.01
Montgomery County					
MT-1271	<.04	<.16	E.02	<.1	<.01
MT-1273	E.03	<.16	<.02	<.1	<.01
MT-1277	.28	<.16	E.07	<.1	<.01
MT-1279	E.06	<.16	<.02	<.1	--
MT-1281	E.03	<.16	.18	<.1	<1.00
MT-1282	.17	<.16	.63	<.1	<.01
MT-1283	<.04	<.16	1.09	<.1	<.01
MT-1284	<.04	<.16	.65	<.1	<.01

Project Data—Developing a Method to Rapidly Estimate Fecal-Indicator Bacteria Concentrations in the Cuyahoga River

The following tables list the results of bacteriological and physical measurements of water samples collected at three locations along the Cuyahoga River in Cuyahoga Valley National Park, Summit and Cuyahoga Counties, Ohio, from May through August 2004. Samples were collected as part of a study to identify a method that best provides an estimate of concentrations of fecal-indicator bacteria so that daily information can be furnished to the public on the safety of the river for recreational use.

Water-Quality Records

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
04206000—Cuyahoga River at Old Portage, Ohio						
May 24	0930	9.30	3510	32	1300	1400
May 25	0943	8.56	3120	25	E540	730
May 26	1020	7.54	2570	17	830	E420
May 27	0945	6.53	1960	19	360	280
May 28	1121	5.92	1550	15	1200	1800
May 29	0930	5.49	1290	12	530	320
May 30	0937	4.85	945	11	540	210
June 1	0936	4.51	784	11	1000	800
June 2	0950	4.07	588	16	730	450
June 3	0804	4.36	714	21	1600	970
June 4	0751	3.91	525	14	700	610
June 5	0935	3.67	437	14	210	230
June 6	0930	3.54	393	13	220	300
June 7	1047	3.34	327	10	220	390
June 8	0945	3.25	300	10	200	310
June 9	0953	3.09	254	9.2	190	540
June 10	1020	3.27	306	12	4500	2800
June 11	0929	3.81	487	18	3700	2400
June 12	0935	4.49	775	24	2000	1600
June 13	0940	4.38	724	17	E600	730
June 14	1013	5.14	1090	36	4500	5600
June 15	0918	5.58	1340	41	11000	3900
June 16	0957	5.13	1090	23	E510	670
June 17	0953	5.00	1020	21	E230	270
June 18	1001	5.16	1100	24	E670	1000
June 19	0950	5.04	1040	19	--	--
June 21	1009	4.44	752	15	200	750
June 22	0933	3.63	423	9.8	180	200
June 23	0942	3.77	473	10	150	260
June 24	0940	3.34	327	8.1	87	340
June 25	1038	3.40	347	15	2400	3800
June 26	0941	3.35	331	11	430	1600
June 27	0906	3.28	309	8.3	220	580
June 28	0944	3.19	282	7.8	160	540
June 29	1035	3.36	334	9.3	700	3300
June 30	0937	2.73	166	6.2	540	800
July 1	0954	2.54	125	5.7	350	480

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
04206000—Cuyahoga River at Old Portage, Ohio—Continued						
July 2	0946	2.51	119	5.2	200	570
July 3	0945	2.50	117	5	200	440
July 6	1035	2.44	106	6.2	E610	1400
July 7	0941	2.40	99	6.2	480	770
July 8	0940	2.40	99	5.9	670	1400
July 9	0950	2.33	87	6.2	240	570
July 10	0935	2.31	84	5.9	200	540
July 11	1038	2.29	80	7.2	130	340
July 12	1005	2.27	77	4.7	120	480
July 13	0946	2.32	85	5.8	1200	E7800
July 14	1027	2.28	79	5.5	1100	1500
July 15	0940	2.63	144	9.3	5700	E8400
July 16	0954	2.41	101	6.6	E490	E1100
July 17	0925	2.54	125	9.2	770	1400
July 18	1010	2.44	106	5.5	390	560
July 19	0948	2.64	146	8.6	E3400	E6000
July 20	1003	2.53	123	6.4	1000	1300
July 21	0911	2.81	184	13	E6100	E14000
July 22	1052	2.63	144	8.8	E650	1200
July 23	1053	2.59	136	7.8	180	420
July 24	0838	2.63	144	9.3	100	370
July 25	0945	2.62	142	9.8	170	320
July 26	0955	3.07	249	20	5100	3400
Aug. 7	0949	3.89	517	13	110	160
Aug. 8	0850	3.59	410	8.6	67	210
Aug. 9	1028	3.24	297	6.8	58	210
Aug. 10	0935	2.94	215	6.3	77	150
Aug. 11	1013	2.80	182	5.6	50	170
Aug. 12	0948	2.59	136	4.5	80	180
Aug. 13	0913	2.55	127	4.8	E270	500
Aug. 16	0917	2.74	169	10	E4400	E5600
Aug. 17	0945	2.52	121	4.8	--	1000
Aug. 18	0950	2.71	162	10	--	E49000
Aug. 19	0949	2.95	217	43	--	5500
Aug. 20	0933	3.17	276	12	--	1700
Aug. 22	0837	3.48	373	19	--	800
Aug. 23	0934	3.35	331	11	--	460
Aug. 24	0940	3.24	297	9.6	--	430
Aug. 25	0943	2.96	220	8.8	--	350

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
04206000—Cuyahoga River at Old Portage, Ohio—Continued						
Aug. 26	0940	2.77	175	8.6	--	390
Aug. 27	0902	2.68	155	7.4	--	340
Aug. 28	0846	3.21	288	26	--	2600
Aug. 29	0957	3.11	259	13	--	2400
411011081345100—Cuyahoga River at Botzum, Ohio						
May 24	0942	12.91	--	51	2700	2900
May 25	0922	11.85	--	36	E180	E320
May 26	0955	10.93	--	23	1100	730
May 27	0920	10.09	1930	26	520	220
May 28	1100	9.49	1580	22	1700	1000
May 29	0915	9.04	1350	15	950	780
May 30	0930	8.70	1190	13	390	310
June 1	0910	--	--	14	1100	700
June 2	1005	7.99	876	20	570	450
June 3	0742	10.14	1960	40	1400	3400
June 4	0734	7.80	795	21	730	610
June 5	0915	7.64	730	19	300	330
June 6	0919	7.49	671	15	250	210
June 7	1027	7.35	622	8.7	200	250
June 8	1003	7.50	675	8.1	190	400
June 9	0939	7.06	524	10	190	240
June 10	0959	7.60	714	21	3100	3200
June 11	0909	8.08	914	26	5000	2300
June 12	0917	8.49	1100	32	4200	1900
June 13	0925	8.30	1010	21	E580	E560
June 14	0946	10.46	2170	58	13000	6900
June 15	0905	8.30	1010	49	6200	3500
June 16	0940	7.63	726	29	E610	E540
June 17	0940	7.53	687	25	220	590
June 18	1015	7.57	702	20	670	1100
June 19	0933	8.54	1120	19	--	--
June 21	0958	6.97	496	25	160	310
June 22	0921	7.53	687	12	200	250
June 23	0924	7.70	754	9.2	140	280
June 24	0916	7.37	629	7.7	90	360
June 25	0926	7.46	661	10	1900	3600
June 26	0929	7.05	521	9.7	410	1100
June 27	0926	7.01	508	6.8	E160	560
June 28	0930	7.54	690	8.2	190	480

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
411011081345100—Cuyahoga River at Botzum, Ohio—Continued						
June 29	1015	7.72	762	13	1200	4600
June 30	1000	6.93	483	6.4	240	650
July 1	0927	7.80	795	6.4	230	460
July 2	0929	6.61	388	7.7	170	760
July 3	0927	7.15	554	4.6	97	410
July 6	1029	8.19	961	6.7	250	1000
July 7	0927	6.50	358	8.6	360	1400
July 8	0925	6.50	358	7.5	800	E2800
July 9	0933	6.51	361	6.4	200	340
July 10	0945	5.70	176	4.7	E50	230
July 11	1023	5.30	120	5.5	87	440
July 12	0933	6.76	432	5.6	100	470
July 13	0932	6.36	319	14	E4600	E16000
July 14	1012	6.81	446	9.9	1700	1300
July 15	0929	6.74	426	22	4500	14000
July 16	0937	6.61	388	13	E500	1800
July 17	0910	6.85	458	11	550	2000
July 18	0955	6.55	372	13	260	490
July 19	0933	6.88	468	14	E4500	E7700
July 20	0943	6.69	411	9.1	670	2000
July 21	0859	6.94	486	17	E2300	E8300
July 22	1033	6.76	432	14	670	1200
July 23	1030	6.75	429	9.5	200	570
July 24	0826	6.65	400	10	130	200
July 25	0930	6.65	400	10	110	280
July 26	0941	7.38	632	150	4900	3600
Aug. 7	0930	7.05	521	13	150	190
Aug. 8	0835	7.95	858	9.3	130	180
Aug. 9	1008	7.25	587	7.8	89	240
Aug. 10	0922	7.00	505	6.4	120	180
Aug. 11	0946	6.81	446	5.6	93	160
Aug. 12	0931	6.59	383	5.1	230	260
Aug. 13	0850	6.67	405	4.1	420	310
Aug. 16	0900	6.94	486	16	E4600	E7600
Aug. 17	0931	6.55	372	7	--	1500
Aug. 18	0934	6.84	455	34	--	11000
Aug. 19	0937	6.05	242	21	--	3000
Aug. 20	0858	7.31	608	20	--	2200
Aug. 22	0824	7.85	816	19	--	1200

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
411011081345100—Cuyahoga River at Botzum, Ohio—Continued						
Aug. 23	0917	7.38	632	14	--	380
Aug. 24	0914	7.00	505	14	--	560
Aug. 25	0934	7.00	505	12	--	490
Aug. 26	0902	7.87	824	21	--	440
Aug. 27	0845	6.73	423	10	--	400
Aug. 28	0835	7.25	587	56	--	E7700
Aug. 29	0940	7.05	521	14	--	2700
411747081341300—Cuyahoga River at Jaite, Ohio						
May 24	1005	13.02	--	220	E6400	7200
May 25	1020	11.70	--	56	770	1500
May 26	0815	10.73	--	49	730	510
May 27	0830	9.81	--	43	430	290
May 28	0952	9.44	--	37	2900	1400
May 29	0852	8.70	1560	24	590	450
May 30	0900	8.20	1280	24	280	270
June 1	0840	--	--	21	1100	1400
June 2	1030	7.50	851	39	480	500
June 3	0703	8.08	1220	88	7000	4600
June 4	0658	7.43	813	39	E520	830
June 5	0853	6.94	607	31	410	590
June 6	0853	6.74	525	26	250	290
June 7	0945	6.90	590	23	200	E260
June 8	1030	6.80	549	20	130	380
June 9	0910	6.56	461	34	120	190
June 10	0925	6.99	629	300	15000	13000
June 11	1000	8.02	1180	140	16000	6800
June 12	0851	8.65	1530	130	8700	4900
June 13	0900	7.95	1130	45	700	E530
June 14	1043	11.50	--	400	E24000	21000
June 15	0831	8.55	1480	130	16000	28000
June 16	1029	7.42	808	50	770	700
June 17	1021	7.23	727	41	380	640
June 18	0936	7.26	739	44	4200	7300
June 19	0859	7.99	1160	35	--	--
June 21	0932	6.55	458	17	210	370
June 22	0850	7.01	638	24	E310	360
June 23	0850	7.11	679	19	100	E270
June 24	1030	6.81	553	18	E65	140

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
411747081341300—Cuyahoga River at Jaite, Ohio—Continued						
June 25	0858	6.01	288	13	310	620
June 26	0902	6.45	425	18	830	1600
June 27	0958	6.12	322	13	E100	560
June 28	0859	6.94	607	9.4	E74	300
June 29	0949	7.37	786	56	E10000	E18000
June 30	1030	6.44	422	14	200	1100
July 1	0846	7.40	799	10	E93	710
July 2	0901	5.04	--	11	67	E880
July 3	0905	6.35	393	8.2	E44	230
July 6	0959	7.67	964	12	E93	970
July 7	0859	5.02	--	11	E37	650
July 8	0858	6.11	318	11	E46	620
July 9	0900	6.06	303	9.4	31	380
July 10	1010	4.80	--	10	60	240
July 11	1002	4.60	--	13	33	280
July 12	0901	6.31	380	18	180	240
July 13	0903	6.11	318	12	160	730
July 14	0945	6.34	390	17	430	1100
July 15	0901	6.62	481	52	4500	2300
July 16	0907	6.09	312	21	E100	1000
July 17	0850	5.05	--	42	1800	1400
July 18	0933	6.05	300	22	220	630
July 19	0902	6.45	425	28	240	E570
July 20	0915	6.18	341	18	140	1100
July 21	0831	6.30	377	19	87	290
July 22	0959	6.18	341	14	120	1000
July 23	1000	6.20	348	15	66	210
July 24	0800	6.00	285	12	52	210
July 25	0910	6.05	300	12	98	320
July 26	0916	6.41	412	85	1400	1300
July 27	0858	6.46	428	25	800	770
July 28	0901	6.16	335	21	E180	260
July 29	1037	6.18	341	17	110	340
July 30	0940	6.15	331	16	92	210
July 31	0930	6.10	315	16	100	240
Aug. 1	1030	7.90	1100	130	E7200	6200
Aug. 2	0915	7.59	910	54	E580	E700
Aug. 3	0902	7.43	813	39	E460	580
Aug. 4	0840	7.65	950	43	400	600

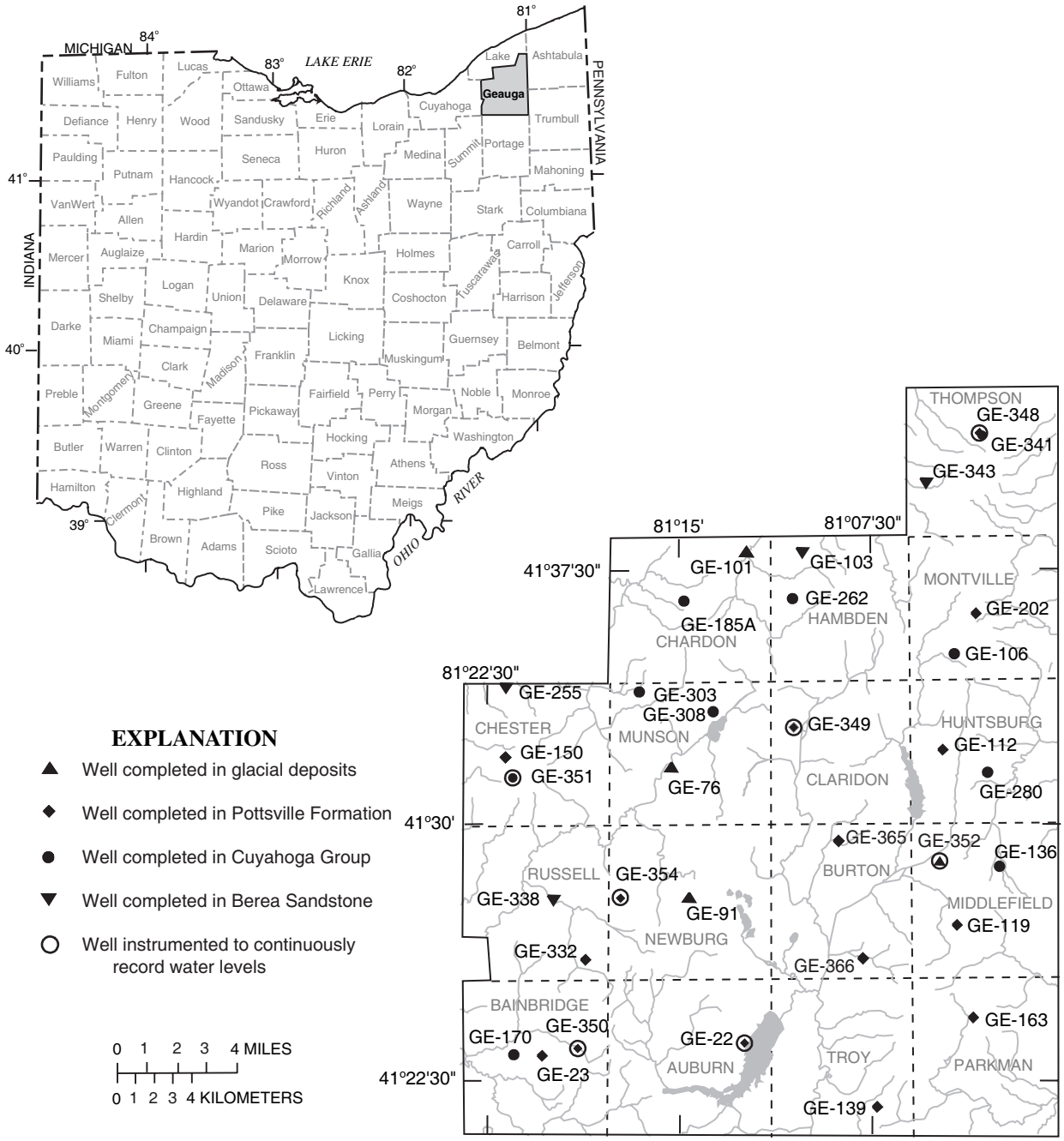
WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00065), USGS National Water Information System parameter code; cfs, cubic feet per second; NTRU, Nephelometric Turbidity Ratio Units; col/100 mL, colonies per 100 milliliters, --, no data; E, estimated]

Date	Time	Gage height, (feet) (00065)	Instantaneous discharge (cfs) (00061)	Turbidity (NTRU) (63676)	Enterococci mEI, water (col/100 mL) (90909)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
411747081341300—Cuyahoga River at Jaite, Ohio—Continued						
Aug. 6	0901	7.32	765	28	190	260
Aug. 7	0900	6.35	393	23	130	220
Aug. 8	0815	7.05	656	18	160	170
Aug. 9	0908	6.63	485	16	100	170
Aug. 10	0845	6.45	425	14	100	260
Aug. 11	0915	6.28	371	10	130	200
Aug. 12	0858	6.07	306	11	49	260
Aug. 13	1045	6.04	297	8	75	280
Aug. 14	0830	6.15	331	7.2	120	270
Aug. 15	0945	6.25	362	7.1	50	150
Aug. 16	0830	6.45	425	23	E1500	E1600
Aug. 17	0902	6.02	291	10	--	2300
Aug. 18	0901	6.09	312	21	--	700
Aug. 19	0901	6.25	362	14	--	2000
Aug. 20	0833	6.92	599	91	--	6200
Aug. 22	0801	7.25	735	30	--	1500
Aug. 23	0852	6.76	533	19	--	900
Aug. 24	0838	6.62	481	18	--	420
Aug. 25	0901	6.41	412	15	--	320
Aug. 26	0810	7.04	652	12	--	310
Aug. 27	0817	6.24	360	12	--	340
Aug. 28	0810	6.45	425	32	--	E9000
Aug. 29	0915	6.65	492	85	--	3200

Project Data—Ground-Water Data for Geauga County, Ohio

Ground-water-level data were collected as part of a USGS cooperative study with the Geauga County Planning Commission and the Board of County Commissioners. Measurements from 33 wells that comprise the long-term ground-water monitoring network in Geauga County are shown on the following pages. The purpose of the water-level study is to determine whether fluctuations in water levels represent consistent, long-term trends caused by human activity or are predominantly the result of seasonal and annual variations in recharge. Land-surface datums are accurate within $\pm$ 5 ft. Water levels known to have been measured after a well had been recently pumped are designated with an asterisk (*).



412331081123000. Local Number, GE-22

LOCATION.—Latitude 41°23′31″, longitude 81°12′30″, Geauga County, west of Valley View Road by La Due Reservoir at old Sugar House, Auburn Township. Owner: City of Akron.

AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.

WELL CHARACTERISTICS.—Water-supply well not currently in use; diameter 6.25 in., depth 80 ft.

INSTRUMENTATION.—Pressure transducer and CR10 data logger (records hourly) with SM192 storage module.

DATUM.—Elevation of land-surface datum is 1,160 ft above sea level. Measuring point: mark on wooden base of instrument shelter; changed from 3.96 ft below land-surface datum to 3.20 ft above land-surface datum on May 13, 1997.

PERIOD OF RECORD.—Periodic water-level measurements from June 8, 1978 through September 8, 1994. Continuous water-level data from July 24, 1996 to current year.

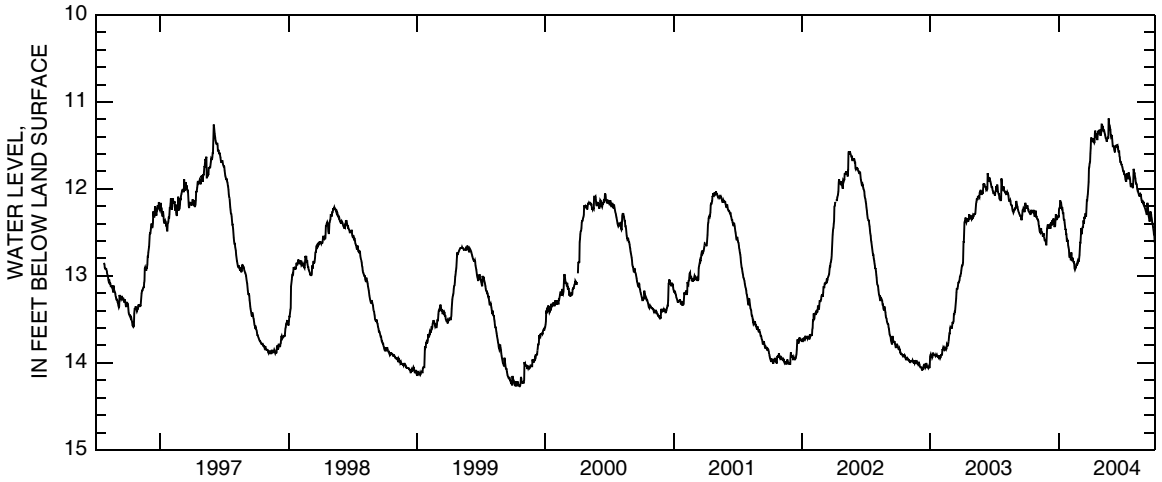
EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 11.19 ft below land-surface datum, May 22, 2004; maximum daily low, 14.34 ft below land-surface datum, Nov. 12, 1980.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.21	12.35	12.41	12.33	12.79	12.69	11.53	11.35	11.42	11.77	11.77	12.21
2	12.22	12.35	12.45	12.23	12.78	12.62	11.42	11.26	11.47	11.79	11.79	12.22
3	12.22	12.36	12.46	12.22	12.75	12.62	11.41	11.26	11.51	11.80	11.82	12.23
4	12.19	12.37	12.43	12.22	12.81	12.56	11.44	11.27	11.51	11.79	11.82	12.24
5	12.23	12.42	12.42	12.13	12.81	12.45	11.46	11.29	11.51	11.83	11.86	12.26
6	12.24	12.43	12.43	12.15	12.73	12.52	11.44	11.29	11.52	11.83	11.88	12.27
7	12.24	12.46	12.44	12.16	12.82	12.51	11.44	11.34	11.55	11.84	11.91	12.29
8	12.26	12.49	12.45	12.16	12.83	12.45	11.42	11.33	11.57	11.86	11.94	12.29
9	12.27	12.50	12.45	12.21	12.79	12.44	11.46	11.32	11.58	11.89	11.94	12.16
10	12.27	12.48	12.41	12.22	12.81	12.44	11.46	11.35	11.52	11.91	11.95	12.18
11	12.27	12.47	12.38	12.21	12.83	12.37	11.47	11.37	11.50	11.91	11.99	12.22
12	12.29	12.45	12.40	12.24	12.84	12.37	11.46	11.38	11.51	11.85	12.01	12.27
13	12.29	12.50	12.42	12.28	12.84	12.40	11.36	11.40	11.52	11.82	12.00	12.31
14	12.28	12.50	12.36	12.28	12.86	12.32	11.33	11.42	11.49	11.84	12.03	12.34
15	12.24	12.51	12.41	12.34	12.92	12.34	11.37	11.43	11.51	11.85	12.05	12.37
16	12.26	12.52	12.38	12.36	12.93	12.31	11.37	11.45	11.52	11.88	12.07	12.37
17	12.26	12.55	12.34	12.35	12.92	12.28	11.40	11.45	11.51	11.88	12.08	12.34
18	12.26	12.53	12.37	12.39	12.91	12.29	11.40	11.41	11.53	11.81	12.08	12.26
19	12.27	12.51	12.38	12.44	12.90	12.32	11.43	11.42	11.57	11.83	12.07	12.28
20	12.27	12.55	12.44	12.47	12.87	12.22	11.43	11.41	11.57	11.86	12.06	12.30
21	12.26	12.57	12.42	12.46	12.87	12.13	11.37	11.41	11.57	11.87	12.07	12.33
22	12.24	12.59	12.42	12.52	12.88	12.13	11.36	11.19	11.63	11.89	12.07	12.35
23	12.28	12.59	12.35	12.52	12.85	12.09	11.33	11.21	11.64	11.94	12.11	12.38
24	12.31	12.60	12.29	12.60	12.83	12.06	11.37	11.30	11.69	11.97	12.13	12.40
25	12.31	12.61	12.33	12.60	12.84	11.97	11.34	11.29	11.69	11.97	12.15	12.43
26	12.30	12.64	12.35	12.59	12.83	11.92	11.32	11.32	11.70	11.96	12.15	12.46
27	12.26	12.64	12.35	12.60	12.83	11.76	11.33	11.32	11.72	11.94	12.16	12.48
28	12.26	12.56	12.34	12.65	12.81	11.75	11.35	11.38	11.72	11.97	12.17	12.52
29	12.32	12.46	12.33	12.67	12.76	11.71	11.39	11.40	11.73	11.98	12.15	12.55
30	12.32	12.43	12.31	12.70	---	11.69	11.37	11.39	11.75	11.99	12.16	12.62
31	12.34	---	12.31	12.77	---	11.59	---	11.38	---	11.91	12.19	---
MEAN	12.27	12.50	12.39	12.39	12.84	12.24	11.40	11.35	11.57	11.88	12.02	12.33
MAX	12.34	12.64	12.46	12.77	12.93	12.69	11.53	11.45	11.75	11.99	12.19	12.62
MIN	12.19	12.35	12.29	12.13	12.73	11.59	11.32	11.19	11.42	11.77	11.77	12.16

CAL YR 2003 MEAN 12.58 HIGH 11.82 LOW 13.94

WTR YR 2004 MEAN 12.09 HIGH 11.19 LOW 12.93



412309081202400. Local Number, GE-23

LOCATION.—Latitude 41°23′09″, longitude 81°20′24″, Geauga County, Alltel building on Bainbridge Road, west of State Route 306, Bainbridge Township. Owner: Alltel Telephone Company.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Commercial water-supply well; diameter 5.63 in., depth 40 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,162 ft above sea level. Measuring point: top of casing, 1.32 ft above land-surface datum.
PERIOD OF RECORD.—April 26, 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 10.46 ft below land-surface datum, Apr. 26, 1978; lowest measured, 20.61 ft below land-surface datum, Nov. 6, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	19.04
12-09-2003	18.41
02-04-2004	18.01
04-07-2004	16.74
06-08-2004	16.23
08-11-2004	16.25

413138081152000. Local Number, GE-76

LOCATION.—Latitude 41°31′38″, longitude 81°15′20″, Geauga County, 10755 Mayfield Road, Munson Township. Owner: Fowler's Mill Christian Church.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Private water-supply well; diameter 6 in., depth 150 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,170 ft above sea level. Measuring point: top of casing, 1.68 ft above land-surface datum.
PERIOD OF RECORD.—June 15, 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 21.19 ft below land-surface datum, June 15, 1978; lowest measured, 25.29 ft below land-surface datum, July 11, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	24.04
12-10-2003	23.79
02-05-2004	23.78
04-08-2004	22.77
06-09-2004	22.86
08-12-2004	22.86

412748081143900. Local Number, GE-91

LOCATION.—Latitude 41°27′48″, longitude 81°14′39″, Geauga County, northeast corner of Auburn Road and State Route 87 intersection, Newbury Township. Owner: Dairy Mart.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Commercial water-supply well; diameter 5.63 in., depth 85 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,250 ft above sea level. Measuring point: top of casing, 1.16 ft above land-surface datum.
PERIOD OF RECORD.—October 19, 1978 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 40.10 ft below land-surface datum, Oct. 19, 1978; lowest measured, 47.73* ft below land-surface datum, May 21, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	46.07
12-10-2003	45.71
02-04-2004	46.04
04-08-2004	44.68
06-09-2004	44.05
08-11-2004	43.59

413757081122300. Local Number, GE-101

LOCATION.—Latitude 41°37′57″, longitude 81°12′23″, Geauga County, 12080 Clark Road, Chardon Township. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6.25 in., depth 48 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 990 ft above sea level. Measuring point: top of casing, 0.90 ft above land-surface datum.
PERIOD OF RECORD.—May 7, 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 20.81 ft below land-surface datum, Mar. 17, 1997; lowest measured, 25.46 ft below land-surface datum, Sept. 23, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	23.50
12-09-2003	22.72
02-05-2004	22.93
04-07-2004	21.19
06-08-2004	22.56

413755081101200. Local Number, GE-103

LOCATION.—Latitude 41°37′55″, longitude 81°10′12″, Geauga County, 8755 Old State Road (State Route 608), Hambden Township. Owner: privately owned.
AQUIFER.—Berea Sandstone of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 136 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,158 ft above sea level. Measuring point: top of casing, 0.40 ft above land-surface datum.
PERIOD OF RECORD.—May 7, 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 79.44 ft below land-surface datum, May 7, 1980; lowest measured, 92.75 ft below land-surface datum, Feb. 5, 2004.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	91.92
12-09-2003	92.21
02-05-2004	92.75
04-07-2004	91.92
06-08-2004	92.05
08-11-2004	91.75

413456081035600. Local Number, GE-106

LOCATION.—Latitude 41°34′56″, longitude 81°03′56″, Geauga County, 10691 Clay Street, Montville Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 72 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,255 ft above sea level. Measuring point: top of casing, 1.20 ft above land-surface datum.
PERIOD OF RECORD.—May 7, 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 30.84 ft below land-surface datum, May 7, 1980; lowest measured, 37.44 ft below land-surface datum, May 29, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	36.37
12-09-2003	36.47
02-04-2004	36.55
04-07-2004	35.83
06-08-2004	35.88
08-11-2004	35.66

413207081044400. Local Number, GE-112

LOCATION.—Latitude 41°32′07″, longitude 81°04′44″, Geauga County, by golf course maintenance building at 15900 Mayfield Road, Huntsburg Township. Owner: Rolling Green Golf Course.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Commercial water-supply well for shop and house (not used for irrigation); diameter 5.63 in., depth 80 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,265 ft above sea level. Measuring point: top of casing, 1.30 ft above land-surface datum.
PERIOD OF RECORD.—May 8, 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 43.86 ft below land-surface datum, May 5, 1980; lowest measured, 50.61 ft below land-surface datum, Jan. 15, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	49.56
12-09-2003	49.52
02-04-2004	49.60
04-07-2004	48.89
06-08-2004	48.40
08-11-2004	46.85

412657081040500. Local Number, GE-119

LOCATION.—Latitude 41°26′58″, longitude 81°04′12″, Geauga County, 15400 State Route 608, Middlefield Township. Owner: Geauga County Airport.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Commercial water-supply well; diameter 5.63 in., depth 79 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,185 ft above sea level. Measuring point: top of casing, 1.50 ft above land-surface datum.
PERIOD OF RECORD.—August 20, 1980 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 7.96 ft below land-surface datum, Aug. 20, 1980; lowest measured, 16.61 ft below land-surface datum, Mar. 12, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	16.36
12-09-2003	16.22
02-04-2004	16.00
04-07-2004	15.07
06-08-2004	14.94
08-11-2004	15.08

412841081023200. Local Number, GE-136

LOCATION.—Latitude 41°28′41″, longitude 81°02′32″, Geauga County, 16826 Nauvoo Road, Middlefield Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 58 ft; water level not static in spring and summer months (pump removes approximately 1 gallon per minute of water from well during the growing season).
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,130 ft above sea level. Measuring point: top of casing 1.20 ft above land-surface datum.
PERIOD OF RECORD.—August 8, 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 13.31 ft below land-surface datum, May 8, 1986; lowest measured, 24.27* ft below land-surface datum, May 28, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	18.04
12-10-2003	17.00
02-04-2004	16.28
04-07-2004	17.59
06-08-2004	19.17
08-11-2004	17.62

412138081072000. Local Number, GE-139

LOCATION.—Latitude 41°21′38″, longitude 81°07′20″, Geauga County, 14515 Hoover Road, Troy Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 90 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,171 ft above sea level. Measuring point: top of casing, 0.37 ft above land-surface datum.
PERIOD OF RECORD.—August 15, 1985 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 32.16 ft below land-surface datum, Apr. 17, 2004; lowest measured, 39.94 ft below land-surface datum, Oct. 26, 1999.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	33.93
12-09-2003	33.95
02-04-2004	34.05
04-07-2004	32.16
06-08-2004	33.12
08-11-2004	34.15

413155081214900. Local Number, GE-150

LOCATION.—Latitude 41°31′55″, longitude 81°21′49″, Geauga County, 12390 Caves Road, Chester Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6.63 in., depth 90 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,220 ft above sea level. Measuring point: top of casing, 1.65 ft above land-surface datum.
PERIOD OF RECORD.—February 13, 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 22.07 ft below land-surface datum, May 14, 1997; lowest measured, 30.75 ft below land-surface datum, Sept. 19, 2001 (water level has been lower than 30.75 but blockage prevents measurement beyond this point).

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	29.60
12-10-2003	29.12
02-05-2004	29.22
04-08-2004	26.56
06-09-2004	27.13
08-12-2004	27.66

412415081033500. Local Number, GE-163

LOCATION.—Latitude 41°24′15″, longitude 81°03′35″, Geauga County, 17115 Madison Road, Parkman Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 60 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,182 ft above sea level. Measuring point: top of casing, 1.10 ft above land-surface datum.
PERIOD OF RECORD.—February 5, 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 8.17 ft below land-surface datum, Feb. 5, 1986; lowest measured, 17.11 ft below land-surface datum, Sept. 23, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	14.69
12-09-2003	14.50
02-04-2004	14.60
04-07-2004	13.71
06-08-2004	14.14
08-11-2004	14.56

412311081213000. Local Number, GE-170

LOCATION.—Latitude 41°23′11″, longitude 81°21′30″, Geauga County, 7956 Bainbridge Road, Bainbridge Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 92 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,110 ft above sea level. Measuring point: top of casing, 1.47 ft above land-surface datum.
PERIOD OF RECORD.—February 4, 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 43.82 ft below land-surface datum, Nov. 19, 1996; lowest measured, 51.66 ft below land-surface datum, Nov. 6, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	46.13
12-09-2003	45.16
02-04-2004	45.56
04-07-2004	44.04
06-08-2004	47.02
08-11-2004	46.41

413630081145001. Local Number, GE-185A

LOCATION.—Latitude 41°36′30″, longitude 81°14′50″, Geauga County, 9673 Mentor Road, Chardon Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.5 in., depth 90 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,260 ft above sea level. Measuring point: top of casing 0.84 ft above land-surface datum.
PERIOD OF RECORD.—January 1, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 32.39 ft below land-surface datum, Nov. 21, 1996; lowest measured, 38.48 ft below land-surface datum, Oct. 21, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	38.48
12-09-2003	38.18
02-05-2004	37.51
04-07-2004	36.37
06-08-2004	37.56
08-12-2004	37.92

413607081032500. Local Number, GE-202

LOCATION.—Latitude 41°36′07″, longitude 81°03′25″, Geauga County, 9915 Plank Road, Montville Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 74 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,247 ft above sea level. Measuring point: top of casing, 1.60 ft above land-surface datum.
PERIOD OF RECORD.—February 10, 1986 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 27.60 ft below land-surface datum, Feb. 10, 1986; lowest measured, 30.81 ft below land-surface datum, Oct. 27, 1999.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	30.16
12-09-2003	30.01
02-04-2004	30.22
04-07-2004	29.43
06-08-2004	29.61
08-11-2004	29.62

413357081214800. Local Number, GE-255

LOCATION.—Latitude 41°33′57″, longitude 81°21′48″, Geauga County, 11240 Caves Road, Chester Township. Owner: privately owned.
AQUIFER.—Berea Sandstone of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 123 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,075 ft above sea level. Measuring point: Top of casing, 2.08 ft above land-surface datum.
PERIOD OF RECORD.—September 8, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 51.23 ft below land surface datum, Aug. 12, 2004; lowest measured, 55.82* ft below land-surface datum, Jan. 15, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	52.14
12-10-2003	51.78
02-05-2004	53.35
04-08-2004	51.72
06-09-2004	51.42
08-12-2004	51.23

413634081103500. Local Number, GE-262

LOCATION.—Latitude 41°36′34″, longitude 81°10′35″, Geauga County, 9593 Wildwood Road, Hambden Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in., depth 100 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,200 ft above sea level. Measuring point: top of casing 1.60 ft above land-surface datum.
PERIOD OF RECORD.—September 7, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 34.19 ft below land-surface datum, Sept. 10, 1996; lowest measured, 42.55 ft below land-surface datum, Jan. 16, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	37.55
12-09-2003	37.79
02-05-2004	37.53
04-07-2004	35.76
06-08-2004	35.84
08-11-2004	36.22

413127081025900. Local Number, GE-280

LOCATION.—Latitude 41°31′27″, longitude 81°02′59″, Geauga County, 12972 Madison Road, Huntsburg Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in., depth 162 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,145 ft above sea level. Measuring point: top of casing 1.45 ft above land-surface datum.
PERIOD OF RECORD.—September 8, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 31.60 ft below land-surface datum, Apr. 7, 2004; lowest measured, 35.96 ft below land-surface datum, Dec. 14, 1998.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	33.43
12-09-2003	32.97
02-04-2004	33.41
04-07-2004	31.60
06-08-2004	32.28
08-11-2004	32.83

413350081163500. Local Number, GE-303

LOCATION.—Latitude 41°33′50″, longitude 81°16′35″, Geauga County, 10250 Mulberry Road, Munson Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in., depth 95 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,230 ft above sea level. Measuring point: top of casing 1.60 ft above land-surface datum.
PERIOD OF RECORD.—September 7, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 57.23 ft below land-surface datum, May 14, 1997; lowest measured, 63.15 ft below land-surface datum, Jan. 15, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	62.54
12-10-2003	62.08
02-05-2004	62.28
04-08-2004	60.79
06-09-2004	61.50
08-12-2004	62.25

413315081134200. Local Number, GE-308

LOCATION.—Latitude 41°33′15″, longitude 81°13′42″, Geauga County, 11675 Chestnutdale Drive, Munson Township. Owner: privately owned.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in., depth 98 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,165 ft above sea level. Measuring point: top of casing 1.68 ft above land-surface datum.
PERIOD OF RECORD.—September 7, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 20.05 ft below land-surface datum, Apr. 20, 1999; lowest measured, 27.74 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	24.71
12-10-2003	24.29
02-05-2004	24.55
04-08-2004	23.08
06-09-2004	22.97
08-12-2004	23.07

412558081184200. Local Number, GE-332

LOCATION.—Latitude 41°25′58″, longitude 81°18′42″, Geauga County, 103 Silver Springs, Russell Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 104 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,180 ft above sea level. Measuring point: top of casing, 1.14 ft above land-surface datum.
PERIOD OF RECORD.—September 8, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 33.83 ft below land-surface datum, May 14, 1997; lowest measured, 36.10 ft below land-surface datum, Jan. 16, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water Level
10-22-2003	35.48
12-10-2003	35.07
02-05-2004	35.16
04-08-2004	34.52
06-09-2004	34.67
08-12-2004	34.77

412743081195700. Local Number, GE-338

LOCATION.—Latitude 41°27′43″, longitude 81°19′57″, Geauga County, 14940 Surrey Downs, Russell Township. Owner: privately owned.
AQUIFER.—Berea Sandstone of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.56 in., depth 160 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,078 ft above sea level. Measuring point: top of casing, 1.38 ft above land-surface datum.
PERIOD OF RECORD.—September 8, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 58.67 ft below land-surface datum, Oct. 22, 2003; lowest measured, 73.29 ft below land-surface datum, Jan. 22, 1997.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	58.67
12-10-2003	59.68
02-05-2004	59.63
04-08-2004	60.92
06-09-2004	60.46
08-12-2004	60.23

414121081030800. Local Number, GE-341

LOCATION.—Latitude 41°41′21″, longitude 81°03′08″, Geauga County, 6758 Madison Road, Thompson Township. Owner: Thompson United Methodist Church.
AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.
WELL CHARACTERISTICS.—Private water-supply well; diameter 6.63 in., depth 120 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,267 ft above sea level. Measuring point: top of casing 2.00 ft above land-surface datum.
PERIOD OF RECORD.—September 7, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 4.12 ft below land-surface datum, Nov. 20, 1996; lowest measured, 10.11 ft below land-surface datum, Sept. 7, 1994.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
09-08-2003	6.59
10-21-2003	5.43
12-09-2003	5.51
04-07-2004	4.22
06-08-2004	6.16
08-11-2004	6.06

413957081052100. Local Number, GE-343

LOCATION.—Latitude 41°39′57″, longitude 81°05′21″, Geauga County, 15554 Valentine Road, Thompson Township. Owner: privately owned.
AQUIFER.—Berea Sandstone of Mississippian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in., depth 120 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,145 ft above sea level. Measuring point: top of casing, 1.54 ft above land-surface datum.
PERIOD OF RECORD.—September 7, 1994 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 68.79 ft below land-surface datum, Apr. 7, 2004; lowest measured, 72.93 ft below land-surface datum, Sept. 7, 1994.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	69.99
12-09-2003	69.24
02-04-2004	69.61
04-07-2004	68.79
06-08-2004	69.12
08-11-2004	69.64

414125081031500. Local Number, GE-348

LOCATION.—Latitude 41°41′25″, longitude 81°03′15″, Geauga County, 16506 W. Thompson Road, Thompson Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 6 in., depth 53 ft.
INSTRUMENTATION.— Instumentation removed on May 21, 2002 due to new owner use of the well. Periodic water level measurements by steel or electric tape will continue.
DATUM.—Elevation of land-surface datum is 1,265 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 2.55 ft above land-surface datum.
PERIOD OF RECORD.—July 23, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 0.93 ft below land-surface datum, June 2, 1997; lowest measured, 7.74 ft below land-surface datum, Sept. 11, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-21-2003	2.83
12-09-2003	2.17
02-04-2004	2.33
04-07-2004	1.54
06-08-2004	3.98
08-11-2004	7.37

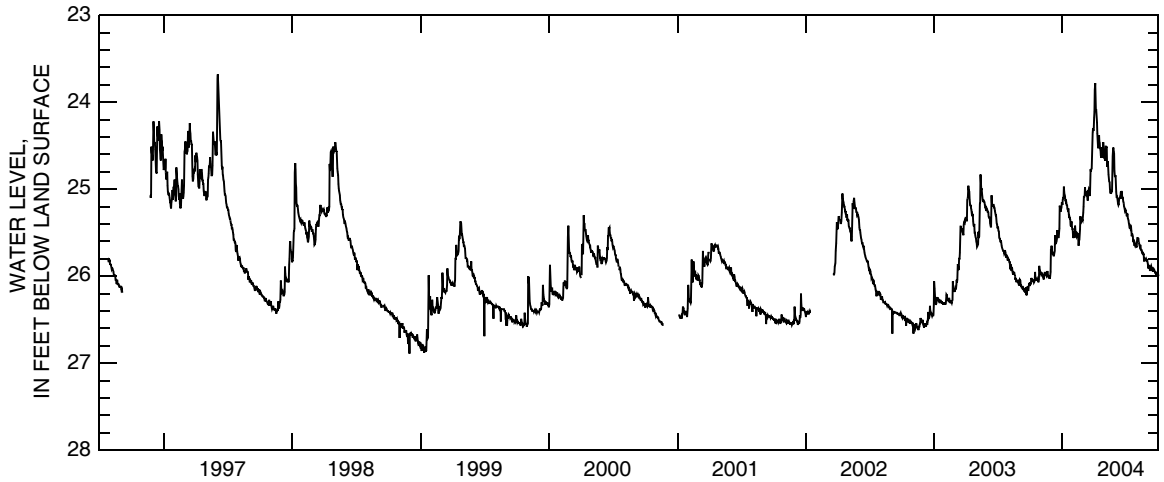
413247081103300. Local Number, GE-349

LOCATION.—Latitude 41°32′47″, longitude 81°10′33″, Geauga County, 121 Berkshire Drive, Aquilla Village, Claridon Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 5.63 in., depth 58.19 ft.
INSTRUMENTATION.—Pressure transducer and CR10 data logger (records hourly) with SM192 storage module.
DATUM.—Elevation of land-surface datum is 1,190 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 1.05 ft above land-surface datum.
PERIOD OF RECORD.—July 24, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 23.68 ft below land-surface datum, June 3, 1997; maximum daily low, 26.89 ft below land-surface datum, Nov. 30, 1998.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.08	25.98	25.65	25.18	25.56	25.20	24.11	24.67	24.93	25.28	25.56	25.91
2	26.09	25.97	25.73	25.12	25.54	25.09	23.86	24.62	25.03	25.31	25.56	25.87
3	26.08	25.98	25.74	25.10	25.49	25.09	23.78	24.51	25.10	25.29	25.57	25.89
4	26.02	25.96	25.74	25.10	25.55	25.07	23.98	24.51	25.09	25.29	25.57	25.89
5	26.03	25.98	25.72	24.97	25.55	24.98	24.09	24.52	25.10	25.34	25.61	25.90
6	26.04	25.99	25.74	25.03	25.42	25.03	24.08	24.52	25.13	25.35	25.62	25.94
7	26.04	26.01	25.77	25.06	25.50	25.03	24.15	24.74	25.16	25.36	25.64	25.91
8	26.06	26.03	25.75	25.08	25.55	25.05	24.23	24.71	25.18	25.39	25.66	25.89
9	26.06	26.03	25.73	25.13	25.50	25.07	24.36	24.68	25.17	25.42	25.65	25.88
10	26.05	26.00	25.71	25.14	25.49	25.08	24.44	24.76	25.12	25.45	25.65	25.90
11	26.05	25.98	25.53	25.12	25.54	25.03	24.50	24.83	25.10	25.44	25.69	25.94
12	26.07	25.95	25.61	25.15	25.53	25.09	24.53	24.87	25.11	25.43	25.70	25.93
13	26.06	25.97	25.63	25.19	25.52	25.13	24.47	24.91	25.08	25.45	25.70	25.92
14	26.04	25.98	25.61	25.18	25.51	25.02	24.38	24.92	25.07	25.44	25.73	25.94
15	25.95	25.98	25.60	25.23	25.58	25.02	24.46	25.00	25.03	25.48	25.74	25.94
16	26.02	25.99	25.58	25.24	25.65	25.00	24.47	25.03	25.05	25.54	25.74	25.93
17	26.05	26.00	25.47	25.23	25.59	25.01	24.53	25.05	25.02	25.52	25.72	25.92
18	26.02	25.99	25.49	25.23	25.58	25.04	24.55	25.02	25.05	25.52	25.75	25.93
19	26.05	25.94	25.51	25.29	25.52	25.08	24.61	25.02	25.11	25.54	25.75	25.95
20	26.04	25.98	25.56	25.33	25.46	24.97	24.64	25.03	25.10	25.60	25.83	25.94
21	26.03	26.00	25.55	25.32	25.31	24.77	24.52	25.02	25.11	25.60	25.80	25.97
22	26.04	26.01	25.52	25.34	25.36	24.80	24.57	24.75	25.14	25.58	25.80	25.96
23	26.04	26.00	25.45	25.35	25.37	24.77	24.59	24.62	25.16	25.64	25.80	25.96
24	26.07	26.00	25.19	25.42	25.35	24.76	24.64	24.53	25.20	25.64	25.80	26.00
25	26.06	26.01	25.22	25.43	25.37	24.63	24.59	24.53	25.21	25.65	25.81	25.95
26	26.04	26.03	25.25	25.39	25.35	24.50	24.46	24.57	25.23	25.63	25.80	25.97
27	25.88	26.01	25.26	25.37	25.36	24.35	24.53	24.59	25.25	25.64	25.81	25.97
28	25.92	25.95	25.23	25.44	25.32	24.30	24.60	24.79	25.24	25.65	25.82	25.98
29	25.95	25.69	25.21	25.46	25.27	24.33	24.64	24.86	25.25	25.66	25.82	25.98
30	25.98	25.71	25.16	25.46	---	24.29	24.64	24.85	25.27	25.67	25.84	26.00
31	25.97	---	25.16	25.53	---	24.18	---	24.84	---	25.60	25.86	---
MEAN	26.03	25.97	25.52	25.25	25.47	24.86	24.40	24.77	25.13	25.50	25.72	25.94
MAX	26.09	26.03	25.77	25.53	25.65	25.20	24.64	25.05	25.27	25.67	25.86	26.00
MIN	25.88	25.69	25.16	24.97	25.27	24.18	23.78	24.51	24.93	25.28	25.56	25.87

CAL YR 2003 MEAN 25.78 HIGH 24.83 LOW 26.33
WTR YR 2004 MEAN 25.38 HIGH 23.78 LOW 26.09



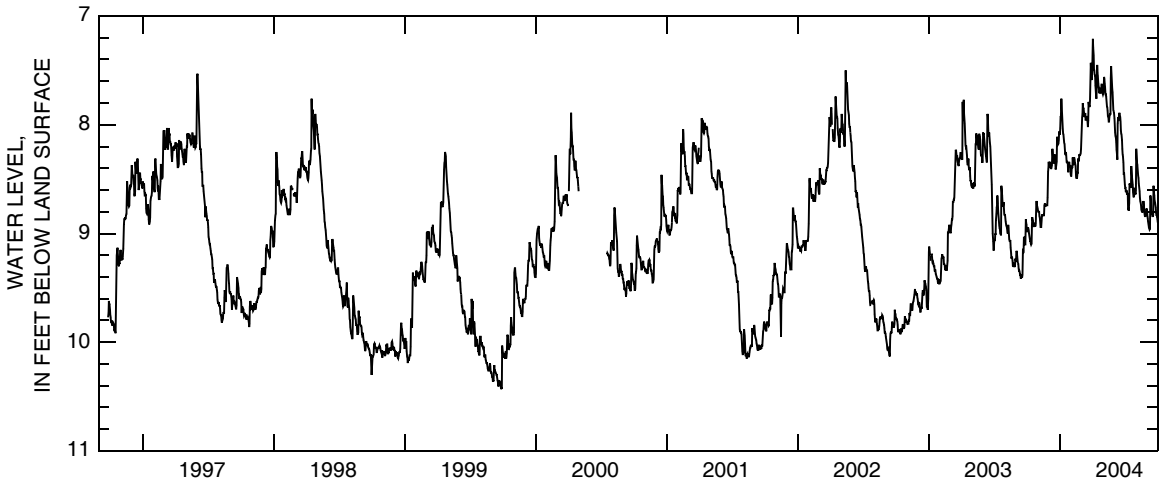
412322081190000. Local Number, GE-350

LOCATION.—Latitude 41°23′32″, longitude 81°19′00″, Geauga County, 9100 Bainbridge Road, Bainbridge Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 6 in., depth 59.87 ft.
INSTRUMENTATION.—Pressure transducer and CR10X data logger (records hourly).
DATUM.—Elevation of land-surface datum is 1,120 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 0.77 ft above land-surface datum.
PERIOD OF RECORD.—September 26, 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 7.21 ft below land-surface datum, Apr. 2, 2004; maximum daily low, 10.41 ft below land-surface datum, Sept. 27, 1999.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.95	8.79	8.34	8.09	8.47	8.14	7.40	7.71	7.94	8.58	8.22	8.84
2	8.98	8.80	8.38	8.03	8.47	8.02	7.21	7.69	8.01	8.58	8.30	8.86
3	8.98	8.80	8.37	7.93	8.40	7.93	7.29	7.56	8.07	8.62	8.35	8.89
4	8.95	8.80	8.35	7.93	8.39	7.90	7.36	7.58	8.10	8.60	8.37	8.92
5	8.95	8.84	8.34	7.76	8.39	7.80	7.49	7.62	8.12	8.61	8.41	8.94
6	8.97	8.85	8.39	7.84	8.30	7.85	7.50	7.65	8.16	8.64	8.47	8.95
7	9.00	8.88	8.40	7.91	8.36	7.85	7.54	7.72	8.23	8.63	8.49	8.96
8	9.02	8.94	8.40	7.96	8.37	7.88	7.55	7.72	8.26	8.64	8.54	8.95
9	9.04	8.94	8.39	8.04	8.34	7.91	7.64	7.74	8.32	8.77	8.57	8.65
10	9.07	8.94	8.37	8.08	8.30	7.93	7.69	7.78	7.99	8.77	8.61	8.66
11	9.07	8.89	8.22	8.09	8.32	7.90	7.73	7.83	7.95	8.79	8.67	8.71
12	9.09	8.83	8.26	8.12	8.35	7.90	7.76	7.84	7.93	8.72	8.70	8.78
13	9.10	8.83	8.30	8.17	8.36	7.96	7.63	7.87	7.96	8.54	8.71	8.82
14	9.09	8.83	8.28	8.18	8.38	7.93	7.45	7.92	7.90	8.55	8.74	8.82
15	8.93	8.83	8.35	8.23	8.48	7.93	7.52	7.93	7.89	8.54	8.78	8.84
16	8.85	8.83	8.35	8.27	8.49	7.92	7.55	7.97	7.91	8.57	8.79	8.84
17	8.87	8.84	8.27	8.27	8.49	7.94	7.62	7.97	7.93	8.58	8.80	8.83
18	8.88	8.82	8.30	8.25	8.49	7.96	7.65	7.93	7.97	8.38	8.80	8.56
19	8.92	8.74	8.32	8.30	8.44	8.02	7.67	7.91	8.05	8.43	8.79	8.61
20	8.94	8.73	8.41	8.34	8.44	7.96	7.71	7.90	8.08	8.49	8.74	8.65
21	8.92	8.73	8.40	8.34	8.31	7.79	7.70	7.90	8.09	8.52	8.70	8.70
22	8.92	8.75	8.37	8.35	8.33	7.81	7.67	7.57	8.14	8.55	8.74	8.71
23	8.90	8.74	8.34	8.35	8.33	7.83	7.66	7.46	8.22	8.62	8.79	8.73
24	8.93	8.74	8.11	8.43	8.27	7.83	7.71	7.56	8.27	8.66	8.82	8.76
25	8.93	8.74	8.14	8.43	8.28	7.78	7.70	7.61	8.29	8.66	8.84	8.81
26	8.91	8.74	8.17	8.38	8.28	7.66	7.63	7.67	8.35	8.65	8.84	8.83
27	8.75	8.74	8.18	8.34	8.27	7.43	7.63	7.70	8.46	8.58	8.83	8.83
28	8.70	8.67	8.17	8.37	8.26	7.51	7.67	7.80	8.44	8.62	8.83	8.85
29	8.74	8.43	8.14	8.38	8.22	7.58	7.71	7.87	8.49	8.63	8.78	8.88
30	8.75	8.40	8.07	8.37	---	7.58	7.72	7.88	8.55	8.64	8.77	8.90
31	8.77	---	8.06	8.45	---	7.50	---	7.89	---	8.60	8.80	---
MEAN	8.93	8.78	8.29	8.19	8.36	7.84	7.59	7.77	8.14	8.61	8.66	8.80
MAX	9.10	8.94	8.41	8.45	8.49	8.14	7.76	7.97	8.55	8.79	8.84	8.96
MIN	8.70	8.40	8.06	7.76	8.22	7.43	7.21	7.46	7.89	8.38	8.22	8.56

CAL YR 2003 MEAN 8.76 HIGH 7.77 LOW 9.46
WTR YR 2004 MEAN 8.33 HIGH 7.21 LOW 9.10



413119081213200. Local Number, GE-351

LOCATION.—Latitude 41°31′19″, longitude 81°21′32″, Geauga County, south side of State Route 322, east of intersection with Caves Road and west of Bloom Brothers Hardware, Chester Township. Owner: privately owned.

AQUIFER.—Cuyahoga Group (interbedded shales and sandstones) of Mississippian age.

WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 6 in., depth 126.5 ft.

INSTRUMENTATION.—Pressure transducer and CR10X data logger (records hourly).

DATUM.—Elevation of land-surface datum is 1,135 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 1.25 ft above land-surface datum.

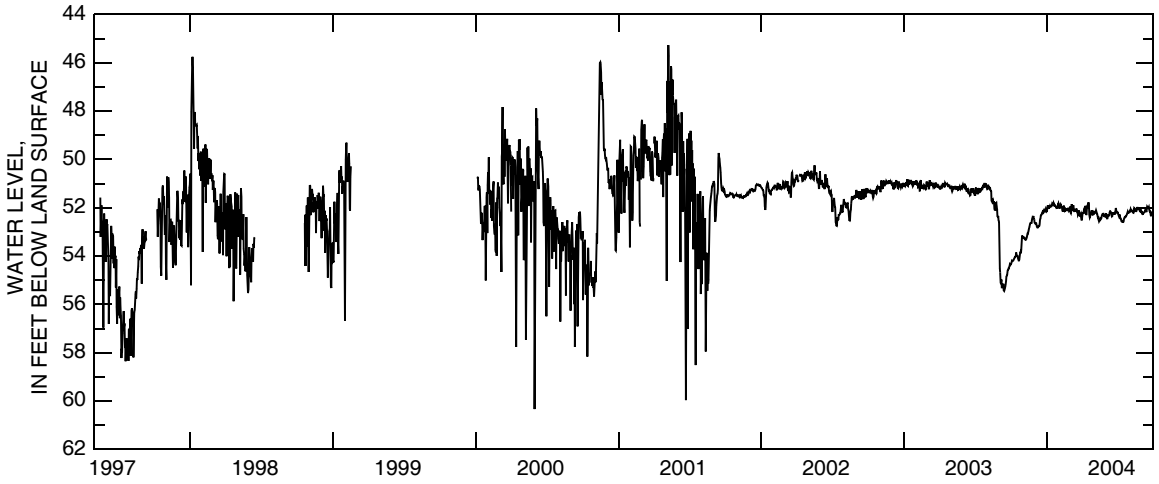
PERIOD OF RECORD.—May 15, 1997 through February 16, 1999, and January 6, 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 45.27 ft below land-surface datum, May 8, 2001; maximum daily low, 60.33 ft below land-surface datum, May 31, 2000.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.34	53.23	52.61	52.14	51.90	51.95	52.35	52.24	52.23	52.17	52.17	52.25
2	54.30	53.22	52.65	52.12	52.01	52.20	52.18	52.18	52.33	52.28	52.15	52.26
3	54.27	53.23	52.65	51.96	52.01	52.23	52.22	52.20	52.44	52.35	52.06	52.24
4	54.19	53.23	52.64	51.90	52.00	52.12	52.22	52.20	52.44	52.38	52.11	52.24
5	54.20	53.24	52.64	51.97	51.93	51.85	52.12	52.18	52.39	52.34	52.12	52.21
6	54.20	53.31	52.70	52.01	51.87	52.04	52.17	52.11	52.31	52.28	52.15	52.19
7	54.19	53.32	52.79	52.01	51.90	52.13	52.15	52.15	52.31	52.40	52.14	52.18
8	54.16	53.33	52.82	51.97	51.97	52.07	52.08	52.23	52.32	52.46	52.12	52.17
9	54.12	53.32	52.82	51.92	51.98	51.89	51.92	52.25	52.32	52.47	52.20	52.09
10	54.09	53.29	52.78	51.95	52.12	52.05	52.14	52.34	52.18	52.55	52.21	52.10
11	54.05	53.22	52.76	51.95	52.13	52.14	52.30	52.41	52.14	52.57	52.13	52.14
12	54.04	53.15	52.77	51.95	52.12	52.14	52.24	52.40	52.15	52.57	52.01	52.18
13	54.02	53.07	52.75	51.94	51.99	52.11	51.94	52.51	52.18	52.58	52.03	52.08
14	53.97	53.07	52.67	51.90	51.91	52.13	51.91	52.56	52.20	52.56	52.12	51.95
15	53.85	52.99	52.49	51.84	52.13	52.13	51.94	52.52	52.28	52.57	52.13	51.97
16	53.96	52.90	52.44	51.87	52.15	52.11	51.91	52.47	52.36	52.52	52.14	52.00
17	53.99	52.83	52.33	51.87	52.13	52.03	51.77	52.49	52.35	52.43	52.14	52.01
18	53.99	52.80	52.31	51.80	52.04	52.14	51.94	52.44	52.19	52.40	52.11	51.96
19	54.04	52.69	52.26	51.84	52.07	52.19	52.28	52.44	52.23	52.40	52.04	52.04
20	54.14	52.64	52.22	51.91	52.08	52.19	52.40	52.41	52.24	52.37	51.97	52.14
21	54.18	52.63	52.18	51.91	52.07	52.30	52.37	52.33	52.24	52.37	52.02	52.16
22	54.18	52.63	52.23	51.89	52.11	52.26	52.25	52.27	52.26	52.35	52.03	52.16
23	54.13	52.63	52.23	51.92	52.11	52.11	52.27	52.26	52.26	52.31	52.02	52.30
24	54.01	52.53	52.12	51.95	52.09	52.18	52.25	52.25	52.17	52.27	52.06	52.32
25	53.85	52.42	52.09	51.96	52.00	52.30	52.10	52.25	52.12	52.24	52.10	52.31
26	53.82	52.38	52.12	52.01	52.06	52.36	52.21	52.35	52.01	52.17	52.13	52.21
27	53.88	52.39	52.14	52.00	52.12	52.28	52.29	52.35	52.13	52.21	52.11	52.18
28	53.72	52.34	52.16	51.98	52.09	52.24	52.29	52.30	52.18	52.21	52.05	52.15
29	53.37	52.45	52.14	51.98	52.05	52.40	52.20	52.29	52.22	52.17	52.18	52.12
30	53.15	52.48	52.05	51.85	---	52.49	52.23	52.37	52.22	52.16	52.19	52.11
31	53.20	---	52.09	51.81	---	52.49	---	52.37	---	52.14	52.13	---
MEAN	53.99	52.90	52.44	51.94	52.04	52.17	52.15	52.33	52.25	52.36	52.11	52.15
MAX	54.34	53.33	52.82	52.14	52.15	52.49	52.40	52.56	52.44	52.58	52.21	52.32
MIN	53.15	52.34	52.05	51.80	51.87	51.85	51.77	52.11	52.01	52.14	51.97	51.95

CAL YR 2003	MEAN 51.98	HIGH 50.82	LOW 55.44
WTR YR 2004	MEAN 52.40	HIGH 51.77	LOW 54.34



412851081045200. Local Number, GE-352

LOCATION.—Latitude 41°28′51″, longitude 81°04′52″, Geauga County, west side of State Route 608, north of Middlefield Village, by hunters' parking lot, Middlefield Township. Owner: City of Akron.

AQUIFER.—Glacial deposits of Quaternary age.

WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 6 in., depth 122.3 ft.

INSTRUMENTATION.— Pressure transducer and CR10X data logger (records hourly).

DATUM.—Elevation of land-surface datum is 1,140 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 1.15 ft above land-surface datum.

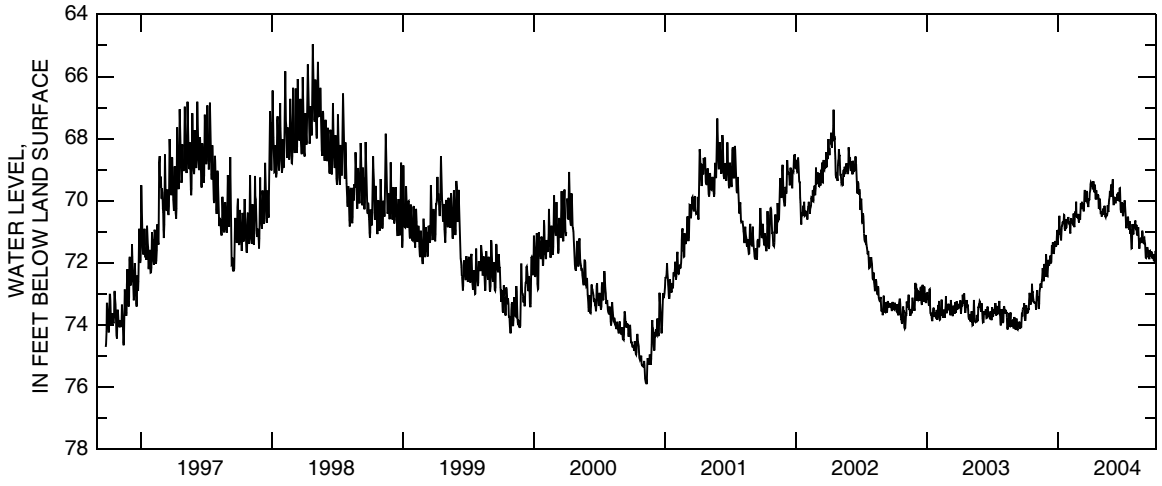
PERIOD OF RECORD.—September 25, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 64.96 ft below land-surface datum, Apr. 26,1998; maximum daily low, 75.90 ft below land-surface datum, Nov. 11, 2000.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.78	73.50	72.11	71.41	70.73	70.44	69.47	70.34	69.45	70.49	70.77	71.64
2	73.86	73.45	72.42	71.04	70.75	70.48	69.40	70.48	69.31	70.30	70.83	71.83
3	73.78	73.08	72.43	70.93	70.66	70.60	69.42	70.48	69.88	70.14	70.72	71.84
4	73.50	72.87	72.21	70.92	71.01	70.37	69.53	70.41	70.11	70.16	70.63	71.80
5	73.36	73.17	72.08	70.48	71.05	70.08	69.47	70.35	70.11	69.98	70.87	71.79
6	73.50	73.22	71.90	70.94	70.60	70.18	69.45	70.25	69.87	70.10	70.94	71.49
7	73.57	73.08	72.06	71.08	70.56	70.16	69.60	70.35	69.94	70.26	70.77	71.52
8	73.60	73.38	72.05	71.02	70.66	70.03	69.60	70.40	69.88	70.53	71.05	71.60
9	73.60	73.48	71.96	71.18	70.67	70.24	69.37	70.44	70.02	70.84	71.11	71.62
10	73.56	73.30	71.88	71.27	70.68	70.24	69.62	70.16	70.08	70.88	70.94	71.76
11	73.48	72.92	71.76	71.04	70.74	70.07	69.72	70.37	69.94	70.71	71.00	71.85
12	73.48	72.83	71.84	70.81	70.77	70.16	69.61	70.50	69.89	70.64	70.85	71.85
13	73.20	72.69	72.01	70.78	70.78	70.34	69.48	70.53	69.96	70.72	71.03	71.62
14	72.96	72.66	71.96	70.67	70.41	70.28	69.61	70.46	69.77	70.51	71.40	71.61
15	73.06	72.75	71.46	70.70	70.79	69.75	69.91	70.51	69.89	70.55	71.54	71.69
16	73.24	72.80	71.46	70.68	70.85	69.65	69.95	70.40	69.99	70.87	71.42	71.74
17	73.34	72.60	71.54	70.64	70.59	69.83	69.66	70.48	69.81	70.92	71.20	71.76
18	73.25	72.53	71.33	70.45	70.37	69.83	69.91	70.40	69.72	70.75	71.30	71.63
19	73.24	72.36	71.38	70.46	70.37	70.01	69.94	70.14	69.99	70.65	71.30	71.78
20	73.22	72.16	71.71	70.91	70.37	70.01	69.89	70.33	69.99	70.93	71.18	71.78
21	72.67	72.42	71.68	70.96	70.03	69.68	69.78	70.36	69.60	71.06	71.32	71.85
22	72.94	72.56	71.55	70.59	70.48	69.85	69.89	70.09	69.59	70.92	71.31	71.71
23	72.94	72.56	71.39	70.68	70.51	70.03	69.88	69.97	69.93	71.20	70.96	71.79
24	73.11	72.03	71.29	70.87	70.46	70.02	70.23	69.87	70.26	71.53	71.02	71.92
25	73.18	72.13	71.39	70.85	70.54	70.14	70.23	69.68	70.36	71.52	71.23	71.93
26	73.26	72.40	71.36	70.68	70.42	70.20	70.24	69.84	70.36	71.12	71.35	71.79
27	73.26	72.44	71.47	70.58	70.51	69.99	69.93	69.84	70.07	70.75	71.36	71.76
28	73.28	72.35	71.42	70.62	70.67	69.95	70.07	69.48	70.05	71.00	71.19	71.77
29	73.28	71.72	71.20	70.67	70.70	69.95	70.40	69.79	70.27	71.08	71.18	71.61
30	73.28	71.92	70.95	70.52	---	69.72	70.40	69.86	70.45	71.05	71.29	71.72
31	73.30	---	71.26	70.71	---	69.67	---	69.61	---	70.78	71.39	---
MEAN	73.33	72.71	71.69	70.81	70.61	70.06	69.79	70.20	69.95	70.74	71.11	71.73
MAX	73.86	73.50	72.43	71.41	71.05	70.60	70.40	70.53	70.45	71.53	71.54	71.93
MIN	72.67	71.72	70.95	70.45	70.03	69.65	69.37	69.48	69.31	69.98	70.63	71.49

CAL YR 2003	MEAN 73.35	HIGH 70.95	LOW 74.15
WTR YR 2004	MEAN 71.06	HIGH 69.31	LOW 73.86



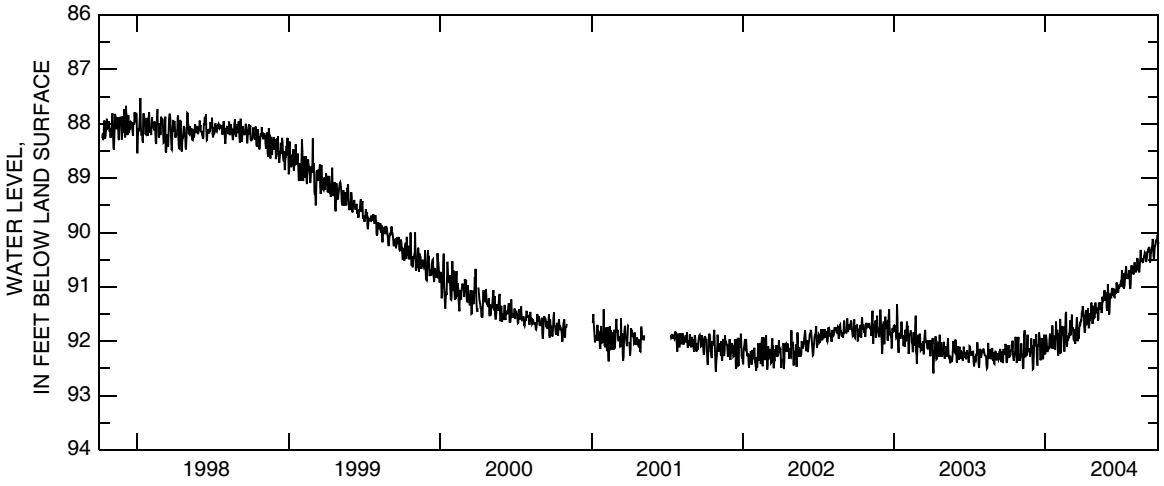
412748081172000. Local Number, GE-354

LOCATION.—Latitude 41°27′48″, longitude 81°17′20″, Geauga County, northwest corner of intersection of Sperry Road and State Route 87, Newbury Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well, not currently in use; diameter 6 in., depth 113.9 ft.
INSTRUMENTATION.—Pressure transducer and CR10X data logger (records hourly).
DATUM.—Elevation of land-surface datum is 1,275 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 4.15 ft above land-surface datum.
PERIOD OF RECORD.—October 7, 1997 to current year.
EXTREMES FOR PERIOD OF RECORD.—Minimum daily low, 87.53 ft below land-surface datum, Jan. 8, 1998; maximum daily low, 92.59 ft below land-surface datum, Apr. 6, 2003.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92.33	92.36	92.36	92.24	92.26	91.62	91.37	91.29	91.12	90.92	90.77	90.52
2	92.28	92.27	92.51	91.88	92.13	91.83	91.55	91.42	91.35	90.88	90.70	90.46
3	92.24	92.14	92.50	91.90	91.85	91.89	91.53	91.47	91.51	90.86	90.56	90.36
4	92.07	92.04	92.28	91.98	92.22	91.69	91.73	91.47	91.47	90.69	90.56	90.34
5	92.24	92.25	91.96	92.08	92.22	91.51	91.84	91.40	91.23	90.98	90.72	90.36
6	92.30	92.25	92.06	92.20	91.59	91.79	91.80	91.40	91.12	90.99	90.72	90.30
7	92.26	92.30	92.09	92.13	91.98	91.79	91.52	91.62	91.19	90.75	90.67	90.28
8	92.26	92.49	92.06	92.10	92.22	91.75	91.43	91.59	91.21	90.92	90.69	90.28
9	92.25	92.49	91.99	92.13	91.99	91.95	91.69	91.29	91.11	91.03	90.67	90.43
10	92.17	92.21	91.87	92.15	91.72	92.00	91.69	91.31	91.02	90.98	90.47	90.55
11	92.15	91.88	92.12	91.97	91.89	91.78	91.64	91.42	91.08	90.91	90.52	90.47
12	92.06	91.80	92.37	91.86	91.84	91.82	91.63	91.37	91.16	90.75	90.57	90.32
13	92.13	92.28	92.45	92.05	91.82	92.05	91.39	91.34	91.06	90.71	90.66	90.34
14	91.99	92.28	92.08	92.05	91.73	91.82	91.63	91.28	91.03	90.62	90.72	90.29
15	92.24	92.18	92.08	92.07	92.07	91.78	91.76	91.44	91.18	90.77	90.72	90.24
16	92.33	92.14	92.01	92.13	92.19	91.73	91.70	91.48	91.19	90.84	90.64	90.12
17	92.36	92.26	91.84	92.05	92.00	91.56	91.58	91.41	91.06	90.84	90.51	90.15
18	92.28	92.13	91.92	91.71	91.86	91.65	91.59	91.18	91.06	90.83	90.32	90.42
19	92.23	91.88	92.03	92.01	91.50	92.00	91.48	91.28	91.12	90.76	90.47	90.52
20	92.22	92.19	92.35	92.13	91.46	91.81	91.55	91.23	91.11	90.82	90.52	90.41
21	91.92	92.18	92.33	92.09	91.92	91.76	91.29	91.23	90.92	90.81	90.53	90.26
22	92.06	92.17	92.01	91.90	92.10	91.95	91.59	91.11	90.96	90.69	90.54	90.25
23	92.20	92.13	91.94	91.94	92.04	91.76	91.53	91.06	91.07	90.95	90.48	90.22
24	92.40	92.17	91.99	92.14	91.90	91.70	91.68	91.24	91.09	91.04	90.55	90.13
25	92.34	92.28	92.17	92.14	91.98	91.72	91.53	91.24	91.11	90.94	90.48	90.15
26	92.24	92.19	92.33	91.78	91.94	91.66	91.35	91.12	90.98	90.74	90.45	90.19
27	92.03	92.19	92.30	91.64	91.89	91.62	91.47	91.12	91.03	90.60	90.41	90.11
28	91.92	91.95	92.11	91.92	91.90	91.62	91.57	91.37	90.95	90.73	90.37	90.04
29	92.23	92.14	91.88	91.96	91.76	91.47	91.56	91.44	90.98	90.74	90.38	90.14
30	92.36	92.07	92.22	91.79	---	91.46	91.47	91.32	91.00	90.62	90.48	90.21
31	92.28	---	92.20	92.16	---	91.37	---	90.95	---	90.67	90.54	---
MEAN	92.21	92.18	92.14	92.01	91.93	91.74	91.57	91.32	91.12	90.82	90.56	90.30
MAX	92.40	92.49	92.51	92.24	92.26	92.05	91.84	91.62	91.51	91.04	90.77	90.55
MIN	91.92	91.80	91.84	91.64	91.46	91.37	91.29	90.95	90.92	90.60	90.32	90.04

CAL YR 2003 MEAN 92.15 HIGH 91.32 LOW 92.59
WTR YR 2004 MEAN 91.49 HIGH 90.04 LOW 92.51



412934081084600. Local Number, GE-365

LOCATION.—Latitude 41°29′34″, longitude 81°08′46″, Geauga County, 13800 Claridon-Troy Road, Burton Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in., depth 57 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,190 ft above sea level. Measuring point: top of casing 1.17 ft above land-surface datum.
PERIOD OF RECORD.—March 21, 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 12.58 ft below land-surface datum, Apr. 8, 2004; lowest measured, 14.83 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	14.18
12-10-2003	13.68
02-04-2004	13.68
04-08-2004	12.58
06-09-2004	13.74
08-11-2004	14.04

412603081074000. Local Number, GE-366

LOCATION.—Latitude 41°26′03″, longitude 81°07′40″, Geauga County, 14350 Hubbard Road, Burton Township. Owner: privately owned.
AQUIFER.—Pottsville Formation (sandstone) of Pennsylvanian age.
WELL CHARACTERISTICS.—Private water-supply well; diameter 5.63 in., depth 86 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,170 ft above sea level. Measuring point: top of casing 1.45 ft above land-surface datum.
PERIOD OF RECORD.—May 22, 2002 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 18.96 ft below land-surface datum, Apr. 8, 2004; lowest measured, 27.63* ft below land-surface datum, Nov. 7, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	23.63
12-10-2003	23.69
02-04-2004	24.14
04-08-2004	18.96
06-09-2004	25.25

Project Data—Columbus Well Field, Southern Franklin County, Ohio

The following tables contain ground-water-level measurements from a network of wells in southern Franklin County. The data were collected as part of a cooperative study with the City of Columbus.

394956083002700. Local Number, FR-18

LOCATION.—Latitude 39°49′56″, longitude 83°00′27″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 6 in., depth 70 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 691.07 ft above sea level. Measuring point: Top of casing, 3.85 ft above land-surface datum.
PERIOD OF RECORD.—June 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 12.41 ft below land-surface datum, May 31, 1996; lowest measured, 32.04 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.46

395037082581900. Local Number, FR-36

LOCATION.—Latitude 39°50′37″, longitude 82°58′19″, Hydrologic Unit 05060001. Owner: J.P. Sand and Gravel.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 4 in., depth 31 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 711.07 ft above sea level. Measuring point: Top of casing, 1.46 ft above land-surface datum.
PERIOD OF RECORD.—October 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 10.03 ft below land-surface datum, Oct. 17, 1979; lowest measured, 21.69 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	15.39

394927082595800. Local Number, FR-70

LOCATION.—Latitude 39°49′27″, longitude 82°59′58″, Hydrologic Unit 05060001. Owner: St. Joseph Cemetery.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 59 ft; 4 in. casing.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 698.90 ft above sea level. Measuring point: Top of concrete base, 0.35 ft above land-surface datum.
PERIOD OF RECORD.—April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 13.24 ft below land-surface datum, Mar. 18, 1991; lowest measured, 27.60 ft below land-surface datum, June 12, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	16.45

395019083003300. Local Number, FR-104

LOCATION.—Latitude 39°50′19″, longitude 83°00′33″, Hydrologic Unit 05060001. Owner: City of Columbus
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation well, diameter 6 in., depth 79.3 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 683.97 ft above sea level. Measuring point: Top of casing, 3.06 ft above land-surface datum.
PERIOD OF RECORD.—December 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.51 ft below land-surface datum, Mar. 17, 1995; lowest measured, 53.59 ft below land-surface datum, Dec. 11, 1991.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

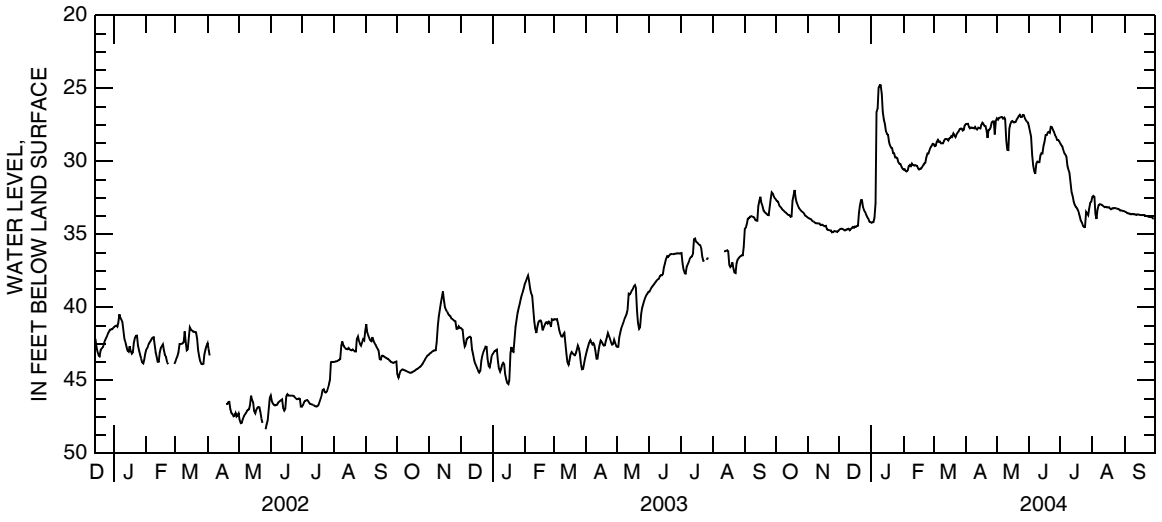
Date	Water level
04-29-2004	23.49

395039082585800. Local Number, FR-115

LOCATION.—Latitude 39°50′39″, longitude 82°58′58″, Hydrologic Unit 05060001, near Hamilton Meadows. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation well, diameter 6 in., depth 116 ft.
INSTRUMENTATION.—Data logger and pressure transducer, 60-minute record.
DATUM.—Elevation of land-surface datum is 720.52 ft above sea level. Measuring point: Floor of instrument shelter, 2.10 ft above land-surface datum.
PERIOD OF RECORD.—August 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 48.35 ft below land-surface datum, May 27, 2002; minimum daily low, 24.78 ft below land-surface datum, Jan. 9, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.61	33.86	34.69	34.20	30.56	28.82	27.45	27.05	27.63	28.76	32.43	33.42
2	32.72	33.90	34.63	34.18	30.53	28.95	27.44	27.14	27.99	28.89	32.36	33.45
3	32.75	33.94	34.62	34.15	30.66	28.92	27.43	27.02	28.31	28.96	32.42	33.50
4	32.99	33.97	34.62	33.88	30.69	28.68	27.62	26.99	29.59	29.22	33.59	33.55
5	33.09	34.08	34.66	32.85	30.62	28.53	27.74	26.97	30.27	29.45	33.94	33.58
6	33.17	34.11	34.73	26.60	30.33	28.65	27.68	26.97	30.69	29.53	33.31	33.58
7	33.28	34.16	34.73	26.37	30.24	28.64	27.70	27.07	30.85	29.69	32.99	33.63
8	33.35	34.23	34.66	24.94	30.32	28.76	27.70	27.00	30.13	30.29	32.94	33.62
9	33.42	34.24	34.66	24.78	30.15	28.76	27.75	27.12	30.01	30.61	32.94	33.60
10	33.49	34.24	34.62	24.79	30.24	28.76	27.64	28.55	30.06	30.80	32.96	33.63
11	33.53	34.26	34.71	25.39	30.29	28.58	27.77	29.20	30.06	31.49	33.03	33.62
12	33.63	34.26	34.64	26.61	30.26	28.48	27.82	29.22	29.55	32.08	33.08	33.66
13	33.66	34.36	34.57	27.14	30.28	28.47	27.69	27.76	29.43	32.38	33.14	33.63
14	33.68	34.34	34.50	27.42	30.30	28.48	27.72	27.42	29.46	32.73	33.12	33.64
15	33.79	34.34	34.55	27.94	30.50	28.57	27.75	27.26	28.92	32.96	33.15	33.64
16	33.76	34.41	34.46	28.12	30.56	28.42	27.48	27.23	28.65	33.12	33.16	33.67
17	32.70	34.44	34.48	28.18	30.50	28.39	27.35	27.33	28.20	33.19	33.14	33.67
18	32.31	34.42	34.43	28.65	30.50	28.26	27.44	27.33	28.20	33.33	33.22	33.68
19	31.97	34.63	34.41	28.90	30.39	28.32	27.57	27.30	28.02	33.51	33.28	33.69
20	32.54	34.69	33.55	29.06	30.27	28.09	27.58	27.14	27.98	33.79	33.21	33.67
21	32.83	34.70	33.05	29.08	30.15	28.22	27.83	27.03	28.04	34.07	33.23	33.71
22	32.99	34.73	32.66	29.43	30.10	28.34	28.39	26.90	27.64	34.21	33.19	33.74
23	33.18	34.74	32.65	29.44	29.74	28.17	27.86	26.81	27.66	34.42	33.20	33.76
24	33.27	34.86	33.16	29.73	29.47	28.04	27.80	26.96	27.83	34.51	33.21	33.77
25	33.37	34.85	33.36	29.73	29.47	27.95	27.67	26.96	27.99	34.50	33.25	33.82
26	33.42	34.78	33.48	29.78	29.22	27.80	27.33	26.83	28.20	33.46	33.26	33.82
27	33.49	34.79	33.65	30.05	29.05	27.76	27.26	26.84	28.33	33.55	33.30	33.81
28	33.55	34.79	33.82	30.16	28.94	27.76	27.26	27.06	28.54	33.68	33.37	33.88
29	33.71	34.84	33.92	30.18	28.80	27.89	28.15	27.19	28.54	33.25	33.36	33.90
30	33.75	34.76	34.12	30.36	---	27.83	27.20	27.28	28.61	32.83	33.38	33.93
31	33.81	---	34.16	30.50	---	27.54	---	27.34	---	32.77	33.40	---
MEAN	33.22	34.42	34.16	29.12	30.11	28.35	27.64	27.30	28.85	32.13	33.15	33.68
MAX	33.81	34.86	34.73	34.20	30.69	28.95	28.39	29.22	30.85	34.51	33.94	33.93
WTR YR 2004		MEAN 31.01		LOW 34.86								

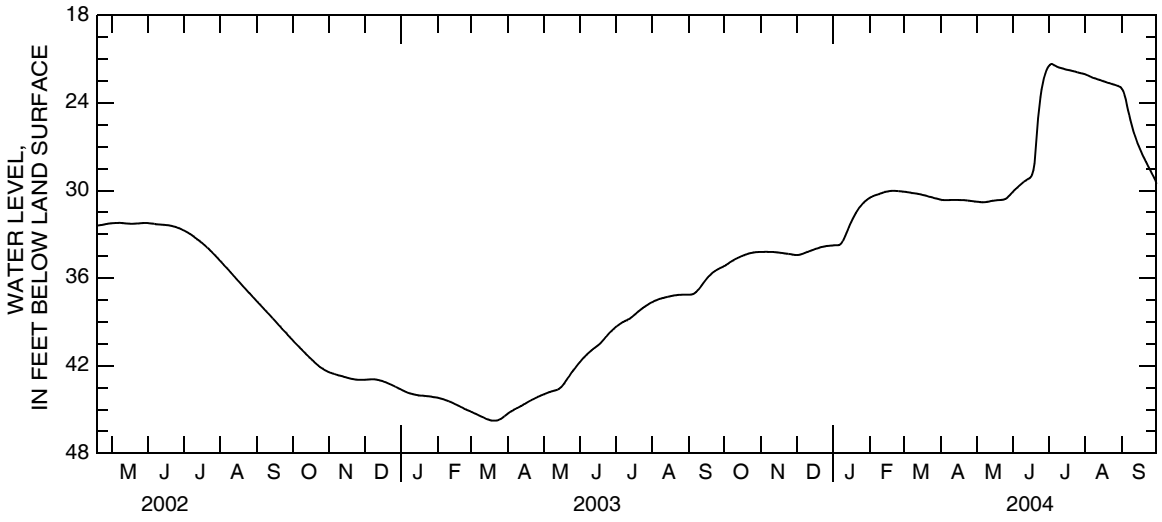


395058083002400. Local Number, FR-119

LOCATION.—Latitude 39°50′58″, longitude 83°00′24″, Hydrologic Unit 05060001. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 85 ft.
INSTRUMENTATION.—Data logger and pressure transducer, 60-minute record.
DATUM.—Elevation of land-surface datum is 700 ft above sea level. Measuring point: Floor of shelter, 2.48 ft above land-surface datum.
PERIOD OF RECORD.—January 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 52.34 ft below land-surface datum, Mar. 4-7, 1992; minimum daily low, 11.10 ft below land-surface datum, June 17, 1981.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35.16	34.20	34.41	33.76	30.48	30.08	30.63	30.76	30.05	21.47	22.04	23.05
2	35.11	34.20	34.41	33.75	30.44	30.09	30.64	30.77	29.97	21.38	22.07	23.22
3	35.05	34.20	34.40	33.75	30.40	30.11	30.65	30.78	29.90	21.33	22.11	23.45
4	35.00	34.19	34.38	33.74	30.36	30.12	30.65	30.80	29.82	21.34	22.15	23.74
5	34.94	34.19	34.36	33.74	30.33	30.13	30.65	30.80	29.75	21.38	22.19	24.13
6	34.90	34.19	34.33	33.72	30.30	30.14	30.65	30.81	29.67	21.43	22.23	24.49
7	34.84	34.20	34.29	33.67	30.28	30.16	30.65	30.80	29.60	21.47	22.26	24.83
8	34.79	34.20	34.26	33.57	30.25	30.17	30.65	30.80	29.53	21.52	22.29	25.16
9	34.74	34.20	34.23	33.44	30.22	30.18	30.64	30.79	29.46	21.56	22.32	25.49
10	34.70	34.21	34.20	33.28	30.19	30.20	30.64	30.77	29.39	21.58	22.34	25.78
11	34.66	34.21	34.17	33.09	30.16	30.21	30.64	30.76	29.34	21.60	22.37	26.06
12	34.62	34.22	34.14	32.90	30.14	30.22	30.64	30.74	29.28	21.63	22.40	26.31
13	34.58	34.23	34.11	32.70	30.11	30.24	30.64	30.72	29.23	21.65	22.42	26.54
14	34.54	34.23	34.08	32.51	30.09	30.25	30.64	30.71	29.18	21.67	22.45	26.75
15	34.50	34.24	34.05	32.32	30.07	30.27	30.64	30.70	29.14	21.70	22.48	26.95
16	34.47	34.25	34.02	32.15	30.06	30.28	30.64	30.69	29.04	21.72	22.51	27.14
17	34.44	34.26	33.99	31.98	30.04	30.31	30.65	30.68	28.89	21.74	22.54	27.33
18	34.40	34.27	33.97	31.82	30.03	30.33	30.65	30.67	28.60	21.76	22.56	27.52
19	34.38	34.28	33.94	31.67	30.02	30.35	30.65	30.66	28.14	21.77	22.59	27.68
20	34.35	34.29	33.91	31.53	30.02	30.37	30.66	30.65	27.09	21.79	22.62	27.85
21	34.32	34.31	33.89	31.40	30.02	30.39	30.67	30.64	26.00	21.81	22.64	28.01
22	34.30	34.32	33.87	31.28	30.02	30.42	30.67	30.64	25.04	21.83	22.66	28.18
23	34.28	34.33	33.85	31.16	30.03	30.44	30.68	30.63	24.24	21.85	22.69	28.34
24	34.27	34.34	33.83	31.06	30.03	30.46	30.69	30.62	23.60	21.87	22.72	28.49
25	34.25	34.35	33.82	30.96	30.04	30.48	30.70	30.58	23.07	21.90	22.74	28.65
26	34.24	34.36	33.80	30.87	30.05	30.50	30.71	30.54	22.63	21.92	22.77	28.81
27	34.23	34.38	33.79	30.79	30.05	30.53	30.72	30.48	22.27	21.94	22.79	28.97
28	34.22	34.39	33.79	30.72	30.06	30.55	30.73	30.39	21.99	21.96	22.82	29.12
29	34.22	34.40	33.78	30.65	30.07	30.57	30.74	30.31	21.76	21.98	22.85	29.28
30	34.21	34.41	33.77	30.59	---	30.59	30.75	30.23	21.59	22.00	22.89	29.54
31	34.21	---	33.77	30.53	---	30.61	---	30.14	---	22.02	22.94	---
MEAN	34.55	34.27	34.05	32.23	30.15	30.31	30.67	30.65	27.24	21.70	22.50	26.70
MAX	35.16	34.41	34.41	33.76	30.48	30.61	30.75	30.81	30.05	22.02	22.94	29.54
WTR YR 2004		MEAN 29.58		LOW 35.16								



395117083011600. Local Number, FR-120

LOCATION.—Latitude 39°51′17″, longitude 83°01′16″, Hydrologic Unit 05060001, near Columbus. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 72 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 685 ft above sea level. Measuring point: Floor of instrument shelter, 6.65 ft above land-surface datum.
PERIOD OF RECORD.—October 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 3.36 ft below land-surface datum, Mar. 21, 1984; lowest measured, 35.24 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	12.32

395123083003301. Local Number, FR-121A

LOCATION.—Latitude 39°51′23″, longitude 83°00′33″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 60 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 690.99 ft above sea level. Measuring point: Top of outer steel casing, 3.16 ft above land-surface datum.
PERIOD OF RECORD.—March 1993 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 8.53 ft below land-surface datum, Mar. 26, 1993; lowest measured, 40.55 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	20.24

395059083000901. Local Number, FR-122A

LOCATION.—Latitude 39°50′59″, longitude 83°00′09″, Hydrologic Unit 05060002, U.S. 23 south of Olen quarry, near Shadeville. Owner: Franklin County.
AQUIFER.—Clay, sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 4 in., depth 70 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 730.18 ft above sea level. Measuring point: Top of PVC casing, 2.72 ft above land-surface datum.
PERIOD OF RECORD.—August 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 40.69 ft below land-surface datum, Sept. 4, 1996; lowest measured, 49.94 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	42.39

395131082592400. Local Number, FR-123

LOCATION.—Latitude 39°51′31″, longitude 82°59′24″, Hydrologic Unit 05060001, near Hamilton Meadows. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 36.5 ft.
INSTRUMENTATION.—Data logger, 60-minute record. Instrumentation removed Aug. 11, 2003. Periodic measurements by steel or electric tape will continue.
DATUM.—Elevation of land-surface datum is 705.87 ft above sea level. Measuring point: Floor of shelter, 2.25 ft above land-surface datum.
PERIOD OF RECORD.—April 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 18.55 ft below land-surface datum, May 12, 1992; minimum daily low, 6.87 ft below land-surface datum, Apr. 1, 1980.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

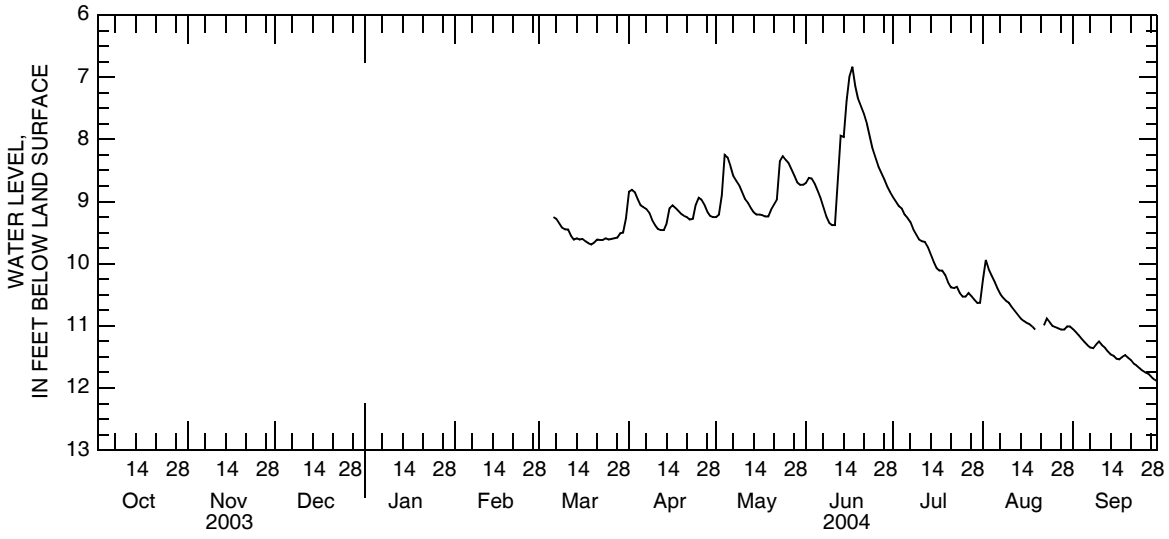
Date	Water level
04-29-2004	8.67

395008082593100. Local Number, FR-126

LOCATION.—Latitude 39°50′08″, longitude 82°59′31″, Hydrologic Unit 05060001, near Shadeville. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 122 ft.
INSTRUMENTATION—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 701.06 ft above sea level. Measuring point: Top of PVC casing, 4.0 ft above land-surface datum.
PERIOD OF RECORD.—October 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 51.42 ft below land-surface datum, Nov. 9, 1977; minimum daily low, 1.96 ft below land-surface datum, June 17, 1981.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	8.84	9.25	8.70	8.93	10.26	11.05
2	---	---	---	---	---	---	8.81	9.21	8.62	9.00	9.94	11.10
3	---	---	---	---	---	---	8.85	8.90	8.63	9.07	10.09	11.15
4	---	---	---	---	---	---	8.96	8.25	8.71	9.11	10.19	11.21
5	---	---	---	---	---	---	9.06	8.29	8.82	9.21	10.29	11.26
6	---	---	---	---	---	9.25	9.09	8.43	8.94	9.26	10.40	11.31
7	---	---	---	---	---	9.28	9.12	8.59	9.09	9.33	10.49	11.35
8	---	---	---	---	---	9.35	9.18	8.67	9.24	9.45	10.55	11.36
9	---	---	---	---	---	9.42	9.30	8.74	9.34	9.53	10.60	11.30
10	---	---	---	---	---	9.45	9.38	8.85	9.38	9.61	10.63	11.25
11	---	---	---	---	---	9.45	9.44	8.96	9.38	9.64	10.70	11.31
12	---	---	---	---	---	9.55	9.46	9.02	8.72	9.65	10.76	11.35
13	---	---	---	---	---	9.61	9.46	9.10	7.94	9.73	10.82	11.41
14	---	---	---	---	---	9.59	9.35	9.17	7.96	9.85	10.88	11.46
15	---	---	---	---	---	9.61	9.11	9.21	7.38	9.97	10.92	11.48
16	---	---	---	---	---	9.60	9.06	9.21	6.98	10.07	10.95	11.53
17	---	---	---	---	---	9.64	9.10	9.22	6.83	10.11	10.97	11.54
18	---	---	---	---	---	9.67	9.15	9.24	7.14	10.11	11.01	11.50
19	---	---	---	---	---	9.69	9.20	9.24	7.35	10.18	11.06	11.47
20	---	---	---	---	---	9.66	9.23	9.13	7.47	10.30	---	11.51
21	---	---	---	---	---	9.61	9.25	9.05	7.59	10.38	---	11.55
22	---	---	---	---	---	9.62	9.29	8.97	7.75	10.39	10.99	11.61
23	---	---	---	---	---	9.62	9.28	8.35	7.95	10.37	10.88	11.64
24	---	---	---	---	---	9.59	9.05	8.27	8.16	10.47	10.94	11.68
25	---	---	---	---	---	9.61	8.94	8.33	8.30	10.53	11.00	11.72
26	---	---	---	---	---	9.60	8.97	8.38	8.44	10.53	11.02	11.75
27	---	---	---	---	---	9.59	9.05	8.48	8.54	10.47	11.04	11.77
28	---	---	---	---	---	9.58	9.16	8.58	8.64	10.52	11.06	11.82
29	---	---	---	---	---	9.51	9.23	8.69	8.76	10.58	11.06	11.86
30	---	---	---	---	---	9.50	9.25	8.73	8.85	10.63	11.01	11.89
31	---	---	---	---	---	9.27	---	8.73	---	10.63	11.01	---
MEAN	---	---	---	---	---	9.54	9.15	8.81	8.32	9.92	10.74	11.47
MAX	---	---	---	---	---	9.69	9.46	9.25	9.38	10.63	11.06	11.89
MIN	---	---	---	---	---	9.25	8.81	8.25	6.83	8.93	9.94	11.05
WTR YR 2004	MEAN 9.70		HIGH 6.83			LOW 11.89						



395126083014000. Local Number, FR-131

LOCATION.—Latitude 39°51′26″, longitude 83°01′40″, Hydrologic Unit 05060001, near Columbus. Owner: Franklin County.
AQUIFER.—Clay, sand, and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 53 ft.
INSTRUMENTATION—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 728.06 ft above sea level. Measuring point: Top of plastic coupling, 1.52 ft above land-surface datum.
PERIOD OF RECORD.—October 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 37.41 ft below land-surface datum, Sept. 5, 1996; lowest measured, dry on Dec. 10, 1991, Mar. 16, June 12, July 28, 1992, Apr. 11, 1995, and Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	50.35

395020083014400. Local Number, FR-141

LOCATION.—Latitude 39°50′20″, longitude 83°01′44″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled domestic water well, diameter 4.25 in., depth 64 ft.
INSTRUMENTATION—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 719.45 ft above sea level. Measuring point: Top of casing, 0.57 ft above land-surface datum.
PERIOD OF RECORD.—September 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 25.60 ft below land-surface datum, June 3, 1996; lowest measured, 31.72 ft below land-surface datum, Dec. 10, 1991.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	26.40

395027082592500. Local Number, FR-151

LOCATION.—Latitude 39°50′27″, longitude 82°59′25″, Hydrologic Unit 05060001, near Shadeville. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 60 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 716.51 ft above sea level. Measuring point: Top of plastic pipe, 3.14 ft above land-surface datum.
PERIOD OF RECORD.—July 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 22.97 ft below land-surface datum, Apr. 29, 2004; lowest measured, 37.56 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	22.97

395314083021900. Local Number, FR-202

LOCATION.—Latitude 39°53′14″, longitude 83°02′19″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled domestic water well, diameter 4 in., depth 220 ft, cased to 175 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 751.38 ft above sea level. Measuring point: Top of casing, 1.06 ft above land-surface datum.
PERIOD OF RECORD.—June 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 66.17 ft below land-surface datum, June 25, 1979; lowest measured, 96.50 ft below land-surface datum, July 19, 1984.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	83.28

395206083014501. Local Number, FR-209

LOCATION.—Latitude 39°52′06″, longitude 83°01′45″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled domestic water well, diameter 4 in.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 706.17 ft above sea level. Measuring point: Top of casing, 0.78 ft above land-surface datum.
PERIOD OF RECORD.—June 1979 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 12.51 ft below land-surface datum, May 23, 1984; lowest measured, 18.11 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	13.96

395315083020002. Local Number, FR-213

LOCATION.—Latitude 39°53′15″, longitude 83°02′00″, Hydrologic Unit 05060001. Owner: Tom Cannon Company.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled commercial water well, diameter 5 in., depth 97 ft, cased to 97 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 731.42 ft above sea level. Measuring point: Top of casing, 0.80 ft above land-surface datum.
PERIOD OF RECORD.—June 1982 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 71.38 ft below land-surface datum, June 8, 1982; lowest measured, 84.83 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	80.31

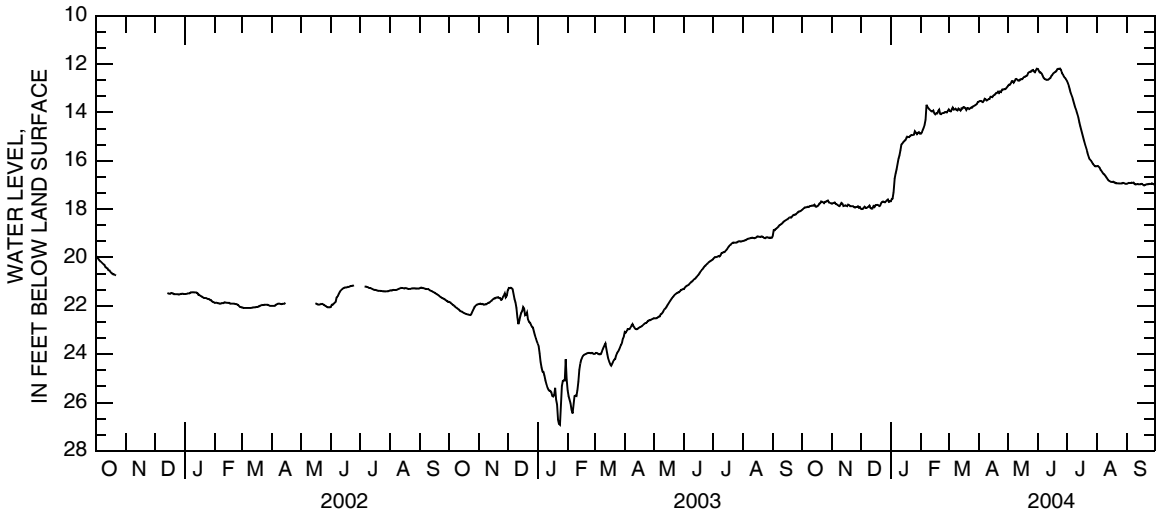
395055082592400. Local Number, FR-271

LOCATION.—Latitude 39°50′55″, longitude 82°59′24″, Hydrologic Unit 0506000. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 86.00 ft; 76 ft of 2 in. casing.
INSTRUMENTATION.—Data logger, 60-minute record.
DATUM.—Elevation of land-surface datum is 708.28 ft above sea level. Measuring point: Top of PVC casing, 2.53 ft above land-surface datum.
PERIOD OF RECORD.—September 1987 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 26.93 ft below land-surface datum, Jan. 24, 2003; minimum daily low, 12.18 ft below land-surface datum, June 24, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.04	17.77	17.98	17.67	14.88	13.87	13.55	12.91	12.20	12.69	16.22	16.95
2	18.01	17.75	18.00	17.59	14.83	13.94	13.53	12.85	12.27	12.79	16.21	16.93
3	17.97	17.74	17.99	17.56	14.72	13.95	13.52	12.85	12.34	12.89	16.24	16.91
4	17.93	17.72	17.94	17.30	14.63	13.87	13.55	12.80	12.34	13.03	16.29	16.92
5	17.93	17.78	17.90	16.73	14.51	13.79	13.57	12.71	12.38	13.20	16.38	16.92
6	17.92	17.80	17.95	16.52	14.30	13.88	13.52	12.70	12.47	13.30	16.42	16.90
7	17.90	17.82	17.95	16.35	13.68	13.87	13.43	12.77	12.56	13.41	16.48	16.91
8	17.91	17.86	17.92	16.14	13.78	13.84	13.45	12.71	12.61	13.55	16.54	16.90
9	17.88	17.87	17.90	15.91	13.82	13.89	13.50	12.62	12.63	13.69	16.57	16.96
10	17.87	17.81	17.85	15.77	13.87	13.91	13.49	12.61	12.65	13.83	16.62	16.98
11	17.86	17.74	17.95	15.57	13.91	13.83	13.45	12.65	12.65	13.94	16.69	16.97
12	17.85	17.77	17.98	15.32	13.95	13.88	13.44	12.68	12.64	14.08	16.74	16.96
13	17.86	17.87	17.98	15.28	13.96	13.92	13.35	12.68	12.60	14.21	16.80	16.97
14	17.82	17.86	17.87	15.22	13.92	13.83	13.35	12.63	12.57	14.40	16.83	16.97
15	17.89	17.84	17.91	15.18	14.03	13.84	13.36	12.63	12.48	14.57	16.86	16.97
16	17.90	17.85	17.84	15.15	14.08	13.78	13.30	12.62	12.45	14.72	16.87	16.95
17	17.88	17.88	17.83	15.07	14.03	13.78	13.27	12.57	12.38	14.88	16.87	16.96
18	17.85	17.81	17.82	15.00	14.04	13.81	13.25	12.52	12.35	15.03	16.86	17.00
19	17.77	17.83	17.83	15.01	13.93	13.89	13.19	12.52	12.32	15.18	16.90	17.02
20	17.76	17.88	17.87	15.02	13.88	13.82	13.19	12.48	12.30	15.33	16.90	16.99
21	17.68	17.88	17.85	14.97	14.05	13.82	13.14	12.47	12.22	15.46	16.93	16.98
22	17.69	17.88	17.75	14.94	14.07	13.86	13.19	12.36	12.19	15.59	16.93	16.97
23	17.71	17.88	17.70	14.94	14.03	13.83	13.13	12.33	12.20	15.77	16.93	16.97
24	17.75	17.92	17.68	14.93	14.02	13.79	13.15	12.31	12.18	15.89	16.94	16.95
25	17.70	17.93	17.69	14.92	14.02	13.80	13.05	12.31	12.23	15.95	16.94	16.96
26	17.69	17.91	17.72	14.77	13.98	13.75	13.05	12.26	12.36	15.99	16.94	16.96
27	17.66	17.91	17.68	14.83	13.99	13.73	13.03	12.24	12.42	16.06	16.94	16.93
28	17.64	17.88	17.63	14.89	14.00	13.71	13.04	12.30	12.51	16.13	16.91	16.95
29	17.72	17.94	17.60	14.84	13.93	13.68	13.01	12.33	12.56	16.18	16.92	16.98
30	17.74	17.91	17.69	14.81	---	13.65	12.96	12.26	12.61	16.22	16.94	17.00
31	17.75	---	17.67	14.87	---	13.57	---	12.19	---	16.23	16.95	---
MEAN	17.82	17.84	17.84	15.58	14.10	13.82	13.30	12.54	12.42	14.65	16.73	16.96
MAX	18.04	17.94	18.00	17.67	14.88	13.95	13.57	12.91	12.65	16.23	16.95	17.02

CAL YR 2003 MEAN 20.83 LOW 26.93
WTR YR 2004 MEAN 15.31 LOW 18.04



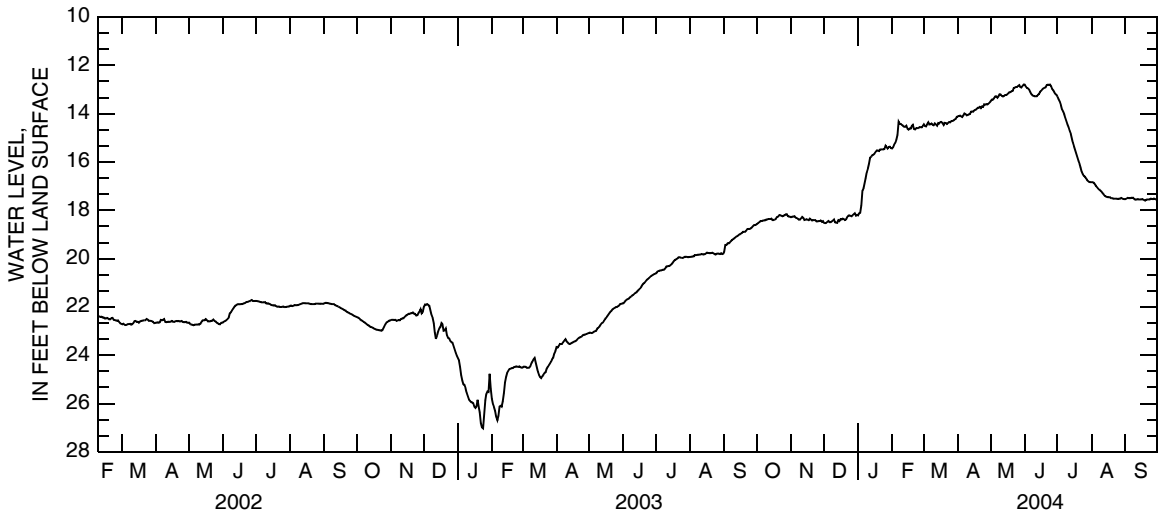
395055082592401. Local Number, FR-272

LOCATION.—Latitude 39°50′55″, longitude 82°59′24″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 45 ft.
INSTRUMENTATION.—Data logger and pressure transducer, 60-minute record.
DATUM.—Elevation of land-surface datum is 708.87 ft above sea level. Measuring point: Floor of shelter, 2.36 ft above land-surface datum.
PERIOD OF RECORD.—August 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 27.02 ft below land-surface datum, Jan. 24, 2003; minimum daily low, 12.43 ft below land-surface datum, June 19, 1996.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.56	18.29	18.52	18.21	15.44	14.44	14.11	13.49	12.80	13.30	16.84	17.54
2	18.52	18.26	18.53	18.12	15.38	14.51	14.10	13.42	12.88	13.41	16.84	17.51
3	18.49	18.26	18.52	18.10	15.28	14.53	14.08	13.42	12.94	13.50	16.86	17.49
4	18.44	18.24	18.47	17.80	15.21	14.44	14.11	13.37	12.95	13.64	16.91	17.50
5	18.45	18.30	18.44	17.18	15.08	14.36	14.14	13.29	13.00	13.82	17.00	17.50
6	18.43	18.32	18.49	17.08	14.88	14.45	14.08	13.28	13.10	13.91	17.04	17.48
7	18.42	18.35	18.49	16.90	14.34	14.44	13.99	13.34	13.19	14.02	17.10	17.49
8	18.42	18.39	18.46	16.67	14.43	14.41	14.02	13.29	13.24	14.17	17.15	17.48
9	18.39	18.39	18.43	16.42	14.43	14.46	14.07	13.20	13.26	14.31	17.18	17.54
10	18.38	18.33	18.38	16.27	14.47	14.48	14.06	13.20	13.28	14.45	17.22	17.56
11	18.36	18.27	18.49	16.07	14.50	14.40	14.03	13.26	13.28	14.56	17.29	17.55
12	18.36	18.31	18.51	15.82	14.54	14.45	14.02	13.29	13.28	14.71	17.34	17.54
13	18.36	18.40	18.52	15.78	14.55	14.50	13.92	13.27	13.22	14.83	17.40	17.55
14	18.34	18.39	18.41	15.72	14.50	14.39	13.91	13.23	13.19	15.03	17.43	17.55
15	18.41	18.37	18.45	15.70	14.62	14.41	13.92	13.23	13.09	15.20	17.45	17.55
16	18.41	18.39	18.37	15.66	14.66	14.35	13.86	13.21	13.05	15.35	17.46	17.53
17	18.38	18.41	18.38	15.58	14.61	14.34	13.84	13.16	12.99	15.51	17.46	17.55
18	18.36	18.34	18.35	15.52	14.62	14.38	13.82	13.11	12.96	15.66	17.46	17.58
19	18.28	18.38	18.36	15.53	14.51	14.47	13.76	13.11	12.93	15.81	17.50	17.60
20	18.26	18.42	18.41	15.55	14.46	14.38	13.76	13.07	12.91	15.96	17.50	17.56
21	18.20	18.41	18.38	15.49	14.63	14.39	13.72	13.06	12.82	16.08	17.52	17.55
22	18.20	18.41	18.28	15.48	14.65	14.43	13.77	12.94	12.80	16.22	17.52	17.55
23	18.22	18.41	18.22	15.48	14.60	14.39	13.70	12.92	12.81	16.40	17.52	17.55
24	18.25	18.46	18.21	15.48	14.60	14.35	13.72	12.90	12.79	16.51	17.52	17.52
25	18.22	18.46	18.22	15.46	14.60	14.36	13.62	12.90	12.85	16.58	17.53	17.53
26	18.21	18.45	18.25	15.32	14.56	14.31	13.63	12.85	12.98	16.61	17.52	17.54
27	18.17	18.45	18.21	15.38	14.56	14.30	13.61	12.82	13.03	16.68	17.52	17.51
28	18.16	18.42	18.16	15.44	14.57	14.28	13.62	12.90	13.12	16.75	17.49	17.53
29	18.24	18.48	18.12	15.38	14.51	14.25	13.59	12.92	13.18	16.79	17.51	17.56
30	18.26	18.45	18.22	15.37	---	14.22	13.54	12.85	13.22	16.83	17.53	17.58
31	18.27	---	18.19	15.43	---	14.13	---	12.79	---	16.84	17.54	---
MEAN	18.34	18.37	18.37	16.11	14.68	14.39	13.87	13.13	13.04	15.27	17.33	17.54
MAX	18.56	18.48	18.53	18.21	15.44	14.53	14.14	13.49	13.28	16.84	17.54	17.60

CAL YR 2003 MEAN 21.36 LOW 27.02
WTR YR 2004 MEAN 15.88 LOW 18.56



395224083000500. Local Number, FR-273

LOCATION.—Latitude 39°52′24″, longitude 83°00′05″, Hydrologic Unit 05060001. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 91.5 ft; 2 in. casing.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 704.82 ft above sea level. Measuring point: Top of steel protective casing, 1.23 ft above land-surface datum.
PERIOD OF RECORD.—May 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 13.50 ft below land-surface datum, June 27, 1990; lowest measured, 20.78 ft below land-surface datum, Mar. 16,1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	15.97

395224083000501. Local Number, FR-274

LOCATION.—Latitude 39°52′24″, longitude 83°00′05″, Hydrologic Unit 05060001. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 25 ft; 4 in. casing.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 704.75 ft above sea level. Measuring point: Top of steel protective casing, 3.03 ft above land-surface datum.
PERIOD OF RECORD.—May 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 12.63 ft below land-surface datum, Mar. 18, 1991; lowest measured, 16.98 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	13.47

394941083004400. Local Number, FR-275

LOCATION.—Latitude 39°49′41″, longitude 83°00′44″, Hydrologic Unit 05060001, near Shadeville. Owner: Franklin County.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 35 ft; 2 in. casing.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 680 ft above sea level. Measuring point: Top of steel protective casing, 4.50 ft above land-surface datum.
PERIOD OF RECORD.—April 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 1.44 ft below land-surface datum, Mar. 26, 1993; lowest measured, 13.12 ft below land-surface datum, Apr. 18, 1991.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	10.18

395239083021400. Local Number, FR-276

LOCATION.—Latitude 39°52′39″, longitude 83°02′14″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled domestic water well, depth 155 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 754.68 ft above sea level. Measuring point: Top of casing, 1.11 ft above land-surface datum.
PERIOD OF RECORD.—June 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 71.46 ft below land-surface datum, Mar. 18, 1991; lowest measured, 76.05 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	72.80

394930083013100. Local Number, FR-277

LOCATION.—Latitude 39°49′30″, longitude 83°01′31″, Hydrologic unit 05060001. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled domestic water well, depth 52 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 711.31 ft above sea level. Measuring point: Top of casing, 1.15 ft above land-surface datum.
PERIOD OF RECORD.—December 1989 to current year.
EXTREMES FOR PERIOD OF RECORD.— Highest water level measured, 14.79 ft below land-surface datum, Feb 26, 1993; lowest measured, 21.33 ft below land-surface datum, Dec. 10, 1991.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.00

395115083022600. Local Number, FR-278

LOCATION.—Latitude 39°51′15″, longitude 83°02′26″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Quaternary sand and gravel-primary; Devonian limestone-secondary.
WELL CHARACTERISTICS.—Drilled domestic water well, diameter 5 in., depth 114 ft, 10 ft screen.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 739.32 ft above sea level. Measuring point: Top of casing, 0.81 ft above land-surface datum.
PERIOD OF RECORD.— July 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 29.07 ft below land-surface datum, Dec. 15, 1993; lowest measured, 35.11 ft below land-surface datum, Dec. 10, 1991.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	30.66

394932083022700. Local Number, FR-279

LOCATION.—Latitude 39°49′32″, longitude 83°02′27″, Hydrologic unit 05060001. Owner: privately owned.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled domestic water well, diameter 5 in., depth 145 ft, cased to 102 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 734.71 ft above sea level. Measuring point: Top of casing, 1.32 ft above land-surface datum.
PERIOD OF RECORD.— September 1990 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 7.85 ft below land-surface datum, Mar. 18, 1991; lowest measured, 31.54 ft below land-surface datum, Apr. 11, 1994.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	9.78

395000082581700. Local Number, FR-281

LOCATION.—Latitude 39°50′00”, longitude 82°58′17”, Hydrologic Unit 05060001. Owner: Hamilton Township Trustees.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled domestic water-supply well, depth 83 ft, 4 in. steel casing.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 731.42 ft above sea level. Measuring point: top of casing, 1.20 ft above land-surface datum.
PERIOD OF RECORD.—December 1991 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 35.21 ft below land-surface datum, May 31, 1996; lowest measured, 42.42 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	38.35

394921083004700. Local Number, FR-282

LOCATION.—Latitude 39°49′21”, longitude 83°00′47”, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, depth 56 ft, 2 in. PVC.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 679.28 ft above sea level. Measuring point: top of casing, 2.85 ft above land-surface datum.
PERIOD OF RECORD.—June 1992 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 0.75 ft below land-surface datum, Mar. 26, 1993; lowest measured, 10.99 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	8.18

395048083004500. Local Number, FR-310

LOCATION.—Latitude 39°50′48″, longitude 83°00′45″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 2 in. diameter PVC, 61 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 682.72 ft above sea level. Measuring point: top of outer steel protective casing, 3.80 ft above land-surface datum.
PERIOD OF RECORD.—March 1993 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 8.21 ft below land-surface datum, May 31, 1996; lowest measured, 24.61 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	16.30

395044083010500. Local Number, FR-311

LOCATION.—Latitude 39°50′44″, longitude 83°01′05″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 2 in. diameter PVC, 42 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 685.15 ft above sea level. Measuring point: top of outer steel protective casing, 3.95 ft above land-surface datum.
PERIOD OF RECORD.—March 1993 to current year
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 5.86 ft below land-surface datum, May 31, 1996; lowest measured, 17.66 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	12.25

395151082591700. Local Number, FR-312

LOCATION.—Latitude 39°51′51″, longitude 82°59′17″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 54.5 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 725.62 ft above sea level. Measuring point: Top of PVC casing, 0.20 ft below land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.25 ft below land-surface datum, Nov. 19, 1996; lowest measured, 33.24 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	26.48

394948082583400. Local Number, FR-313

LOCATION.—Latitude 39°49′48″, longitude 82°58′34″, Hydrologic Unit 05060001. Owner: privately owned.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 79 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 744.55 ft above sea level. Measuring point: Top of PVC casing, 0.18 ft below land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 51.58 ft below land-surface datum, May 31, 1996; lowest measured, 57.48 ft below land-surface datum, Dec. 7, 1995.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	51.93

395241082584500. Local Number, FR-314

LOCATION.—Latitude 39°52′41″, longitude 82°58′45″, Hydrologic Unit 05060001. Owner: WTVN.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 72 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 733.30 ft above sea level. Measuring point: Top of PVC casing, 0.12 ft below land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 16.97 ft below land-surface datum, May 31, 1996; lowest measured, 25.21 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	20.49

395100083015700. Local Number, FR-315

LOCATION.—Latitude 39°51′00″, longitude 83°01′57″, Hydrologic Unit 05060001. Owner: SW Conservation Club.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 65 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 729.31 ft above sea level. Measuring point: Top of PVC casing, 0.24 ft below land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 18.63 ft below land-surface datum, June 3, 1996; lowest measured, 30.89 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	24.54

395035083014700. Local Number, FR-316

LOCATION.—Latitude 39°50′35″, longitude 83°01′47″, Hydrologic Unit 05060001. Owner: SW Conservation Club.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 62 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 725.53 ft above sea level. Measuring point: Top of PVC casing, 3.05 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 29.68 ft below land-surface datum, Nov. 20, 1996; lowest measured, 39.41 ft below land-surface datum, Dec. 10, 1997.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	34.46

395153083014000. Local Number, FR-317

LOCATION.—Latitude 39°51′53″, longitude 83°01′40″, Hydrologic Unit 05060001. Owner: Heimat Haus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 40 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 689.53 ft above sea level. Measuring point: Top of PVC casing, 0.12 ft below land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 2.44 ft below land-surface datum, Feb. 28, 1996; lowest measured, 7.01 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	5.77

395042082585900. Local Number, FR-318

LOCATION.—Latitude 39°50′42″, longitude 82°58′59″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 85 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 738.69 ft above sea level. Measuring point: Top of PVC casing, 3.37 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 44.73 ft below land-surface datum, Apr. 29, 2004; lowest measured, 56.83 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	44.73

395205083001500. Local Number, FR-319

LOCATION.—Latitude 39°52′05″, longitude 83°00′15″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 55 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 721.59 ft above sea level. Measuring point: Top of PVC casing, 2.50 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 29.75 ft below land-surface datum, June 3, 1996; lowest measured, 37.47 ft below land-surface datum, Sept. 14, 1997.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	31.82

394954083002801. Local Number, FR-320

LOCATION.—Latitude 39°49′54″, longitude 83°00′28″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 70 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 690.64 ft above sea level. Measuring point: Top of PVC casing, 3.22 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 12.25 ft below land-surface datum, May 31, 1996; lowest measured, 24.55 ft below land-surface datum, Nov. 20, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.19

395038083002100. Local Number, FR-321

LOCATION.—Latitude 39°50′38″, longitude 83°00′21″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 68 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 696.87 ft above sea level. Measuring point: Top of PVC casing, 2.87 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 22.41 ft below land-surface datum, Mar. 17, 1997; lowest measured, 51.81 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	36.65

395146082594300. Local Number, FR-323

LOCATION.—Latitude 39°51′46″, longitude 82°59′43″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 59.5 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 714.21 ft above sea level. Measuring point: Top of PVC casing, 2.74 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 16.69 ft below land-surface datum, May 31, 1996; lowest measured, 24.49 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	18.41

395146082594301. Local Number, FR-324

LOCATION.—Latitude 39°51′46″, longitude 82°59′43″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 169.98 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 714.28 ft above sea level. Measuring point: Top of PVC casing, 2.62 ft above land-surface datum.
PERIOD OF RECORD.—March 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 77.70 ft below land-surface datum, Apr. 29, 2004; lowest measured, 153.30 ft below land-surface datum, Aug. 13, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	77.70

395010083000200. Local Number, FR-325

LOCATION.—Latitude 39°50′10″, longitude 83°00′02″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 93 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 718.82 ft above sea level. Measuring point: Top of PVC casing, 3.24 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 29.49 ft below land-surface datum, May 31, 1996; lowest measured, 36.80 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	29.51

395133083001800. Local Number, FR-327

LOCATION.—Latitude 39°51′33″, longitude 83°00′18″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 74.75 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 740.78 ft above sea level. Measuring point: Top of PVC casing, 2.76 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 44.71 ft below land-surface datum, Aug. 10, 1996; lowest measured, 57.07 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	51.70

395108082591100. Local Number, FR-329

LOCATION.—Latitude 39°51′08″, longitude 82°59′11″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 69.19 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 733.01 ft above sea level. Measuring point: Top of PVC casing, 3.05 ft above land-surface datum.
PERIOD OF RECORD.—May 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 34.38 ft below land-surface datum, Mar. 17, 1997; lowest measured, 44.61 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	36.86

395108082591101. Local Number, FR-330

LOCATION.—Latitude 39°51′08″, longitude 82°59′11″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 210 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 734.58 ft above sea level. Measuring point: Top of PVC casing, 2.32 ft above land-surface datum.
PERIOD OF RECORD.—October 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 91.18 ft below land-surface datum, Apr. 29, 2004; lowest measured, 95.00 ft below land-surface datum, Oct. 12, 1995.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	91.18

395054082585300. Local Number, FR-331

LOCATION.—Latitude 39°50′54″, longitude 82°58′53″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 74.33 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 738.36 ft above sea level. Measuring point: Top of PVC casing, 2.95 ft above land-surface datum.
PERIOD OF RECORD.—December 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 42.40 ft below land-surface datum, May 31, 1996; lowest measured, 51.31 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	42.61

395031082590000. Local Number, FR-332

LOCATION.—Latitude 39°50′31″, longitude 82°59′00″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 48.03 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 707.25 ft above sea level. Measuring point: Top of PVC casing, 2.97 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 15.46 ft below land-surface datum, May 7, 1997; lowest measured, 31.57 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.32

395031082590001. Local Number, FR-333

LOCATION.—Latitude 39°50′31″, longitude 82°59′00″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 194.39 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 706.75 ft above sea level. Measuring point: Top of PVC casing, 2.90 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 40.58 ft below land-surface datum, Apr. 29, 2004; lowest measured, 135.40 ft below land-surface datum, Mar. 13, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	40.58

395139082581600. Local Number, FR-334

LOCATION.—Latitude 39°51′39″, longitude 82°58′16″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 64.32 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 740.14 ft above sea level. Measuring point: Top of PVC casing, 0.34 ft below land-surface datum.
PERIOD OF RECORD.—March 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 28.45 ft below land-surface datum, May 31, 1996; lowest measured, 36.36 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	32.25

395134082590600. Local Number, FR-335

LOCATION.—Latitude 39°51′34″, longitude 82°59′06″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 56.86 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 734.59 ft above sea level. Measuring point: Top of PVC casing, 0.30 ft below land-surface datum.
PERIOD OF RECORD.—May 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 33.03 ft below land-surface datum, May 31, 1996; lowest measured, 43.62 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	36.62

395108083010601. Local Number, FR-336

LOCATION.—Latitude 39°51′08″, longitude 83°01′06″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 59 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 685.43 ft above sea level. Measuring point: Top of PVC casing, 3.27 ft above land-surface datum.
PERIOD OF RECORD.—December 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 10.31 ft below land-surface datum, May 31, 1996; lowest measured, 31.75 ft below land-surface datum, Nov. 21, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.45

395115083010601. Local Number, FR-337

LOCATION.—Latitude 39°51′15″, longitude 83°01′06″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 60 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 686.6 ft above sea level. Measuring point: Top of PVC casing, 2.64 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.36 ft below land-surface datum, May 31, 1996; lowest measured, 30.82 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	19.25

395115083010602. Local Number, FR-338

LOCATION.—Latitude 39°51′15″, longitude 83°01′06″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 105 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 685.85 ft above sea level. Measuring point: Top of PVC casing, 3.12 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 7.35 ft below land-surface datum, May 31, 1996; lowest measured, 42.71 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	18.89

395046083003106. Local Number, FR-339

LOCATION.—Latitude 39°50′46″, longitude 83°00′31″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 70 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 696.17 ft above sea level. Measuring point: Top of PVC casing, 2.78 ft above land-surface datum.
PERIOD OF RECORD.—September 1995 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 21.11 ft below land-surface datum, Mar. 17, 1997; lowest measured, 54.93 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	37.65

395046083003107. Local Number, FR-340

LOCATION.—Latitude 39°50′46″, longitude 83°00′31″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 138 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 696.15 ft above sea level. Measuring point: Top of PVC casing, 2.91 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 21.95 ft below land-surface datum, Mar. 17, 1997; lowest measured, 50.16 ft below land-surface datum, Feb. 26, 1996.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	36.59

395020083003406. Local Number, FR-341

LOCATION.—Latitude 39°50′20″, longitude 83°00′34″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 75 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 683.06 ft above sea level. Measuring point: Top of PVC casing, 3.16 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.79 ft below land-surface datum, May 31, 1996; lowest measured, 35.81 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	22.85

395020083003407. Local Number, FR-342

LOCATION.—Latitude 39°50′20″, longitude 83°00′34″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Devonian limestone.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 123 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 683.35 ft above sea level. Measuring point: Top of PVC casing, 2.77 ft above land-surface datum.
PERIOD OF RECORD.—February 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.86 ft below land-surface datum, Mar. 17, 1997; lowest measured, 27.02 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	17.04

395222083002901. Local Number, FR-344

LOCATION.—Latitude 39°52′22″, longitude 83°00′29″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel of Quaternary age.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 134 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 707.61 ft above sea level. Measuring point: Top of PVC casing, 2.52 ft above land-surface datum.
PERIOD OF RECORD.—August 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 39.26 ft below land-surface datum, Aug. 13, 1996; lowest measured, 95.68 ft below land-surface datum, Mar. 17, 1997.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	49.23

395236083004201. Local Number, FR-345

LOCATION.—Latitude 39°52′36″, longitude 83°00′42″, Hydrologic Unit 05060001. Owner: City of Columbus.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Drilled observation water well, 4 in. diameter, 45 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 688.90 ft above sea level. Measuring point: Top of PVC casing, 2.97 ft above land-surface datum.
PERIOD OF RECORD.—August 1996 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 14.40 ft below land-surface datum, Apr. 29, 2004; lowest measured, 25.52 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	14.40

395156082571800. Local Number, FR-351

LOCATION.—Latitude 39°51′56″, longitude 82°57′18″, Hydrologic Unit 05060001. Owner: Privately owned.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Drilled observation water well, 4.25 in. diameter, 60 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 740 ft above sea level. Measuring point: Top of PVC casing, 0.30 ft above land-surface datum.
PERIOD OF RECORD.—August 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 33.61 ft below land-surface datum, Apr. 29, 2004; lowest measured, 35.42 ft below land-surface datum, Aug. 25, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	33.61

395237082591600. Local Number, FR-352

LOCATION.—Latitude 39°52′37″, longitude 82°59′16″, Hydrologic Unit 05060001. Owner: Privately owned.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Drilled observation water well, 4.25 in. diameter, 87 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 735 ft above sea level. Measuring point: Top of PVC casing, 0.40 ft above land-surface datum.
PERIOD OF RECORD.—August 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 30.01 ft below land-surface datum, Apr. 29, 2004; lowest measured, 32.79 ft below land-surface datum, Aug. 25, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	30.01

395325082582400. Local Number, FR-353

LOCATION.—Latitude 39°53′25″, longitude 82°58′24″, Hydrologic Unit 05060001. Owner: Privately owned.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Drilled observation water well, 6 in. diameter, 58 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 745 ft above sea level. Measuring point: Top of PVC casing, 1.20 ft above land-surface datum.
PERIOD OF RECORD.—August 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 30.15 ft below land-surface datum, Apr. 29, 2004; lowest measured, 32.27 ft below land-surface datum, Aug, 25, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	30.15

395328082582100. Local Number, FR-354

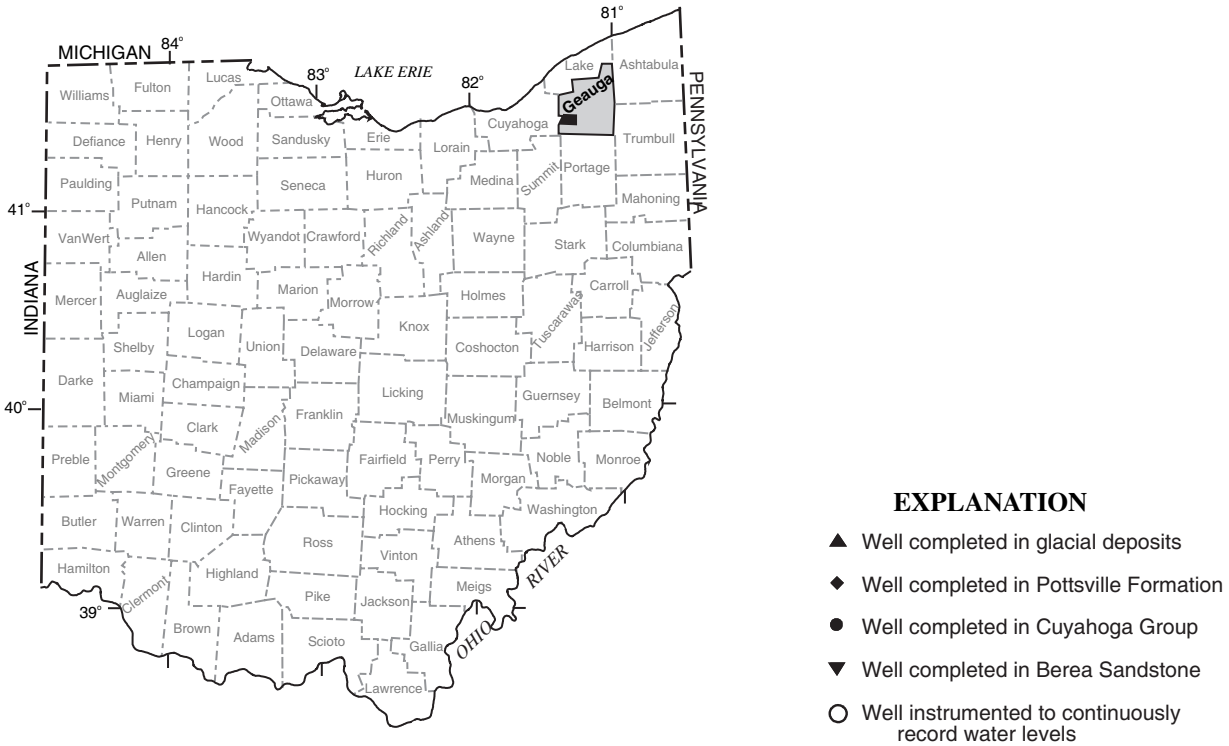
LOCATION.—Latitude 39°53′28″, longitude 82°58′21″, Hydrologic Unit 05060001. Owner: Privately owned.
AQUIFER.—Gravel.
WELL CHARACTERISTICS.—Drilled observation water well, 5 in. diameter, 50 ft deep.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 745 ft above sea level. Measuring point: Top of PVC casing, 1.20 ft above land-surface datum.
PERIOD OF RECORD.—August 2003 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 30.47 ft below land-surface datum, Apr. 29, 2004; lowest measured, 32.55 ft below land-surface datum, Aug. 25, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
04-29-2004	30.47

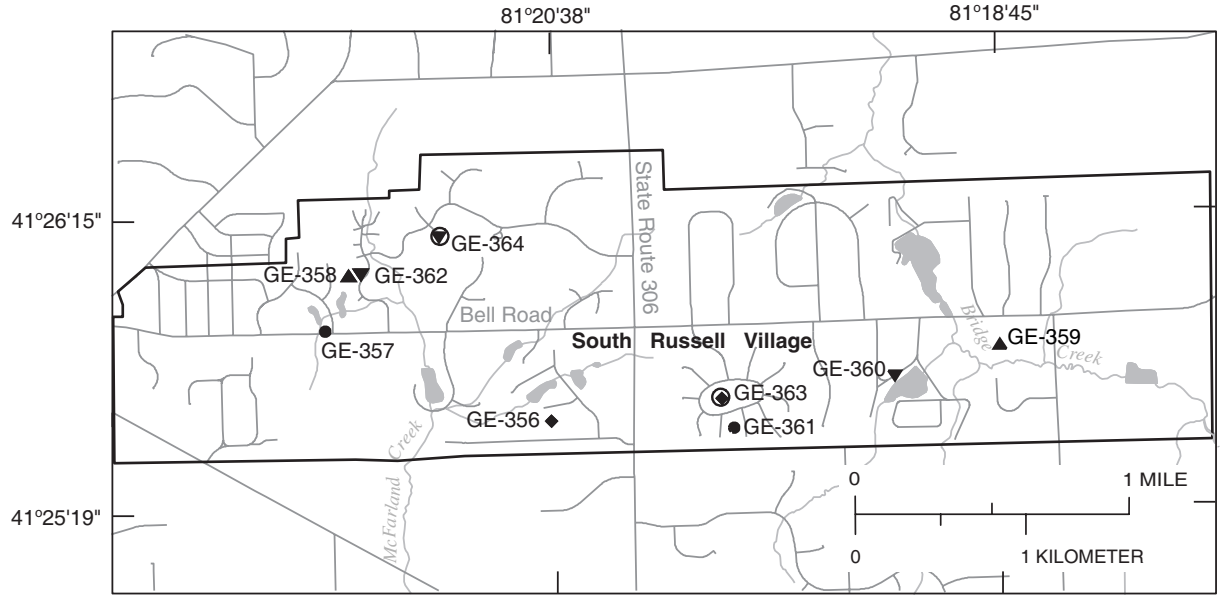
Project Data—Ground-Water Data for South Russell Village, Ohio

Ground-water-level measurements from the nine wells that comprise the long-term ground-water monitoring network in South Russell Village are shown on the following pages. The purpose of the water-level study is to determine whether fluctuations in water levels represent consistent, long-term trends caused by human activity or are predominantly the result of seasonal and annual variations in recharge. Land-surface datums are accurate within $\pm$ 5 ft. Water levels known to have been measured after a well had been recently pumped are designated with an asterisk (*).



EXPLANATION

- ▲ Well completed in glacial deposits
- ◆ Well completed in Pottsville Formation
- ● Well completed in Cuyahoga Group
- ▼ Well completed in Berea Sandstone
- ○ Well instrumented to continuously record water levels



412536081203800. Local Number, GE-356

LOCATION.—Latitude 41°25′36″, longitude 81°20′38″, Geauga County, 6006 Parkland Drive, South Russell Village. Owner: Privately owned.
AQUIFER.—Pottsville Formation (sandstone).
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in.; depth 80 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,155 ft above sea level. Measuring point: top of casing, 1.30 ft above land-surface datum.
PERIOD OF RECORD.—May 2, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 10.27 ft below land-surface datum, Apr. 8, 2004; lowest measured, 13.25 ft below land-surface datum, Nov. 7, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	11.88
12-10-2003	11.53
02-05-2004	11.43
04-08-2004	10.27
06-09-2004	11.62
08-12-2004	11.36

412553081213500. Local Number, GE-357

LOCATION.—Latitude 41°25′53″, longitude 81°21′35″, Geauga County, 101 Spring Drive, South Russell Village. Owner: Privately owned.
AQUIFER.—Cuyahoga Formation (shale).
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in.; depth 71 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,120 ft above sea level. Measuring point: top of casing, 1.40 ft above land-surface datum.
PERIOD OF RECORD.—May 3, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 10.39 ft below land-surface datum, June 9, 2004; lowest measured, 14.32 ft below land-surface datum, Nov. 14, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	12.71
12-10-2003	12.56
02-05-2004	12.06
04-08-2004	10.71
06-09-2004	10.39
08-12-2004	10.68

412604081212600. Local Number, GE-358

LOCATION.—Latitude 41°26′04″, longitude 81°21′26″, Geauga County, 127 Alderwood Drive, South Russell Village. Owner: Privately owned.
AQUIFER.—Berea Formation (sandstone).
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in.; depth 258 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,105 ft above sea level. Measuring point: top of casing, 1.35 ft above land-surface datum.
PERIOD OF RECORD.—May 3, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 158.97 ft below land-surface datum, Apr. 8, 2004; lowest measured, 177.21* ft below land-surface datum, July 31, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	165.93
12-10-2003	166.71*
02-05-2004	167.61
04-08-2004	158.97
06-09-2004	168.26

412548081184300. Local Number, GE-359

LOCATION.—Latitude 41°25′48″, longitude 81°18′43″, Geauga County, 1478 Bell Road, South Russell Village. Owner: Privately owned.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in.; depth 90 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,153 ft above sea level. Measuring point: top of casing, 2.05 ft above land-surface datum.
PERIOD OF RECORD.—August 29, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.14 ft below land-surface datum, May 23, 2002; lowest measured, 12.87 ft below land-surface datum, Nov. 14, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	11.49
12-10-2003	11.29
02-05-2004	11.20
04-08-2004	11.17
06-09-2004	11.67
08-12-2004	11.84

412545081191000. Local Number, GE-360

LOCATION.—Latitude 41°25′45″, longitude 81°19′10″, Geauga County, 55 Garden Park, South Russell Village. Owner: Privately owned.
AQUIFER.—Berea Formation (sandstone).
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in.; depth 290 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,162 ft above sea level. Measuring point: top of casing, 1.05 ft above land-surface datum.
PERIOD OF RECORD.—August 29, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 151.17 ft below land-surface datum, May 23, 2002; lowest measured, 164.50* ft below land-surface datum, Sept. 20, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	152.66
12-10-2003	153.42
02-05-2004	154.48
04-08-2004	151.68
06-09-2004	152.51
08-12-2004	154.57

412533081195100. Local Number, GE-361

LOCATION.—Latitude 41°25′33″, longitude 81°19′51″, Geauga County, 60 Potomac Drive, South Russell Village. Owner: Privately owned.
AQUIFER.—Cuyahoga Formation (shale).
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 6 in.; depth 120 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,240 ft above sea level. Measuring point: top of casing, 2.10 ft above land-surface datum.
PERIOD OF RECORD.—August 29, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 65.90 ft below land-surface datum, Aug. 12, 2004; lowest measured, 69.69 ft below land-surface datum, Jan. 9, 2003.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Water level
10-22-2003	68.60
12-10-2003	68.26
02-05-2004	68.38
04-08-2004	66.79
06-09-2004	66.88
08-12-2004	65.90

412604081212700. Local Number, GE-362

LOCATION.—Latitude 41°26′04″, longitude 81°21′27″, Geauga County, 125 Button Bush Circle, South Russell Village. Owner: Privately owned.
AQUIFER.—Sand and gravel.
WELL CHARACTERISTICS.—Domestic water-supply well; diameter 5.63 in.; depth 35 ft.
INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.
DATUM.—Elevation of land-surface datum is 1,106 ft above sea level. Measuring point: top of casing, 1.90 ft above land-surface datum.
PERIOD OF RECORD.—August 29, 2000 to current year.
EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 6.69 ft below land-surface datum, Apr. 8, 2004; lowest measured, 9.51 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

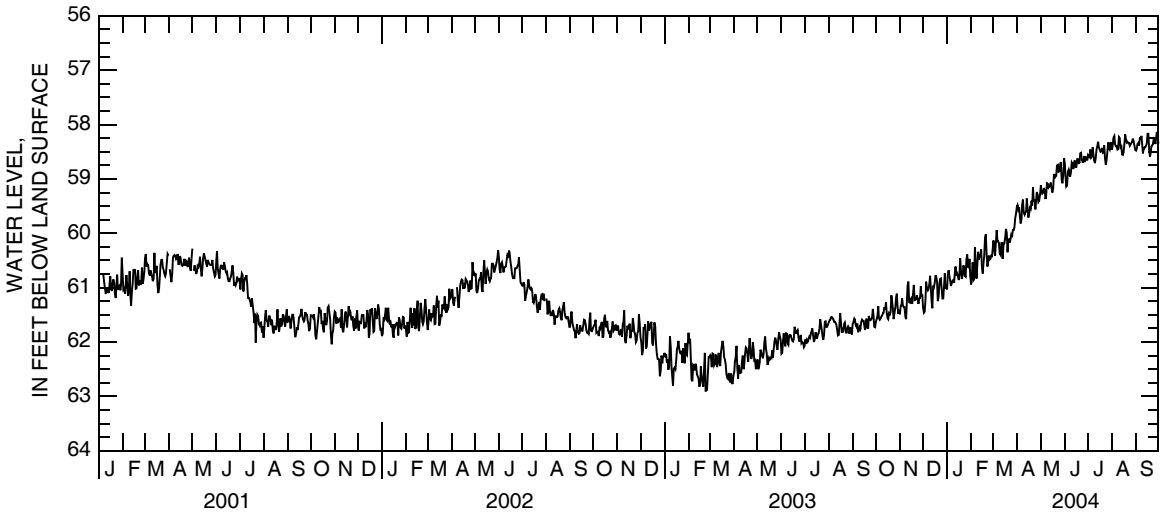
Date	Water level
10-22-2003	7.76
12-10-2003	7.32
02-05-2004	7.65
04-08-2004	6.69
06-09-2004	8.41
08-12-2004	8.34

412541081194500. Local Number, GE-363

LOCATION.—Latitude 41°25′41″, longitude 81°19′45″, Geauga County, Kensington Green, South Russell Village. Owner: South Russell Village.
WELL CHARACTERISTICS.—Water-supply well, not currently in use; diameter 6.25 in.; depth 93.7 ft.
INSTRUMENTATION.—Pressure transducer data logger (records hourly).
DATUM.—Elevation of land-surface datum is 1,232 ft above sea level. Measuring point: top of casing.
PERIOD OF RECORD.—Continuous water-level data from January 6, 2001 to current year.
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 62.91 ft below land-surface datum, Feb. 23, 2003; minimum daily low, 58.14 ft below land-surface datum, Sept. 28, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61.63	61.49	61.37	61.03	60.94	60.13	59.48	59.12	58.72	58.56	58.46	58.48
2	61.58	61.34	61.46	60.74	60.77	60.30	59.56	59.22	58.94	58.58	58.36	58.44
3	61.52	61.32	61.44	60.68	60.53	60.41	59.52	59.27	59.14	58.62	58.24	58.36
4	61.34	61.20	61.22	60.80	60.86	60.17	59.69	59.25	59.12	58.46	58.21	58.34
5	61.56	61.33	60.89	60.86	60.84	59.94	59.82	59.17	58.87	58.61	58.37	58.39
6	61.59	61.36	61.01	60.97	60.26	60.15	59.75	59.21	58.83	58.59	58.40	58.25
7	61.57	61.36	61.05	60.92	60.57	60.15	59.48	59.37	58.92	58.42	58.40	58.25
8	61.53	61.53	61.02	60.87	60.83	60.18	59.38	59.32	58.96	58.55	58.46	58.21
9	61.51	61.58	60.94	60.86	60.61	60.37	59.62	59.08	58.88	58.67	58.45	58.37
10	61.47	61.28	60.78	60.91	60.34	60.40	59.66	59.09	58.70	58.71	58.23	58.53
11	61.46	60.97	61.01	60.71	60.49	60.18	59.62	59.16	58.73	58.62	58.25	58.45
12	61.36	60.89	61.24	60.61	60.42	60.18	59.60	59.14	58.82	58.46	58.42	58.42
13	61.40	61.27	61.38	60.78	60.40	60.47	59.36	59.10	58.70	58.40	58.40	58.42
14	61.27	61.28	60.96	60.74	60.30	60.20	59.54	59.07	58.66	58.32	58.55	58.38
15	61.47	61.21	60.99	60.79	60.63	60.18	59.71	59.17	58.78	58.41	58.56	58.35
16	61.56	61.19	60.91	60.86	60.74	60.09	59.64	59.25	58.78	58.46	58.51	58.17
17	61.58	61.30	60.77	60.73	60.53	59.92	59.53	59.18	58.64	58.50	58.37	58.17
18	61.47	61.14	60.80	60.46	60.42	60.00	59.55	58.91	58.64	58.49	58.18	58.46
19	61.49	60.95	60.88	60.70	60.09	60.35	59.40	58.99	58.71	58.43	58.27	58.59
20	61.45	61.23	61.25	60.84	60.02	60.12	59.49	58.93	58.70	58.52	58.33	58.52
21	61.14	61.22	61.17	60.77	60.38	60.11	59.15	58.94	58.53	58.51	58.32	58.40
22	61.27	61.20	60.93	60.59	60.61	60.17	59.42	58.75	58.52	58.38	58.34	58.38
23	61.38	61.14	60.84	60.64	60.53	60.10	59.38	58.74	58.64	58.62	58.34	58.36
24	61.58	61.21	60.83	60.78	60.41	60.02	59.56	58.87	58.69	58.74	58.39	58.25
25	61.47	61.30	61.03	60.80	60.48	60.04	59.37	58.86	58.69	58.65	58.36	58.26
26	61.38	61.20	61.20	60.48	60.47	59.94	59.24	58.74	58.58	58.48	58.34	58.36
27	61.19	61.19	61.20	60.39	60.41	59.94	59.29	58.69	58.69	58.33	58.31	58.23
28	61.11	60.97	60.94	60.62	60.42	59.89	59.42	59.00	58.60	58.43	58.26	58.14
29	61.34	61.16	60.73	60.63	60.25	59.72	59.39	59.08	58.61	58.46	58.31	58.23
30	61.48	61.13	61.02	60.47	---	59.64	59.29	58.93	58.66	58.34	58.39	58.35
31	61.41	---	60.99	60.79	---	59.51	---	58.62	---	58.34	58.47	---
MAX	61.63	61.58	61.46	61.03	60.94	60.47	59.82	59.37	59.14	58.74	58.56	58.59
WTR YR 2004			LOW 61.63									



412611081210600. Local Number, GE-364

LOCATION.—Latitude 41°26′11″, longitude 81°21′06″, Geauga County, cul-de-sac at the end of Fawn Court, South Russell Village. Owner: South Russell Village.

AQUIFER.—Berea Formation (sandstone).

WELL CHARACTERISTICS.—Monitoring well; diameter 5.63 in.; depth 241.2 ft.

INSTRUMENTATION.—Pressure transducer data logger (records hourly).

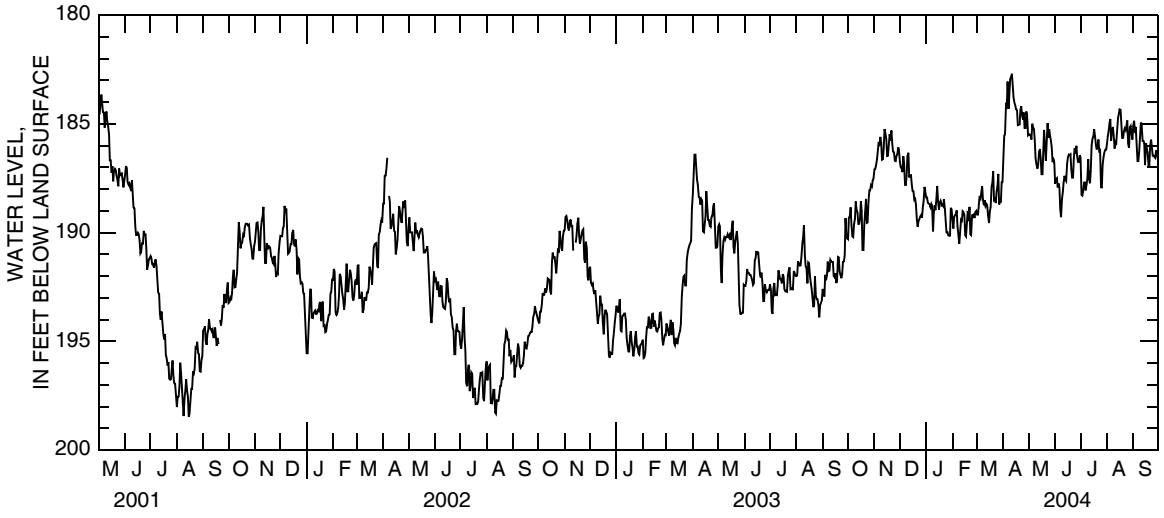
DATUM.—Elevation of land-surface datum is 1,130 ft above sea level. Measuring point: top of casing, 1.22 ft above land-surface datum.

PERIOD OF RECORD.—Continuous water-level data from May 2, 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 198.46 ft below land-surface datum, Aug. 15, 2001; minimum daily low, 182.70 ft below land-surface datum, Apr. 11, 2004.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190.30	187.08	186.75	188.38	189.38	189.17	186.29	185.48	187.75	186.56	185.92	185.09
2	189.32	187.07	187.00	188.38	189.81	189.17	185.54	185.50	187.55	188.27	185.58	184.86
3	189.24	186.90	186.99	188.63	189.27	188.73	185.46	185.51	187.50	188.30	185.36	185.42
4	188.84	186.62	187.22	188.66	189.19	188.32	184.14	185.72	187.92	188.12	184.97	185.14
5	189.63	186.24	186.48	188.70	189.15	188.42	184.20	184.99	187.74	187.70	184.78	185.85
6	190.18	185.84	186.79	188.84	188.98	188.14	183.06	185.16	187.94	187.70	185.78	186.71
7	190.21	185.92	187.81	188.69	189.72	187.87	184.31	185.26	188.92	188.06	185.26	186.71
8	189.63	185.60	187.81	188.79	190.13	188.49	183.57	185.79	189.29	187.77	185.15	186.32
9	189.36	185.88	187.36	189.94	190.51	188.74	182.96	186.60	188.45	187.48	185.53	185.61
10	188.57	186.65	186.47	189.08	190.03	188.51	182.83	186.88	188.15	186.62	186.13	184.94
11	188.96	186.62	186.33	188.75	189.41	188.78	182.70	187.06	187.70	187.52	185.83	185.07
12	189.09	186.06	187.46	188.97	189.46	188.69	183.23	186.89	187.39	187.73	185.88	185.79
13	189.60	185.24	187.37	188.44	189.02	188.79	183.77	186.26	187.57	187.12	185.37	185.79
14	189.60	185.48	187.35	187.85	189.07	189.23	184.05	186.16	187.63	186.00	184.74	185.89
15	189.42	185.71	187.77	188.52	189.20	189.56	184.16	186.59	186.83	185.66	184.55	186.90
16	188.56	186.48	188.09	188.94	190.12	189.03	184.33	187.32	186.53	185.58	184.34	185.89
17	188.99	186.46	188.12	188.62	190.18	188.83	184.38	187.32	186.41	185.25	184.36	186.12
18	190.80	185.88	188.49	188.54	189.56	187.88	185.06	186.29	186.44	185.60	184.96	186.32
19	190.80	185.47	188.45	188.75	189.00	187.71	185.04	185.28	186.40	185.98	185.65	186.90
20	189.67	185.77	188.70	188.72	189.47	187.18	185.03	186.03	187.08	186.18	185.65	186.90
21	189.19	185.30	189.41	188.78	188.82	188.50	184.38	186.70	187.47	186.03	185.34	186.00
22	188.45	185.90	189.73	188.47	190.08	188.45	184.18	185.94	187.47	185.72	185.21	185.73
23	189.55	186.28	189.47	188.91	190.12	188.64	184.57	184.96	186.57	186.26	185.31	186.08
24	189.53	186.31	189.36	189.46	189.21	188.14	184.80	185.64	186.12	186.22	185.09	186.46
25	188.65	186.69	189.25	189.99	189.20	187.83	184.48	185.26	186.37	187.92	184.84	186.46
26	188.06	186.71	189.20	189.99	189.16	187.30	185.18	185.53	186.01	187.92	185.90	186.53
27	188.06	186.46	189.32	190.12	189.33	188.71	185.19	185.79	186.52	186.88	186.10	186.57
28	187.82	186.40	188.85	190.15	189.05	188.58	184.43	186.09	186.75	186.51	185.17	186.22
29	187.88	186.08	188.57	190.14	189.00	188.58	184.63	186.76	186.75	186.30	185.10	186.41
30	187.59	186.19	187.90	188.86	---	187.69	185.52	186.65	186.44	186.19	185.46	186.34
31	187.51	---	188.15	188.94	---	187.68	---	186.80	---	186.19	185.72	---
MAX	190.80	187.08	189.73	190.15	190.51	189.56	186.29	187.32	189.29	188.30	186.13	186.90
WTR YR 2004		LOW 190.80										



Project Data—Ohio Department of Health—Septic System

The following table contains data from an investigation of ground-water quality near residential septic systems. Temporary drive-point wells were installed to various depths near systems in three different soil regions. When water was available, samples were analyzed for nutrients, chloride, *Escherichia coli* bacteria, coliphage, and wastewater compounds.

Water-Quality Records

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(72008), USGS National Water Information System parameter code; (LSD), land surface datum; µs/cm, microsiemens per centimeter; deg C, degrees Celsius; mg/L, milligrams per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Station number	Date	Depth of well, feet below LSD (72008)	Specific conduc-tance, wat unf lab, µS/cm 25 deg C (90095)	Chlor-ide, water, fltrd, mg/L (00940)	Ammonia, water, fltrd, mg/L as N (00608)	Nitrite + nitrate, water fltrd, mg/L as N (00631)	Nitrite, water, fltrd, mg/L as N (00613)
DL-69 02	401535082542702	10-16-03	13	--	--	--	--	--
FN-32 01	413915084104501	11-18-03	8	1380	213	.12	26.1	.189
FN-32 02	413915084104502	11-18-03	12	1310	234	2.02	12.7	.386
FN-33 01	413924083590901	11-18-03	8	869	58.8	.06	10.9	.056
FR-522 01	395839083141301	01-23-04	8	--	--	--	--	--
FR-522 02	395839083141302	01-23-04	12	--	--	--	--	--
GR-750 09	393617083461609	10-14-03	--	--	--	--	--	--
GR-750 10	393617083461610	10-14-03	12	--	--	--	--	--
GR-750 11	393617083461611	10-14-03	16	--	--	--	--	--
GR-750 12	393617083461612	10-14-03	8	--	--	--	--	--
GR-750 13	393617083461613	10-14-03	12	--	--	--	--	--
GR-750 14	393617083461614	10-14-03	16	--	--	--	--	--
GR-750 15	393617083461615	10-15-03	8	--	--	--	--	--
GR-750 16	393617083461616	10-15-03	12	--	--	--	--	--
GR-750 17	393617083461617	10-15-03	16	--	--	--	--	--
GR-750 18	393617083461618	10-15-03	8	--	--	--	--	--
GR-750 19	393617083461619	10-15-03	12	--	--	--	--	--
GR-750 20	393617083461620	10-15-03	16	--	--	--	--	--
GR-752-03	393647083582203	10-07-03	8	2780	567	2.50	.08	.057
GR-752-04	393647083582204	10-07-03	8	3230	721	5.68	E.03	<.080
GR-752 05	393647083582205	10-07-03	8	--	--	--	--	--
GR-752 06	393647083582206	10-07-03	8	788	78.7	.18	.44	.039
GR-752 07	393647083582207	10-07-03	8	2670	626	.07	<.06	E.004
GR-752 08	393647083582208	10-07-03	8	690	23.9	<.04	6.11	.065
LI-16 01	400751082444201	01-21-04	8	1310	193	.05	<.06	<.008
LI-16 02	400751082444202	01-21-04	12	2130	346	.35	E.03	E.006
LI-16 03	400751082444203	01-21-04	8	1220	179	<.04	E.05	E.006

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00671), USGS National Water Information System parameter code; mg/L, milligrams per liter; MPN/100 mL, most probable number per 100 milliliters; col/100 mL, colonies per 100 milliliters; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Coli-phage, *E coli*, C13host MF, plaques /100 mL (90903)	Coli-phage, *E coli*, FAMP, MF, plaques /100 mL (90904)	*E coli*, Defined Substr. Tech., water, MPN/ 100 mL (50468)	*E coli*, m-TEC MF, water, col/ 100 mL (31633)	Total coli-form, Defined Tech., MPN/ 100 mL (50569)	1,4-Di-chloro-benzene water, fltrd, µg/L (34572)	1-methyl-naphth-alene, water, fltrd, µg/L (62054)
DL-69 02	--	--	--	<1	<10	<1	--	--
FN-32 01	<.02	<1	<1	--	<1	--	--	--
FN-32 02	<.02	<1	<1	--	<1	--	--	--
FN-33 01	<.02	<1	<1	--	<10	--	--	--
FR-522 01	--	--	--	<1	<4	<1	--	--
FR-522 02	--	--	--	<1	<2	<1	--	--
GR-750 09	--	--	--	--	<630	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	<4	--	--	--
GR-750 16	--	--	--	--	<4	--	--	--
GR-750 17	--	--	--	--	<4	--	--	--
GR-750 18	--	--	--	--	<1	--	--	--
GR-750 19	--	--	--	--	<1	--	--	--
GR-750 20	--	--	--	--	<4	--	--	--
GR-752-03	<.02	--	--	<1	--	>2100	<.5	<.5
GR-752-04	<.02	--	--	<1	--	10	<.5	<.5
GR-752 05	--	--	--	--	<1	--	--	--
GR-752 06	<.02	--	--	<1	--	26	E.1	<.5
GR-752 07	<.02	--	--	2	--	>2100	E.1	<.5
GR-752 08	<.02	--	--	<1	--	18	E.1	<.5
LI-16 01	<.02	15	<1	32	<8	32	--	--
LI-16 02	<.02	<1	<1	<1	<2	<1	--	--
LI-16 03	<.02	440	<1	--	130	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(62055), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data;<, concentration or value reported is less than that indicatedd]

Station name	2,6-Dimethylnaphthalene, water, fltrd, µg/L (62055)	2-Methylnaphthalene, water, fltrd, µg/L (62056)	3-beta-Coprostanol, water, fltrd, µg/L (62057)	3-Methyl-1H-indole, water, fltrd, µg/L (62058)	3-tert-Butyl-4-hydroxyanisole wat flt µg/L (62059)	4-Cumylphenol, water, fltrd, µg/L (62060)	4-Octylphenol, water, fltrd, µg/L (62061)	4-Nonylphenol, water, fltrd, µg/L (62085)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<.5	<.5	<2	<1	<5	<1	<1	<5
GR-752-04	<.5	<.5	<2	<1	<5	<1	<1	<5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<.5	<.5	<2	<1	<5	<1	<1	<5
GR-752 07	<.5	<.5	<2	<1	<5	<1	<1	<5
GR-752 08	<.5	<.5	<2	<1	<5	<1	<1	<5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(62062), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Station name	4-tert-Octylphenol, water, fltrd, µg/L (62062)	5-Methyl-1H-benzotriazole, wat flt µg/L (62063)	9,10-Anthraquinone, water, fltrd, µg/L (62066)	Acetophenone, water, fltrd, µg/L (62064)	AHTN, water, fltrd, µg/L (62065)	Anthracene, water, fltrd, µg/L (34221)	Benzo[a]pyrene, water, fltrd, µg/L (34248)	Benzophenone, water, fltrd, µg/L (62067)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<1	<2	<.5	E.1	E.5	<.5	<.5	E.3
GR-752-04	<1	<2	<.5	<.5	M	<.5	<.5	E.1
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<1	<2	<.5	<.5	<.5	<.5	<.5	<.5
GR-752 07	<1	<2	<.5	<.5	<.5	<.5	<.5	E.1
GR-752 08	<1	<2	<.5	<.5	<.5	<.5	<.5	E.1
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(62068), USGS National Water Information System parameter code; µg/L, micrograms per liter; pct rcv; percent recoved; --, no data; <, concentration or value reported is less than that indicated]

Station name	beta-Sitos-terol, water, fltrd, µg/L (62068)	beta-Stigma-stanol, water, fltrd, µg/L (62086)	Bisphe-nol A, water, fltrd, µg/L (62069)	Bisphenol A-d3 sur Sch 2033 & 8033, wat flt pct rcv (99583)	Broma-cil, water, fltrd, µg/L (04029)	Caf-feine, water, fltrd, µg/L (50305)	Caffeine-13C sur Sch 2033 & 8033, wat flt pct rcv (99584)	Camphor water, fltrd, µg/L (62070)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<2	<2	<1	100	<.5	<.5	123	<.5
GR-752-04	<2	<2	<1	69.6	<.5	<.5	113	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<2	<2	<1	32.4	<.5	<.5	72.0	<.5
GR-752 07	<2	<2	<1	64.0	<.5	<.5	100	<.5
GR-752 08	<2	<2	<1	32.5	<.5	<.5	70.8	<.5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(82680), USGS National Water Information System parameter code; µg/L, micrograms per liter; pct rcv; percent recoved; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Carbaryl, water, fltrd 0.7u GF µg/L (82680)	Carbazole, water, fltrd, µg/L (62071)	Chlorpyrifos water, fltrd, µg/L (38933)	Cholesterol, water, fltrd, µg/L (62072)	Cotinine, water, fltrd, µg/L (62005)	DecaFbiphenl sur Sch 2033 & 8033, wat flt pct rcv (99585)	DEET, water, fltrd, µg/L (62082)	Diazinon, water, fltrd, µg/L (39572)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<1	<.5	<.5	<2	<1.00	76.9	6.7	<.5
GR-752-04	<1	<.5	<.5	<2	<1.00	78.3	2.0	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<1	<.5	<.5	<2	<1.00	72.0	E.2	<.5
GR-752 07	<1	<.5	<.5	<2	<1.00	72.0	3.1	<.5
GR-752 08	<1	<.5	<.5	<2	<1.00	70.8	.8	<.5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(92083), USGS National Water Information System parameter code; µg/L, micrograms per liter; pct rcv; percent recoved; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Station name	Di-ethoxy-nonyl-phenol, water, fltrd, µg/L (62083)	Di-ethoxy-octyl-phenol, water, fltrd µg/L (61705)	D-Limo-nene, water, fltrd, µg/L (62073)	Ethoxy-octyl-phenol, water, fltrd µg/L (61706)	Fluor-anthene water, fltrd, µg/L (34377)	Fluor-anthene -d10, sur Sch 20/8033 wat flt pct rcv (99586)	HHCB, water, fltrd, µg/L (62075)	Indole, water, fltrd, µg/L (62076)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<5	<1	<.5	M	<.5	123	E.1	E.2
GR-752-04	<5	<1	<.5	<1	<.5	113	M	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<5	<1	<.5	<1	<.5	116	<.5	E.1
GR-752 07	<5	<1	<.5	<1	<.5	112	<.5	.7
GR-752 08	<5	<1	<.5	<1	<.5	108	<.5	E.1
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(62077), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

Station name	Isobor-neol, water, fltrd, µg/L (62077)	Iso-phorone water, fltrd, µg/L (34409)	Iso-propyl-benzene water, fltrd, µg/L (62078)	Iso-quin-oline, water, fltrd, µg/L (62079)	Menthol, water, fltrd, µg/L (62080)	Meta-laxyl, water, fltrd, µg/L (50359)	Methyl salicy-late, water, fltrd, µg/L (62081)	Metola-chlor, water, fltrd, µg/L (39415)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
GR-752-04	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
GR-752 07	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
GR-752 08	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(34443), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Station name	Naphth-alene, water, fltrd, µg/L (34443)	p-Cresol, water, fltrd, µg/L (62084)	Penta-chloro-phenol, water, fltrd, µg/L (34459)	Phenan-threne, water, fltrd, µg/L (34462)	Phenol, water, fltrd, µg/L (34466)	Prome-ton, water, fltrd, µg/L (04037)	Pyrene, water, fltrd, µg/L (34470)	Tetra-chloro-ethene, water, fltrd, µg/L (34476)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	E.1	<1	<2	M	E.2	<.5	<.5	<.5
GR-752-04	<.5	<1	<2	<.5	.8	<.5	<.5	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<.5	<1	<2	<.5	<.5	<.5	<.5	<.5
GR-752 07	<.5	M	<2	<.5	.6	<.5	<.5	<.5
GR-752 08	E.1	<1	<2	<.5	E.4	<.5	<.5	<.5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(34288), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated; M, presence of compound verified but concentration not quantified]

Station name	Tri-bromo-methane water, fltrd, µg/L (34288)	Tri-butyl phos-phate, water, fltrd, µg/L (62089)	Triclo-san, water, fltrd, µg/L (62090)	Tri-ethyl citrate, water, fltrd, µg/L (62091)	Tri-phenyl phos-phate, water, fltrd, µg/L (62092)	Tris (2-butoxy-ethyl) phos-phate, wat flt µg/L (62093)	Tris (2-chloro-ethyl) phos-phate, wat flt µg/L (62087)	Tris (di chloro-i-Pr) phos-phate, wat flt µg/L (62088)
DL-69 02	--	--	--	--	--	--	--	--
FN-32 01	--	--	--	--	--	--	--	--
FN-32 02	--	--	--	--	--	--	--	--
FN-33 01	--	--	--	--	--	--	--	--
FR-522 01	--	--	--	--	--	--	--	--
FR-522 02	--	--	--	--	--	--	--	--
GR-750 09	--	--	--	--	--	--	--	--
GR-750 10	--	--	--	--	--	--	--	--
GR-750 11	--	--	--	--	--	--	--	--
GR-750 12	--	--	--	--	--	--	--	--
GR-750 13	--	--	--	--	--	--	--	--
GR-750 14	--	--	--	--	--	--	--	--
GR-750 15	--	--	--	--	--	--	--	--
GR-750 16	--	--	--	--	--	--	--	--
GR-750 17	--	--	--	--	--	--	--	--
GR-750 18	--	--	--	--	--	--	--	--
GR-750 19	--	--	--	--	--	--	--	--
GR-750 20	--	--	--	--	--	--	--	--
GR-752-03	<.5	E.2	M	<.5	<.5	E1.4	E.2	E.1
GR-752-04	<.5	<.5	<1	<.5	<.5	<.5	<.5	<.5
GR-752 05	--	--	--	--	--	--	--	--
GR-752 06	<.5	<.5	<1	<.5	<.5	<.5	<.5	<.5
GR-752 07	<.5	<.5	<1	<.5	<.5	<.5	<.5	<.5
GR-752 08	<.5	<.5	<1	<.5	<.5	<.5	<.5	<.5
LI-16 01	--	--	--	--	--	--	--	--
LI-16 02	--	--	--	--	--	--	--	--
LI-16 03	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(38775), USGS National Water Information System parameter code; µg/L, micrograms per liter; ; mil, million; mL, milliliters; --, no data; <, concentration or value reported is less than that indicated]

Station name	Di-chlor-vos, water fltrd, µg/L (38775)	N-15 / N-14 in nitrate, water, fltrd, per mil (82690)	O-18 / O-16 ratio in nitrate, wat flt per mil (63041)	Sample volume, waste-water method wat flt mL (99587)
DL-69 02	--	--	--	--
FN-32 01	--	--	--	--
FN-32 02	--	--	--	--
FN-33 01	--	--	--	--
FR-522 01	--	--	--	--
FR-522 02	--	--	--	--
GR-750 09	--	--	--	--
GR-750 10	--	--	--	--
GR-750 11	--	--	--	--
GR-750 12	--	--	--	--
GR-750 13	--	--	--	--
GR-750 14	--	--	--	--
GR-750 15	--	--	--	--
GR-750 16	--	--	--	--
GR-750 17	--	--	--	--
GR-750 18	--	--	--	--
GR-750 19	--	--	--	--
GR-750 20	--	--	--	--
GR-752-03	<1.00	53.98	6.54	783
GR-752-04	<1.00	10.90	29.82	859
GR-752 05	--	--	--	--
GR-752 06	<1.00	63.61	18.90	801
GR-752 07	<1.00	14.23	20.40	798
GR-752 08	<1.00	16.76	12.83	849
LI-16 01	--	--	--	--
LI-16 02	--	--	--	--
LI-16 03	--	--	--	--

Project Data—Ground-Water Data for the Elk Creek Watershed, Southwestern Ohio

The following tables contain ground-water quality data from the Elk Creek watershed in southwest Ohio. The data were collected in cooperation with the Miami Conservancy District, to assess the concentration levels and identify possible sources of elevated nitrates in the ground water. Samples were taken from domestic, industrial, and public supply wells.

Water-Quality Records

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004

[(72008), USGS National Water Information System parameter code; LSD, land surface datum; mm, millimeter; mg/L, milligrams per liter; --, no data]

Station name	Station number	Date	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Altitude of land surface feet (72000)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)
BU-1170	392917084265000	09-30-03	80.00	--	638	750	2.8
BU-1171	392910084264900	09-30-03	58.00	25.75	643	742	6.3
BU-1172	393001084274900	10-08-03	43.00	23.22	681	746	8.0
Magnode Corporation	392855084270000	10-09-03	120.00	33.00	651	744	5.1
BU-1173	392944084273600	10-09-03	37.94	19.75	675	742	7.7
BU-1174	392924084265000	10-16-03	45.00	20.00	640	746	7.3
BU-1175	393002084275200	10-16-03	38.30	25.33	689	746	6.3
BU-1176	393023084275800	10-20-03	40.00	20.00	684	743	4.4
BU-1177	392920084270300	10-28-03	55.00	26.27	650	737	7.3
BU-1178	392921084265500	10-28-03	48.00	19.98	645	736	8.1
BU-1179	393024084275700	10-29-03	60.00	20.00	684	740	5.6
BU-1181	392959084274000	11-12-03	33.73	13.49	668	738	.1
BU-1182	392956084273600	11-12-03	40.00	--	665	734	4.9
BU-1180	393001084281400	11-18-03	78.70	16.53	712	736	--
BU-1183	393007084271300	11-19-03	13.31	9.18	745	734	2.8
BU-1184	393014084274400	11-21-03	18.00	--	676	742	1.4
BU-1185	392801084303600	11-25-03	39.40	19.92	684	747	1.6
BU-1186	393128084275900	12-18-03	34.29	14.29	713	740	2.4

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004—Continued

[(00400), USGS National Water Information System parameter code; std, standard; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; mg/L, milligrams per liter; --, no data]

Station name	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf lab, uS/cm 25 deg C (90095)	Specif. conduc-tance, wat unf uS/cm 25 deg C (00095)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)
BU-1170	7.2	7.6	704	693	--	13.3	98.2
BU-1171	7.0	--	--	749	--	13.5	--
BU-1172	7.0	--	--	730	26.0	14.5	--
Magnode Corporation	7.2	--	--	702	--	14.2	--
BU-1173	7.1	--	--	697	25.8	16.0	--
BU-1174	7.2	--	--	662	20.6	17.4	--
BU-1175	7.1	--	--	647	--	17.7	--
BU-1176	7.1	--	--	808	--	15.4	--
BU-1177	7.3	--	--	738	11.0	13.1	--
BU-1178	7.3	--	--	718	9.0	13.0	--
BU-1179	7.0	--	--	767	11.0	15.7	--
BU-1181	7.4	--	--	636	--	15.2	--
BU-1182	7.1	--	--	848	19.5	15.2	--
BU-1180	7.3	--	--	2100	--	15.7	--
BU-1183	6.8	--	--	983	--	13.7	--
BU-1184	7.1	--	--	749	20.0	15.8	--
BU-1185	7.5	--	--	587	5.7	13.6	--
BU-1186	7.1	7.4	681	669	1.0	13.3	94.7

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004—Continued

[(00925), USGS National Water Information System parameter code; mg/L, milligrams per liter; --, no data]

Station name	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc titr., field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)
BU-1170	32.3	3.00	11.2	283	345	.04	25.8
BU-1171	--	--	--	299	365	--	--
BU-1172	--	--	--	309	377	--	--
Magnode Corporation	--	--	--	267	325	--	--
BU-1173	--	--	--	309	377	--	--
BU-1174	--	--	--	258	314	--	--
BU-1175	--	--	--	256	313	--	--
BU-1176	--	--	--	305	372	--	--
BU-1177	--	--	--	285	347	--	--
BU-1178	--	--	--	269	328	--	--
BU-1179	--	--	--	323	394	--	--
BU-1181	--	--	--	252	307	--	--
BU-1182	--	--	--	293	356	--	--
BU-1180	--	--	--	279	338	--	--
BU-1183	--	--	--	378	460	--	--
BU-1184	--	--	--	318	388	--	--
BU-1185	--	--	--	269	326	--	--
BU-1186	31.9	2.38	13.2	301	367	.05	26.1

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004—Continued

[(00950), USGS National Water Information System parameter code; mg/L, milligrams per liter; --, no data; E, estimated; <, concentration or value is less than that indicated]

Station name	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
BU-1170	<.2	9.21	47.6	388	.11	<.04	3.80
BU-1171	--	--	--	--	E.10	<.04	5.56
BU-1172	--	--	--	--	.10	<.04	11.4
Magnode Corporation	--	--	--	--	E.05	<.04	4.88
BU-1173	--	--	--	--	E.08	<.04	4.62
BU-1174	--	--	--	--	.13	<.04	9.87
BU-1175	--	--	--	--	.17	<.04	4.96
BU-1176	--	--	--	--	E.07	<.04	2.96
BU-1177	--	--	--	--	E.08	<.04	8.79
BU-1178	--	--	--	--	.11	<.04	10.9
BU-1179	--	--	--	--	E.06	<.04	2.94
BU-1181	--	--	--	--	E.07	.04	.06
BU-1182	--	--	--	--	E.10	<.04	9.26
BU-1180	--	--	--	--	.71	.67	1.97
BU-1183	--	--	--	--	E.08	<.04	E.04
BU-1184	--	--	--	--	E.06	<.04	1.46
BU-1185	--	--	--	--	<.10	<.04	1.78
BU-1186	<.2	8.84	35.4	361	E.10	<.04	1.68

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004—Continued

[(00613), USGS National Water Information System parameter code; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliter; µg/L, micrograms per liter; --, no data; E, estimated; <, concentration or value is less than that indicated]

Station name	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, fltrd, mg/L (00681)	*E. coli*, MI MF, water, col/ 100 mL (90901)	Total coli-form, MI MF, water, col/ 100 mL (90900)	Iron, water, fltrd, µg/L (01046)
BU-1170	E.004	<.02	E.02	.8	<1	<1	<8
BU-1171	<.008	<.02	<.04	.7	<1	<1	--
BU-1172	<.008	<.18	.11	.9	<1	<1	--
Magnode Corporation	<.008	<.02	<.04	.9	<1	<1	--
BU-1173	<.008	E.01	<.04	.8	<1	34	--
BU-1174	<.008	<.02	<.04	.7	<1	<1	--
BU-1175	<.008	.07	.07	.5	<1	76	--
BU-1176	<.008	.08	.08	.7	<1	E19	--
BU-1177	<.008	<.02	<.04	.6	<1	<1	--
BU-1178	<.008	<.02	<.04	.7	<1	E85	--
BU-1179	<.008	.10	.11	.8	<1	<1	--
BU-1181	E.004	<.02	<.04	.5	<1	<1	--
BU-1182	<.008	.13	.14	1.0	<1	E2	--
BU-1180	.095	<.02	<.04	--	<1	E2	--
BU-1183	<.008	<.02	<.04	--	<1	>80	--
BU-1184	<.008	<.02	<.04	1.1	<1	<1	--
BU-1185	<.008	<.02	<.04	.6	<1	<1	--
BU-1186	<.008	<.02	<.04	.8	--	--	13

WATER-QUALITY DATA, SEPTEMBER 2003 TO SEPTEMBER 2004—Continued

[(001056), USGS National Water Information System parameter code; µg/L, micrograms per liter; --, no data; E, estimated]

Station name	Mangan-ese, water, fltrd, ug/L (01056)	N-15 / N-14 in nitrate, water, fltrd, per mil (82690)	O-18 / O-16 in nitrate, water, fltrd, per mil (63041)
BU-1170	E.3	5.25	2.88
BU-1171	--	4.78	2.57
BU-1172	--	2.98	2.58
Magnode Corporation	--	3.91	2.85
BU-1173	--	3.74	1.63
BU-1174	--	5.35	3.72
BU-1175	--	3.46	2.93
BU-1176	--	7.95	1.47
BU-1177	--	3.80	3.07
BU-1178	--	4.66	4.06
BU-1179	--	6.27	1.99
BU-1181	--	7.45	5.26
BU-1182	--	6.38	3.20
BU-1180	--	-6.16	-6.27
BU-1183	--	8.67	-.15
BU-1184	--	13.41	7.90
BU-1185	--	11.07	6.34
BU-1186	3.0	10.14	5.14

Project Data—Water-Quality in Curtain Drains Associated with Home Sewage Treatment Systems, Medina County

The following table contains data from an investigation of water quality in curtain drains surrounding home sewage treatment systems. Water samples were collected from curtain drains associated with standard leach-line systems and from evaporation-transpiration-absorption systems. Samples were analyzed for chloride, bromide, nutrients, *Escherichia coli* bacteria, and coliphage.

Water-Quality Records

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00028), USGS National Water Information System parameter code; (LSD), land surface datum; mg/L, milligrams per liter; deg C, degrees Celsius; --, no data]

Station name	Station number	Date	Agency analyzing sample, code (00028)	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)
MD-15 CD	411516081454402	06-21-04	80020	--	--	--	7.3
MD-15 TK	411516081454401	06-21-04	83913	--	--	--	--
MD-16 CD	411610081513402	06-21-04	80020	--	--	--	8.0
MD-16 TK	411610081513401	06-21-04	83913	--	--	--	--
MD-17 CD	411309081535402	06-21-04	80020	--	--	--	--
MD-17 TK	411309081535401	06-21-04	83913	--	--	--	--
MD-18 CD	411259081514002	06-22-04	80020	--	--	--	7.7
MD-18 TK	411259081514001	06-22-04	80020	--	--	--	7.7
MD-19 CD	411038081503002	06-22-04	80020	--	--	--	6.9
MD-19 TK	411038081503001	06-22-04	80020	--	--	--	7.5
MD-20 CD	411050081500902	06-22-04	80020	--	--	--	7.4
MD-20 TK	411050081500901	06-22-04	83913	--	--	--	--
MD-21 CD	411101081441302	06-22-04	80020	--	--	--	--
MD-21 TK	411101081441301	06-22-04	83913	--	--	--	--
MD-22 CD	410723081463602	06-23-04	80020	--	--	--	--
MD-22 TK	410723081463601	06-23-04	83913	--	--	--	--
MD-23 CD	410827081423402	06-23-04	80020	--	--	--	6.7
MD-23 TK	410827081423401	06-23-04	83913	--	--	--	--
MD-23 WE	410827081423400	06-23-04	80020	100.00	12.94	6.4	6.8
MD-24 CD	410557081475402	06-24-04	80020	--	--	--	6.5
MD-24 TK	410557081475401	06-24-04	83913	--	--	--	--
MD-25 CD	410331081425602	06-24-04	80020	--	--	--	7.0
MD-25 TK	410331081425601	06-24-04	83913	--	--	--	--
MD-25 WE	410331081425600	06-24-04	80020	95.00	36.03	6.9	7.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(90095), USGS National Water Information System parameter code; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; mg/L, milligrams per liter; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Specific conduc-tance, wat unf lab, µS/cm 25 deg C (90095)	Specific conduc-tance, wat unf µS/cm 25 deg C (00095)	Temper-ature, air, deg C (00020)	Temper-ature, water, deg C (00010)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Ammonia water, fltrd, mg/L as N (00608)
MD-15 CD	--	801	--	--	.05	14.5	E.03
MD-15 TK	--	--	--	--	--	--	--
MD-16 CD	--	632	28.0	--	.10	21.2	<.04
MD-16 TK	--	--	--	--	--	--	--
MD-17 CD	350	--	--	--	E.01	5.50	<.04
MD-17 TK	--	--	--	--	--	--	--
MD-18 CD	--	703	24.0	--	.04	13.0	<.04
MD-18 TK	--	682	24.0	--	.03	34.9	25.7
MD-19 CD	--	863	--	--	--	12.8	<.04
MD-19 TK	--	572	--	--	.08	41.2	1.20
MD-20 CD	--	582	27.0	--	.03	8.25	.06
MD-20 TK	--	--	--	--	--	--	--
MD-21 CD	428	--	--	--	.06	13.6	.20
MD-21 TK	--	--	--	--	--	--	--
MD-22 CD	642	--	--	--	.04	11.0	.14
MD-22 TK	--	--	--	--	--	--	--
MD-23 CD	--	1880	24.0	--	.17	341	E.03
MD-23 TK	--	--	--	--	--	--	--
MD-23 WE	--	430	24.0	11.8	.03	45.3	<.04
MD-24 CD	--	651	--	--	.22	19.0	2.17
MD-24 TK	--	--	--	--	--	--	--
MD-25 CD	--	480	27.0	--	.04	10.6	<.04
MD-25 TK	--	--	--	--	--	--	--
MD-25 WE	--	740	27.0	13.4	.05	47.7	<.04

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00631), USGS National Water Information System parameter code; mg/L, milligrams per liter; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value reported is less than that indicated]

Station name	Nitrite + nitrate, water, fltrd, mg/L as N (00631)	Nitrite, water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Coli-phage, *E coli*, C13host MF, plaques /100 mL (90903)	Coli-phage, *E coli*, FAMP, MF, plaques /100 mL (90904)	*E coli*, modif. m-TEC, water, col/ 100 mL (90902)
MD-15 CD	3.54	<.008	<.02	--	--	110
MD-15 TK	--	--	--	<1	<1	E160000
MD-16 CD	1.34	<.008	<.02	--	<1	300
MD-16 TK	--	--	--	<1	69000	E96000
MD-17 CD	1.37	<.008	<.02	--	--	E14
MD-17 TK	--	--	--	<1	<1	29000
MD-18 CD	.66	.011	<.02	--	--	760
MD-18 TK	.99	.635	4.39	1600	<1	E830
MD-19 CD	.06	E.006	<.02	--	--	47
MD-19 TK	4.24	3.77	4.37	<1	<1	E12000
MD-20 CD	.46	E.006	<.02	--	--	30
MD-20 TK	--	--	--	70	<1	E350
MD-21 CD	E.04	<.008	.04	--	--	230
MD-21 TK	--	--	--	17	<1	E620
MD-22 CD	.50	.010	<.02	<1	<1	60
MD-22 TK	--	--	--	200	28	E720
MD-23 CD	2.25	.009	.20	--	--	61
MD-23 TK	--	--	--	67	<1	E16000
MD-23 WE	1.67	<.008	<.02	--	--	<1
MD-24 CD	<.06	E.005	<.02	6000	<1	E22
MD-24 TK	--	--	--	27	<1	E250
MD-25 CD	1.50	<.008	<.02	<1	<1	E1
MD-25 TK	--	--	--	450	<1	E11000
MD-25 WE	.67	<.008	<.02	--	--	<1

Project Data—Ground-Water Quality at Selected Sites in Northern Preble County

The following tables include data from a water-quality study in northern Preble County, Ohio. The data are from five monitor wells and one domestic well at two sites where elevated arsenic concentrations had been detected in previous water-quality studies. Wells were sampled for field parameters, major ions, nutrients, dissolved organic carbon, trace elements, and arsenic speciation.

Water-Quality Records

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(72008), USGS National Water Information System parameter code; LSD, land surface depth; NTU, Nephelometric Turbidity Units; mm, millimeters; mg/L, milligrams per liter; µS/cm,microsiemens per centimeter; deg C, degrees Celsius; E, estimated]

Station name	Station number	Date	Geologic unit	Depth of well, feet below LSD (72008)	Depth to water level, feet below LSD (72019)	Altitude of land surface feet (72000)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)
PR-225	395430084415400	09-02-04	112OTSH	35.92	24.29	1147	150	733
PR-226	395429084415500	09-01-04	112OTSH	53.18	25.34	1147	3.0	732
PR-227	395429084415600	09-02-04	355LCKP	88.01	25.79	1147	2.5	731
PR-228	395236084403600	08-31-04	112OTSH	37.20	16.64	1132	2.4	748
PR-229	395236084403601	08-31-04	112OTSH	81.18	17.48	1132	1.7	732
PR-222	395237084403600	09-01-04	112OTSH	92.70	17.18	1132	6.8	732

Station name	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf µS/cm 25 deg C (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
PR-225	.7	7.2	1130	24.0	15.3	108	77.9	5.84
PR-226	.1	7.2	973	26.0	13.3	101	63.5	3.04
PR-227	.1	7.4	835	26.0	14.7	87.7	44.5	8.86
PR-228	.1	7.4	971	25.0	14.6	73.5	56.0	2.83
PR-229	.1	7.2	745	26.5	14.5	70.6	36.3	3.80
PR-222	.1	7.4	602	27.0	13.4	61.2	29.2	1.26

Station name	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc titr., field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)
PR-225	25.9	403	490	.10	7.39	1.5	22.0	249
PR-226	21.2	398	484	.19	4.54	1.5	21.0	164
PR-227	24.0	359	437	.10	20.9	1.1	12.8	74.7
PR-228	48.8	373	452	.15	66.6	1.7	18.9	71.5
PR-229	28.2	375	456	.06	9.08	1.4	18.9	33.5
PR-222	28.1	338	410	.03	3.70	1.2	12.3	E.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(99119), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated]

Station name	Sulfide water, unfltrd field, mg/L (99119)	Residue on evap. at 180 deg C wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total nitro-gen, wat flt by analy-sis, mg/L (62854)	Organic carbon, water, fltrd, mg/L (00681)
PR-225	.099	741	.52	<.06	<.008	<.006	.59	1.5
PR-226	.015	606	.74	<.06	<.008	.006	.77	1.4
PR-227	.007	458	.38	.11	.027	<.006	.56	1.1
PR-228	.002	571	.96	<.06	E.006	<.006	1.02	1.2
PR-229	.032	402	1.36	<.06	.013	.014	1.45	2.6
PR-222	.016	349	2.17	<.06	<.008	.032	2.37	3.6

Station name	Alum-inum, water, fltrd, µg/L (01106)	Anti-mony, water, fltrd, µg/L (01095)	Arsen-ate, water, fltrd, µg/L as As (62453)	Arsenic water, fltrd, µg/L (01000)	Arsenic water unfltrd µg/L (01002)	Arsen-ite, water, fltrd, µg/L as As (62452)	Barium, water, fltrd, µg/L (01005)	Beryll-ium, water, fltrd, µg/L (01010)
PR-225	E1	<.20	5.9	12.9	20	8.1	105	<.06
PR-226	E1	<.20	2.4	4.6	6	1.7	77	<.06
PR-227	3	E.18	1.3	1.8	2	<1.0	117	<.06
PR-228	E1	<.20	3.2	6.1	6	2.8	110	<.06
PR-229	E1	<.20	<1.2	.2	<2	<1.0	203	<.06
PR-222	<2	<.20	8.6	51.1	66	40.6	186	<.06

Station name	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chrom-ium, water, fltrd, µg/L (01030)	Cobalt water, fltrd, µg/L (01035)	Copper, water, fltrd, µg/L (01040)	Iron (II), water, fltrd, field, mg/L (99114)	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)
PR-225	121	.12	<.8	.732	1.2	2.49	1560	<.08
PR-226	114	.11	E.8	.331	1.0	2.81	2810	<.08
PR-227	104	.06	<.8	.997	.7	3.30	4460	<.08
PR-228	204	.18	<.8	.394	.7	2.50	2450	<.08
PR-229	176	.06	<.8	.273	.5	1.53	3800	<.08
PR-222	179	.09	<.8	.264	E.4	1.85	1390	<.08

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(01130), USGS National Water Information System parameter code; µg/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated]

Station name	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Molybdenum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Strontium, water, fltrd, µg/L (01080)	Thallium, water, fltrd, µg/L (01057)
PR-225	55.3	92.1	26.6	4.45	E.3	<.2	8900	<.04
PR-226	29.7	61.6	25.9	.94	<.4	<.2	14400	<.04
PR-227	22.1	59.4	12.5	2.65	.4	<.2	13500	<.04
PR-228	28.2	24.6	32.6	2.20	.4	<.2	25400	<.04
PR-229	7.1	152	13.4	1.89	<.4	<.2	15400	<.04
PR-222	2.1	44.5	18.9	.76	<.4	<.2	5470	<.04

Station name	Vanadium, water, fltrd, µg/L (01085)	Zinc, water, fltrd, µg/L (01090)	Uranium natural water, fltrd, µg/L (22703)
PR-225	.3	3.1	1.73
PR-226	.2	2.3	.40
PR-227	.2	7.7	4.35
PR-228	.8	.8	.84
PR-229	.8	.8	.21
PR-222	.3	526	E.03

Project Data—Low-Flow Magnitude and Frequency of Ohio Streams

The low-flow network is part of a cooperative study with the Ohio Department of Natural Resources to define the low-flow characteristics of 180 sites that have essentially unregulated streamflow and drainage areas less than 150 square miles. The following table lists the sites of the low-flow partial record network including discharge measurements made in the 2004 water year. The second table lists the discontinued streamflow-gaging stations for which a discharge measurement was performed in 2004 that were used for index stations for this project. The discontinued stations are not shown.

Low-Flow Partial-Record Stations

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
BEAVER RIVER BASIN				
03092754 Eagle Creek at Mahoning, Ohio				
Latitude 41°16′19″, longitude 81°03′00″, Portage County, Hydrologic Unit 05030103, at Silica Sand Road bridge, just east of Parkman Road, 1.1 mi uptream from Mahoning Creek, 0.7 mi north of Mahoning, 2.7 mi east, southeast of Garrettsville, Ohio. (Garrettsville 1:24000 quad)	38.4	2002-03	--	--
03098390 Mill Creek near Youngstown, Ohio				
Latitude 41°02′00″, longitude 80°41′37″, Mahoning County, Hydrologic Unit 05030103, at pedestrian bridge over Mill Creek at end of extra parking lot next to Mill Creek Park Golf Course, 0.8 mi northeast of park entrance at State Route 224, 0.8 mi downstream of Indian Run, 3.1 mi upstream of Newport Lake Dam, 3 mi southwest of South Side Youngstown, Ohio. (Youngstown 1:24000 quad)	51.5	1995-99 2001-03	--	--
CROSS CREEK BASIN				
03110950 Cross Creek at Broadacre, Ohio				
Latitude 40°21′56″, longitude 80°47′05″, Jefferson County, Hydrologic Unit 05030101, at State Route 152 bridge, 0.3 mi upstream of Clay Lick Creek, 1.4 mi downstream of Salem Creek, at Broadacre, Ohio. (Smithfield 1:24000 quad)	53.5	1981-82 1986 2002	--	--
SUNFISH CREEK BASIN				
03114241 Sunfish Creek at Coats, Ohio				
Latitude 39°46′14″, longitude 81°02′34″, Monroe County, Hydrologic Unit 05030201, at riffle beside Sunfish Creek Road, 800 ft downstream from confluence of unnamed tributary, 0.7 mi downstream from confluence of Standingstone Run, 1.0 mi southeast of Coats, 4.0 mi east of Woodsfield, Ohio. (Woodsfield 1:24000 quad)	51.3	1995 1997-99 2001-02	--	--
LITTLE MUSKINGUM RIVER BASIN				
03115385 Clear Fork near Rinard Mills, Ohio				
Latitude 39°36′08″, longitude 81°09′17″, Monroe County, Hydrologic Unit 05030201, at State Route 26 bridge over Clear Fork, 0.3 mi above confluence with Little Muskingum River, 1.2 mi north of Rinard Mills, Ohio. (Rinard Mills 1:24000 quad)	48.8	1997-99 2001-02	--	--
MUSKINGUM RIVER BASIN				
03123166 South Fork Sugar Creek near Sugarcreek, Ohio				
Latitude 40°31′25″, longitude 81°36′52″, Tuscarawas County, Hydrologic Unit 05040001, at Tuscarawas County Road 75, 0.2 mi downstream from confluence with East Branch, 0.2 mi northeast of Sugarcreek, Ohio. (Strasburg 1:24000 quad)	63.3	1997-00 2002-04	08/11/04	28.6
03123299 Walnut Creek at Dundee, Ohio				
Latitude 40°35′12″, longitude 81°37′16″, Tuscarawas County, Hydrologic Unit 05040001, at private road bridge, 0.5 mi upstream from mouth, 0.7 mi west of Dundee, Ohio. (Strasburg 1:24000 quad)	48.0	1997-00 2002-04	08/11/04	8.57

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
MUSKINGUM RIVER BASIN—Continued				
03129205 Black Fork Mohican River near Shelby, Ohio				
Latitude 40°54′57″, longitude 82°38′02″, Richland County, Hydrologic Unit 05040002, at bridge on Plymouth-Spring Road, 0.3 mi downstream from Bear Run, 2.8 mi northeast of Shelby, 2000 ft north of London, Ohio. (Shelby 1:24000 quad)	60.4	2000-04	08/16/04	8.20
03133950 Jerome Fork near Ashland, Ohio				
Latitude 40°53′02″, longitude 82°17′03″, Ashland County, Hydrologic Unit 05040002, at bridge on U.S. Highway 42, 0.7 mi upstream from Lang Creek, 2.0 mi northeast of Ashland, 1000 ft north of Cleveland Ave., concrete block building on downstream, left of bridge (gray-no paint), at entrance to well-field. (Ashland North 1:24000 quad)	38.6	2000-02	--	--
03136142 Kokosing River at Chesterville, Ohio				
Latitude 40°28′28″, longitude 82°41′02″, Morrow County, Hydrologic Unit 05040003, at State Route 314 bridge, 0.5 mi downstream from confluence with South Branch, 0.4 mi south of Chesterville, Ohio. (Chesterville 1:24000 quad)	38.7	1996 1998-00 2002-04	08/18/04	2.73
03142185 Salt Fork Creek near Old Washington, Ohio				
Latitude 40°03′27″, longitude 81°24′53″, Guernsey County, Hydrologic Unit 05040005, just upstream from outlet of wetland, 2.8 mi upstream of Coon Run, 4.3 mi upstream from Salt Fork Reservoir, 2.1 mi northeast of Old Washington, Ohio. (Old Washington 1:24000 quad)	44.6	2002	--	--
03144471 Little Wakatomika Creek near Trinway, Ohio				
Latitude 40°09′18″, longitude 82°01′55″, Muskingum County, Hydrologic Unit 05040004, at new road bridge just upstream of new State Route 16 bridge, 0.8 mi upstream from mouth, 1.4 mi northwest of Trinway, 2.3 mi northwest of Dresden, Ohio. (Trinway 1:24000 quad)	40.6	2002-04	08/17/04	16.8
03145329 Raccoon Creek at Alexandria, Ohio				
Latitude 40°05′05″, longitude 82°36′18″, Licking County, Hydrologic Unit 05040006, at State Route 37 bridge over Raccoon Creek, 0.8 mi above confluence with Lobdell Creek, 0.9 mi below confluence with Simpson Run, 0.7 mi north of intersection of State Route 37 and 161, 0.2 mi southeast of Alexandria, Ohio. (Granville 1:24000 quad)	40.6	1997-99 2002-04	08/16/04	3.84
03145533 Raccoon Creek at Newark, Ohio				
Latitude 40°02′34″, longitude 82°24′44″, Licking County, Hydrologic Unit 05040006, at West Main Street bridge over Raccoon Creek, 0.7 mi above confluence with South Fork Licking River, in Newark, Ohio. (Newark 1:24000 quad)	101	1997-99 2002-04	08/16/04	25.6
03150200 Meigs Creek near Reinersville, Ohio				
Latitude 39°37′43″, longitude 81°43′12″, Morgan County, Hydrologic Unit 05040004, at county road bridge at Unionville, 0.1 mi upstream from Dyes Fork, 5.1 mi southwest of Reinersville, Ohio. (Reinersville 1:24000 quad)	73.0	1981-82 1996 1998-99 2002-03	--	--
HOCKING RIVER BASIN				
03158165 Monday Creek near Greendale, Ohio				
Latitude 39°31′24″, longitude 82°16′17″, Hocking County, Hydrologic Unit 05030204, at Dawley Road over Monday Creek, 0.7 mi above confluence with Sand Run, 0.9 mi above proposed reservoir site, 1.3 mi southeast of Greendale, 4 mi northeast of Haydenville, Ohio. (Gore 1:24000 quad)	67.2	1995-96 1998-99 2001-03	--	--

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
SYMMES CREEK BASIN				
03205260 Symmes Creek near Centerpoint, Ohio				
Latitude 38°52′12″, longitude 82°28′44″, Jackson County, Hydrologic Unit 05090101, at Jenkins Alban Road bridge over Symmes Creek, 2.5 mi above confluence with Black Fork, 1.9 mi northwest of Centerpoint, Ohio. (Patriot 1:24000 quad)	45.9	1997-99 2001-04	08/19/04	1.01
PINE CREEK BASIN				
03216620 Pine Creek near South Webster, Ohio				
Latitude 38°46′12″, longitude 82°42′25″, Scioto County, Hydrologic Unit 05090103, at Lick Run Lyra Road bridge over Pine Creek, 3.0 mi southeast of South Webster, Ohio. (South Webster 1:24000 quad)	33.2	1998-99 2001-04	08/19/04	0.47
LITTLE SCIOTO RIVER BASIN				
03216662 Little Scioto River near Mabee Corner, Ohio				
Latitude 38°54′18″, longitude 82°46′46″, Scioto County, Hydrologic Unit 05090103, at Sulphur Spring Road bridge, just west of White Gravel Road, 0.6 mi downstream from Buckhorn Creek, 0.9 mi from intersection of State Route 139 and White Gravel Road, 3.1 mi west of Mabee Corner, Ohio. (Stockdale 1:24000 quad)	60.5	2000-04	08/19/04	0.29
03216673 Little Scioto River at Wallace Mills, Ohio				
Latitude 38°51′06″, longitude 82°47′36″, Scioto County, Hydrologic Unit 05090103, 1000 ft upstream of the confluence with Rocky Fork, near Kentucky Trail Road, 0.5 mi north of Wallace Mills, Ohio. Site can be reached 2.1 mi from State Route 139 on Stockham Road and right 0.3 mi on Kentucky Trail Road. (Minford 1:24000 quad)	108	2000-04	08/19/04	0.48
03216689 Rocky Fork at Wallace Mills, Ohio				
Latitude 38°51′27″, longitude 82°47′47″, Scioto County, Hydrologic Unit 05090103, from State Route 139 , heading southeast on Stockham Road about 0.4 mi to Glades Road, head south on Glades Road about 1.3 mi to bridge, at Glades Road bridge, 0.6 mi above mouth in Wallace Mills, Ohio. (Minford 1:24000 quad)	68.8	2000-04	08/19/04	0.57
SCIOTO RIVER BASIN				
03219838 Mill Creek near New Dover, Ohio				
Latitude 40°13′39″, longitude 83°17′52″, Union County, Hydrologic Unit 05060001, at Hinton Mill Road bridge, 0.4 mi upstream from Tombstone Creek, 1.4 mi south of New Dover, 3.5 mi east of Marysville, Ohio. (Marysville 1:24000 quad)	102	2002-04	08/12/04 09/15/04	4.68 6.06
03230088 Big Darby Creek near Milford Center, Ohio				
Latitude 40°11′42″, longitude 83°28′27″, Union County, Hydrologic Unit 05060001, just upstream of unnamed tributary, near intersection of Middleburg Road and Collins Road, 2.3 mi northwest of Milford Center, Ohio. (Milford Center 1:24000 quad)	66.0	2002-04	08/13/04 09/15/04	6.79 5.39
03232170 West Branch Rattlesnake Creek at Glendon, Ohio				
Latitude 39°30′40″, longitude 83°33′54″, Fayette County, Hydrologic Unit 05060003, at West Fork Road bridge, 0.2 mi upstream from mouth, 0.8 mi west of Glendon, 4.0 mi east of Sabina, 6.6 mi west of Washington Court House, Ohio. (Milledgeville 1:24000 quad)	59.8	2000 2002-04	08/18/04	0.98

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
SCIOTO RIVER BASIN—Continued				
03232171 Rattlesnake Creek at Glendon, Ohio				
Latitude 39°30′20″, longitude 83°33′18″, Fayette County, Hydrologic Unit 05060003, at State Route 3 bridge in Glendon, 4.4 mi east of Sabina, 6.2 mi west of Washington Court House, Ohio. (Milledgeville 1:24000 quad)	106	2000 2002-04	08/17/04	2.58
03232295 Lees Creek near Leesburg, Ohio				
Latitude 39°20′39″, longitude 83°30′33″, Highland County, Hydrologic Unit 05060003, at bridge on Monroe Road, 1.2 mi upstream from mouth, 2.4 mi east of Leesburg, Ohio. (Leesburg 1:24000 quad)	74.3	1981-82 2000 2002-04	08/18/04	2.53
03234050 North Fork Paint Creek near Plano, Ohio				
Latitude 39°30′19″, longitude 83°16′22″, Ross County, Hydrologic Unit 05060003, at Dogtown Road bridge, 0.6 mi above confluence with Compton Creek, 1.2 mi northeast of Plano, Ohio. (New Holland 1:24000 quad)	60.4	2000 2002-04	08/17/04	5.54
03234066 Compton Creek near Plano, Ohio				
Latitude 39°30′54″, longitude 83°17′47″, Fayette County, Hydrologic Unit 05060003, at Good Hope-New Holland Road bridge, 3.4 mi above mouth, 1.7 mi north of Plano, Ohio. (New Holland 1:24000 quad)	49.8	2000-04	08/17/04	5.13
OHIO BRUSH CREEK BASIN				
03237288 Ohio Brush Creek at Louden, Ohio				
Latitude 39°01′48″, longitude 83°27′19″, Adams County, Hydrologic Unit 05090201, at Ford on Heron Road, 0.3 mi north-northwest of Louden, 4.8 mi southwest of Sinking Springs, Ohio. (Sinking Spring 1:24000 quad)	64.9	2000 2002 2004	08/18/04	2.23
03237289 Baker Fork near Louden, Ohio				
Latitude 39°02′29″, longitude 83°25′21″, Adams County, Hydrologic Unit 05090201, at Horner Chapel Road bridge, 1.3 mi north of Serpent Mound State Memorial, 2.0 mi northeast of Louden, 3.0 mi southwest of Sinking Springs, Ohio. (Sinking Spring 1:24000 quad)	43.1	2000 2002 2004	08/18/04	1.89
03237400 West Fork Ohio Brush Creek at Lawshe, Ohio				
Latitude 38°56′22″, longitude 83°28′28″, Adams County, Hydrologic Unit 05090201, at Township Road C-13 bridge in Lawshe, 0.4 mi upstream from mouth, 1.1 mi southwest from Peebles on State Highway 41 to Township Road C-13, turn right, 3.6 mi to bridge and station. (Peebles 1:24000 quad)	134	1959-60 1972-77 2000-02 2004	08/18/04	1.32
LITTLE MIAMI RIVER BASIN				
03243150 Todd Fork near Clarksville, Ohio				
Latitude 39°26′10″, longitude 83°56′41″, Clinton County, Hydrologic Unit 05090202, at U.S. Highway 22 bridge, 1.0 mi upstream from Lytle Creek, 2.7 mi northeast of Clarksville, Ohio. (Clarksville 1:24000 quad)	56.6	1981-82 1995-96 1998-00 2002 2004	08/18/04 09/16/04	2.66 5.74
03244950 O'Bannon Creek at Loveland, Ohio				
Latitude 39°16′08″, longitude 84°15′21″, Clermont County, Hydrologic Unit 05090202, at State Route 48 bridge, in Loveland, Ohio. (Mason 1:24000 quad)	59.0	1956 1980-83 1996 1998-00 2002 2004	08/18/04 09/16/04	2.78 2.12

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
LITTLE MIAMI RIVER BASIN—Continued				
03247300 Stonelick Creek near Perintown, Ohio				
Latitude 39°07′20″, longitude 84°11′56″, Clermont County, Hydrologic Unit 05090202, at U.S. Highway 50 bridge, 1.9 mi east of Perintown, Ohio. (Batavia 1:24000 quad)	76.0	1981-82 1996 1998-00 2002 2004	08/17/04 09/16/04	1.71 0.40
GREAT MIAMI RIVER BASIN				
03263168 Stillwater River near Ansonia, Ohio				
Latitude 40°13′01″, longitude 84°36′44″, Darke County, Hydrologic Unit 05080001, at Beisner Road over Stillwater River, 0.1 mi north of State Route 47, 1.2 mi east of Ansonia, 1.8 mi west of Dawn, Ohio. (Dawn 1:24000 quad)	74.3	1995-99 2002-04	08/12/04 09/15/04	2.68 1.97
03272429 Four Mile Creek near College Corner, Ohio				
Latitude 39°35′31″, longitude 84°46′14″, Preble County, Hydrologic Unit 05080002, at bridge over Four Mile Creek, 0.1 mi below confluence with East Fork Four Mile Creek, 0.8 mi above confluence with Little Four Mile Creek, 0.8 mi northwest from Acton Lake, in Hueston Woods State Park, 3 mi northeast of College Corner, Ohio & Indiana. (College Corner 1:24000 quad)	50.1	1996 1998-99 2001-02 2004	08/17/04 09/15/04	2.90 0.60
03276588 Dry Fork Whitewater River at New Haven, Ohio				
Latitude 39°15′57″, longitude 84°44′54″, Hamilton County, Hydrologic Unit 05080003, at Mt. Hope Road bridge, 0.9 mi below confluence with Howard Creek, 1.2 mi above confluence with Lee Creek, next to Miami Whitewater Forest, 0.8 mi southwest of New Haven, Ohio. (Shandon 1:24000 quad)	59.8	1996 1998-00 2002 2004	08/17/04 09/16/04	1.02 0.43
MAUMEE RIVER BASIN				
04180911 St. Marys River above Kopp Creek at St. Marys, Ohio				
Latitude 40°32′07″, longitude 84°22′38″, Auglaize County, Hydrologic Unit 04100004, at Aqueduct Road over St. Mary's River, 150 ft upstream of Miami and Erie Canal aqueduct, 0.3 mi above confluence of Kopp Creek, 2.1 mi east of Grand Lake, 0.5 mi. southeast of St.Mary's, Ohio. (St. Marys 1:24000 quad)	67.0	1994-99 2002-04	08/12/04 09/15/04	2.47 0.79
04185299 Brush Creek at Evansport, Ohio				
Latitude 41°26′00″, longitude 84°23′24″, Williams County, Hydrologic Unit 04100006, at county road over Brush Creek, 1.0 mi above mouth, 0.4 mi north of Williams/Defiance county line, 0.6 mi northeast of Evansport, Ohio. (Evansport 1:24000 quad)	64.8	1994-96 1998-99 2001-04	08/14/04 09/15/04	2.38 2.58
04185410 Lick Creek near Brunersburg, Ohio				
Latitude 41°22′08″, longitude 84°26′17″, Defiance County, Hydrologic Unit 04100006, at bridge on Trinity Road, 1.2 mi upstream from mouth, 5.0 mi northwest of Brunersburg, Ohio. (Defiance West 1:24000 quad)	105	1980-82 2001-04	08/14/04 09/15/04	5.36 4.34
04185498 Mud Creek near Brunersburg, Ohio				
Latitude 41°20′34″, longitude 84°26′51″, Defiance County, Hydrologic Unit 04100006, at bridge on State Route 15, 2.4 mi upstream from mouth, 4.0 mi northwest of Brunersburg, Ohio. (Defiance West 1:24000 quad)	58.0	1980-82 2001-04	08/14/04 09/15/04	2.74 2.87

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
MAUMEE RIVER BASIN—Continued				
04187995 Sugar Creek near Kalida, Ohio				
Latitude 40°57′16″, longitude 84°10′45″, Putnam County, Hydrologic Unit 04100007, at bridge on Putnam County Road 16P, 0.6 mi upstream from mouth, 2.2 mi southeast from Kalida, Ohio. (Kalida 1:24000 quad)	64.2	1981-82 2000-04	09/16/04	4.47
04188097 Plum Creek at Kalida, Ohio				
Latitude 40°59′12″, longitude 84°12′33″, Putnam County, Hydrologic Unit 04100007, at State Route 114, 0.3 mi northwest of Kalida, Ohio. (Kalida 1:24000 quad)	39.8	1999-04	09/16/04	2.61
04189172 Riley Creek near Bluffton, Ohio				
Latitude 40°54′12″, longitude 83°56′19″, Allen County, Hydrologic Unit 04100007, at Phillips Road bridge over Riley Creek, 3.7 mi downstream from confluence of Little Riley Creek, 2.5 mi northwest of Bluffton, Ohio. (Bluffton 1:24000 quad)	64.4	1994-96 1999-04	09/14/04	4.54
04191007 Town Creek near Hoaglin, Ohio				
Latitude 40°58′36″, longitude 84°28′36″, Van Wert County, Hydrologic Unit 04100007, at State Route 637 bridge over Town Creek, 2.1 mi above confluence with Maddox Creek, 0.9 mi south of Paulding/Van Wert County line, 2.3 mi northeast of Hoaglin, 3.1 mi north of State Route 224, 10 mi northeast of Van Wert, Ohio. (Wetsel 1:24000 quad)	51.7	1995-96 1998-99 2002-04	09/16/04	8.09
04191100 Flatrock Creek near Payne, Ohio				
Latitude 41°05′57″, longitude 84°40′06″, Paulding County, Hydrologic Unit 04100007, at Township Road 71 bridge, 2.0 mi downstream from Wildcat Creek, 3.5 mi northeast of Payne, Ohio. Proceed 3.4 mi northeast from Payne on State Highway 500 to Township Road 71, turn right and go 0.1 mi to bridge and station. (Payne 1:24000 quad)	147	1972-77 1995-96 1998-99 2003-04	09/16/04	9.73
04192600 South Turkeyfoot Creek near Malinta, Ohio				
Latitude 41°22′15″, longitude 84°01′22″, Henry County, Hydrologic Unit 04100009, at U.S. Highway 6 bridge, 1.8 mi upstream from Little Turkeyfoot Creek, 3.5 mi north of Malinta. Proceed north from Malinta on State Highway 109 for 3.4 mi to U.S. Highway 6, turn right and go 0.8 mi to bridge and station. (Malinta 1:24000 quad)	121	1955-56 1972-77 2001-04	09/14/04	1.74
04192710 Bad Creek at Colton, Ohio				
Latitude 41°27′29″, longitude 83°57′34″, Henry County, Hydrologic Unit 04100009, at County Road U bridge, 0.5 mi southwest of Colton, Ohio, 2.0 mi south of Fulton/Henry county line, and 3.9 mi upstream from confluence with Maumee River. (Colton 1:24000 quad)	56.5	1999 2001-04	08/15/04 09/14/04	0.99 1.63
04192782 Yellow Creek near Deshler, Ohio				
Latitude 41°12′16″, longitude 83°51′39″, Wood County, Hydrologic Unit 04100009, at State Route 18 bridge, 1.9 mi east of Deshler, 4.1 mi west of Hoytville. (Hoytville 1:24000 quad)	53.3	2000-04	09/14/04	1.91
PORTAGE RIVER BASIN				
04194362 South Branch Portage River near Jerry City, Ohio				
Latitude 41°16′22″, longitude 83°30′56″, Wood County, Hydrologic Unit 04100010, at Portage View Road over South Branch Portage River, 0.6 mi above confluence with East Branch, 2.1 mi southeast of Six Points, 4.5 mi northeast of Jerry City, Ohio. (Jerry City 1:24000 quad)	54.0	1995-96 1999-04	09/14/04	0.47

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
SANDUSKY RIVER BASIN				
04196580 Little Tymochtee Creek near Marseilles, Ohio				
Latitude 40°41′13″, longitude 83°24′44″, Marion County, Hydrologic Unit 04100011, at County Road 22 bridge, 1.3 mi above mouth, 1.4 mi southwest of Marseilles, Ohio. (Marseilles 1:24000 quad)	43.7	1978 1980-82 1997-04	08/16/04 09/15/04	0.79 1.40
HURON RIVER BASIN				
04198017 West Branch Huron River near New Haven, Ohio				
Latitude 41°03′08″, longitude 82°39′37″, Huron County, Hydrologic Unit 04100012, at Boughtonville Road bridge, 0.5 mi below confluence with Marsh Run, 3.3 mi east of Willard, Ohio. (Willard 1:24000 quad)	69.4	1981-82 1997-04	08/13/04	5.29
VERMILION RIVER BASIN				
04199251 Vermilion River near New London, Ohio				
Latitude 41°03′51″, longitude 82°27′10″, Huron County, Hydrologic Unit 04100012, at U.S. Route 250 bridge, 0.8 mi west of New London Reservior, 0.2 mi north of Akron Canton Youngstown Penn Central Railroad, 3.0 mi southwest of New London, Ohio. (New London 1:24000 quad)	68.9	1997-04	08/13/04	0.51
BLACK RIVER BASIN				
04199617 West Fork East Branch Black River at Lodi, Ohio				
Latitude 41°01′36″, longitude 82°02′29″, Medina County, Hydrologic Unit 04110001, at bridge of State Route 421, 0.6 mi east of intersection of State Route 42 and 224, 1.6 mi west of Lodi, Ohio. (Lodi 1:24000 quad)	40.6	2000-04	08/13/04	1.24
04199706 East Branch Black River near Penfield, Ohio				
Latitude 41°08′12″, longitude 82°07′00″, Medina/Lorain County, Hydrologic Unit 04110001, at Smith Road bridge over East Branch Black River, on Medina/Lorain county line, 0.3 mi east of State Route 301, 2.2 mi south of Penfield, 3.2 mi north of Spencer, Ohio. (Lagrange 1:24000 quad)	105	1995-96 1998-04	08/12/04	3.61
ROCKY RIVER BASIN				
04201079 West Branch Rocky River near Medina, Ohio				
Latitude 41°09′09″, longitude 81°50′02″, Medina County, Hydrologic Unit 04110001, at Weymouth Road bridge over West Branch Rocky River, 0.3 mi below confluence with North Branch, 1.9 mi northeast of Medina, Ohio. (Medina 1:24000 quad)	61.2	1995-96 1998-99 2001-02 2004	08/13/04	3.91
CUYAHOGA RIVER BASIN				
04205645 Little Cuyahoga River above Ohio & Erie Canal at Akron, Ohio				
Latitude 41°05′27″, longitude 81°30′40″, Summit County, Hydrologic Unit 04110002, in Akron. Station is reached by driving east on State Route 18 (West Market Street). Turn right (north) onto North Main Street. Travel for 0.4 mi. Turn right (east) onto East North Street. Travel for 0.2 mi to station at Stuber Street bridge on left (north). (Akron West 1:24000 quad)	55.1	1998-99 2001-02 2004	08/13/04	20.0

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data]

Location	Drainage Area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
ASHTABULA RIVER BASIN				
04212453 Ashtabula River near Kelloggsville, Ohio				
Latitude 41°50′00″, longitude 80°37′13″, Ashtabula County, Hydrologic Unit 04110003, at Root Road Covered Bridge over Ashtabula River, 1.7 mi downstream of confluence of East and West Branches of Ashtabula River, 1.6 mi south of Kelloggsville, 2.4 mi east of Sheffield Center, 7.5 mi southeast of Ashtabula, Ohio. (Pierpont 1:24000 quad)	66.5	1995-99 2001-04	08/11/04	2.77

Discontinued Streamflow-Gaging Stations

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second]

Location	Drainage area (mi^2)	Period of record (wy)	Measurements	
			Date	Discharge (ft^3/s)
MUSKINGUM RIVER BASIN				
03123000 Sugar Creek above Beach City Dam at Beach City, Ohio				
Latitude 40°39′24″, longitude 81°34′37″, in NE ¼ sec. 35, T. 11 N., R. 10 W., Stark County, on right bank at downstream side of 3rd Avenue bridge at Beach City, 2.3 mi upstream from Beach City Dam.	160	1945-75	08/11/04	27.2
SCIOTO RIVER BASIN				
03223000 Olentangy River at Claridon, Ohio				
Latitude 40°34′58″, longitude 82°59′20″, in NW ¼ sec. 26, T.5 S., R.16 E., Marion County, Hydrologic Unit 05060001, on left bank 900 ft downstream from bridge on State Highway 95, 0.5 mi east of Claridon, 0.8 mi downstream from Otter Creek, and 1.4 mi upstream from Beaver Run.	157	1947-98	08/18/04	7.11
LITTLE MIAMI RIVER BASIN				
03242050 Little Miami River near Spring Valley, Ohio				
Latitude 39°35′00″, longitude 84°01′49″, (SE 14 sec Waynesville Quadrangle) in Greene County on right bank at downstream side of bridge on New Burlington Road, ¾ mi west of Roxanna, and 2.2 mi southwest of Spring Valley, Ohio.	366	1968-85	08/18/04 09/16/04	130.0 106.0
GREAT MIAMI RIVER BASIN				
03271800 Twin Creek near Ingomar, Ohio				
Latitude 39°42′28″, longitude 84°31′30″, in sec. 15, T.5 N., R.3 E., Preble County, Hydrologic Unit 05080002, on left bank at downstream side of bridge on Halderman Road, 0.5 mi downstream from Bantas Fork, 1.4 mi west of Ingomar, and 4.8 mi upstream from Aukerman Creek.	197	1963-98	08/17/04 09/15/04	18.0 14.2

Project Data—Crest-Stage Gage Network

The following table contains annual maximum gage heights and associated discharges for 18 crest-stage gaging stations in Ohio for water year 2002 through 2004. A crest-stage gage is a device which will record the peak stage occurring at each site between field inspections of the gages. A stage-discharge relation for each gage is developed from indirect measurements of peak flow or from measurements by current meter. The date of the maximum stage and discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for the water year is given. Information for some lower floods may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relations, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Crest-Stage Gage Network in Ohio

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data; *, gage over topped by floodwaters, elevation from nearby high water mark]

Location	Drainage Area (mi^2)	Period of record (wy)	Water-year maximum			Period of record maximum		
			Date of peak	Gage height (ft)	Discharge (ft^3/S)	Date of peak	Gage height (ft)	Discharge (ft^3/s)
LITTLE BEAVER CREEK BASIN								
03108608 Middle Fork Little Beaver Creek near Salem, Ohio								
Latitude 40°53′54″, Longitude 80°52′50″, Columbiana County, Hydrologic Unit 05030101, at culvert on State Route 45, 0.2 mi south of U.S. Highway 62, and 1.3 mi west of Salem, Ohio	1.68	2001-04	04/12/02 07/27/03 08/28/04	56.00 60.44 61.86	97 406 515	08/28/04	61.86	515
DUCK CREEK BASIN								
03115624 East Fork Duck Creek near Road Fork, Ohio								
Latitude 39°38′58″, Longitude 81°18′36″, Noble County, Hydrologic Unit 05030201, at bridge on State Route 260, 20 mi southeast of Caldwell, and 1 mi south of Road Fork, Ohio	61.33	2001-04	05/17/02 07/23/03 09/18/04	90.90 92.48 103.50	1,290 2,100 12,450	09/18/04	103.50	12,450
03115640 Middle Fork Duck Creek near Middleburg, Ohio								
Latitude 39°40′14″, Longitude 81°23′21″, Noble County, Hydrologic Unit 05030201, at bridge on State Route 564, 0.3 mi south of Middleburg, and 15 mi southeast of Caldwell, Ohio	20.37	2001-04	05/17/02 07/23/03 09/18/04	91.78 93.98 99.38	830 1,650 4,700	09/18/04	99.38	4,700
MUSKINGUM RIVER BASIN								
03148395 Claypit Creek near Roseville, Ohio								
Latitude 39°50′28″, Longitude 82°04′15″, Muskingum County, Hydrologic Unit 05040004, at culvert on State Route 93, 2.8 mi south of U.S. Highway 22, and 2.5 mi north of Roseville, Ohio	2.25	1982-86 2001-04	06/05/02 09/18/03 09/09/04	34.77 32.06 36.08	233 81 318	09/09/04	36.08	318
OHIO RIVER TRIBUTARY								
03205995 Sandusky Creek near Burlington, Ohio								
Latitude 38°25′03″, Longitude 82°30′36″, Lawrence County, Hydrologic Unit 05090101, at culvert on U.S. Highway 52,1.25 mi east of Burlington, Ohio	0.73	1978-87 2001-04	03/18/02 02/21/03 05/28/04	89.79* 86.17 90.13	236 64 249	05/28/04	90.13	249
SCIOTO RIVER BASIN								
03237130 Scioto Brush Creek at Otway, Ohio								
Latitude 38°51′43″, Longitude 83°11′24″, Scioto County, Hydrologic Unit 05060002, at bridge on State Route 348, 0.2 mi west of State Route 73 in Otway, Ohio	94.36	2001-04	04/21/02 05/10/03 01/04/04	90.45 91.53 84.19	9,090 10,690 2,480	05/10/03	91.53	10,690

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data; *, gage over topped by floodwaters, elevation from nearby high water mark]

Location	Drainage Area (mi^2)	Period of record (wy)	Water-year maximum			Period of record maximum		
			Date of peak	Gage height (ft)	Discharge (ft^3/S)	Date of peak	Gage height (ft)	Discharge (ft^3/s)
OHIO BRUSH CREEK BASIN								
03237315 Elk Fork near Winchester, Ohio								
Latitude 38°56′49″, Longitude 83°37′21″, Adams County, Hydrologic Unit 05090201, at culvert on Tri-county Road, 2.5 mi east of State Route 136 in Winchester, and 3.1 mi west of State Route 247 in Seaman, Ohio	6.45	1982-86 2001-04	04/20/02 09/01/03 01/03/04	71.60 78.31 70.35	1,130 2,230 928	09/01/03	78.31	2,230
GREAT MIAMI RIVER BASIN								
03263168 Stillwater River near Ansonia, Ohio								
Latitude 40°13′02″, Longitude 84°36′29″, Darke County, Hydrologic Unit 05080001, at bridge on State Route 47, 1.75 mi west of U.S. Highway 127, and 1.5 mi east of Ansonia, Ohio	74.38	2001-04	05/10/02 07/09/03 01/03/04	94.72 96.60 95.69	2,250 3,425 2,150	07/09/03	96.60	3,425
03271732 Miller's Fork near West Sonora, Ohio								
Latitude 39°54′35″, Longitude 84°32′28″, Preble County, Hydrologic Unit 05080002, at bridge on State Route 503, 1.4 mi north of West Sonora, and 2.0 mi south of Ithaca, Ohio	15.57	2001-04	05/13/02 09/01/03 06/11/04	91.26 92.01 93.24	805 1,150 1,900	06/11/04	93.24	1,900
MAUMEE RIVER BASIN								
04180907 Carter Creek near New Bremen, Ohio								
Latitude 40°26′16″, Longitude 84°19′43″, Shelby County, Hydrologic Unit 04100004, at culvert on State Route 274, 0.58 mi west of State Route 29, and 2.5 mi east of New Bremen, Ohio	1.16	1982-86 2001-04	05/12/02 07/06/03 06/13/04	95.39 97.05 98.38	65 129 193	06/13/04	98.38	193
04185771 Auglaize River near Cridersville, Ohio								
Latitude 40°38′24″, Longitude 84°05′23″, Auglaize County, Hydrologic Unit 04100007, at bridge on State Route 65, 2.6 mi north of Uniopolis, and 4.2 mi east of Cridersville, Ohio	63.75	2001-04	03/29/02 05/09/03 05/21/04	94.11 94.00 95.10	1,360 1,300 2,080	05/21/04	95.10	2,080
04191207 Blue Creek near Latty, Ohio								
Latitude 41°03′44″, Longitude 84°34′23″, Paulding County, Hydrologic Unit 04100007, at bridge on U.S. Highway 127, 2.0 mi south of State Route 613 in Latty, and 5.5 mi south of Paulding, Ohio	65.19	2001-04	03/30/02 05/11/03 06/14/04	94.25 98.03* 95.69	2,620 6,150 4,050	05/11/03	98.03*	6,150
04192575 South Turkeyfoot Creek near Elery, Ohio								
Latitude 41°16′59″, Longitude 84°01′49″, Henry County, Hydrologic Unit 04100009, at bridge on State Route 281, 0.35 mi east of State Route 109, and 9 mi west of Custar, Ohio	37.77	2001-04	03/29/02 05/10/03 05/21/04	94.40 95.75 94.46	985 1,520 1,325	05/10/03	95.75	1,520.

[mi^2, square miles; wy, water year; ft^3/s, cubic foot per second; --, no data; *, gage over topped by floodwaters, elevation from nearby high water mark]

Location	Drainage Area (mi^2)	Period of record (wy)	Water-year maximum			Period of record maximum		
			Date of peak	Gage height (ft)	Discharge (ft^3/S)	Date of peak	Gage height (ft)	Discharge (ft^3/s)
PORTAGE RIVER BASIN								
04195061 North Branch Portage River at Scotch Ridge, Ohio								
Latitude 41°24′05″, Longitude 83°31′19″, Wood County, Hydrologic Unit 04100010, at bridge on State Route 199, 0.1 mi south of State Route 105 and Scotch Ridge, and 8 mi east of Bowling Green, Ohio	48.81	2001-04	01/31/02 08/03/03 06/14/04	93.62 94.19 92.54	1,450 1,600 500	08/03/03	94.19	1,600
SANDUSKY RIVER BASIN								
04196825 Brown's Run near Crawford, Ohio								
Latitude 40°53′13″, Longitude 83°20′15″, Wyandot County, Hydrologic Unit 04100011, at culvert on US 23, 3.0 miles northwest of SR 199, and 5.5 miles northwest of Upper Sandusky, Ohio	2.00	1982-86 2001-04	03/28/02 07/08/03 06/14/04	94.80 98.00 96.06	78 265 140	07/08/03	98.00	265
LAKE ERIE TRIBUTARY								
0419801460 Little Pickerel Creek near White's Landing, Ohio								
Latitude 41°25′06″, Longitude 82°53′14″, Sandusky County, Hydrologic Unit 04100011, at bridge on U.S. Highway 6, 10 mi west of Sandusky, and 13 mi east of Fremont, Ohio	5.17	2001-04	01/30/02 04/05/03 06/13/04	96.12 96.66 95.74	90 117 80	04/05/03	96.66	117
VERMILION RIVER BASIN								
04199365 East Branch Vermilion River near Clarksfield, Ohio								
Latitude 41°10′56″, Longitude 82°22′12″, Huron County, Hydrologic Unit 04100012, at bridge on State Route 18, 2.75 mi east of Clarksfield, and 14 mi east of Norwalk, Ohio	32.33	2001-04	03/30/02 03/06/03 05/21/04	90.95 91.56 92.12	790 1,025 1,370	05/21/04	92.12	1,370
GRAND RIVER BASIN								
04212029 Bates Creek near Thompson, Ohio								
Latitude 41°39′31″, Longitude 81°07′13″, Lake County, Hydrologic Unit 04110004, at bridge on State Route 86, 4.5 mi west of Thompson, and 9.5 mi southeast of Painesville, Ohio	11.35	2001-04	-- 06/12/03 05/22/04	-- 82.74 81.74	-- 1,925 1,045	06/12/03	82.74	1,925

Project Data—Bacteriological Data of Water, Bed Sediments, Algae, and Detritus and Water-Quality Data at Two Lake Erie Beaches

The following tables list the results of bacteriological analyses of surface water, shallow ground water, bed sediments, algae, and detritus samples collected at or near two Lake Erie Beaches—one in Cuyahoga County (Edgewater) and one in Ashtabula County (Lakeshore) from May through September 2004. Ancillary physical water-quality measurements were also taken. Samples were collected as part of a study to develop a predictive model for *Escherichia coli* (*E. coli*) at Lakeshore and determine the spatial distribution of *E. coli* and identify possible sources of fecal contamination at Edgewater and Lakeshore.

Water-Quality Records

The following tables list the results of bacteriological and water-quality measurements of surface water collected at or near two Lake Erie beaches—one in Cuyahoga County (Edgewater) and one in Ashtabula County (Lakeshore) from May through August 2004. Samples were collected as part of a study to develop a predictive model for *Escherichia coli* (*E. coli*) at Lakeshore and determine the spatial distribution of *E. coli* and identify possible sources of fecal contamination at Edgewater and Lakeshore.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412917081443503—Lake Erie at Edgewater, Middle Beach, 3 feet (H)						
June 8	0940	7.6	--	--	--	E11
July 28	1035	16	325	--	21.0	79
412917081443505—Lake Erie at Edgewater, Middle Beach, 5 feet (I)						
June 8	0950	6.4	--	--	--	E7
412920081442601—Lake Erie at Edgewater, Main Beach west, 1 foot (E)						
June 8	0858	10	330	--	18.5	78
June 23	1029	43	311	--	22.0	57
July 22	0855	--	--	23.0	24.0	120
July 27	0930	--	--	22.5	22.0	160
July 28	1025	15	334	--	21.0	93
July 29	0915	--	--	28.0	22.0	23
Aug. 3	0915	--	--	27.0	24.0	240
Aug. 5	0925	--	--	21.5	24.0	680
Aug. 10	0925	--	--	20.0	23.0	160
Aug. 12	0815	--	--	17.0	22.0	82
Aug. 17	0910	--	--	20.5	22.5	52
412920081442602—Lake Erie at Edgewater, Main Beach west, 2 feet (Y)						
July 22	0900	--	--	23.0	24.0	130
July 27	0935	--	--	22.5	22.0	120
July 28	1103	13	333	--	21.1	80
July 29	0920	--	--	28.0	22.0	120
Aug. 3	0920	--	--	27.0	24.0	360
Aug. 5	0930	--	--	21.5	24.0	240
Aug. 10	0930	--	--	20.0	23.0	60
Aug. 12	0820	--	--	17.0	22.0	140
Aug. 17	0915	--	--	20.5	22.5	25
412920081442603—Lake Erie at Edgewater, Main Beach west, 3 feet (F)						
May 25	1100	--	--	25.6	--	250
May 26	1025	32	--	19.6	19.1	97
June 1	0951	20	--	17.0	16.2	E34

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412920081442603—Lake Erie at Edgewater, Main Beach west, 3 feet (F)—Continued						
June 2	0847	21	--	15.0	16.8	E16
June 7	0935	5.7	--	22.9	18.3	E14
June 8	0848	8.1	316	--	18.7	27
June 9	0900	4.3	--	26.9	20.5	25
June 14	1300	13	--	24.2	19.3	40
June 16	0850	17	--	24.3	20.4	140
June 21	0850	14	--	21.2	21.5	9
June 23	1040	26	313	--	21.5	27
June 29	0920	8.6	--	21.0	21.0	E2
June 30	0909	16	--	24.5	21.4	44
July 1	0913	8.4	--	24.6	22.1	29
July 7	0915	9.6	--	24.5	22.5	24
July 9	0850	39	--	22.0	21.6	130
July 12	0910	9.5	--	25.5	22.8	14
July 14	0900	30	--	22.9	23.1	410
July 19	0910	12	--	24.0	23.0	25
July 21	0850	3.7	--	25.5	22.1	160
July 26	0919	6.5	--	21.5	22.5	49
July 28	0837	9.7	--	17.5	22.0	76
July 28	1030	11	325	--	21.3	66
Aug. 2	0927	2.5	--	25.0	24.0	73
Aug. 11	0935	16	--	19.0	22.5	20
Aug. 17	0915	5.0	--	20.5	22.5	49
412920081442605—Lake Erie at Edgewater, Main Beach west, 5 feet (G)						
June 8	0910	6.3	332	--	18.0	22
July 28	1035	9.9	325	--	21.4	51
412920081450603—Lake Erie at Edgewater, Perkins Beach, 3 feet (J)						
June 8	1207	8	--	--	--	E21
July 28	1225	10.2	--	--	--	E15
412922081442301—Lake Erie at Edgewater, Main Beach east, 1 foot (U)						
June 23	0949	--	313	--	21.5	180
July 22	0845	--	--	23.0	24.0	10000
July 27	0900	--	--	22.5	22.0	770
July 28	1115	--	335	--	20.7	230
July 29	0905	--	--	28.0	22.0	18

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412922081442301—Lake Erie at Edgewater, Main Beach east, 1 foot (U)—Continued						
Aug. 3	0900	--	--	27.0	24.0	1700
Aug. 5	0915	--	--	21.5	24.0	360
Aug. 10	0910	--	--	20.0	23.0	420
Aug. 12	0850	--	--	17.0	22.0	80
Aug. 17	0850	--	--	20.5	22.5	57
412922081442302—Lake Erie at Edgewater, Main Beach east, 2 feet (X)						
July 22	0850	--	--	23.0	24.0	7900
July 27	0910	--	--	22.5	22.0	260
July 28	1120	12.5	330	--	21.0	110
July 29	0910	--	--	28.0	22.0	190
Aug. 3	0905	--	--	27.0	24.0	1000
Aug. 5	0920	--	--	21.5	24.0	490
Aug. 10	0915	--	--	20.0	23.0	120
Aug. 12	0855	--	--	17.0	22.0	63
Aug. 17	0900	--	--	20.5	22.5	74
412922081442303—Lake Erie at Edgewater, Main Beach east, 3 feet (C)						
May 24	1045	--	--	25.6	19.1	360
May 26	1017	32	--	19.6	19.4	180
June 1	0943	32	--	17.0	16.5	83
June 2	0835	23	--	15.0	16.3	E110
June 7	0927	4.9	--	22.9	18.3	E7
June 8	0920	9.6	--	25.9	18.5	22
June 9	0850	4.8	--	26.9	20.4	E15
June 14	0838	12	--	24.2	19.4	38
June 16	0835	20	--	24.3	20.5	110
June 21	0841	18	--	21.2	21.2	E20
June 23	1001	39	311	21.5	21.5	100
June 29	0915	10	--	21.0	21.0	E11
June 30	0854	10	--	24.5	21.3	E14
July 1	0902	5.3	--	24.6	22.1	20
July 7	0910	8.7	--	24.5	22.5	25
July 9	0845	35	--	22.0	21.3	140
July 12	0846	9.8	--	25.5	22.7	E12
July 14	0846	29	--	22.9	23.1	E1400
July 19	0920	8.1	--	24.0	22.8	77
July 21	0845	3.5	--	25.5	22.0	170

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412922081442303—Lake Erie at Edgewater, Main Beach east, 3 feet (C)—Continued						
July 26	0908	4.5	--	21.5	22.5	33
July 28	0830	11	--	17.5	22.0	67
July 28	1125	13	328	--	21.0	110
412922081442305—Lake Erie at Edgewater, Main Beach east, 5 feet (D)						
June 8	0925	7.6	--	--	--	33
412924081442003—Lake Erie at Edgewater, Main Beach near breakwall, 3 feet (A)						
June 8	1015	9.0	--	--	--	45
July 28	1135	12	328	--	21.2	66
412924081442005—Lake Erie at Edgewater, Main Beach near breakwall, 5 feet (B)						
June 8	1020	8.2	--	--	--	38
July 28	1140	10	325	--	21.3	110
Aug. 5	0910	40	--	21.5	24.0	380
412927081442300—Lake Erie at Edgewater, Main Beach off breakwall (L)						
June 8	1045	5.2	--	--	--	E5
July 28	1355	9.8	--	--	--	71
412941081434000—Lake Erie at Edgewater, Marina (K)						
June 8	1140	6.1	--	--	--	E6
July 28	1300	15	--	--	--	75
415423080462800—Lake Erie at Lakeshore, ditch from duck pond (D)						
June 9	0850	18	--	--	--	E1300
June 22	0850	12	--	--	--	690
June 24	0855	18	--	--	--	750
June 30	1015	11	--	--	--	620
July 8	1105	36	--	--	--	6800
July 14	1700	19	--	--	--	1900
July 22	1005	38	--	--	--	2500
July 28	1105	28	--	--	--	3900
Aug. 5	0845	25	--	--	--	1600
415426080465100—Lake Erie at Lakeshore, boat ramp dock (J)						
July 8	1100	7.4	--	--	--	1500
July 14	1045	8.0	311	--	24.1	E200
July 23	0930	8.6	--	--	--	580
July 28	1115	20	--	--	--	210
Aug. 5	0905	52	330	--	21.2	790

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
415426080465100—Lake Erie at Lakeshore, boat ramp dock (J)—Continued						
Aug. 11	0900	7.7	--	--	--	67
Aug. 18	1015	20	308	--	22.8	250
415429080464200—Lake Erie at Lakeshore, near pond drainage (H)						
June 24	1300	5.3	319	--	22.1	E20
July 14	1500	18	315	--	23.9	240
Aug. 18	1035	1.1	293	--	22.3	E7
415429080465000—Lake Erie at Lakeshore, west side of breakwall (I)						
June 24	1430	6.6	308	--	22.3	E7
July 14	1410	7.5	307	--	23.8	E25
Aug. 18	0940	4.1	292	--	22.0	E12
415430080462903—Lake Erie at Lakeshore, Central Beach, 3 feet (B)						
July 5	1005	11	--	25.0	--	470
July 6	0930	22	301	21.0	21.4	360
July 7	1045	2.1	306	23.9	22.1	E45
July 8	1040	11	302	21.8	21.6	230
July 12	0840	120	300	23.2	22.0	E26000
July 13	0955	8.1	304	22.9	23.7	500
July 14	1035	21	304	25.0	23.3	2500
July 15	1040	130	291	22.2	22.0	760
July 21	1105	3.1	326	27.0	24.0	110
July 22	0950	3.7	319	23.4	24.2	1400
July 23	0910	35	324	20.4	23.4	830
July 26	0855	33	327	21.0	21.7	E32
July 27	0925	68	378	19.6	21.7	E37
July 28	1030	20	377	19.8	21.3	60
July 29	0920	6.4	315	20.0	21.7	68
Aug. 2	0910	10	365	23.9	23.1	2600
Aug. 3	0920	7.0	352	24.7	23.3	1900
Aug. 4	1025	9.8	290	21.6	23.9	E510
Aug. 5	0950	100	388	22.5	22.6	410
Aug. 9	0900	3.0	333	23.3	22.1	E44
Aug. 10	0850	3.7	325	22.4	22.2	66
Aug. 11	0840	12	314	20.8	21.6	190
Aug. 12	0840	14	304	21.2	21.5	220
Aug. 16	0825	2.9	293	20.9	21.6	53
Aug. 17	0855	2.3	293	20.2	21.7	83

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
415430080462903—Lake Erie at Lakeshore, Central Beach, 3 feet (B)—Continued						
Aug. 18	1140	1.6	290	20.6	22.5	280
415430080463103—Lake Erie at Lakeshore, West Beach, 3 feet (C)						
June 2	1135	8.6	313	19.3	17.4	E21
June 3	0925	5.4	315	17.3	17.5	E13
June 7	0835	2.5	309	22.3	17.1	37
June 8	0835	1.8	313	24.1	17.3	25
June 9	0840	3.5	308	25.9	18.4	190
June 10	0835	6.1	303	20.4	20.0	E190
June 14	0825	6.5	380	22.7	14.1	67
June 15	0840	4.3	410	22.5	15.6	E44
June 16	0840	5.3	375	22.2	19.4	560
June 17	0820	8.6	475	23.3	18.9	E38
June 21	0840	7.3	352	19.2	19.3	81
June 22	0840	2.5	314	21.0	19.8	240
June 23	0850	5.6	315	19.4	20.3	140
June 24	0845	4.3	318	21.0	20.9	93
June 28	0845	4.1	306	17.2	20.2	310
June 29	0855	2.5	312	18.7	19.3	160
June 30	1030	5.0	301	24.7	21.0	550
July 1	0945	5.4	302	23.9	21.0	110
July 5	1010	11	293	25.0	21.1	310
July 6	0940	21	300	21.0	21.4	440
July 7	1035	2.9	306	23.9	21.4	E35
July 8	1050	9.4	300	21.8	21.7	620
July 12	0850	8.9	300	23.2	22.0	760
July 13	1000	2.9	304	22.9	23.7	E110
July 14	1030	20	304	25.0	23.3	2600
July 15	1050	110	292	22.2	22.0	800
July 21	1100	4.8	326	27.0	24.0	77
July 22	1000	3.7	318	23.4	24.2	1200
July 23	0900	36	323	20.4	23.4	650
July 26	0850	29	328	21.0	22.0	E27
July 27	0930	86	378	19.6	21.6	80
July 28	1040	22	388	19.8	21.5	34
July 29	0925	8.2	315	20.0	21.7	150
Aug. 2	0900	8.0	363	23.9	22.9	2900

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
415430080463103—Lake Erie at Lakeshore, West Beach, 3 feet (C) —Continued						
Aug. 3	0930	6.7	357	24.7	23.2	2400
Aug. 4	1020	10	290	21.6	23.9	E150
Aug. 5	1000	83	394	22.5	22.6	420
Aug. 9	0905	3.2	335	23.3	22.0	E51
Aug. 10	0900	2.9	327	22.4	22.2	56
Aug. 11	0850	9.6	313	20.8	21.6	200
Aug. 12	0850	10	310	21.2	21.5	300
Aug. 16	0830	2.2	299	20.9	21.6	70
Aug. 17	0900	2.3	295	20.2	21.7	E270
Aug. 18	1120	1.8	291	20.6	22.4	200
415430080463600—Lake Erie at Lakeshore, in front of pavilion (F)						
June 24	1220	6.4	311	--	22.0	1000
July 8	1110	3.3	--	--	--	E56
July 14	1045	13	309	--	23.9	280
July 23	925	89	--	--	--	2100
415431080462603—Lake Erie at Lakeshore, East Beach, 3 feet (A)						
June 2	1130	11	316	19.3	17.5	E22
June 3	0920	5.4	315	17.3	17.7	22
June 7	0840	2.5	308	22.3	17.3	E10
June 8	0830	3.2	315	24.1	17.6	E13
June 9	0835	2.4	306	25.9	18.7	28
June 10	0830	9.8	303	20.4	20.1	E450
June 14	0820	7.6	392	22.7	14.2	130
June 15	0830	5.8	402	22.5	15.6	80
June 16	0830	5.0	379	22.2	18.5	150
June 17	0825	11	470	23.3	19.1	E14
June 21	0830	8.2	352	19.2	19.4	27
June 22	0830	4.2	322	21.0	20.2	77
June 23	0840	6.5	316	19.4	20.2	140
June 24	0835	2.5	308	21.0	20.9	E22
June 28	0835	3.5	304	17.2	20.4	E7
June 29	0845	3.5	311	18.7	19.3	52
June 30	1040	3.2	307	24.7	20.7	31
July 1	0940	3.4	310	23.9	21.2	37
July 5	1000	12	293	25.0	21.0	440
July 6	0930	20	300	21.0	21.4	1200

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
415431080462603—Lake Erie at Lakeshore, East Beach, 3 feet (A) —Continued						
July 7	1040	3.1	306	23.9	22.1	E9
July 8	1030	8.4	302	21.8	21.5	290
July 12	0830	18	301	23.2	22.1	1400
July 13	0950	2.6	304	22.9	23.7	E86
July 14	1040	39	304	25.0	23.3	5200
July 15	1030	150	291	22.2	22.0	620
July 21	1110	3.7	325	27.0	24.0	200
July 22	0940	3.5	317	23.4	24.1	390
July 23	0920	54	325	20.4	23.4	1500
July 26	0900	27	325	21.0	21.3	E28
July 27	0920	77	377	19.6	21.7	E40
July 28	1100	18	381	19.8	21.5	170
July 29	0915	3.7	314	20.0	21.6	E17
Aug. 2	0920	8.4	367	23.9	22.9	E35000
Aug. 3	0910	53	357	24.7	23.2	E33000
Aug. 4	1030	11	296	21.6	24.0	E450
Aug. 5	0940	72	390	22.5	22.2	110
Aug. 9	0855	2.8	330	23.3	22.0	E49
Aug. 10	0840	3.5	320	22.4	22.3	59
Aug. 11	0830	17	316	20.8	21.6	260
Aug. 12	0830	20	305	21.2	21.5	350
Aug. 16	0820	2.2	296	20.9	21.6	E5
Aug. 17	0850	2.4	293	20.2	21.7	21
Aug. 18	1130	1.6	290	20.6	22.7	180
415431080463400—Lake Erie at Lakeshore, west of beach breakwall (E)						
July 14	1530	7.5	307	--	23.8	220
Aug. 5	1010	110	402	--	22.7	480
Aug. 18	1115	1.2	298	--	22.4	E38
415431080463700—Lake Erie at Lakeshore, offshore of Pavilion (G)						
July 14	1523	11	316	--	23.3	97
Aug. 18	1050	1.1	298	--	22.3	E32
415431080465500—Lake Erie at Ashtabula, center point (K)						
July 14	1330	4.9	307	--	23.7	67
Aug. 18	0915	1.3	290	--	22.0	E2

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; (H), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, air (deg C) (00020)	Temper-ature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
415445080465700—Lake Erie at Ashtabula, Penney Dock (L)						
June 24	1415	5.2	312	--	21.5	E3
July 14	1145	4.9	309	--	23.5	E56
Aug. 18	0930	1.7	291	--	21.8	E8
415519080424800—Lake Erie near North Kingsville, Whitman Creek (W)						
July 14	1725	20	1330	--	21.0	2500
Aug. 5	1040	21	582	--	18.9	400
Aug. 18	1220	8.3	574	--	18.8	210

Water-Quality Records—Continued

The following tables list the results of bacteriological and water-quality measurements of shallow ground water at one Lake Erie beach in Cuyahoga County (Edgewater) on June 30 and July 29, 2004. Samples were collected as part of a study to determine the spatial distribution of *E. coli* and identify possible sources of fecal contamination at Edgewater.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(63676), USGS National Water Information System parameter code; (EE), sample designation; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli, Escherichia coli*; MPN/100, most probable number per 100 milliliters; --, no data;<, concentration or value is less than indicated]

Date	Time	Turbidity (NTRU) (63676)	Specific conduct-ance water unfiltered (µS/cm) (00095)	Temper-ature, water (deg C) (00010)	*E. coli* Defined Substrate Technology (MPN/100mL) (50468)
412922081442100—CU-20 PZ-00 (EE)					
June 30	1331	--	371	22.8	77
July 29	1153	62	350	--	34
412922081442103—CU-20 PZ-03 (RP)					
July 29	1214	79	359	--	62
412922081442106—CU-20 PZ-06 (SP)					
July 29	1212	136	413	--	18
412922081442109—CU-20 PZ-09 (TP)					
July 29	1211	73	423	--	350
412922081442120—CU-20 PZ-20 (HH)					
July 29	1210	238	475	--	5
412922081442125—CU-20 PZ-25 (DD)					
June 30	1326	--	329	19.4	100
412922081442140—CU-20 PZ-40 (II)					
July 29	1206	301	411	--	<1
412922081442150—CU-20 PZ-50 (CC)					
June 30	1322	--	374	20.0	400
412922081442160—CU-20 PZ-60 (JJ)					
July 29	1200	228	415	--	<1
412922081442175—CU-20 PZ-75 (BB)					
June 30	1316	--	390	20.3	<1
412922081442180—CU-20 PZ-80 (KK)					
July 29	1158	198	576	--	<1
412922081442199—CU-20 PZ-99 (AA)					
June 30	1310	--	385	20.9	6
July 29	1155	396	554	--	<1

Water-Quality Records—Continued

The following tables list the results of bacteriological analyses of bed sediments, algae, and detritus samples collected at or near two Lake Erie beaches—one in Cuyahoga County (Edgewater) and one in Ashtabula County (Lakeshore) from May through August 2004. Samples were collected as part of a study to determine the spatial distribution of *E. coli* and identify possible sources of fecal contamination at Edgewater and Lakeshore.

BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	***E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)**
BED SEDIMENT		
412917081443503—Lake Erie at Edgewater, Middle Beach, 3 feet (H)		
June 8	0940	2
July 28	1050	1
412917081443505—Lake Erie at Edgewater, Middle Beach, 5 feet (I)		
June 8	0950	1
412920081442601—Lake Erie at Edgewater, Main Beach west, 1 foot (E)		
June 8	0858	6
June 23	1029	18
July 28	1025	1
412920081442602—Lake Erie at Edgewater, Main Beach west, 2 feet (Y)		
July 28	1103	15
412920081442603—Lake Erie at Edgewater, Main Beach west, 3 feet (F)		
May 26	1029	5
June 2	0856	3
June 8	0848	2
June 16	0850	4
June 23	1040	4
June 30	0910	2
July 7	0916	2
July 27	0930	2
July 28	1030	8
Aug. 5	0900	14

BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	*E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)
BED SEDIMENT—Continued		
412920081442605—Lake Erie at Edgewater, Main Beach west, 5 feet (G)		
June 8	0910	2
July 28	1035	1
412920081450603—Lake Erie at Edgewater, Perkins Beach, 3 feet (J)		
June 8	1207	3
July 28	1225	5
412922081442301—Lake Erie at Edgewater, Main Beach east, 1 foot (U)		
June 23	0949	36
July 28	1115	10
412922081442302—Lake Erie at Edgewater, Main Beach east, 2 feet (X)		
July 28	1120	14
412922081442303—Lake Erie at Edgewater, Main Beach east, 3 feet (C)		
May 26	1019	28
June 2	0902	5
June 8	0920	4
June 16	0835	14
June 23	1001	3
June 30	0855	1
July 7	0911	1
July 27	0920	6
July 28	1125	3
Aug. 5	0850	11
412922081442305—Lake Erie at Edgewater, Main Beach east, 5 feet (D)		
June 8	0925	7

BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	*E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)
BED SEDIMENT—Continued		
412924081442003—Lake Erie at Edgewater, Main Beach near breakwall, 3 feet (A)		
June 8	1015	5
July 28	1135	7
412924081442005—Lake Erie at Edgewater, Main Beach near breakwall, 5 feet (B)		
June 8	1020	34
July 28	1140	24
Aug. 5	0912	82
415426080465100—Lake Erie at Lakeshore, boat ramp dock (J)		
July 14	1045	1200
Aug. 5	0905	110
Aug.18	1015	470
415429080464200—Lake Erie at Lakeshore, near pond drainage (H)		
June 24	1300	14
July 14	1500	>290
Aug.18	1035	14
415429080465000—Lake Erie at Lakeshore, west side of breakwall (I)		
June 24	1430	>490
July 14	1410	>510
Aug.18	0940	200
415430080462903—Lake Erie at Lakeshore, Central Beach, 3 feet (B)		
July 8	1040	76
July 14	1035	260
July 22	0950	>340
July 28	1240	8
Aug. 5	0950	>500
Aug.11	0840	92

BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	*E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)
Aug.18	1140	120
BED SEDIMENT—Continued		
415430080463103—Lake Erie at Lakeshore, West Beach, 3 feet (C)		
June 8	1115	20
June 15	1115	18
June 24	0845	42
June 30	1010	180
July 8	1050	59
July 14	1030	190
July 22	1000	36
July 28	1230	25
Aug. 5	1000	140
Aug.11	0850	47
Aug.18	1120	350
415430080463600—Lake Erie at Lakeshore, in front of pavilion (F)		
June 24	1220	8
415431080462603—Lake Erie at Lakeshore, East Beach, 3 feet (A)		
June 8	1120	14
June 15	1120	130
June 24	0835	48
June 30	1000	85
July 8	1030	80
July 14	1040	320
July 22	0940	120
July 28	1250	19
Aug. 5	0940	63
Aug.11	0830	40
Aug.18	1130	55
415431080463400—Lake Erie at Lakeshore, west of beach breakwall (E)		
July 14	1530	200
Aug. 5	1010	160

BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	*E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)
Aug.18	1115	20
BED SEDIMENT—Continued		
415431080463700—Lake Erie at Lakeshore, offshore of pavilion (G)		
July 14	1523	66
Aug.18	1050	18
415431080465500—Lake Erie at Ashtabula, center point (K)		
July 14	1330	16
Aug.18	0915	25
415445080465700—Lake Erie at Ashtabula, Penney Dock (L)		
June 24	1415	59
July 14	1145	59
Aug.18	0930	170
415519080424800—Lake Erie near North Kingsville, Whitman Creek (W)		
July 14	1725	160
Aug. 5	1040	12
Aug.18	1220	140
DETRITUS		
412924081442001—Lake Erie at Edgewater, Main Beach near breakwall, 1 foot (V)		
July 28	1415	78
ALGAE		
412924081442003—Lake Erie at Edgewater, Main Beach near breakwall, 3 feet (A)		
June 30	0915	5000
July 7	0920	7000
July 14	0910	8800
July 26	0925	4000
Aug. 5	0915	140

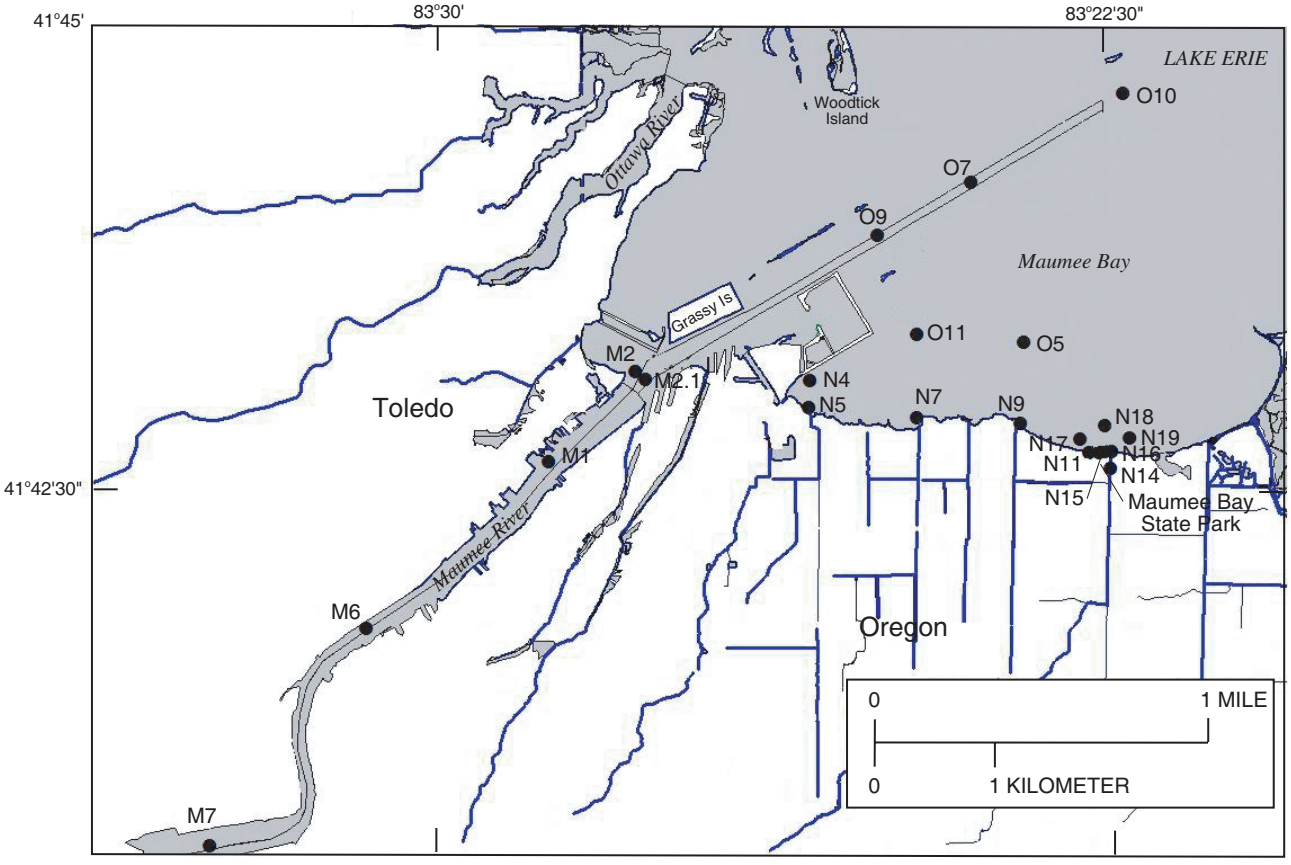
BED SEDIMENT, ALGAE, AND DETRITUS DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(50467), USGS National Water Information System parameter code; (H), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight of sediment; >, concentration or value is greater than indicated]

Date	Time	*E. coli* Defined Substrate Technology, bed sediment, (MPN/g_{DW}) (50467)
ALGAE—Continued		
412916081443100—Lake Erie at Edgewater, Middle Beach near breakwall, 1 foot (N)		
June 23	1120	1200
July 28	1325	240
412924081442001—Lake Erie at Edgewater, Main Beach near breakwall, 1 foot (M)		
June 8	1110	850
June 23	1146	240
July 28	1405	99

Project Data—*Escherichia coli* in Water and Bed Sediments in Maumee Bay, Toledo, and Oregon, Ohio

Field studies were done in March 2004 and during the recreational season (May through September) at 22 sampling sites within Maumee Bay and in the lower Maumee River and shipping channel. These sites included nearshore and offshore locations. Bed-sediment and surface-water samples were collected at each site and analyzed for *Escherichia coli* concentrations. These analyses were conducted as part of a study to identify proximate sources of fecal contamination to Maumee Bay so that future corrective measures can be taken and (or) accurate and timely predictions of recreational water quality can be made.



Water-Quality Records

The following tables list the results of bacteriological, water-quality, and physical measurements of water samples collected in the nearshore and offshore sites within Maumee Bay and in the lower Maumee River and shipping channel, March through August 2004.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(81903), USGS National Water Information System parameter code; (M1), sample designation; NTRU, Nephelometric Turbidity Ratio Units; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value is less than indicated]

Date	Time	Depth at sample location, (feet) (81903)	Turbidity (NTRU) (63676)	Dissolved oxygen, (mg/L) (00300)	pH, water, unfiltered field, (standard units) (00400)	Specific conduc-tance, water unfiltered (µS/cm) (00095)	Temper-ature, water, (deg C) (00010)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
(M1) 414059083290500—Maumee River upstream of Toledo Wastewater Plant								
May 12	1336	5.0	30	15.4	8.7	642	21.1	E30
June 15	1205	4.3	570	6.1	7.5	326	21.5	2400
July 13	1009	5.0	45	6.4	8.0	507	26.3	38
Aug. 16	1015	3.5	39	2.9	7.7	520	21.8	68
Aug. 17	1031	3.5	46	3.1	7.8	522	22.3	23
(M2) 414149083280000—Maumee River near mouth								
Mar. 27	1250	29.0	21	16.7	8.9	715	7.8	E14
May 12	1355	5.5	33	15.5	8.6	667	21.0	E25
June 15	1003	4.1	310	6.6	7.6	342	21.2	730
July 13	0957	4.1	42	6.8	8.1	512	26.2	E26
Aug. 16	0951	4.2	33	3.0	7.7	495	21.5	45
Aug. 17	1009	4.2	50	3.5	7.7	586	22.1	120
(M2.1) 414144083275500—Maumee River near mouth in shipping channel								
May 12	1150	26.5	20	14.1	8.5	657	20.6	E7
June 15	1218	25.8	330	6.1	7.5	315	21.4	750
July 13	1126	28.3	30	8.2	8.3	514	26.4	E30
Aug. 16	1001	27.6	34	3.7	7.7	486	21.6	59
Aug. 17	1017	25.5	40	3.2	7.7	546	22.1	60
M6) 413924083311200—Maumee River downstream of marina								
May 12	1220	27.5	18	14.6	8.7	624	21.1	E30
June 15	1140	--	380	--	--	--	--	1300
July 13	1027	29.0	28	5.7	8.0	495	26.4	29
Aug. 16	1128	30.7	47	3.4	7.9	506	22.3	29
Aug. 17	1128	29.7	31	3.5	8.1	499	22.4	53
(M7) 413812083315700—Maumee River upstream of Anthony Wayne Bridge								
May 12	1253	16.5	40	9.8	8.1	572	20.8	87
June 15	1110	17.8	300	6.2	7.5	302	21.5	800
July 13	1054	17.0	32	7.4	8.3	498	26.5	E5
Aug. 16	1051	16.4	60	4.7	8.1	467	21.3	E16
Aug. 17	1059	15.2	40	5.9	8.6	466	22.1	22

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; NTRU, Nephelometric Turbidity Ratio Units; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value is less than indicated]

Date	Time	Depth at sample location, (feet) (81903)	Turbidity (NTRU) (63676)	Dissolved oxygen, (mg/L) (00300)	pH, water, unfiltered field, (standard units) (00400)	Specific conduc-tance, water unfiltered (µS/cm) (00095)	Temper-ature, water, (deg C) (00010)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
(N4) 414147083255600–Maumee Bay near outfall of Oregon Wastewater Plant								
Mar. 24	1130	4.0	22	13.4	8.4	665	10.0	E14
Mar. 27	1340	5.0	30	15.7	8.7	684	12.4	64
May 12	1105	5.0	18	9.4	8.3	681	26.0	E32
June 15	1037	5.0	240	4.8	7.6	350	26.4	440
July 13	1020	5.0	43	4.2	8.0	490	31.1	30
Aug. 16	1034	5.0	48	5.5	7.7	440	26.9	120
Aug. 17	1034	5.0	44	4.8	7.7	477	25.7	38
(N5) 414131083255700—Maumee Bay near mouth of Heckman Ditch								
Mar. 24	1140	1.5	10	12.4	8.3	766	6.5	690
May 12	1120	2.0	14	9.8	8.3	741	21.3	E19
June 15	1043	2.0	96	5.8	7.7	410	24.4	200
July 13	1025	3.0	15	6.7	8.2	490	28.1	E6
Aug. 16	1041	3.5	14	7.5	7.8	400	23.0	E14
Aug. 17	1042	3.0	16	6.4	7.8	408	23.9	E18
(N7) 414127083243800—Maumee Bay near mouth of Big Ditch								
May 12	1053	3.0	25	12.6	8.8	575	20.2	E12
June 15	1031	3.5	120	5.3	7.6	380	24.8	220
July 13	1013	4.0	17	8.1	8.6	470	27.9	E5
Aug. 16	1024	4.0	24	7.1	7.9	405	23.2	23
Aug. 17	1027	3.0	22	8.2	8.1	405	22.9	E13
(N9) 414126083232200—Maumee Bay near mouth of McHenry Ditch								
May 12	1038	4.0	20	10.8	8.7	482	18.8	E40
June 15	1024	4.5	14	6.9	7.8	380	22.8	E15
July 13	1006	4.0	19	6.2	8.4	460	27.4	20
Aug. 16	0939	4.0	33	10.1	8.5	395	20.7	25
Aug. 17	1018	4.0	24	8.2	8.4	391	21.7	E8
(N10) 414111083223200—Maumee Bay at Maumee Bay State Park								
Mar. 24	1250	2.0	11	12.6	8.3	601	5.0	E7
May 12	1022	3.0	16	10.4	8.8	479	18.8	E30
June 15	1017	3.0	19	7.4	8.1	370	23.0	45
July 13	0935	3.5	24	7.2	8.5	450	26.7	E21
Aug. 16	0931	4.0	55	9.8	8.4	393	20.1	160
Aug. 17	1012	3.0	30	9.4	8.5	394	21.4	150

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; NTRU, Nephelometric Turbidity Ratio Units; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value is less than indicated]

Date	Time	Depth at sample location, (feet) (81903)	Turbidity (NTRU) (63676)	Dissolved oxygen, (mg/L) (00300)	pH, water, unfiltered field, (standard units) (00400)	Specific conduc-tance, water unfiltered (µS/cm) (00095)	Temper-ature, water, (deg C) (00010)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
(N11) 414112083222000—Maumee Bay at mouth of Berger Ditch								
Mar. 24	1235	3.0	33	13.4	8.6	788	5.0	21
May 12	0940	4.0	15	9.0	8.2	558	18.2	E61
June 15	1010	4.5	16	7.3	8.0	380	22.8	61
July 13	0931	4.0	21	6.6	8.5	460	26.6	46
Aug. 16	0915	5.0	48	9.6	8.5	399	20.2	150
Aug. 17	1003	4.0	38	8.0	8.2	428	21.5	60
(N14) 414103083221600—Berger Ditch near mouth								
Mar. 24	1220	2.0	21	13.4	8.2	976	4.9	110
May 12	0918	6.0	44	7.3	7.6	787	16.6	470
June 15	0934	4.5	72	5.7	7.2	700	19.6	1900
July 13	0923	6.0	28	3.5	8.1	940	24.6	E210
Aug. 16	0910	6.0	53	7.0	8.0	627	20.0	120
Aug. 17	0919	4.0	28	8.0	8.2	606	21.1	400
(N15) 414111083222400—Maumee Bay at breakwall one								
May 12	1029	4.0	14	9.4	8.4	506	18.7	73
June 15	1014	3.5	16	7.5	8.1	380	23.0	68
July 13	0939	3.5	20	7.2	8.5	450	27.0	E15
Aug. 16	0926	4.0	55	10.0	8.4	394	19.9	180
Aug. 17	1007	3.0	31	9.0	8.5	401	21.4	80
(N16) 414112083221500—Maumee Bay east of marina at Maumee Bay State Park								
May 12	0949	5.0	14	9.4	8.5	469	18.7	E21
June 15	0945	5.0	15	7.1	7.7	390	22.6	64
July 13	0943	5.0	20	6.9	8.5	450	27.0	28
Aug. 16	0948	5.0	44	9.4	8.3	404	20.6	37
Aug. 17	0936	5.0	37	8.2	8.2	423	21.4	51
(N17) 414118083223400—Maumee Bay northwest of Maumee Bay State Park								
May 12	1011	6.0	11	9.3	8.7	463	18.7	E9
June 15	1004	6.0	11	6.8	7.9	370	22.3	E6
July 13	1001	6.0	12	6.5	8.3	460	27.5	E5
Aug. 16	1009	6.5	21	8.7	8.0	396	20.8	E10
Aug. 17	0957	6.0	24	8.3	8.2	391	21.5	E11

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; NTRU, Nephelometric Turbidity Ratio Units; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value is less than indicated]

Date	Time	Depth at sample location, (feet) (81903)	Turbidity (NTRU) (63676)	Dissolved oxygen, (mg/L) (00300)	pH, water, unfiltered field, (standard units) (00400)	Specific conduc-tance, water unfiltered (µS/cm) (00095)	Temper-ature, water, (deg C) (00010)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
(N18) 414126083222000—Maumee Bay north of Berger Ditch								
May 12	1003	7.0	10	8.3	8.4	452	18.2	<3
June 15	0958	9.0	12	6.9	7.9	370	22.4	E9
July 13	0956	7.0	12	6.2	8.2	450	27.5	E8
Aug. 16	1003	7.0	21	7.5	8.0	397	20.8	E4
Aug. 17	0950	7.0	22	7.8	8.2	404	21.3	E5
(N19) 414120083220300—Maumee Bay northeast of Berger Ditch								
May 12	0957	6.0	7.0	8.5	8.4	448	18.2	E3
June 15	0951	7.5	11	7.1	7.9	390	22.6	21
July 13	0949	6.0	16	6.2	8.3	450	27.2	E12
Aug. 16	0954	7.0	34	7.6	8.0	402	20.6	E6
Aug. 17	0941	6.0	23	8.5	8.4	408	21.1	E7
(O5) 414334083240100—Maumee Bay north of Tobias Ditch								
May 12	1425	6.5	5.0	10.1	8.3	487	19.2	<1
June 15	1303	6.6	42	7.7	7.8	442	24.0	45
July 13	1146	7.0	9.2	6.8	8.2	438	26.0	<1
Aug. 16	1214	33.3	13	4.7	8.0	367	20.7	<1
Aug. 17	1209	8.3	7.0	4.9	8.1	358	21.0	E1
(O7) 414334083240200—Maumee Bay at shipping channel								
Mar. 27	1220	33.0	20	14.6	8.7	562	6.6	E14
May 12	1024	28.5	18	11.7	8.5	640	18.4	E7
June 15	0920	32.7	240	6.7	7.5	338	21.2	E220
July 13	0920	31.1	8.6	6.8	8.0	358	25.5	E3
Aug. 16	1154	32.2	11	5.7	8.4	309	21.0	E2
Aug. 17	0932	28.2	16	5.3	8.4	317	20.8	E1
(O9) 414306083251000—Maumee Bay at shipping channel near mile marker 3								
Mar. 27	1310	33.0	24	17.2	8.7	628	6.7	E15
May 12	1121	31.5	21	11.5	8.5	664	19.3	E4
June 15	0935	30.6	420	6.2	7.5	321	21.1	E890
July 13	0936	28.6	23	6.8	8.1	444	25.8	E13
Aug. 16	0927	8.5	23	5.0	8.1	311	20.8	E5
Aug. 17	0947	31.7	20	4.9	8.1	381	21.8	E7

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; NTRU, Nephelometric Turbidity Ratio Units; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100mL, colonies per 100 milliliters; --, no data; E, estimated; <, concentration or value is less than indicated]

Date	Time	Depth at sample location, (feet) (81903)	Turbidity (NTRU) (63676)	Dissolved oxygen, (mg/L) (00300)	pH, water, unfiltered field, (standard units) (00400)	Specific conduc-tance, water unfiltered (µS/cm) (00095)	Temper-ature, water, (deg C) (00010)	*E. coli* modified mTEC, water, (col/100 mL) (90902)
(O10) 414427083221400—Maumee Bay at shipping channel near mile marker 8								
Mar. 27	1150	16.0	14	12.8	8.4	441	6.1	E3
May 12	0956	32.0	13	14.5	8.6	461	17.2	<1
June 15	0901	32.2	260	6.3	7.3	334	21.3	E440
July 13	0900	--	6.4	7.2	7.9	354	25.4	E1
Aug. 16	0908	35.2	12	5.3	7.3	269	20.9	<1
Aug. 17	0913	30.2	18	5.1	8.2	290	21.4	E1
(O11) 414213083244000—Maumee Bay north of Big Ditch								
May 12	1058	6.5	20	12.2	8.6	649	21.2	E5
June 15	1252	5.8	24	7.7	7.9	414	24.2	28
July 13	1158	6.1	20	8.8	8.4	463	26.3	E8
Aug. 16	1225	6.2	27	4.4	7.9	400	22.6	67
Aug. 17	1157	6.0	18	4.7	8.1	423	23.5	43

Sediment-Quality Records

The following tables list the results of bacteriological and physical measurements of bed-sediment samples collected in the nearshore and offshore sites within Maumee Bay and in the lower Maumee River, March through August 2004. Samples were collected as part of a study to investigate the spatial and temporal distribution of *Escherichia coli* (*E. coli*) in sediments of Maumee Bay.

SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(M1) 414059083290500—Maumee River upstream of Toledo Wastewater Plant			
May 12	1346	5.0	7
June 15	1210	4.3	5700
July 13	1019	5.0	88
Aug. 16	1025	3.5	6
Aug. 17	1041	3.5	37
(M2) 414149083280000—Maumee River near mouth			
Mar. 27	1300	29.0	5000
May 12	1405	5.5	13
June 15	1013	4.1	1200
July 13	1007	4.1	94
Aug. 16	1001	4.2	8
Aug. 17	1019	4.2	130
(M2.1) 414144083275500—Maumee River near mouth in shipping channel			
May 12	1200	26.5	36
June 15	1228	25.8	>7200
July 13	1136	28.3	1300
Aug. 16	1011	27.6	72
Aug. 17	1027	25.5	70
(M6) 413924083311200—Maumee River downstream of marina			
May 12	1230	27.5	8
July 13	1037	29.0	210
Aug. 16	1138	30.7	140
Aug. 17	1138	29.7	280

SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(M7) 413812083315700—Maumee River upstream of Anthony Wayne Bridge			
May 12	1303	16.5	50
June 15	1120	17.8	4300
July 13	1104	17.0	15
Aug. 16	1101	16.4	400
Aug. 17	1109	15.2	66
(N4) 414147083255600—Maumee Bay near outfall of Oregon Wastewater Plant			
Mar. 27	1350	5.0	40
May 12	1115	5.0	53
June 15	1047	5.0	240
July 13	1030	5.0	26
Aug. 16	1044	5.0	66
Aug. 17	1044	5.0	>350
(N5) 414131083255700—Maumee Bay near mouth of Heckman Ditch			
Mar. 24	1150	1.5	4
May 12	1130	2.0	2
June 15	1043	2.0	42
July 13	1035	3.0	28
Aug. 16	1051	3.5	15
Aug. 17	1052	3.0	17
(N7) 414127083243800—Maumee Bay near mouth of Big Ditch			
May 12	1103	3.0	1
June 15	1041	3.5	35
July 13	1023	4.0	11
Aug. 16	1034	4.0	23
Aug. 17	1037	3.0	16

SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(N9) 414126083232200—Maumee Bay near mouth of McHenry Ditch			
May 12	1048	4.0	4
June 15	1034	4.5	25
July 13	1016	4.0	34
Aug. 16	949	4.0	12
Aug. 17	1028	4.0	270
(N10) 414111083223200—Maumee Bay at Maumee Bay State Park			
Mar. 24	1300	2.0	1
May 12	1032	3.0	<1
June 15	1027	3.0	10
July 13	945	3.5	130
Aug. 16	941	4.0	53
Aug. 17	1022	3.0	14
(N11) 414112083222000—Maumee Bay at mouth of Berger Ditch			
Mar. 24	1245	3.0	1
May 12	950	4.0	4
June 15	1020	4.5	14
July 13	941	4.0	100
Aug. 16	925	5.0	74
Aug. 17	1013	4.0	64
(N14) 414103083221600—Berger Ditch near mouth			
Mar. 24	1230	2.0	8
May 12	928	6.0	320
June 15	944	4.5	>4100
July 13	933	6.0	32
Aug. 16	920	6.0	170
Aug. 17	929	4.0	640

SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(N15) 414111083222400—Maumee Bay at breakwall one			
May 12	1039	4.0	1
June 15	1024	3.5	22
July 13	949	3.5	28
Aug. 16	936	4.0	19
Aug. 17	1017	3.0	9
(N16) 414112083221500—Maumee Bay east of marina at Maumee Bay State Park			
May 12	959	5.0	5
June 15	955	5.0	12
July 13	953	5.0	48
Aug. 16	958	5.0	20
Aug. 17	946	5.0	98
(N17) 414118083223400—Maumee Bay Northwest of Maumee Bay State Park			
May 12	1021	9.0	1
June 15	1014	6.0	29
July 13	1011	6.0	8
Aug. 16	1019	6.5	7
Aug. 17	1007	6.0	8
(N18) 414126083222000—Maumee Bay north of Berger Ditch			
May 12	1013	7.0	2
June 15	1008	9.0	100
July 13	1006	7.0	59
Aug. 16	1013	7.0	2
Aug. 17	1000	7.0	5

SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(N19) 414120083220300—Maumee Bay northeast of Berger Ditch			
May 12	1007	6.0	<1
June 15	1001	7.5	17
July 13	959	6.0	43
Aug. 16	1004	7.0	7
Aug. 17	951	6.0	8
(O5) 414334083240100—Maumee Bay north of Tobias Ditch			
May 12	1435	6.5	<1
June 15	1313	6.6	91
July 13	1106	7.0	21
Aug. 16	1224	8.5	4
Aug. 17	1219	8.3	1
(O7) 414334083240200—Maumee Bay at shipping channel			
Mar. 27	1230	33.0	720
May 12	1034	28.5	15
June 15	930	32.7	>7900
July 13	930	31.1	1100
Aug. 16	1204	32.2	1
Aug. 17	942	28.2	50
(O9) 414306083251000—Maumee Bay at shipping channel near mile marker 3			
Mar. 27	1320	33.0	610
May 12	1131	31.5	14
June 15	945	30.6	>770
July 13	946	28.6	540
Aug. 16	937	33.3	24
Aug. 17	957	31.7	11

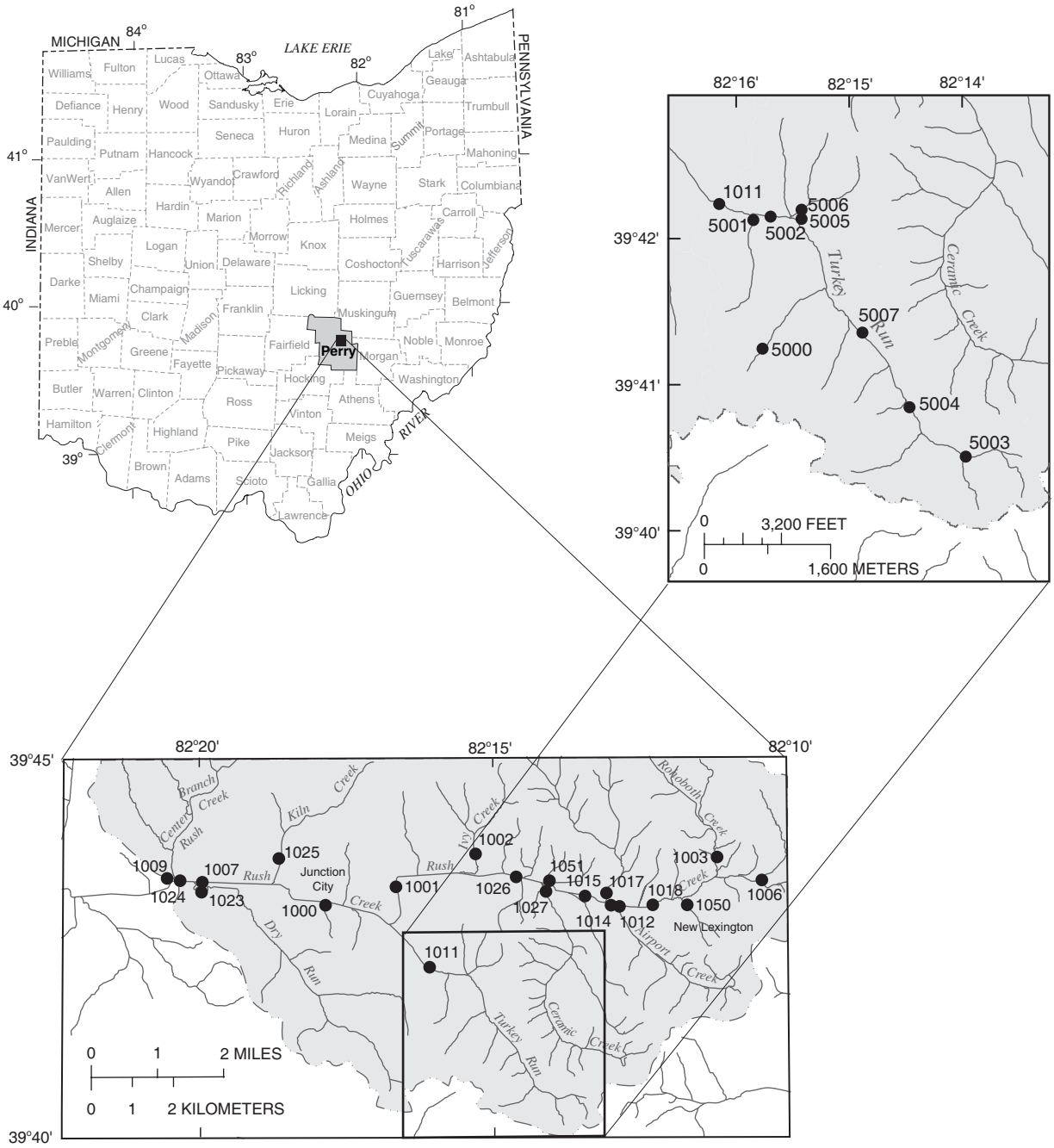
SEDIMENT-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(81903), USGS National Water Information System parameter code; (M1), sample designation; *E. coli, Escherichia coli*; MPN/g_{DW}, most probable number per gram dry weight; --, no data; E, estimated; <, concentration or value is less than indicated; >, concentration or value is greater than indicated]

Date	Time	Depth at sample location (feet) (81903)	*E. coli* Defined Substrate Technology, bed sediment, dry weight (MPN/g_{DW}) (50467)
(O10) 414427083221400—Maumee Bay at shipping channel near mile marker 8			
Mar. 27	1200	16.0	480
May 12	1006	32.0	9
June 15	911	32.2	300
July 13	910	--	260
Aug. 16	918	35.2	5
Aug. 17	923	30.2	<1
(O11) 414213083244000—Maumee Bay north of Big Ditch			
May 12	1108	6.5	2
June 15	1302	5.8	13
July 13	1208	6.1	19
Aug. 16	1235	6.2	64
Aug. 17	1207	6.0	13

Project Data—Rush Creek Watershed Assessment

The following tables contain water-quality data for the main stem of and tributaries to Rush Creek in southeastern Ohio. The data are being collected in cooperation with the Ohio Department of Natural Resources, Division of Minerals Resources Management, to help identify specific sources of acid mine drainage and assess their relative influence on the overall water quality within the Rush Creek Watershed.



Water-Quality Records

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(00061), USGS National Water Information System parameter code; cfs, cubic feet per second; mi^2, square mile; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; E, estimated; --, no data]

Map identifier	Station number	Date	Time	Discharge, instantaneous, cfs (00061)	Drainage area, mi^2 (81024)	Dissolved oxygen, water, unfiltered, mg/L (00300)	pH, water, unfiltered, laboratory, standard units (00403)	Specific conductance, water, unfiltered, laboratory, µS/cm (90095)	Temperature, water, deg C (00010)
1000	394307082175400	08-17-04	1145	5.5	35.3	8.5	3.4	1,480	16.9
1001	394317082164300	10-21-03	1050	11	28.1	8.9	4.1	940	13.3
1001	394317082164300	12-16-03	1000	29	28.1	12.9	4.9	614	1.9
1001	394317082164300	03-10-04	1100	29	28.1	12.1	4.0	750	3.7
1001	394317082164300	08-17-04	1250	4.1	28.1	8.4	3.2	1,650	17.9
1002	394344082152200	08-17-04	1355	.07	1.7	8.6	7.7	686	18.7
1003	394339082111500	08-18-04	1250	1.9	3.9	7.6	2.7	2,670	25.0
1006	394324082102900	08-18-04	1130	.49	2.6	8.4	3.0	2,670	17.8
1007	394323082200000	10-21-03	0850	16	39.5	9.0	4.8	792	12.7
1007	394323082200000	03-10-04	1140	40	39.5	12.0	4.5	611	3.8
1007	394323082200000	08-17-04	1100	6.0	39.5	8.8	3.5	1,390	16.4
1009	03156549	08-17-04	0905	2.0	24.9	7.3	E7.2	360	15.8
1011	394214082160900	12-16-03	1055	5.3	4.7	12.4	5.7	492	2.2
1011	394214082160900	08-17-04	1235	.93	4.7	8.8	4.6	938	18.4
1012	394302082125500	08-18-04	1210	.77	2.4	11.2	3.5	1,350	17.7
1014	394305082130000	08-18-04	0910	2.7	12.2	8.3	2.9	2,220	17.6
1015	394312082132800	08-17-04	1515	3.4	16.8	8.8	3.0	2,060	19.0
1017	394313082130600	08-18-04	1031	.65	4.7	9.5	E6.9	479	17.4
1018	394306082121900	10-21-03	1330	4.4	9.4	8.5	3.0	1,820	14.6
1018	394306082121900	12-16-03	0850	8.2	9.4	12.5	3.2	1,380	1.4
1018	394306082121900	03-10-04	1000	9.0	9.4	12.3	3.1	1,600	2.8
1018	394306082121900	08-18-04	1015	2.4	9.4	7.8	2.9	2,540	18.6
1023	394316082200000	08-17-04	1015	.13	5.2	8.2	7.3	423	15.8
1024	394324082202400	08-17-04	0915	6.5	45.3	8.3	3.6	1,350	15.8
1025	394341082184300	08-17-04	1055	.10	2.1	7.2	E6.8	386	16.9
1026	394327082143800	08-17-04	1410	4.9	23	8.7	3.1	1,720	18.6
1027	394314082140900	08-18-04	0905	.34	3.8	6.8	6.9	514	16.4
1050	394304082114600	03-10-04	1040	.43	5.0	10.5	3.1	1,680	3.0
1050	394304082114600	08-18-04	1310	.22	5.0	8.9	2.8	2,860	19.3
1051	394322082141100	08-18-04	1400	.67	--	4.1	7.4	795	20.3
5000	394115082154700	12-17-03	1250	.80	--	14.4	3.7	993	2.1
5001	394207082155100	12-16-03	1245	.32	--	11.7	3.2	1,350	3.8
5002	394211082152600	12-17-03	1200	1.2	--	12.5	7.6	172	3.7
5003	394030082135900	12-17-03	0830	1.7	--	12.3	7.2	584	3.9
5004	394051082142800	12-17-03	0920	4.5	--	13.6	7.4	501	3.3
5005	394205082152600	12-17-03	1125	19	--	13.1	6.4	376	2.4
5006	394209082154200	12-16-03	1150	4.7	--	12.7	7.4	479	2.2
5007	394121082145400	12-17-03	1030	6.5	--	13.3	7.7	446	2.9

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00915), USGS National Water Information System parameter code; mg/L, milligrams per liter; E, estimated; --, no data]

Map identifier	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Acidity, water, filtered, heated, mg/L as $CaCO_3$ (70508)	Alkalinity, water, filtered, incremental titration, field, mg/L as $CaCO_3$ (39086)	Bromide, water, filtered, mg/L (00453)	Chloride, water, filtered, mg/L (00940)
1000	120	73.3	6.01	36.2	123	--	0.17	44.7
1001	81.2	48.1	4.81	23.5	55	--	.14	37.1
1001	53.2	30.2	2.63	18.1	14	3	.17	31.7
1001	59	37.8	2.58	16.1	52	--	.15	27.6
1001	128	78.8	5.70	35.3	167	--	.14	42.1
1002	78.1	37.3	3.21	14.7	--	53	.09	21.1
1003	182	127	7.27	14.9	504	--	.46	22.8
1006	279	217	7.73	42.9	302	--	.19	21.2
1007	71.9	41.0	4.67	23.8	14	3	.17	38.8
1007	53.3	32.3	2.48	15.2	31	2	.14	26.5
1007	118	69.2	6.23	34.2	104	--	.17	46.8
1009	38.1	13.3	3.62	16.7	--	103	.09	31.8
1011	48.5	26.0	2.18	9.7	2	5	.17	19.2
1011	94.5	52.9	2.44	14.5	33	2	.18	27.1
1012	91.5	67.4	4.33	20.3	250	--	.19	37.2
1014	177	131	6.63	25.0	360	--	.26	30.1
1015	157	112	4.76	22.3	276	--	.17	31.7
1017	49.5	24.9	3.36	16.5	--	68	.07	22.9
1018	123	78.6	5.80	18.0	207	--	.20	25.9
1018	93.7	60.7	3.55	13.0	141	--	.17	22.8
1018	107	73.5	3.53	13.7	208	--	.17	18.0
1018	199	144	6.85	22.5	390	--	.41	24.9
1023	42.7	22.3	2.73	12.5	--	70	.08	26.1
1024	114	67.0	5.15	33.2	111	--	.20	45.6
1025	42.4	14.9	2.91	16.8	--	99	.09	34.3
1026	127	80.2	5.77	38.9	183	--	.13	43.3
1027	51.8	32.0	2.76	11.2	--	E29	.07	16.0
1050	107	80.6	3.08	15.8	234	--	.23	27.5
1050	203	155	5.30	17.8	528	--	2.68	30.8
1051	31.8	12.2	12.1	116	--	118	.04	102
5000	68.7	46.0	3.70	9.56	86	--	.27	29.4
5001	50.4	43.8	1.43	8.94	262	--	.23	27.8
5002	16.6	6.94	1.64	6.32	--	28	.06	11.0
5003	73.5	31.0	3.13	13.6	--	90	.04	20.7
5004	57.9	25.8	2.70	9.87	--	34	.36	13.1
5005	39.1	19.2	2.67	7.81	--	21	.09	15.0
5006	49.9	25.5	2.36	9.93	--	15	.19	18.8
5007	49.1	22.1	2.51	8.64	--	30	.19	13.3

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(00950), USGS National Water Information System parameter code; mg/L, milligrams per liter; µg/L, micrograms per liter; E, estimated; --, no data; <, concentration or value reported is less than that indicated]

Map identifier	Fluoride, water, filtered, mg/L (00950)	Silica, water, filtered, mg/L (00955)	Sulfate, water, filtered, mg/L (00945)	Residue on evaporation, dried at 180 deg C, water, filtered mg/L (70300)	Aluminum, water, filtered, µg/L (01106)	Aluminum, water, unfiltered, recoverable, µg/L (01105)	Arsenic, water, filtered, µg/L (01000)	Boron, water, filtered, µg/L (01020)
1000	0.9	23.1	725	--	11,000	--	--	147
1001	.5	18.0	522	--	6,520	--	--	79
1001	.3	13.9	283	462	720	3,260	<2	47
1001	.4	15.3	469	--	5,770	--	--	44
1001	.9	24.6	821	--	13,100	--	--	112
1002	.2	8.59	284	--	2	--	--	45
1003	1.3	32.1	1,490	--	24,800	--	--	135
1006	1.0	28.6	1,880	--	7,040	--	--	82
1007	.5	16.1	367	--	2,130	--	--	75
1007	.4	14.3	409	--	3,140	--	--	42
1007	.9	22.2	686	--	10,700	--	--	104
1009	.2	4.56	39.8	--	3	--	--	50
1011	.2	14.3	226	374	380	2,220	<2	35
1011	.6	18.8	478	--	3,770	--	--	70
1012	1.4	38.7	765	--	30,500	--	--	75
1014	1.2	34.8	1,360	--	21,900	--	--	102
1015	1.1	29.6	1,080	--	17,500	--	--	97
1017	.3	8.80	130	--	10	--	--	48
1018	.7	20.3	1,030	--	11,100	--	--	84
1018	.6	18.2	749	984	7,760	8,270	2	56
1018	.7	19.9	1,040	--	12,300	--	--	52
1018	1.1	31.8	1,530	--	18,100	--	--	104
1023	.2	3.54	108	--	4	--	--	40
1024	.8	21.4	671	--	10,200	--	--	101
1025	<.2	7.64	61.0	--	3	--	--	52
1026	1.0	24.9	837	--	13,500	--	--	124
1027	.3	12.1	194	--	2	--	--	39
1050	.8	25.4	1,070	--	14,900	--	--	28
1050	1.4	42.7	2,000	--	24,100	--	--	E37
1051	.8	10.6	114	--	11	--	--	249
5000	.8	16.4	572	795	9,010	10,600	3	25
5001	.9	18.9	805	1,040	29,900	29,700	6	14
5002	<.2	13.3	36.9	130	10	170	<2	24
5003	.2	9.95	199	428	16	180	<2	41
5004	.2	14.4	213	373	50	880	<2	59
5005	.2	11.0	147	280	13	260	<2	31
5006	.2	13.9	207	357	18	470	<2	38
5007	.2	12.9	179	325	15	670	<2	47

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(01025), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; --, no data; < concentration or value reported is less than that indicated; M, presence verified but not quantified]

Map identifier	Cadmium, water, filtered, µg/L (01025)	Chromium, water, filtered, µg/L (01030)	Cobalt, water, filtered, µg/L (01035)	Copper, water, filtered, µg/L (01040)	Iron, water, filtered, µg/L (01046)	Iron, water, unfiltered, recoverable, µg/L (01045)	Lead, water, filtered, µg/L (01049)	Lithium, water, filtered, µg/L (01130)
1000	--	--	--	--	5,160	--	--	--
1001	--	--	--	--	957	--	--	--
1001	<3	6	43	<5	4,350	7,150	<1	32
1001	--	--	--	--	5,040	--	--	--
1001	--	--	--	--	10,100	--	--	--
1002	--	--	--	--	<6	--	--	--
1003	--	--	--	--	47,300	--	--	--
1006	--	--	--	--	90,800	--	--	--
1007	--	--	--	--	421	--	--	--
1007	--	--	--	--	3,110	--	--	--
1007	--	--	--	--	2,790	--	--	--
1009	--	--	--	--	13	--	--	--
1011	<3	5	48	<5	793	1,750	<1	28
1011	--	--	--	--	467	--	--	--
1012	--	--	--	--	2,830	--	--	--
1014	--	--	--	--	30,000	--	--	--
1015	--	--	--	--	24,200	--	--	--
1017	--	--	--	--	8	--	--	--
1018	--	--	--	--	23,500	--	--	--
1018	<3	8	110	<5	26,700	27,100	M	67
1018	--	--	--	--	35,300	--	--	--
1018	--	--	--	--	38,800	--	--	--
1023	--	--	--	--	E6	--	--	--
1024	--	--	--	--	2,310	--	--	--
1025	--	--	--	--	9	--	--	--
1026	--	--	--	--	15,200	--	--	--
1027	--	--	--	--	10	--	--	--
1050	--	--	--	--	37,000	--	--	--
1050	--	--	--	--	56,200	--	--	--
1051	--	--	--	--	68	--	--	--
5000	<3	5	169	<5	5,610	8,280	<1	74
5001	<3	E4	292	<5	8,220	11,900	1	94
5002	<3	<4	E1	<5	106	460	<1	5
5003	<3	7	E2	<5	44	450	<1	7
5004	<3	5	9	<5	2,910	5,540	<1	21
5005	<3	4	16	<5	243	580	<1	16
5006	<3	5	26	<5	843	1,210	<1	23
5007	<3	5	8	<5	1,710	3,820	M	17

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(01056), USGS National Water Information System parameter code; µg/L, micrograms per liter; E, estimated; --, no data; < concentration or value reported is less than that indicated]

Map identifier	Manganese, water, filtered, µg/L (01056)	Silver, water, filtered, µg/L (01075)	Manganese, water, unfiltered, recoverable, µg/L (01055)	Nickel, water, filtered, µg/L (01065)	Selenium, water, filtered, µg/L (01145)	Strontium, water, filtered, µg/L (01080)	Vanadium, water, filtered, µg/L (01085)	Zinc, water, filtered, µg/L (01090)
1000	11,800	--	--	--	--	--	--	--
1001	7,630	--	--	--	--	--	--	--
1001	3,790	<3	3,780	50	<3	181	<5	100
1001	5,500	--	--	--	--	--	--	--
1001	13,500	--	--	--	--	--	--	--
1002	148	--	--	--	--	--	--	--
1003	18,800	--	--	--	--	--	--	--
1006	42,300	--	--	--	--	--	--	--
1007	5,510	--	--	--	--	--	--	--
1007	4,350	--	--	--	--	--	--	--
1007	11,300	--	--	--	--	--	--	--
1009	103	--	--	--	--	--	--	--
1011	3,440	<3	3,390	60	<3	188	<5	96
1011	8,020	--	--	--	--	--	--	--
1012	11,000	--	--	--	--	--	--	--
1014	22,300	--	--	--	--	--	--	--
1015	18,700	--	--	--	--	--	--	--
1017	803	--	--	--	--	--	--	--
1018	14,800	--	--	--	--	--	--	--
1018	11,200	<3	10,900	130	E2	282	<5	218
1018	12,900		--	--	--	--	--	--
1018	25,800	--	--	--	--	--	--	--
1023	167	--	--	--	--	--	--	--
1024	11,000	--	--	--	--	--	--	--
1025	123	--	--	--	--	--	--	--
1026	13,600	--	--	--	--	--	--	--
1027	352	--	--	--	--	--	--	--
1050	21,500	--	--	--	--	--	--	--
1050	41,000	--	--	--	--	--	--	--
1051	2.2	--	--	--	--	--	--	--
5000	11,800	<3	11,900	190	E2	206	<5	334
5001	20,100	<3	20,500	300	<3	199	<5	505
5002	138	<3	137	M	<3	90.1	<5	8
5003	783	<3	763	M	<3	214	<5	5
5004	1,160	<3	1,120	20	E1	208	<5	32
5005	1,660	<3	1,580	30	<3	147	<5	35
5006	2,530	<3	2,430	40	<3	193	<5	59
5007	1,010	<3	995	20	<3	175	<5	28

Project Data—Implementing a System for "Nowcasting" Bacteria Levels and Beach Advisories

The following tables list the results of bacteriological and physical measurements of water samples collected from three sites at one Lake Erie beach in Lorain County during May through August 2004. Samples were collected as part of a study to develop a statistical model for estimating *Escherichia coli* concentrations in recreational waters in order to predict the probability that the bacteria levels will exceed the bathing-water standard. The goal of this study is to establish an Internet-based nowcasting system, which is based on the statistical model, to provide the public with daily information concerning water quality and posting beach advisories at the beach.

Water-Quality Records

The following tables list the results of bacteriological and physical measurements of water samples collected May through August 2004 from three sites at one Lake Erie Beach in Lorain County.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

[(63676), USGS National Water Information System parameter code; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated; >, concentration is greater than indicated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance, water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412751082114700—Lake Erie at Lakeview Beach West						
May 26	1035	16	297	22.5	19.2	39
May 27	0916	10	301	22.2	18.6	78
June 1	0912	43	320	21.5	17.7	160
June 2	0904	42	314	20.3	18.0	130
June 3	0904	14	310	19.5	18.4	280
June 7	0901	2.9	310	21.3	18.6	67
June 8	0855	2.4	308	22.4	19.8	29
June 9	0858	2.4	308	27.7	20.9	160
June 10	0851	16	315	21.2	21.6	E680
June 14	0900	5.1	300	23.9	20.8	130
June 15	0853	6.6	306	21.7	21.3	200
June 16	0851	8.3	308	21.4	21.0	620
June 17	0900	6.7	312	23.5	21.2	130
June 21	0851	4.8	294	18.4	20.5	250
June 22	0858	13	293	21.7	21.4	250
June 23	0858	37	300	19.1	21.4	250
June 24	0813	20	296	19.2	21.6	510
June 28	0856	17	277	19.2	21.6	200
June 29	0859	7.8	--	20.0	21.3	140
June 30	0911	8.7	--	21.2	21.7	E32
July 1	0821	2.8	--	20.2	22.6	73
July 6	0828	8.1	--	20.0	22.8	790
July 7	0853	9.6	--	24.0	23.5	160
July 8	0856	13	--	21.0	22.5	230
July 12	0906	1.0	--	24.5	23.0	E23
July 13	0851	1.3	--	23.0	24.0	25
July 14	0905	18	--	23.5	24.0	810
July 15	0809	67	--	21.0	22.0	320
July 19	0925	2.3	--	24.5	23.4	66
July 20	0851	1.9	--	22.0	23.5	230
July 21	0905	1.9	--	27.0	24.0	520
July 22	0957	3.2	270	22.6	24.3	660
July 26	0838	5.8	312	24.4	22.3	83
July 27	0928	7.7	326	20.1	22.2	100

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated; >, concentration is greater than indicated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance, water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412751082114700—Lake Erie at Lakeview Beach West—Continued						
July 28	0858	17	295	15.7	21.0	140
July 29	0802	3.1	273	--	22.1	490
Aug. 2	0852	2.1	281	20.4	22.8	93
Aug. 3	0851	12	278	22.2	23.3	>800
Aug. 4	0920	1.8	278	21.0	23.6	600
Aug. 5	0753	28	324	17.6	21.6	2400
Aug. 9	0849	2.2	279	19.9	22.8	220
Aug. 10	0856	5.0	281	19.9	22.9	350
Aug. 11	0900	21	270	16.5	22.4	430
Aug. 12	0914	14	267	17.6	21.5	E40
Aug. 16	0859	1.9	266	19.9	20.7	130
Aug. 18	0906	2.0	261	18.0	21.0	E3600
412752082114400—Lake Erie at Lakeview Beach Central						
June 24	0900	20	299	19.2	21.3	E1400
June 29	0855	11	--	20.0	21.4	390
June 30	0907	7.6	--	21.2	21.7	120
July 1	0756	3.2	--	20.2	22.6	58
July 6	0752	7.3	--	20.0	21.5	E1100
July 7	0903	10	--	24.0	23.8	200
July 8	0845	28	--	21.0	23.0	370
July 12	0902	1.6	--	24.5	23.0	110
July 13	0846	1.6	--	23.0	24.0	240
July 14	0851	26	--	23.5	24.0	E3800
July 15	0749	87	--	21.0	22.0	230
July 19	0933	1.7	--	24.5	23.2	38
July 20	0855	2.7	--	22.0	24.0	170
July 21	0859	6.3	--	27.0	24.0	E6100
July 22	0810	5.8	276	22.6	24.3	E3300
July 26	0841	6.2	311	24.4	22.2	42
July 27	0919	7.5	330	20.1	22.1	150
July 28	0844	25	297	15.7	20.9	560
July 29	0752	3.2	267	--	22.3	310
Aug. 2	0840	1.6	278	20.4	22.6	110
Aug. 3	0859	21	279	22.2	23.4	>800
Aug. 4	0915	1.9	279	21.0	23.6	290
Aug. 5	0749	21	326	17.6	21.7	930
Aug. 9	0907	2.8	279	19.9	22.7	540

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated; >, concentration is greater than indicated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance, water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412752082114400—Lake Erie at Lakeview Beach Central—Continued						
Aug. 10	0902	6.9	264	19.9	22.6	870
Aug. 11	0849	22	269	16.5	22.3	380
Aug. 12	0909	18	268	17.6	21.4	290
Aug. 16	0852	2.1	261	19.9	20.9	420
Aug. 18	0910	2.7	262	18.0	21.5	E6700
412753082114200—Lake Erie at Lakeview Beach East						
May 26	1047	27	296	22.5	19.7	68
May 27	0928	9.5	299	22.2	18.6	34
June 1	0918	49	322	21.5	17.7	E300
June 2	0909	26	315	20.3	17.9	180
June 3	0900	15	310	19.5	18.5	130
June 7	0853	3.0	311	21.3	18.4	190
June 8	0849	3.0	309	22.4	19.7	240
June 9	0853	3.1	309	27.7	21.0	E280
June 10	0857	15	315	21.2	21.6	E770
June 14	0857	7.1	299	23.9	20.9	870
June 15	0903	11	306	21.7	21.3	790
June 16	0847	7.8	308	21.4	21.0	700
June 17	0856	8.5	312	23.5	21.2	850
June 21	0858	5.3	296	18.4	20.4	330
June 22	0851	18	294	21.7	21.4	E2900
June 23	0849	19	297	19.1	21.4	90
June 24	0804	18	297	19.2	21.6	370
June 28	0900	15	276	19.2	21.7	290
June 29	0853	8.8	--	20.0	21.2	200
June 30	0901	9.0	--	21.2	21.7	83
July 1	0825	3.9	--	20.2	22.6	120
July 6	0819	11	--	20.0	23.0	320
July 7	0908	6.9	--	24.0	23.2	E3900
July 8	0850	16	--	21.0	23.0	330
July 12	0858	1.7	--	24.5	23.0	150
July 13	0842	1.4	--	23.0	24.0	350
July 14	0859	15	--	23.5	24.0	480
July 15	0804	65	--	21.0	23.0	220
July 19	0939	2.6	--	24.5	23.6	82
July 20	0900	2.7	--	22.0	24.0	93

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004—Continued

[(63676), USGS National Water Information System parameter code; NTRU, Nephelometric Turbidity Ratio Units; µS/cm, microsiemens per centimeter; deg C, degrees Celsius; *E. coli*, *Escherichia coli*; col/100 mL, colonies per 100 milliliters; --, no data; E, estimated; >, concentration is greater than indicated]

Date	Time	Turbidity (NTRU) (63676)	Specific conductance, water unfiltered (µS/cm) (00095)	Temperature, air (deg C) (00020)	Temperature, water (deg C) (00010)	*E. coli* modified mTEC, water (col/100 mL) (90902)
412753082114200—Lake Erie at Lakeview Beach East—Continued						
July 21	0902	2.1	--	27.0	24.0	130
July 22	0945	6.2	272	22.6	24.3	1500
July 26	0845	7.2	303	24.4	22.3	E65
July 27	0924	7.6	327	20.1	22.2	E110
July 28	0853	21	297	15.7	20.8	250
July 29	0859	2.8	--	--	--	110
Aug. 2	0847	1.6	279	20.4	22.8	E75
Aug. 3	0906	25	279	22.2	23.4	>800
Aug. 4	0910	2.6	277	21.0	23.7	400
Aug. 5	0829	23	324	17.6	21.8	2000
Aug. 9	0911	2.8	279	19.9	22.8	73
Aug. 10	0909	6.3	268	19.9	22.7	870
Aug. 11	0853	26	268	16.5	22.2	690
Aug. 12	0905	20	267	17.6	21.2	550
Aug. 16	0848	2.1	265	19.9	21.2	110
Aug. 18	0918	1.8	262	18.0	21.6	E2400

Index

Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	25.4×10^{-1}	millimeter (mm)
	22.54×10^{-2}	meter(m)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
	Area	
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
acre	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
	Volume	
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubicc hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	meter (dm^3)
cubic foot (ft^3)	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second day [(ft^3/s/d)]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.233×10^{3}	cubic meter (m^3)
	1.233×10^{-3}	cubic hectometer (hm^3)
	1.233×10^{-6}	cubic kilometer (km^3)
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second (m^3/s)
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
	Mass	
ton, short (2,000 lb)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$°F = (1.8 \times °C) + 32$

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
6480 Doubletree Avenue
Columbus, OH 43229-1111

Printed on recycled paper