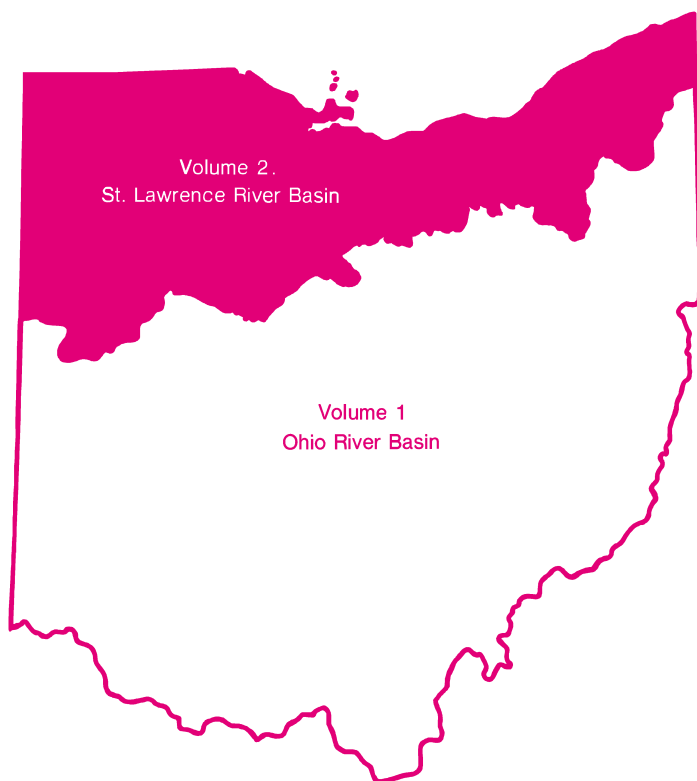


Water Resources Data Ohio Water Year 2002

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

Water-Data Report OH-02-2



CALENDAR FOR WATER YEAR 2002

2001

OCTOBER

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
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NOVEMBER

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2002

JANUARY

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FEBRUARY

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APRIL

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JULY

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AUGUST

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SEPTEMBER

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Water Resources Data Ohio Water Year 2002

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-02-2



U.S. Department of the Interior

Gale A. Norton, Secretary

U.S. Geological Survey

Charles G. Groat, Director

For additional information write to:

District Chief,
U.S. Geological Survey
6480 Doubletree Avenue
Columbus, OH 43229-1111

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 River 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	C.A. Hawkins	D.C. Reutter
R.N. Bushon	L.N. Hout	J.W. Roberts
A.W. Coen III	G.A. Hren	G.L. Rowe
S.A. Covert	C.A. Huitger	D.L. Runkle
R.A. Darner	K.S. Jackson	C.W. Schalk
A.L. Dillenburg	S.D. Janosy	T.L. Schumann
D.H. Dumouchelle	C.M. Kephart	K.H. Shaffer
C.M. Eberle	G.F. Koltun	R.A. Sheets
T.J. Eaton	S.P. Kula	J.M. Sherwood
D.P. Finnegan	D.O. Kumfer	D.J. Shifflet
D.S. Francy	A.E. Kunze	L.A. Simonson
R.P. Frehs	J.E. Lageman	L.M. Snider
S.M. Fuller	B.E. Mailot	B.N. Sroka
A.M. Gifford	K.A. Mauch	D.M. Stoeckel
E.J. Granger	J.A. McClure	D.E. Straub
J.C. Hach	K.D. Metzker	J.S. Tertuliani
R.J. Haefner	C.J. Ostheimer	S.A. Vivian
J.A. Hambrook	S.M. Quigley	M.T. Whitehead
S.W. Hatch		

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

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13. ABSTRACT (Maximum 200 words) Water-resources data for the 2002 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 20 partial-record sites; water levels at 246 observation wells and 32 crest-stage gages; and water quality at 32 gaging stations, 58 observation wells, and 10 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 386
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[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

[Letters after station names designate type of data: (c) chemical, (d) discharge, (e) contents and (or) elevation, (M) water-quality monitor, (HBM) hydrologic bench mark, (S) daily suspended-sediment data]

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LAKE ERIE BASIN		
OTTAWA RIVER BASIN		
Ottawa River at University of Toledo, Toledo (d)	04177000.....	48
MAUMEE RIVER BASIN		
Bean Creek at Powers (d)	04184500	49
Tiffin River at Stryker (d)	04185000	50
Unnamed Tributary to Lost Creek near Farmer (d)	04185440	51
Auglaize River near Fort Jennings (d)	04186500	52
Blanchard River near Findlay (d)	04189000	53
Auglaize River near Defiance (d)	04191500	54
Maumee River near Defiance (d)	04192500	55
Maumee River at Waterville (cdS)	04193500	56
PORTAGE RIVER BASIN		
Portage River at Woodville (d)	04195500	60
Portage River at Elmore (d)	04195820	61
SANDUSKY RIVER BASIN		
Sandusky River near Bucyrus (d)	04196000	62
Sandusky River near Upper Sandusky (d)	04196500	63
Tymochtee Creek at Crawford (d)	04196800	64
Honey Creek at Melmore (d)	04197100	65
Rock Creek at Tiffin (d)	04197170	66
Sandusky River near Fremont (cdS)	04198000	67
HURON RIVER BASIN		
Huron River at Milan (d)	04199000	71
OLD WOMAN CREEK BASIN		
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VERMILION RIVER BASIN		
Vermilion River near Vermilion (d)	04199500	73
BLACK RIVER BASIN		
East Branch Black River at Elyria (d)	04200000	74
West Branch Black River at Elyria (d)	04200300	76
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Rocky River near Berea (d)	04201500	81
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Cuyahoga River at Hiram Rapids (d)	04202000	82
Cuyahoga River at Old Portage (d)	04206000	83
Powers Brook at Hudson (d)	04206014	84
Powers Brook at Stow (d)	04206021	85
Mud Brook at Stow (d)	04206029	86
Crystal Creek at Stow (d)	04206038	87
Mud Brook at Cuyahoga Falls (d)	04206043	88
North Fork at Bath Center (d)	04206212	89
Yellow Creek at Botzum (d)	04206220	90

	Station Number	Page
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Tinkers Creek at Bedford (d)	04207200.....	91
Cuyahoga River at Independence (cdS)	04208000.....	92
Cuyahoga River at LTV Steel at Cleveland (d).....	04208504.....	96
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Chagrin River At Willoughby (d)	04209000.....	97
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CONNEAUT CREEK BASIN		
Conneaut Creek at Conneaut (d)	04213000.....	99

GROUND-WATER STATIONS FOR WHICH RECORDS ARE PUBLISHED

[Letters after station names designate type of data: (c) chemical, (l) water level]

	Well Number	Local Number	Page
CRAWFORD COUNTY			
Bucyrus (l).....	404838082563100	CR-1	103
GEAUGA COUNTY			
Southeast of Chagrin Falls (l).....	412518081221500	GE-3A	104
HANCOCK COUNTY			
North of Vanlue (l).....	405940083275500	HA-3.....	105
HARDIN COUNTY			
Southeast of Dola (l)	404648083412600	HN-2A.....	106
HENRY COUNTY			
Southwest of McClure (l).....	412123083574000	HY-2.....	107
LUCAS COUNTY			
Toledo (l).....	413704083362200	LU-1	108
MEDINA COUNTY			
Lodi (l).....	410142082005900	MD-1	109
OTTAWA COUNTY			
Catawba Island (l)	413434082494000	O-2	110
PORTAGE COUNTY			
East of Kent (l).....	410931081192900	PO-123	111
PUTNAM COUNTY			
Columbus Grove (l).....	405505084032900	PU-1	112
SANDUSKY COUNTY			
Fremont (l).....	411914083045300	S-3	113
Woodville (l)	412703083213600	S-2	114
SENECA COUNTY			
Tiffin (l).....	410802083093900	SE-2.....	115
SUMMIT COUNTY			
Akron (l).....	410330081282000	SU-6	116
Cuyahoga Falls (l).....	410846081271600	SU-7	117
VAN WERT COUNTY			
Van Wert (l)	405215084335400	VW-1.....	118
WILLIAMS COUNTY			
Bryan (l)	412821084313600	WM-1	119
Bryan (l)	412930084320900	WM-3	120
East of Blakeslee (l)	413108084415300	WM-12	121
WYANDOT COUNTY			
Upper Sandusky (l).....	405009083172600	WY-1.....	122

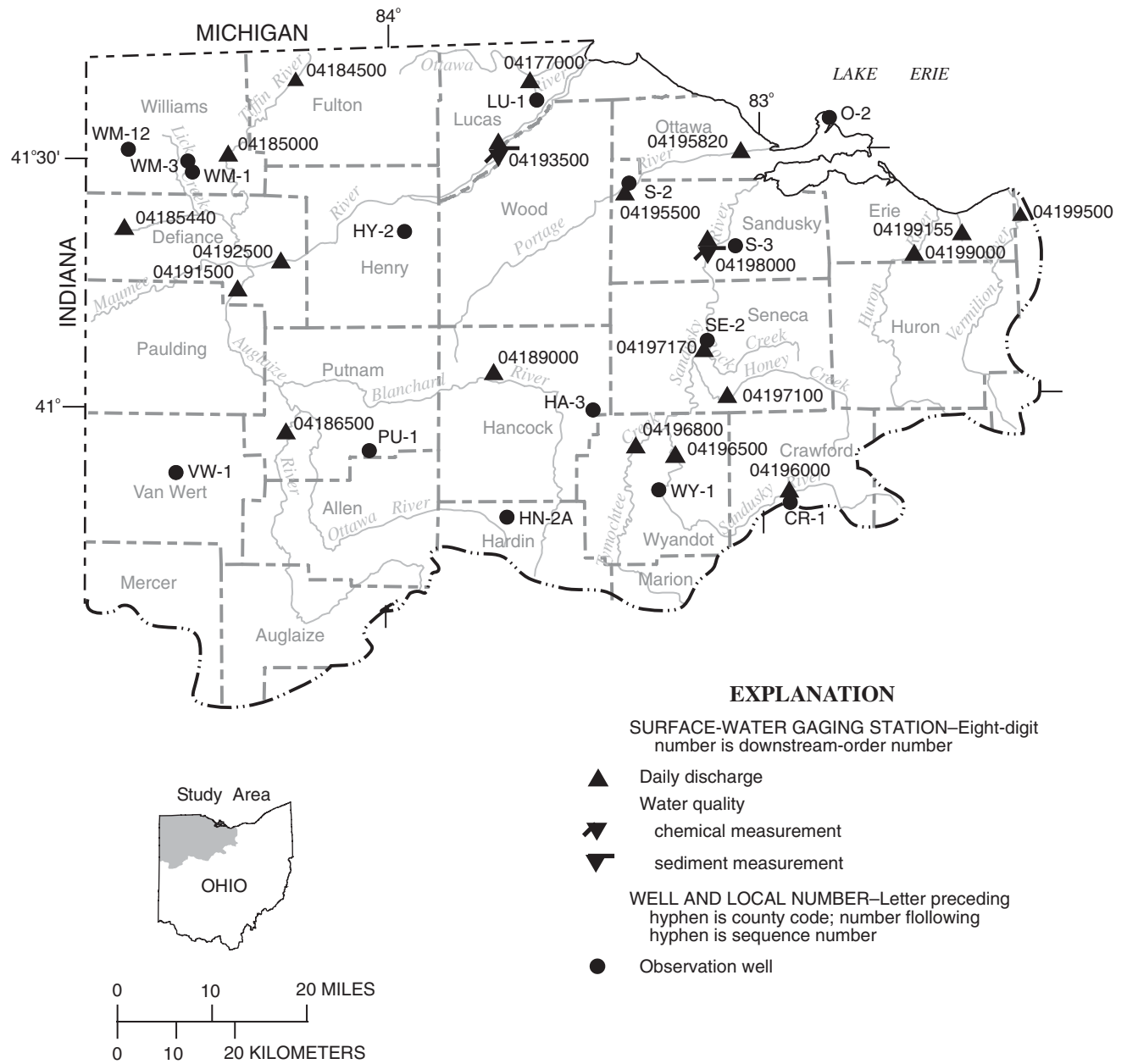


Figure 1a. Location of data-collection stations and wells.

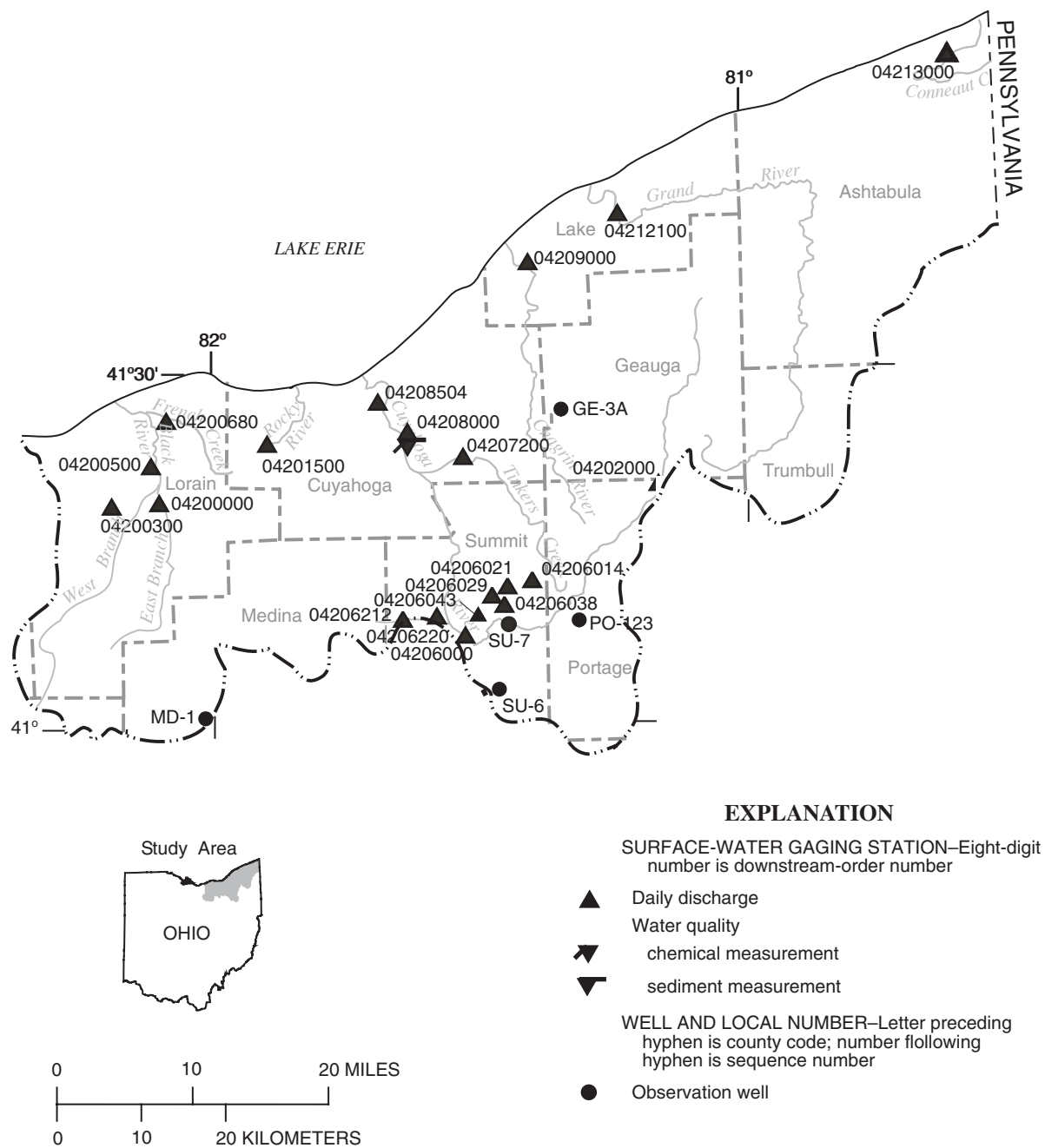


Figure 1b. Location of data-collection stations and wells.

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 District Office at the address given on the back side of the title page of this report.

[mi², square miles; a---, not determined for canals.]

Station name	Station number	Drainage area (mi ²)	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
Lacarbe 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's Creek at U.S. Highway 6 at Huron	04199165	26.5	1980-94
Lake Erie at Huron	04199170		1980-86
Lake Erie at Ruggles Beach	04199175		1987-94
Vermilion River near Fitchville	04199287	112	1987-89 1991-93

Discontinued Surface-Water-Discharge Stations—Continued

[mi², square miles; a---, not determined for canals.]

Station name	Station number	Drainage area (mi ²)	Period of record
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
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 District Office at the address given on the back side of the title page of this report.

[mi², square miles; letters designate type of record: do, dissolved oxygen; pH, pH; s, sediment; sc, specific conductance; t, temperature]

Station name	Station number	Drainage area (mi ²)	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 pH	1966-70 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 do, pH	1969-82 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 do, pH, sc, t	1936 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 s do	1950-52 1950-53 1970-80
Sandusky River near Upper Sandusky	04196500	298	do, sc, t pH	1969-79 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 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 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 do, pH	1969-76 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
West Branch Black River above Lake Street at Elyria	04200430	174	s	1980-81
Black River at Elyria	04200500	396	t sc s	1962-70 1964-70 1980-81
Black River below Elyria	04200550	412	do, sc, t pH	1966-82 1976-82

Discontinued Surface-Water-Quality Stations—Continued

[mi², square miles; letters designate type of record: do, dissolved oxygen; pH, pH; s, sediment; sc, specific conductance; t, temperature]

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
Cuyahoga River at Old Portage	04205700	59.2	do, pH, sc, t s	1970-84 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	do, sc, t pH	1965-91 1972-91
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 s	1950 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-02-2." 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 the District Chief at 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, Aurora, Canton, Cincinnati, Columbus (Water Division and Sewerage and Drainage

Division), Elyria, Fremont, Hamilton, Jeffersonville, Warren, Westerville, Willoughby, and Youngstown
 Counties of Clermont, Cuyahoga (Board of Health and Sanitary Engineering Division), Geauga, Knox, Lorain, Madison, Portage, Ross, and Summit
 Cuyahoga River Community Planning Organization
 Eastgate Development and Transportation Agency
 Federal Emergency Management Agency, Region V
 Miami Conservancy District
 Northeast Ohio Regional Sewer District
 Ohio Environmental Protection Agency (Drinking & Ground Waters Division) and Departments of Natural Resources (Mineral Resources Management and Water Divisions) and Transportation
 Ottawa River Coalition
 Ottawa Soil and Water District
 State of Ohio Adjutant General's Department
 The Ohio State University
 Villages of Chagrin Falls, North Olmstead, and South Russell
 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, and Industrial Operations)
 U.S. Environmental Protection Agency
 West Virginia Division of Environmental Protection
 West Virginia University

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

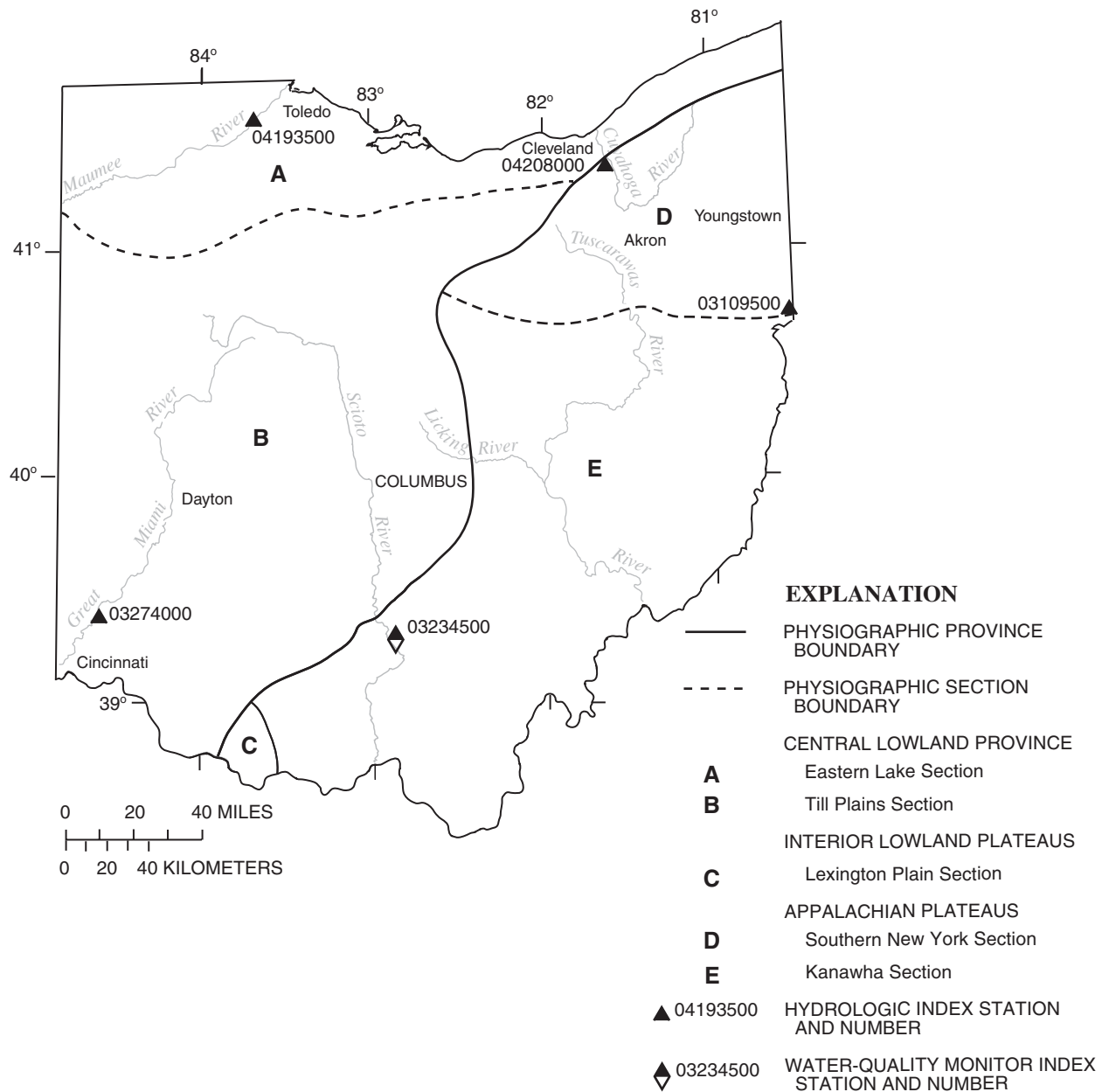


Figure 2. Physiographic divisions and location of hydrologic index stations.

26 inches that enters the ground, 20 inches is retained in the unsaturated zone and is later lost by evapotranspiration. The remaining 6 inches reaches the water table. Of this 6 inches, 2 inches eventually discharges to streams, and the rest is lost by evapotranspiration and consumptive use. Average runoff ranges from about 15 to 18 inches along the southern border to about 8 to 12 inches along most of the northern border, except in the northeast, where runoff is as much as 20 inches. The pattern of streamflow differs from the pattern of precipitation because of the contributions of snowmelt to streamflow in the early spring and the reduction in flows by evapotranspiration from June through September.

Surface Water

Streamflow

Streamflow-data-collection stations are distributed irregularly throughout the State and tend to be concentrated on the main river systems. The stations are used to sample a wide variety of conditions. The drainage areas range from less than 4 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 2002. Streamflow conditions during water year 2002 were as follows:

October. At the beginning of water year 2002, streamflow was in the normal* range statewide except for southwestern Ohio, where flows were excessive. Above-normal precipitation in October caused flows to rise into the excessive range throughout the State except for northeastern Ohio, where they remained normal.

November. Streamflows fell into the deficient range in northeastern Ohio and into the normal range elsewhere in response to below-normal precipitation.

December. Above-normal precipitation produced excessive flows statewide except for northeastern Ohio, where flows rose into the normal range.

January. Streamflow fell into the deficient range for much of the State in response to below-normal precipitation.

February–March. Streamflow fell into the deficient range for much of the State in response to below-normal precipitation.

April–May. Excessive flows prevailed for most of Ohio as a result of above-normal precipitation statewide.

June–September. Seasonal declines in streamflow characterized the remainder of the water year. Below-normal precipitation throughout the period resulted in deficient flows in northern Ohio and normal to below-normal flows for the rest of the State by year's end.

A comparison of streamflows for 2002 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

* For streamflow, "normal" is defined as being between the 25th and 75th percentiles as measured during the base period, water years 1971-2000.

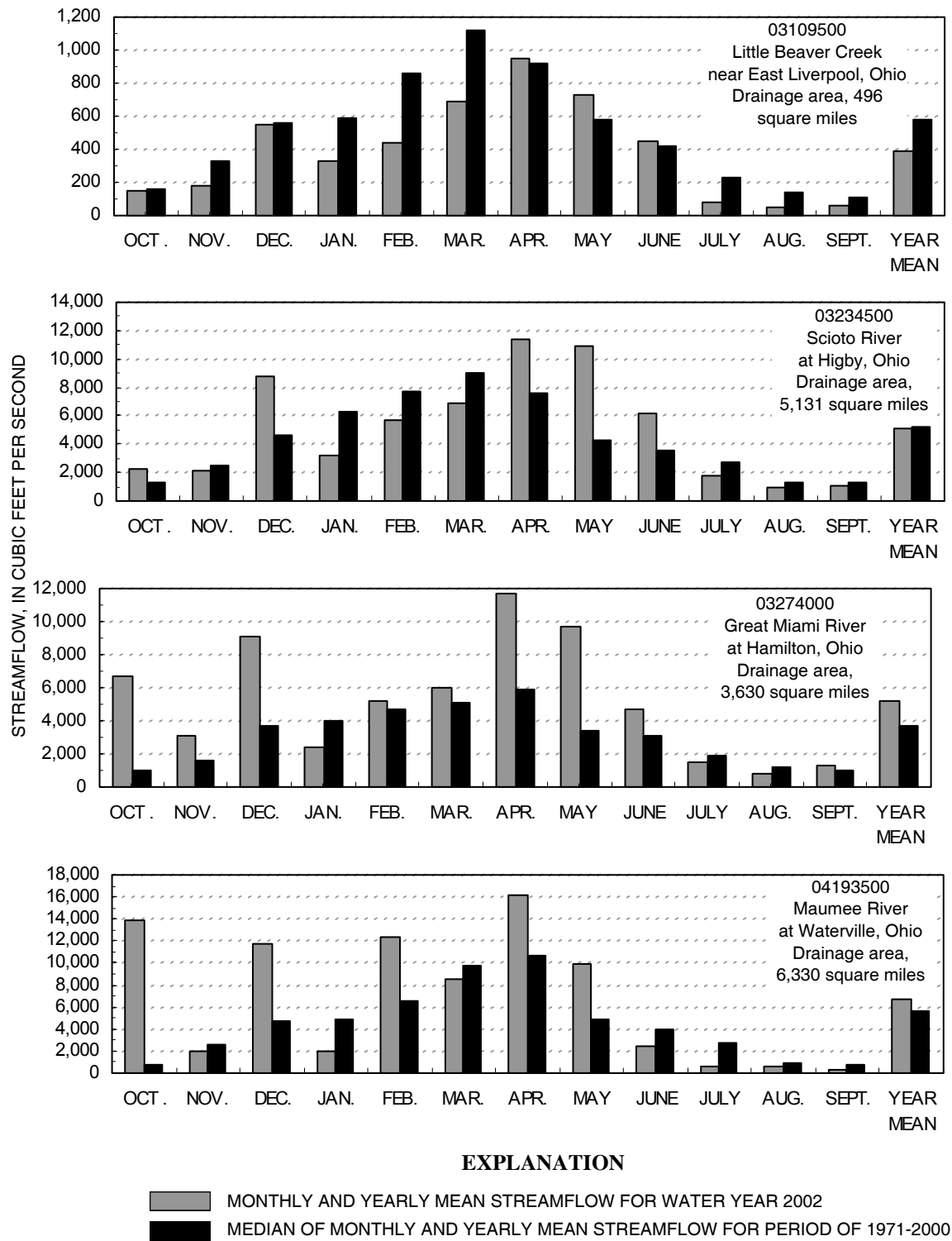


Figure 3. Streamflow during water year 2002 compared with median streamflow for period 1971-2000 for four representative four gaging stations.

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 2002, the LERI NAWQA was in its low-intensity data-collection phase; water-quality data were collected at five fixed stations 8-10 times per year. During 2002, the WHMI was in its high-intensity data-collection phase and collected water-quality data semimonthly 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 have been collected as part of the NAWQA program for two of the sites in the LERI study unit—the Maumee River at Waterville and the Auglaize River at Fort Jennings. Box plots of streamflow and concentrations of selected constituents measured during the previous 6-year period (1996 to 2001) are shown in figures 4 and 5. Results of analysis of samples collected in water year 2002 are superimposed on the box plots and are represented by dark circles.

The values for streamflow measured at the time of water-quality sampling were lower during 2002 than for the previous 5-year period for the Auglaize River but not for the Maumee River. For the Auglaize River, 7 out of 10 samples were collected at low flow; these values were below the 25th percentile and less than 100 cubic feet per second. For the Maumee River, three out of nine samples were collected at low flow, four at a moderate flow (between the 25th and 75th percentile), and two at high flow (above the upper whisker).

At both sites, chloride concentrations, commonly associated with municipal or industrial point sources of wastewater, were higher in 2002 than concentrations measured during the previous 5-year period. For the Auglaize River, chloride concentrations determined in eight samples collected during 2002 were above the median concentration (40 milligrams per liter (mg/L)) found for the years 1996-2001. Similarly for the Maumee River, chloride concentrations determined in seven samples during 2002 were above the median concentration (34 mg/L) found for the years 1996-2001.

Out of the 19 samples collected for nitrate plus nitrite during 2002 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 Auglaize River in 2002 were lower than as those found during the previous 5-year period, reflecting the low streamflows at the time of sampling during 2002; seven samples collected during 2002 were below the median concentration for the years 1996-2001 (5.4 mg/L). At the Maumee River, nitrate plus nitrite concentrations during 2002 were generally in the same range as those found during the previous 5 years, except that no extreme high values above the 75th percentile were found during 2002.

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 2002, median concentrations of total phosphorus were 0.172 mg/L for the Auglaize River and 0.123 mg/L for the Maumee River. As with other constituents affected by the low streamflows in 2002 at the Auglaize River, phosphorus concentrations were somewhat reduced; the extreme high values for total phosphorus found during the previous 5-year period were not found during 2002.

The Auglaize and Maumee Rivers are in areas of heavy herbicide use. Not surprisingly, atrazine was detected in 100 percent of the water samples collected from the Auglaize and Maumee Rivers. Atrazine concentrations found in samples collected during 2002 were generally in the same range as those found during the previous 5-year period; however, no extreme high values were found during 2002. In the Auglaize River during 2002, atrazine concentrations ranged from 0.054 to 2.36 micrograms per liter ($\mu\text{g/L}$); in the Maumee River, atrazine concentrations ranged from 0.06 to 4.24 $\mu\text{g/L}$.

Elevated suspended sediment concentrations result from periods of high streamflows and are exacerbated by increased development and agriculture. As with other constituents affected by the low streamflows in 2002, suspended-sediment concentrations in the Auglaize River were lower than those found during the previous 5-year period; out of eight samples analyzed for suspended-sediment concentrations during 2002, six samples were below the median concentration for 1996-2001 (89 mg/L). At the Maumee River, concentrations during 2002 were somewhat lower than those measured during 1996-2001; median concentrations were 30 and 65 mg/L, respectively.

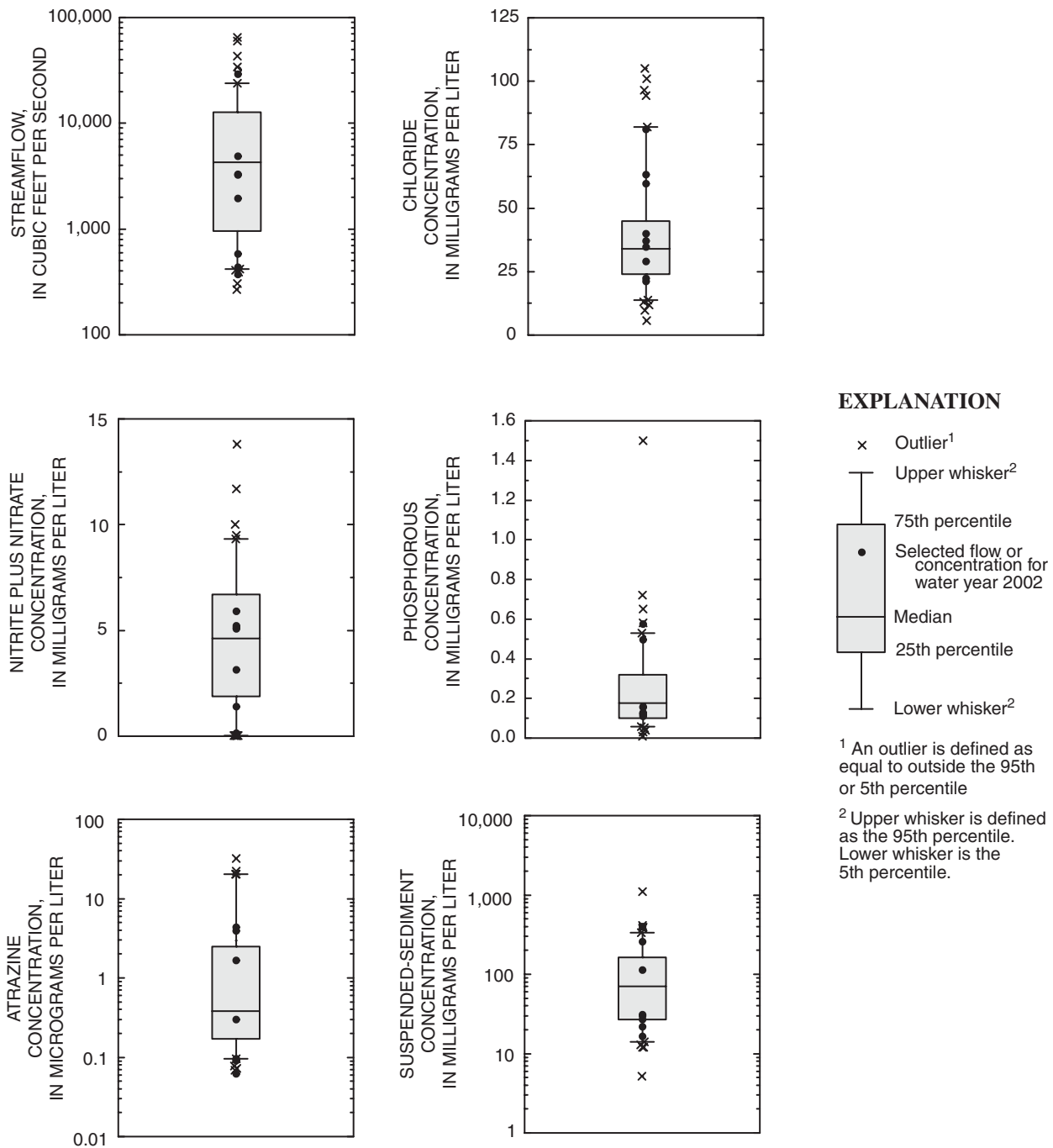


Figure 4. Streamflow and concentration of select constituents measured in water year 2002 and the distribution of those characteristics from measurements made during water years 1996-2001 for the Maumee River at Waterville.

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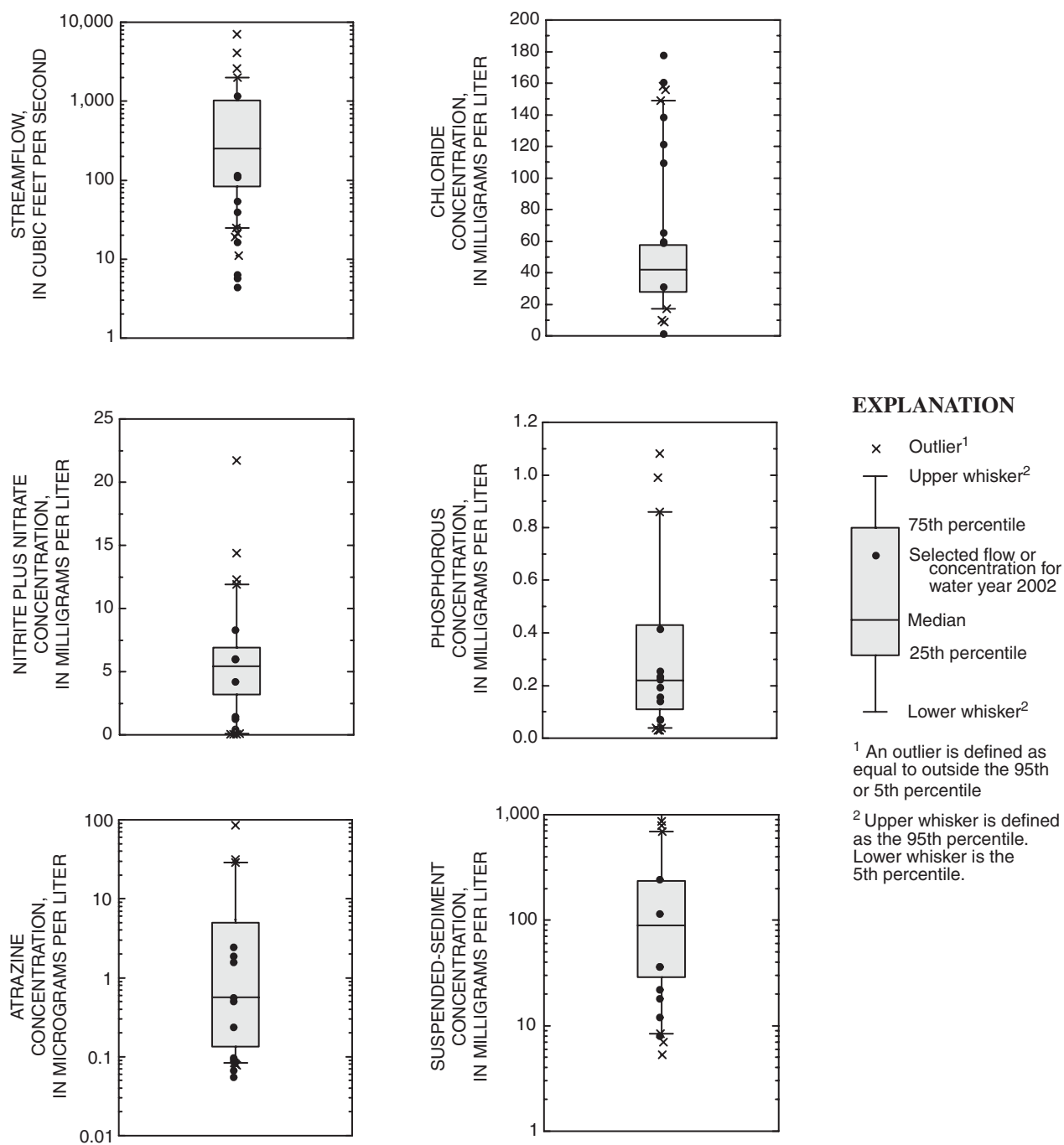


Figure 5. Streamflow and concentration of select constituents measured in water year 2002 and the distribution of those characteristics from measurements made during water years 1996-2001 for the Auglaize River at Ft. Jennings.

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.

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 2002 were as follows:

October. At the beginning of water year 2002, ground-water levels were generally below normal*

* For ground-water "normal" is defined as being between the 25th and 75th percentiles of the range values recorded during the reference period, water years 1951-2000.

throughout the State. Above-normal precipitation stabilized ground-water levels by month's end, but they remained below normal.

November–December. Ground-water levels rose throughout the State in response to above-normal precipitation but generally remained in the below-normal range.

January–February. Ground-water levels stabilized as a result of below-normal precipitation and remained in the below-normal range statewide.

March–May. Above-normal precipitation during the period produced net rises in ground-water levels across the State. By the end of May, ground-water levels were near or above normal in western Ohio and below normal in the eastern part of the State.

June–September. Seasonal declines and below-normal precipitation for the remainder of the water year produced ground-water levels that were below normal in most aquifers throughout the State.

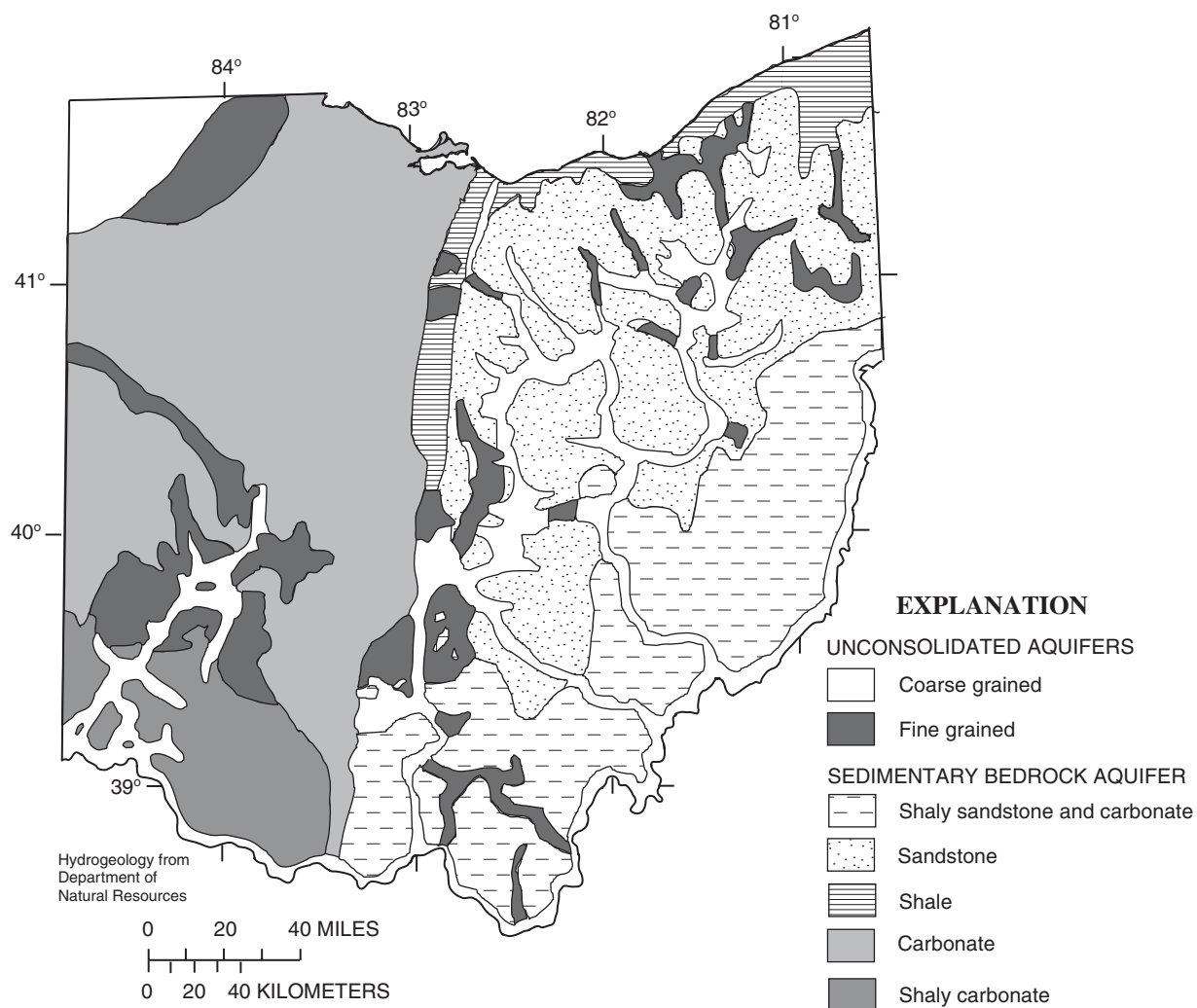


Figure 6. Geographic distribution of principal aquifers in Ohio.

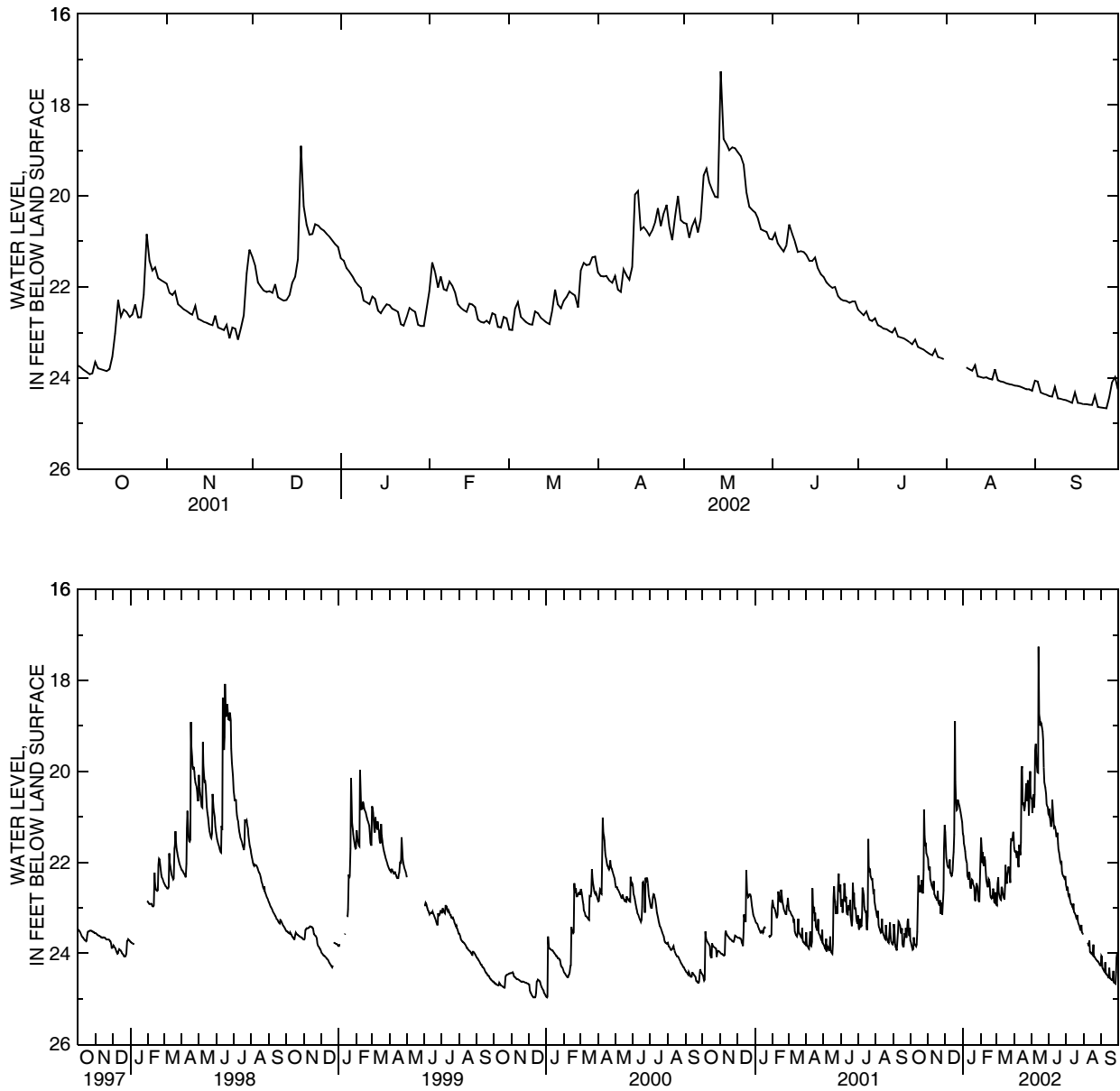


Figure 7. Sample of 1-year and 5-year hydrographs of well H-1 (391717084393300), completed in a unconfined unconsolidated aquifer.

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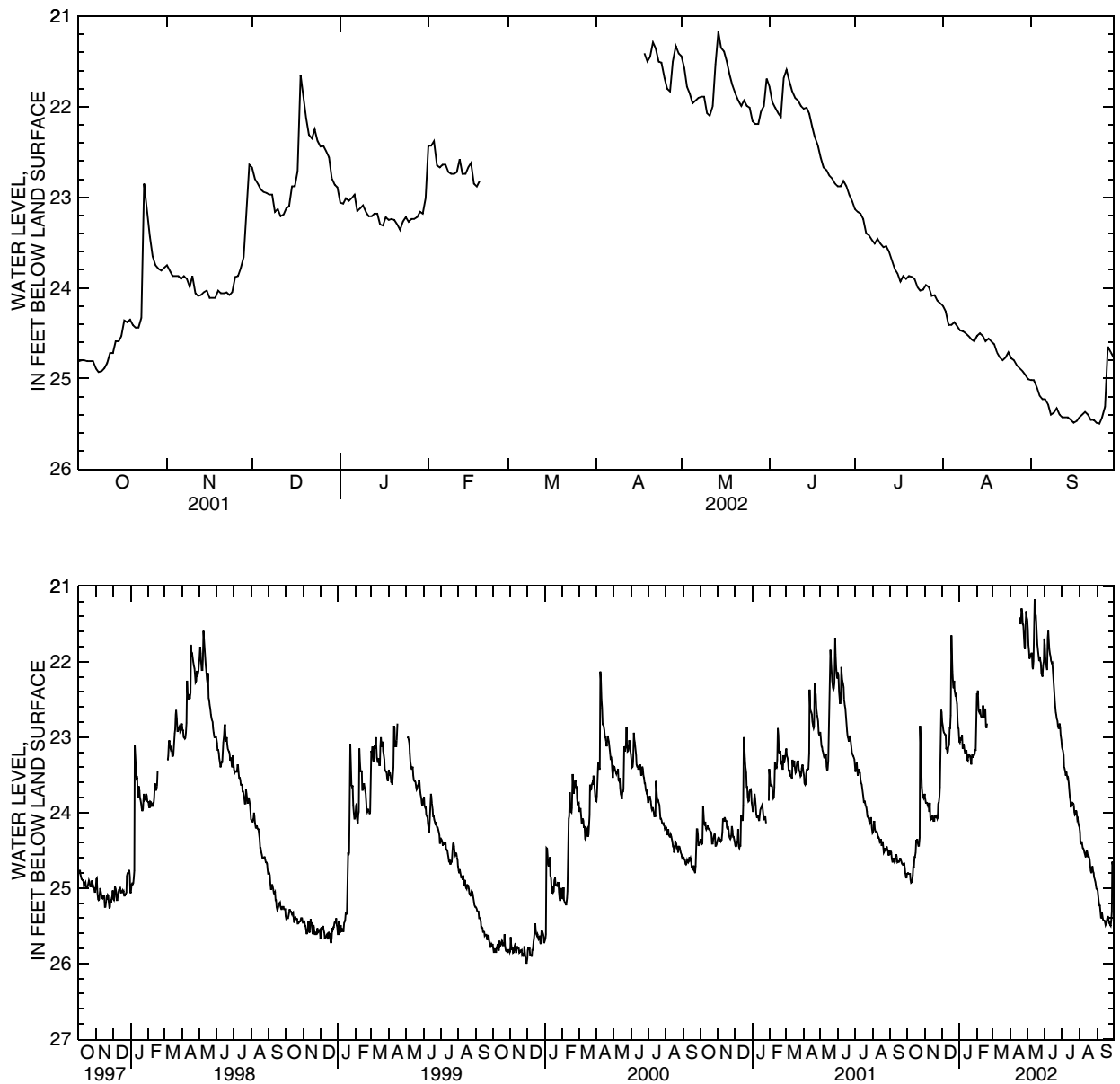


Figure 8. Sample of 1-year and 5-year hydrographs of well U-4 (401826083255200), completed in a confined carbonate-rock aquifer.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the streamflow representative of undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. At 10 of these 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 can be found at <http://water.usgs.gov/hbn/>.

National Stream-Quality Accounting Network (NASQAN) monitors 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 basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia 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 Program (NAWQA); (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 can be found at <http://water.usgs.gov/nasqan/>.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) 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 a network of 225 precipitation chemistry monitoring 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 all data from the individual sites, can be found at <http://bqs.usgs.gov/acidrain/>.

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey 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; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 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 will be 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 decision making by water-resources managers 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 can be found at <http://water.usgs.gov/nawqa/>.

EXPLANATION OF THE RECORDS

The records in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether onstream or at a well, is assigned a unique identification number. The number is generally assigned when a station is first established and is retained for that station indefinitely. The systems used by the USGS to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic locations. The “downstream order” system is used for regular surface-water stations and the “latitude-longitude” system is used for wells and, in Ohio, for surface-water stations where only infrequent measurements are made.

Downstream Order System

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

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

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. In the rare instance where the

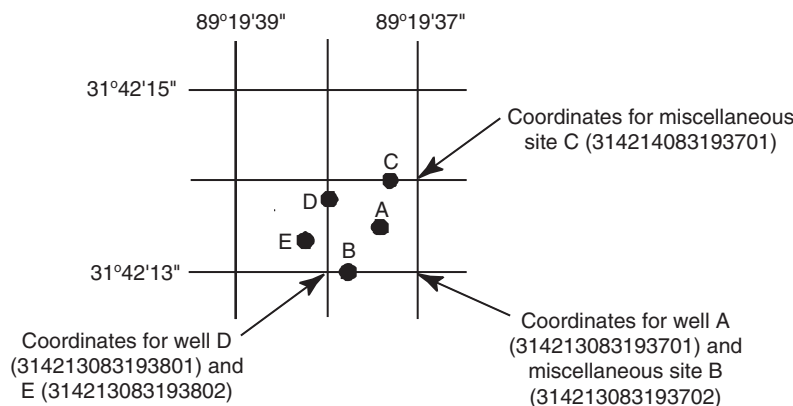


Figure 9. System for numbering wells and miscellaneous sites (latitude and longitude).

initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 9.)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean discharge may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir contents, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time or period of time. They may be obtained using a continuous stage-recording device but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as “daily stations.”

By contrast, partial records are obtained through discrete measurements often without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of a partial record is indicated by table titles such as CREST-STAGE PARTIAL RECORDS or LOW-FLOW PARTIAL RECORDS. Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record stations for which data are given in this volume are shown in figures 1a through 1b (located after “contents”).

Data Collection and Computation

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

Continuous records of stage are obtained with digital recorders that store stage data on solid-state storage

media at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the USGS as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in USGS Techniques of Water-Resources Investigations, Book 3, Chapter A6.

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

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

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

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

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

At some gaging stations, acoustic velocity meter (AVM) systems are used to compute discharge. The AVM system measures the stream's velocity at one or more paths in the cross section. Coefficients are developed to relate this path velocity to the mean velocity in the cross section. Because the AVM sensors are fixed in position, the adjustment coefficients generally vary with stage. Cross-sectional area curves are developed to relate stage, recorded as noted above, to cross-section area. Discharge is computed by multiplying path velocity by the appropriate stage-related coefficient and area.

Data Presentation

The records published for each gaging station consist of two parts—the manuscript or station description and the data table for the current water year.

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 to follow clarify information presented under the various headings of the station description.

LOCATION.—Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileage, given for only a few stations, was 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 types of maps available vary from one drainage basin to another, the accuracy of the drainage areas likewise varies. Drainage areas are updated as better maps become available.

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

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

GAGE.—The type of gage in current use, the datum of the current gage referred to sea level (National Geodetic Vertical Datum of 1929) unless otherwise noted, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

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

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

EXTREMES FOR PERIOD OF RECORD.—In some headings “Extremes for Period of Record” is presented as a paragraph separate from summary statistics. Extremes may include maximum and minimum stages and maximum and minimum discharges or contents. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, from a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is

the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

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

PEAK DISCHARGES ABOVE BASE FOR CURRENT YEAR.—Presented as a separate table. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. All peaks greater than the base discharge are listed with the maximum for the year footnoted by an asterisk (*). Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial regulation or at locations where the instantaneous peak discharge does not exceed the mean daily discharge by 10 percent. 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.

REVISIONS.—If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb (<http://water.usgs.gov/nwis/nwis>). Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

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

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

Data Table of Daily Mean Values. The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed TOTAL gives the sum of the daily figures. The line headed MEAN gives the average flow in cubic feet per second during the month. The lines headed MAX and MIN give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month is often expressed in cubic feet per square mile (line headed CFSM), or in inches (line headed IN.), or in acre-feet (line headed AC-FT). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by symbol and corresponding footnote.

Statistics of Monthly Mean Data. A tabular summary of the mean (line headed MEAN), maximum (line headed MAX), and minimum (line headed 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 figures. 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. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics

are computed will be 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 record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be 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 SEVEN-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 the footnotes. When the maximum or minimum statistic occurred outside the designated period, that statistic is listed in the EXTREMES FOR PERIOD OF RECORD paragraph in the manuscript. Selected streamflow-duration-curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to 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. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.—The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

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 SEVEN-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 second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area for the area. Inches (INCHES) indicates the depth to which the drainage area would be covered if all 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 usually presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second, when collected, is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in time of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

Daily mean discharges in this report are given to the nearest hundredths of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to three significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations

and miscellaneous sites.

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

Other Records Available

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

Records of Surface-Water Quality

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

Classification of Records

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

A careful distinction needs to be made between “continuing records” as used in this report and “continuous recordings,” which refers to a continuous series of discrete values collected at short intervals and stored electronically in a data logger or obtained via data collection platform. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recording; however, because of cost, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this volume are shown in figures 1a and 1b.

Accuracy of the Records

For each record, one of four accuracy rating 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, as described by Wagner and others (2000). Additional consideration also is given to the amount of publishable record and to the amount of data that have been corrected or shifted.

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Rating classifications for continuous water-quality records

[≤, less than or equal to; ±, plus or minus value shown; °C, degree Celsius; >, greater than; %, percent; mg/L, milligram per liter; pH unit, standard pH unit]

Measured physical property	Rating			
	Excellent	Good	Fair	Poor
Water temperature	≤± 0.2 °C	>± 0.2 to 0.5 °C	>±0.5 to 0.8° C	>± 0.8 °C
Specific conductance	≤± 3%	>± 3 to 10%	>± 10 to 15%	>± 15%
Dissolved oxygen	≤± 0.3 mg/L	>± 0.3 to 0.5 mg/L	>±0.5 to 0.8 mg/L	>± 0.8 mg/L
pH	≤± 0.2 unit	>± 0.2 to 0.5 unit	>± 0.5 to 0.8 unit	>± 0.8 unit
Turbidity	≤± 5%	>± 5 to 10%	>±10 to 15%	>± 15%

Arrangement of Records

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

Onsite Measurement and Sample Collection

In obtaining water-quality data, a major concern is that the data obtained represent the in situ quality of the water. To ensure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made on site when the samples are taken. To ensure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the sample to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on “Techniques of Water-Resources Investigations,” Book 1, Chap. D2; book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9.” Additional information on collecting, treating, and shipping samples can be found in USGS Water-Resources Investigations Report 98-4057 “Quality-Assurance/Quality-Control Manual for Collection and Analysis of Water-Quality Data in the Ohio District, U.S. Geological Survey.”

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

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum,

minimum, and mean values for each constituent measured and are based upon hourly readings beginning at 0100 hours and ending at 2400 hours for each day of record. More detailed records (hourly values) may be obtained from the USGS District Office, whose address is given on the back of the title page of this report.

Water Temperatures

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are frequently 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 daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

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

Sediment

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

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

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

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

Laboratory Measurements

Sediment samples, samples for microbiological analyses, and samples for specific conductance, pH, and dissolved oxygen are analyzed locally. All other samples are analyzed in the USGS laboratories in Arvada, Colo., or by a USGS-approved outside laboratory. Methods used in analyzing sediment samples and computing sediment records are given in the series "Techniques of Water-Resources Investigations" (TWRI), which are listed in this report, and in other documents listed on the World Wide Web page for USGS, Water Resources Division, Office of Water Quality (<http://water.usgs.gov/owq>).

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive

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

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

LOCATION.—See Data Presentation under “Records of Stage and Water Discharge”; same comments apply.

DRAINAGE AREA.—See Data Presentation under “Records of Stage and Water Discharge”; same comments apply.

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

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

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

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

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

REVISIONS.—If errors in published water-quality records are discovered after publication, appropriate updates are made in the USGS computerized data system, the National Water Information System (NWIS). Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of USGS water-quality data are encouraged to obtain all required data from the appropriate computer file to ensure the most recent updates.

Remark Codes

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

- E, e Estimated value.
- > Actual value is known to be greater than the value shown.
- < Actual value is known to be less than the value shown.
- K Results based on colony count outside the acceptable range (non-ideal colony count).
- L Biological organism count less than 0.5 percent (organism may be observed rather than counted).
- D Biological organism count equal to or greater than 15 percent (dominant).
- & Biological organism estimated as dominant.
- V Analyte was detected in both the environmental sample and the associated blanks.
- M Presence verified but not quantified.

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. The chance of 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 <LRL for samples in which the analyte was either not detected or did not pass identification. Analytes that are detected at concentrations between the LT-MDL and 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.

Dissolved Trace-Element Concentrations

NOTE.—To confidently produce dissolved trace-element data with insignificant contamination, the USGS began using a new trace-element protocol at some stations in water year 1994 to collect trace-element data at the microgram per liter ($\mu\text{g/L}$) level (refer to USGS Open-File Report 94-539 "U.S. Geological Survey Protocol for the Collection and Processing of Surface-Water Samples for the Subsequent Determination of Inorganic Constituents in Filtered Water"). This protocol was used in the current water year at all stations. Therefore, the trace-element data for samples collected before and after implementation of new protocols are not directly comparable.

Change in National Trends Network Procedures

NOTE.—Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820-7495 (Telephone: 217-333-7873).

Records of Ground-Water Levels

Water-level data from a network of observation wells (in addition to project wells) are given in this report. The network well data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Ohio are shown in figures 1a and 1b (located after "contents"). Water-level data for specific projects are reported under those projects.

Data Collection and Computation

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

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is a 15-digit number that is based on latitude and longitude. The secondary identification number is the local well number, which is provided for local needs. Water-level measurements in this report are given in feet with reference to land-surface datum. Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above sea level is given in each well description. The height of the measuring point (MP) above or below land-surface datum is given in each

well description.

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

Data Presentation

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

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

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

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

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

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

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

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

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

Records of Ground-Water Quality

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

Data Collection and Computation

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

Most methods for collecting and analyzing water samples are described in the TWRI manuals listed in this report and on the World Wide Web page for the Office of Water Quality (<http://water.usgs.gov/owq>). The data presented in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to 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 the material comprising the casings.

Data Presentation

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

ACCESS TO 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. These data may be accessed at <http://water.usgs.gov>.

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 polychlorinated 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 is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is 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 the 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.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that 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”)

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

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 is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

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 lithology and porosity of the rock.

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 are generally reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used 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 $\frac{4}{3} \pi r^3$ cone $\frac{1}{3} \pi r^2 h$ cylinder $\pi r^2 h$.

pi (π) is the ratio of the circumference to the diameter of a circle; $\pi = 3.14159\dots$

From cell volume, total algal biomass expressed as biovolume ($\mu\text{m}^3/\text{mL}$) 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.

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 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, $[(\text{ft}^3/\text{s})/\text{d}]$) 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 are numerically 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, $(\text{ft}^3/\text{s})/\text{mi}^2$] 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 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 periodic sample or 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 are usually 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 UTM coordinates. (See also “Gage datum,” “Land-surface datum,” “National Geodetic Vertical Datum of 1929,” and “North American Vertical Datum of 1988”)

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

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, etc., 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 0.4926 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:

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

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 are commonly 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 are generally 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) concentration value 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 qualitatively identified 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 (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually 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")

Fire algae (*Pyrrophyta*) 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 itself is not an actual physical object, the datum usually is 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 have chlorophyll pigments similar in color to those of higher green plants. Some forms

produce algae mats or floating “moss” in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

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 are typically 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.co-ops.nos.noaa.gov/tideglos.html>

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:

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

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.), 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 uniformly distributed on it. (See also “Annual runoff”)

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

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) is generally 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. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

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:

$$I = I_0 e^{-\lambda L} ,$$

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

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_o}.$$

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.co-ops.nos.noaa.gov/tideglos.html>

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.

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 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.

Methylene blue active substances (MBAS) are apparent detergents. 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, $\mu\text{S}/\text{cm}$) 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

of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly 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.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Vertical Datum of 1988 (NAVD 1988) 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 (m²), 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 utilizes 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 are usually microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and 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 [$\text{mg C}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg C}/(\text{m}^3/\text{time})$] 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 [$\text{mg O}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg O}/(\text{m}^3/\text{time})$] 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 from bed (bottom) material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (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”)

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 (<2mm, 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.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the 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 suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion

treatment, and thus the determination represents something less than the “total” amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of “suspended, recoverable” constituents are made either by directly analyzing the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also “Suspended”)

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (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 (ft³/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, 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”)

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.

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic 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 hierarchical 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 tons 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 the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

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 pathlength 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”)

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 are often 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.”

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”)

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals titled the “Techniques of Water-Resources Investigations” that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at <http://water.usgs.gov/pubs/twri/>. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone “1-888-ASK-USGS” for current prices, and refer to the title, book number, section number, chapter number, and mention the “U.S. Geological Survey Techniques of Water-Resources Investigations.” Other products can be viewed online at <http://www.usgs.gov/sales.html>, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at <http://mac.usgs.gov/isb/pubs/forms/>. Prepayment by major credit card or by a check or money order payable to the “U.S. Geological Survey” is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

- 1–D1. *Water temperature—Influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.
- 1–D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

- 2–D1. *Application of surface geophysics to ground-water investigations*, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.
- 2–D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

- 2–E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
- 2–E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

- 2–F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

- 3–A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
- 3–A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.
- 3–A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.
- 3–A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI book 3, chap. A4. 1967. 44 p.
- 3–A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.
- 3–A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.
- 3–A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.
- 3–A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.
- 3–A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.
- 3–A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.
- 3–A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.
- 3–A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.
- 3–A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.
- 3–A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.
- 3–A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.
- 3–A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.
- 3–A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.
- 3–A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.
- 3–A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.
- 3–A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.
- 3–A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

- 3–B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.
- 3–B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS–TWRI book 3, chap. B2. 1976. 172 p.

- 3–B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.
- 3–B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.
- 3–B4. *Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.
- 3–B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.
- 3–B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 p.
- 3–B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.
- 3–B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

- 3–C1. *Fluvial sediment concepts*, by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.
- 3–C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.
- 3–C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

- 4–A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.
- 4–A2. *Frequency curves*, by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.
- 4–A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at <http://water.usgs.gov/pubs/twri/twri4a3/>. (Accessed August 30, 2002.)

Section B. Surface Water

- 4–B1. *Low-flow investigations*, by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.
- 4–B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.
- 4–B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

- 4–D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 p.

Book 5. Laboratory Analysis

Section A. Water Analysis

- 5–A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.
- 5–A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.

- 5–A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 p.
- 5–A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.
- 5–A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS–TWRI book 5, chap. A5. 1977. 95 p.
- 5–A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

- 5–C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 p.

Book 6. Modeling Techniques

Section A. Ground Water

- 6–A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 p.
- 6–A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.
- 6–A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.
- 6–A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 p.
- 6–A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS–TWRI book 6, chap. A5. 1993. 243 p.
- 6–A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A6. 1996. 125 p.
- 6–A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

- 7–C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS–TWRI book 7, chap. C1. 1976. 116 p.
- 7–C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS–TWRI book 7, chap. C2. 1978. 90 p.
- 7–C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS–TWRI book 7, chap. C3. 1981. 110 p.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

- 8–A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.
- 8–A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

- 8–B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

- 9–A1. *National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.
- 9–A2. *National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.
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- 9–A4. *National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.
- 9–A5. *National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999. 149 p.
- 9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Various paginated.
- 9–A7. *National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Various paginated.
- 9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.
- 9–A9. *National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

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

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

REVISED RECORDS.—WSP 1307: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 576.28 ft above 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 formerly 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 ft³/s. Flood of Apr. 25, 1950, reached a stage of 15.0 ft present datum, from floodmark; discharge, 3,300 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	67	749	e31	1750	92	590	48	47	13	5.4	3.0
2	14	65	321	e28	1770	98	466	63	44	12	3.5	2.9
3	13	58	165	e26	1110	456	1160	52	85	11	2.9	4.6
4	15	51	115	e25	510	738	1240	47	72	15	5.2	4.6
5	93	46	e80	e24	263	285	488	44	124	11	16	3.8
6	164	41	e60	e24	169	154	279	46	103	9.1	6.8	3.0
7	139	38	e40	e23	121	132	180	47	81	7.9	4.2	2.7
8	69	38	55	e22	102	122	221	50	57	8.3	3.3	3.0
9	40	38	48	e22	86	179	688	64	47	8.3	2.6	3.8
10	31	36	45	e27	85	448	918	58	43	9.3	2.5	7.3
11	58	32	41	e32	93	308	414	51	39	7.1	2.7	8.8
12	302	32	37	e29	87	159	280	697	38	5.9	2.6	7.6
13	492	29	47	e28	83	128	736	1910	34	5.5	2.8	7.4
14	359	30	117	e27	64	114	1220	2040	32	6.6	5.6	7.7
15	482	32	456	e25	63	95	705	1130	30	6.3	12	26
16	499	29	369	e24	63	83	404	458	26	5.4	6.1	9.7
17	1070	28	498	e23	58	66	255	319	25	5.3	4.9	3.5
18	1060	29	1100	e22	53	59	182	214	22	5.7	4.5	2.6
19	369	27	564	e21	50	57	154	151	22	5.8	20	26
20	192	27	253	e21	72	53	151	114	18	4.9	12	55
21	152	26	156	e20	87	54	112	95	16	5.8	5.3	26
22	238	25	113	e20	101	48	101	82	185	15	27	6.6
23	302	24	e100	e23	78	45	82	69	179	27	17	3.9
24	385	23	e80	31	68	46	66	62	58	7.3	18	3.0
25	630	45	e60	33	64	51	60	101	37	6.2	6.7	2.6
26	674	26	e50	30	119	48	54	147	44	5.4	5.5	2.4
27	272	27	e45	28	113	61	50	128	50	15	4.5	52
28	154	27	e43	29	105	77	92	81	33	12	3.5	21
29	108	110	e40	36	---	183	67	63	21	15	3.2	5.8
30	87	433	e37	222	---	736	56	57	16	18	2.9	4.1
31	77	---	e35	911	---	1110	---	51	---	6.5	3.2	---
TOTAL	8555	1539	5919	1887	7387	6285	11471	8539	1628	296.6	222.4	320.4
MEAN	276.0	51.30	190.9	60.87	263.8	202.7	382.4	275.5	54.27	9.568	7.174	10.68
MAX	1070	433	1100	911	1770	1110	1240	2040	185	27	27	55
MIN	13	23	35	20	50	45	50	44	16	4.9	2.5	2.4
CFSM	1.84	0.34	1.27	0.41	1.76	1.35	2.55	1.84	0.36	0.06	0.05	0.07
IN.	2.12	0.38	1.47	0.47	1.83	1.56	2.84	2.12	0.40	0.07	0.06	0.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

	MEAN	65.44	90.53	128.9	117.2	179.2	273.4	246.4	148.8	132.6	49.00	29.83	40.34
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	30.4	43.8	20.4	21.4	7.36	8.46	0.82	0.13	
(WY)	1947	1947	1947	1977	1978	2000	1946	1988	1988	1984	1946	1946	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1945 - 2002

ANNUAL TOTAL	44322.4	54049.4	
ANNUAL MEAN	121.4	148.1	124.9
HIGHEST ANNUAL MEAN			215
LOWEST ANNUAL MEAN			65.5
HIGHEST DAILY MEAN	1990	Feb 11	2040
LOWEST DAILY MEAN	4.2	Sep 6	2.4
ANNUAL SEVEN-DAY MINIMUM	5.9	Aug 4	3.0
MAXIMUM PEAK FLOW			2160
MAXIMUM PEAK STAGE			11.95
INSTANTANEOUS LOW FLOW			May 14a
ANNUAL RUNOFF (CFSM)	0.81		0.99
ANNUAL RUNOFF (INCHES)	10.99		13.40
10 PERCENT EXCEEDS	315		451
50 PERCENT EXCEEDS	51		47
90 PERCENT EXCEEDS	9.0		5.4
			7.0
			3950
			14.54
			0.00
			0.83
			11.31
			314
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SURFACE-WATER RECORDS
Maumee River Basin

49

04184500 BEAN CREEK AT POWERS, OHIO

LOCATION.—Latitude 41°39'34", longitude 84°14'55", 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 Highway 20, 1.5 mi east of Powers, 1.7 mi upstream from Iron Creek, 3.5 mi downstream from Silver Creek, and 5.2 mi east of Fayette.

DRAINAGE AREA.—206 mi².

PERIOD OF RECORD.—October 1940 to September 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e26	e150	646	e90	1970	e195	378	162	150	31	25	6.9
2	e24	e140	e420	e86	e1550	e200	615	156	135	28	21	4.3
3	e26	e125	e310	e80	e1150	893	1500	156	126	25	20	6.0
4	e25	e115	e250	e76	e850	774	e820	143	146	22	18	6.3
5	e40	e105	e218	e72	e545	e470	e510	132	172	20	18	5.4
6	e60	e96	187	e70	e450	e390	e390	125	196	19	24	3.1
7	e55	e90	165	e68	e370	e380	e320	130	183	17	23	2.4
8	e45	e110	146	e64	e320	e370	e340	135	157	16	19	3.0
9	e40	e115	131	e62	e300	e470	e1200	178	136	16	18	3.1
10	e38	e95	119	e58	e325	e800	e1000	253	122	18	19	2.7
11	e42	e85	110	e62	e370	e600	e660	207	112	17	14	2.3
12	190	e80	103	e66	e335	e460	e500	2390	102	15	13	2.3
13	260	e76	107	e64	e280	e400	e1000	3250	93	13	14	2.3
14	321	e74	164	e58	e240	e340	e820	1840	90	13	13	6.7
15	448	e70	450	e52	e220	e290	e650	1230	90	13	18	7.2
16	765	e67	355	e50	e205	e260	e490	830	88	11	27	5.3
17	1230	e64	694	e48	e195	e225	e410	619	81	11	30	5.0
18	983	e60	862	e47	e180	e210	e330	501	74	10	28	5.2
19	668	e57	560	e46	e170	e195	e300	430	69	11	27	5.5
20	472	e54	401	e44	e180	e185	e280	378	63	11	27	14
21	355	e52	309	e43	e280	e177	e300	326	61	11	26	43
22	296	e50	251	e43	e300	168	e270	282	171	11	24	39
23	271	e50	e200	69	e250	157	e245	253	172	17	21	28
24	283	e52	e170	78	e210	142	e220	230	107	18	20	22
25	e430	e60	e150	98	e200	138	e195	215	76	15	21	19
26	e350	e70	e140	93	e205	139	e177	210	64	17	18	18
27	e290	e80	e130	87	e215	137	158	204	56	20	14	25
28	e250	e90	e120	83	e205	145	165	187	47	22	11	27
29	e220	e140	e110	82	---	183	187	175	39	23	7.2	25
30	e185	609	e100	356	---	754	178	169	34	31	6.0	21
31	e160	---	e94	1040	---	633	---	164	---	35	7.2	---
TOTAL	8848	3081	8172	3335	12070	10880	14608	15660	3212	557	591.4	366.0
MEAN	285	103	264	108	431	351	487	505	107	18.0	19.1	12.2
MAX	1230	609	862	1040	1970	893	1500	3250	196	35	30	43
MIN	24	50	94	43	170	137	158	125	34	10	6.0	2.3
MED	250	80	170	68	280	260	359	210	98	17	19	6.1
AC-FT	17550	6110	16210	6610	23940	21580	28970	31060	6370	1100	1170	726
CFSM	1.39	0.50	1.28	0.52	2.09	1.70	2.36	2.45	0.52	0.09	0.09	0.06
IN.	1.60	0.56	1.48	0.60	2.18	1.96	2.64	2.83	0.58	0.10	0.11	0.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

	MEAN	48.5	86.5	166	183	296	389	340	231	130	87.9	39.9	41.7
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1941 - 2002

ANNUAL TOTAL	82198	81380.4	
ANNUAL MEAN	225	223	169
HIGHEST ANNUAL MEAN			329
LOWEST ANNUAL MEAN			34.8
HIGHEST DAILY MEAN	3600	Feb 10	3740
LOWEST DAILY MEAN	11	Aug 7	2.3
ANNUAL SEVEN-DAY MINIMUM	12	Aug 12	2.6
MAXIMUM PEAK FLOW		4190	May 13a
MAXIMUM PEAK STAGE		19.84	May 13
INSTANTANEOUS LOW FLOW			20.03
ANNUAL RUNOFF (AC-FT)	163000	161400	122100
ANNUAL RUNOFF (CFSM)	1.09	1.08	0.82
ANNUAL RUNOFF (INCHES)	14.84	14.70	11.12
10 PERCENT EXCEEDS	454	524	417
50 PERCENT EXCEEDS	124	120	66
90 PERCENT EXCEEDS	20	14	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

Maumee River Basin

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 mi².

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

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

GAGE.—Water-stage recorder 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 formerly 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 ft³/s. Flood in 1937 reached a stage of 15.0 ft, from information by local resident; discharge, 6,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	334	1470	e150	2460	350	2170	284	223	63	e30	9.6
2	28	308	1570	e140	3050	362	2120	273	198	56	e24	11
3	26	290	1520	e130	3180	1140	2320	268	178	51	e20	11
4	27	274	1160	e120	2860	1500	2410	250	180	47	e17	6.2
5	40	260	648	e115	2440	1740	2400	227	210	42	e16	7.4
6	144	239	421	e110	2150	1740	2140	212	252	38	e14	8.3
7	150	221	340	e105	1780	1490	1810	216	274	38	e13	8.5
8	116	210	288	e100	1380	1180	1480	220	250	34	e12	6.8
9	84	197	254	e100	948	1060	1760	254	210	32	e11	6.7
10	66	185	226	e110	655	1300	2020	345	179	34	e10	7.9
11	88	178	203	e120	594	1410	2250	399	158	34	e10	4.5
12	749	164	187	e130	627	1520	2150	838	144	32	e9.4	3.7
13	1160	152	195	e140	608	1440	2120	2020	140	27	e9.2	4.4
14	1230	146	315	e140	506	1210	2150	3870	127	26	e9.0	6.9
15	1400	152	990	e130	428	914	2170	3530	119	25	e12	7.6
16	1660	166	1170	e120	381	644	2010	2810	115	24	e15	13
17	2120	161	1620	e110	351	479	1770	2400	108	23	20	9.2
18	2160	154	1910	e105	321	412	1450	2100	97	22	24	12
19	2190	151	1990	e100	298	369	1070	1790	87	21	25	12
20	2060	148	1930	e100	297	340	717	1450	78	20	26	13
21	1780	147	1610	e105	404	316	600	1090	74	20	24	25
22	1470	147	1050	e110	564	286	590	738	168	20	25	30
23	1290	137	563	e115	565	264	505	505	273	21	26	13
24	1320	128	414	118	467	250	426	406	267	24	25	6.3
25	1610	146	347	125	393	242	373	355	183	25	23	5.1
26	1640	172	e260	140	367	235	329	442	198	23	22	8.0
27	1560	172	e220	136	368	240	286	402	167	26	21	14
28	1190	159	e200	130	364	276	277	339	134	32	18	15
29	700	257	e180	131	---	336	288	288	95	36	14	17
30	455	1130	e170	470	---	1240	300	257	73	39	12	17
31	374	---	e160	1390	---	1930	---	238	---	e38	10	---
TOTAL	28918	6685	23581	5345	28806	26215	42461	28816	4959	993	546.6	320.1
MEAN	932.8	222.8	760.7	172.4	1029	845.6	1415	929.5	165.3	32.03	17.63	10.67
MAX	2190	1130	1990	1390	3180	1930	2410	3870	274	63	30	30
MIN	26	128	160	100	297	235	277	212	73	20	9.0	3.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

	MEAN	120.6	224.3	370.8	391.0	560.8	786.3	668.8	398.9	266.1	150.1	74.11	68.67
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1922 - 2002

ANNUAL TOTAL	176808	197645.7	
ANNUAL MEAN	484.4	541.5	338.7
HIGHEST ANNUAL MEAN			671
LOWEST ANNUAL MEAN			59.6
HIGHEST DAILY MEAN	3910	Feb 12	7640
LOWEST DAILY MEAN	11	Sep 6	2.5
ANNUAL SEVEN-DAY MINIMUM	13	Sep 2	5.8
MAXIMUM PEAK FLOW			4120
MAXIMUM PEAK STAGE			15.21
INSTANTANEOUS LOW FLOW			18.36
10 PERCENT EXCEEDS	1470	1780	947
50 PERCENT EXCEEDS	216	210	126
90 PERCENT EXCEEDS	23	14	23

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

51

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 mi².

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 fair except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	1.0	10	e0.48	87	0.95	9.3	1.1	0.53	0.23	0.97	0.03
2	0.04	1.0	4.8	e0.46	16		38	5.3	0.48	0.15	0.55	0.03
3	0.02	0.98	2.8	e0.44	9.2	51	22	1.8	0.82	0.15	0.24	0.03
4	0.01	0.87	1.8	e0.42	6.1	5.9	7.2	1.2	0.92	0.15	0.14	0.02
5	0.95	0.77	1.4	e0.42	4.0	2.7	4.6	1.0	1.2	0.14	0.12	0.02
6	4.1	0.72	1.1	e0.41	2.6	2.8	3.2	1.1	0.87	0.13	0.09	0.02
7	0.69	0.67	0.89	e0.41	1.9	3.2	2.7	1.1	0.60	0.13	0.08	0.02
8	0.26	0.57	0.74	e0.39	1.7	2.8	35	6.7	0.49	0.11	0.07	0.02
9	0.12	0.46	0.60	e0.38	1.5	35	49	9.6	0.42	0.33	0.06	0.02
10	0.09	0.44	0.53	e0.38	1.6	10	9.9	3.2	0.39	0.36	0.06	0.02
11	6.7	0.36	0.46	e0.38	1.5	3.4	5.7	2.4	0.36	0.20	0.05	0.02
12	104	0.31	0.49	e0.39	1.4	2.8	4.0	75	0.35	0.14	0.06	0.02
13	12	0.30	1.7	e0.41	1.1	2.5	29	13	0.34	0.13	0.05	0.02
14	28	0.30	42	e0.46	0.91	1.8	7.7	5.9	0.38	0.11	0.06	0.02
15	19	0.30	17	e0.44	0.91	1.5	4.7	3.1	0.36	0.09	0.08	0.03
16	97	0.27	8.8	e0.42	0.84	1.3	3.2	2.1	0.29	0.09	0.08	0.03
17	20	0.21	85	e0.40	0.74	1.2	2.5	2.7	0.28	0.08	0.08	0.02
18	7.4	0.23	17	e0.38	0.65	1.1	1.9	3.5	0.28	0.09	0.06	0.03
19	4.8	0.25	6.7	e0.36	0.74	0.97	1.6	2.0	0.26	0.07	0.21	0.04
20	3.3	0.21	4.1	e0.35	2.4	0.98	2.0	1.5	0.26	0.06	0.12	0.25
21	5.9	0.21	2.3	e0.34	3.3	0.88	2.6	1.2	0.62	0.04	0.07	0.25
22	56	0.19	1.8	0.35	1.7	0.76	2.6	0.96	0.52	0.07	0.09	0.07
23	40	0.19	e1.3	0.43	1.2	0.75	1.7	0.88	0.39	0.08	3.0	0.03
24	24	0.23	e1.0	0.50	1.00	0.76	1.4	0.79	0.37	0.06	0.90	0.03
25	35	1.0	e0.84	0.40	0.95	0.78	1.1	0.78	0.43	0.04	0.41	0.02
26	6.4	0.51	e0.72	0.41	1.3	0.78	0.94	0.84	0.47	0.41	0.25	0.02
27	3.8	0.45	e0.66	0.42	1.3	0.87	0.94	0.66	0.42	0.80	0.17	0.20
28	2.4	0.50	e0.60	0.45	1.0	1.5	3.4	0.59	0.38	55	0.08	0.21
29	1.5	22	e0.54	0.67	---	21	1.6	0.63	0.38	47	0.04	0.05
30	1.3	66	e0.50	35	---	88	1.3	0.63	0.38	17	0.07	0.03
31	1.2	---	e0.49	101	---	19	---	0.60	---	2.1	0.04	---
TOTAL	486.02	101.50	218.66	148.15	154.54	276.98	260.78	151.86	14.24	125.54	8.35	1.62
MEAN	15.68	3.383	7.054	4.779	5.519	8.935	8.693	4.899	0.475	4.050	0.269	0.054
MAX	104	66	85	101	87	88	49	75	1.2	55	3.0	0.25
MIN	0.01	0.19	0.46	0.34	0.65	0.75	0.94	0.59	0.26	0.04	0.04	0.02
CFSM	3.71	0.80	1.67	1.13	1.30	2.11	2.06	1.16	0.11	0.96	0.06	0.01
IN.	4.27	0.89	1.92	1.30	1.36	2.44	2.29	1.34	0.13	1.10	0.07	0.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2002, BY WATER YEAR (WY)

MEAN	3.221	4.113	5.920	5.563	7.156	7.161	8.024	4.288	3.261	1.810	1.830	1.059
MAX	15.7	15.6	23.9	13.9	21.2	14.5	20.6	10.9	9.09	7.75	16.4	5.81
(WY)	2002	1993	1991	1993	1990	1998	1999	1990	1996	1986	1998	2000
MIN	0.031	0.037	0.11	0.44	0.46	1.19	1.92	0.26	0.046	0.011	0.015	0.003
(WY)	1995	2000	1990	2000	1995	2001	1987	1988	1988	1988	1989	1991

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1986 - 2002

ANNUAL TOTAL	1923.01	1948.24	
ANNUAL MEAN	5.269	5.338	
HIGHEST ANNUAL MEAN			4.434
LOWEST ANNUAL MEAN			6.66
HIGHEST DAILY MEAN	145	Apr 6	104
LOWEST DAILY MEAN	0.00	Aug 13	0.01
ANNUAL SEVEN-DAY MINIMUM	0.01	Aug 13	0.02
MAXIMUM PEAK FLOW			293
MAXIMUM PEAK STAGE			4.29
INSTANTANEOUS LOW FLOW			0.00
ANNUAL RUNOFF (CFSM)	1.25	1.26	1.05
ANNUAL RUNOFF (INCHES)	16.91	17.13	14.24
10 PERCENT EXCEEDS	11	10	9.2
50 PERCENT EXCEEDS	0.74	0.69	0.64
90 PERCENT EXCEEDS	0.06	0.06	0.05

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

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 mi upstream from Ottawa River, and 7.3 mi downstream from Jennings Creek.

DRAINAGE AREA.—332 mi².

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

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

GAGE.—Water-stage recorder. Datum of gage is 713.6 ft above sea level. Prior to Oct. 6, 1930, nonrecording gage at same site and datum.

REMARKS.—Records fair 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	68	1820	e80	3040	219	e3400	271	316	28	13	6.8
2	5.8	59	789	e74	4170	188	e2000	235	209	17	7.7	6.1
3	4.6	79	375	e68	3200	639	e1000	616	158	18	6.2	5.0
4	3.4	57	243	e62	936	852	e700	392	130	22	5.3	4.3
5	6.7	80	174	e56	494	772	e540	250	180	19	4.6	4.1
6	56	70	131	e52	330	274	476	196	155	22	3.8	4.7
7	92	51	120	e47	265	220	359	171	170	15	3.2	4.3
8	175	47	98	e43	226	191	323	164	129	8.7	2.8	3.7
9	103	44	73	e41	193	203	1200	224	103	7.1	2.4	3.3
10	55	45	61	e40	175	459	2160	250	87	5.8	2.2	4.3
11	41	54	54	e40	212	482	1200	206	78	5.1	2.2	4.0
12	136	46	55	e46	428	316	542	304	97	4.5	3.3	3.1
13	426	43	50	e54	367	255	901	1450	94	7.2	4.1	2.5
14	497	34	110	e60	263	224	2120	2730	80	7.2	3.9	2.5
15	842	20	1090	e58	211	200	2020	2680	72	6.2	3.8	2.4
16	855	14	887	e54	188	185	1520	1000	68	5.9	12	2.3
17	1370	12	1340	e46	175	203	623	444	65	4.9	11	2.1
18	1160	9.6	2920	e40	147	211	408	323	65	3.7	8.2	2.0
19	497	8.6	3030	e34	130	184	319	260	58	3.0	14	2.0
20	289	9.2	1400	e30	139	174	263	211	54	3.0	25	2.9
21	198	14	e500	e25	210	e160	223	180	53	5.7	16	16
22	230	13	e300	e27	247	e150	205	153	49	6.7	12	11
23	238	11	e260	e30	207	e140	193	136	45	8.0	38	11
24	421	9.4	e220	e37	177	e140	167	124	42	19	46	23
25	1480	12	e200	41	153	e130	143	117	42	21	37	17
26	1620	13	e170	49	164	e140	127	129	53	18	24	12
27	593	13	e150	54	253	162	112	122	116	13	21	18
28	304	16	e140	51	258	243	336	107	160	15	14	37
29	220	37	e130	49	---	952	716	531	78	20	8.1	20
30	144	743	e110	165	---	3360	410	666	50	32	6.2	42
31	108	---	e100	912	---	4340	---	702	---	21	6.0	---
TOTAL	12178.3	1731.8	17100	2465	16958	16368	24706	15344	3056	392.7	367.0	279.4
MEAN	392.8	57.73	551.6	79.52	605.6	528.0	823.5	495.0	101.9	12.67	11.84	9.313
MAX	1620	743	3030	912	4170	4340	3400	2730	316	32	46	42
MIN	3.4	8.6	50	25	130	130	112	107	42	3.0	2.2	2.0
CFSM	1.18	0.17	1.66	0.24	1.82	1.59	2.48	1.49	0.31	0.04	0.04	0.03
IN.	1.36	0.19	1.92	0.28	1.90	1.83	2.77	1.72	0.34	0.04	0.04	0.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2002, BY WATER YEAR (WY)

	MEAN	77.62	170.9	301.9	427.1	469.5	588.2	507.1	294.2	250.8	173.8	74.78	82.09
MAX	782	1286	1283	2184	1555	2112	1874	1237	1142	1652	477	1090	
(WY)	1927	1973	1991	1950	1950	1978	1957	1943	1981	1992	1979	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1921 - 2002

ANNUAL TOTAL	89704.3	110946.2	
ANNUAL MEAN	245.8	304.0	284.3
HIGHEST ANNUAL MEAN			537
LOWEST ANNUAL MEAN			65.3
HIGHEST DAILY MEAN	3030	Dec 19	4340
LOWEST DAILY MEAN	3.1	Sep 4	2.0
ANNUAL SEVEN-DAY MINIMUM	3.3	Sep 3	2.3
MAXIMUM PEAK FLOW			4510
MAXIMUM PEAK STAGE			13.77
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (CFSM)	0.74		0.92
ANNUAL RUNOFF (INCHES)	10.05		12.43
10 PERCENT EXCEEDS	724		810
50 PERCENT EXCEEDS	73		97
90 PERCENT EXCEEDS	9.5		5.1
			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
Maumee River Basin

53

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 mi².

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

REVISED RECORDS.—WSP 974: 1942. WSP 1054: 1927-30, 1933(M), 1945. WSP 1387: 1926, 1928(M), 1930(M), 1952. WSP 1912: Drainage area. WRD-OH-81-2: 1959, 1975(M). WRD-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 fair 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	56	1030	e38	5000	169	1800	199	71	19	10	9.6
2	26	57	392	e36	4630	156	755	325	53	19	11	9.9
3	24	51	178	e34	2740	541	1350	957	59	18	10	11
4	24	54	114	e33	742	603	1600	426	120	18	9.9	11
5	101	60	97	e32	357	283	679	225	167	18	13	11
6	160	47	78	e31	234	219	394	190	98	18	16	10
7	106	42	77	e31	184	181	298	176	79	18	13	10
8	98	38	73	e30	141	163	330	180	71	19	12	11
9	54	37	59	e33	129	203	2010	340	59	22	13	12
10	40	42	50	e45	144	371	2050	309	51	25	14	15
11	51	42	44	e54	231	277	807	210	46	21	15	13
12	152	39	41	e62	336	208	474	491	46	21	19	13
13	94	38	54	e70	274	188	1890	2530	86	22	13	14
14	234	37	204	e70	201	173	3280	4320	68	23	11	16
15	513	37	1220	e70	178	163	3000	3300	55	14	11	17
16	436	36	773	e64	161	152	1890	910	40	12	11	19
17	667	34	1420	e60	136	140	607	430	34	12	11	19
18	470	33	3220	e56	107	142	373	313	30	15	11	20
19	184	35	2650	e50	95	123	275	237	30	14	20	19
20	100	36	1130	e47	140	123	259	193	27	12	16	34
21	64	32	407	e44	185	119	254	168	30	11	11	24
22	110	31	e280	e41	174	113	240	143	27	12	12	11
23	166	31	e210	e40	136	100	195	128	25	22	53	10
24	232	31	e150	e41	115	98	155	118	24	16	32	10
25	994	28	e120	e43	108	104	138	113	24	13	20	9.9
26	813	29	e100	e48	184	118	114	134	24	13	20	9.6
27	255	35	e80	e54	247	185	101	110	23	17	20	109
28	103	31	e70	68	197	473	321	101	22	20	20	32
29	64	70	e54	124	---	1860	437	134	20	26	21	18
30	58	563	e46	643	---	4520	252	137	18	21	20	31
31	53	---	e40	1690	---	4060	---	86	---	11	12	---
TOTAL	6474	1732	14461	3782	17506	16328	26328	17633	1527	542	500.9	559.0
MEAN	208.8	57.73	466.5	122.0	625.2	526.7	877.6	568.8	50.90	17.48	16.16	18.63
MAX	994	563	3220	1690	5000	4520	3280	4320	167	26	53	109
MIN	24	28	40	30	95	98	101	86	18	11	9.9	9.6
CFSM	0.60	0.17	1.35	0.35	1.81	1.52	2.54	1.64	0.15	0.05	0.05	0.05
IN.	0.70	0.19	1.55	0.41	1.88	1.76	2.83	1.90	0.16	0.06	0.05	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2002, BY WATER YEAR (WY)

MEAN	64.42	151.3	284.9	365.8	428.3	551.0	471.1	277.9	233.2	130.4	63.53	85.51
MAX	623	1435	1482	1800	1402	1814	1588	865	1612	1075	474	944
(WY)	1927	1973	1991	1930	1959	1978	1957	1969	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 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1924 - 2002
ANNUAL TOTAL	79719	107372.9	
ANNUAL MEAN	218.4	294.2	258.4
HIGHEST ANNUAL MEAN			571
LOWEST ANNUAL MEAN			57.5
HIGHEST DAILY MEAN	3220	Dec 18	12000
LOWEST DAILY MEAN	15	Aug 17	0.40
ANNUAL SEVEN-DAY MINIMUM	16	Aug 30	0.56
MAXIMUM PEAK FLOW		5590	Feb 1a
MAXIMUM PEAK STAGE		11.80	Feb 1
INSTANTANEOUS LOW FLOW			17.43
ANNUAL RUNOFF (CFSM)	0.63	0.85	0.40
ANNUAL RUNOFF (INCHES)	8.57	11.54	0.75
10 PERCENT EXCEEDS	635	621	619
50 PERCENT EXCEEDS	70	64	59
90 PERCENT EXCEEDS	23	13	9.9

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

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 mi².

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

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

GAGE.—Water-stage recorder. Datum of gage is 659.70 ft above 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 ft³/s, from rating curve extended above 51,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	335	9490	e210	22100	1660	27100	e1200	578	258	94	43
2	50	472	7070	e200	27500	1650	16700	e3800	332	164	36	41
3	52	539	4030	e200	26000	6930	11800	e2000	543	101	36	39
4	353	491	1950	e200	18200	7760	8460	e1200	372	44	40	38
5	172	354	1190	e190	8950	4760	7380	e1000	446	45	142	44
6	114	366	963	e190	4090	3510	4830	e800	1700	46	130	56
7	1370	399	727	e190	2330	1970	2970	e900	978	42	30	55
8	1370	376	611	e190	1460	1540	2240	e1000	666	170	30	56
9	1240	175	534	e210	1150	1760	7810	e1300	441	35	30	54
10	1270	303	410	e240	1080	3800	12400	1570	237	89	29	54
11	487	207	360	e270	1190	3740	10100	1180	362	43	29	52
12	4240	302	276	e300	1840	2930	6210	4270	312	47	29	55
13	7350	163	300	e340	1990	2030	7560	8440	483	50	30	59
14	6570	269	867	e360	1600	976	10600	12200	346	51	31	59
15	8460	119	6680	e370	1310	1450	10600	12600	280	43	62	58
16	9060	205	7760	e370	1010	1320	8950	10300	348	41	47	47
17	12700	191	10800	e350	966	1310	6410	5940	307	43	52	e45
18	11300	99	18700	e310	857	777	e2000	2930	231	43	53	e44
19	6650	165	e14000	e270	907	1280	e1500	997	205	46	47	e60
20	3230	152	e9000	e230	1100	807	e1200	1040	190	49	41	e70
21	2020	161	e6000	e200	3320	409	e1000	744	138	49	40	e140
22	1620	90	e2800	e170	3010	475	e840	649	30	45	40	e270
23	4710	116	e1700	163	1800	551	e740	530	62	46	118	e200
24	5670	300	e1000	407	1940	755	e660	470	137	48	288	e110
25	11300	411	e700	257	1270	812	e580	398	67	44	106	e90
26	13200	348	e500	313	1280	761	e500	572	202	45	383	e110
27	7780	291	e400	325	1790	1380	e2000	568	219	48	231	e130
28	2770	618	e340	449	1710	580	e4400	634	770	70	36	e120
29	1640	290	e300	339	---	2230	e2000	644	437	200	42	e200
30	1030	3930	e250	3630	---	17800	e1500	1170	322	78	44	e250
31	856	---	e230	11900	---	29100	---	1440	---	311	42	---
TOTAL	128687	12237	109938	23343	141750	106813	181040	82486	11741	2434	2388	2649
MEAN	4151	407.9	3546	753.0	5062	3446	6035	2661	391.4	78.52	77.03	88.30
MAX	13200	3930	18700	11900	27500	29100	27100	12600	1700	311	383	270
MIN	50	90	230	163	857	409	500	398	30	35	29	38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2002, BY WATER YEAR (WY)

	MEAN	515.7	992.3	1829	2506	3022	4097	3488	1965	1480	824.3	347.4	418.7
MAX	4151	7856	8510	13350	10170	13090	11210	10490	6733	5762	2526	5571	
(WY)	2002	1973	1967	1950	1976	1982	1957	1943	1947	1992	1998	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1916 - 2002

ANNUAL TOTAL	690393.9	805506	
ANNUAL MEAN	1891	2207	1776
HIGHEST ANNUAL MEAN			3337
LOWEST ANNUAL MEAN			342
HIGHEST DAILY MEAN	18700	Dec 18	29100
LOWEST DAILY MEAN	8.4	Sep 8	29
ANNUAL SEVEN-DAY MINIMUM	45	Aug 5	30
MAXIMUM PEAK FLOW			30300
MAXIMUM PEAK STAGE			19.92
INSTANTANEOUS LOW FLOW			
10 PERCENT EXCEEDS	6520		7640
50 PERCENT EXCEEDS	583		437
90 PERCENT EXCEEDS	85		45

e Estimated.

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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.

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1925 - 2002		
ANNUAL TOTAL	1856081		2085153				
ANNUAL MEAN	5085		5713		4369		
HIGHEST ANNUAL MEAN					8286 1950		
LOWEST ANNUAL MEAN					849 1931		
HIGHEST DAILY MEAN	38300	Feb 11	46900	Feb 2	98800	Mar 15	1982
LOWEST DAILY MEAN	161	Sep 8	182	Sep 13	3.0	Sep 4	1925
ANNUAL SEVEN-DAY MINIMUM	255	Aug 6	214	Sep 11	27	Aug 31	1925
MAXIMUM PEAK FLOW			47500	Feb 2	104000	Mar 15	1982
MAXIMUM PEAK STAGE			8.56	Feb 2	15.87	Mar 15	1982
INSTANTANEOUS LOW FLOW			174	Sep 13	2.0	Sep 3	1925
10 PERCENT EXCEEDS	15300		18500		12400		
50 PERCENT EXCEEDS	1990		2320		1410		
90 PERCENT EXCEEDS	417		310		227		

e Estimated.

SURFACE-WATER RECORDS **Maumee River Basin**

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 mi².

WATER-DISCHARGE RECORDS

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 ft³/s, from rating curve extended above 94,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	611	4920	25000	e1650	45000	4180	47400	6960	4970	1480	1610	191
2	538	3340	24300	e1550	52100	3810	37000	7650	2640	1230	995	222
3	502	3030	17700	e1450	47300	12200	32600	12500	2680	963	737	220
4	389	2950	11800	e1400	38700	19500	27300	8590	3150	795	596	150
5	711	2420	8810	e1350	26500	15700	22000	6620	2680	661	457	139
6	1540	2030	6910	e1300	18100	11200	17200	4340	4880	611	391	137
7	2440	2040	5880	e1270	14200	8290	12900	3470	6070	561	498	159
8	3800	2050	4580	e1230	10800	6850	10700	3130	5130	515	588	180
9	3470	1610	3530	e1210	7520	6880	20000	3720	3570	613	496	156
10	2880	1500	2830	e1200	6070	12200	28900	5800	2490	442	381	156
11	2410	1550	2310	e1180	4980	13000	25100	5870	2060	594	303	161
12	6610	1400	2150	1440	4870	11200	18500	9050	1960	538	251	90
13	22900	1360	1880	1370	4700	8720	20900	24800	1630	433	228	85
14	22300	1220	2250	1310	4620	6900	25900	28900	1730	465	295	81
15	23200	1290	12600	1360	4050	5820	23500	27800	1640	476	274	144
16	25000	1140	20600	1330	3350	5770	19800	25900	1310	399	264	154
17	34800	1190	24500	1300	2900	4980	16000	23100	1320	363	270	116
18	34200	1120	37400	1340	2630	4490	12300	19000	1170	354	363	103
19	26500	1090	37200	1540	2360	3160	9500	15500	1030	327	413	165
20	18400	1050	30500	1460	2630	3800	8380	11700	1150	283	403	187
21	13900	1020	22200	1130	5530	2670	7440	8400	1040	309	311	334
22	12800	958	15600	1290	8080	2340	5020	6550	1140	371	507	275
23	20600	939	11500	1200	7040	2100	4250	4990	842	436	710	478
24	23000	923	8970	1130	5280	1900	4730	4000	857	376	1300	662
25	28700	1330	6540	1150	4400	2260	3820	3510	974	364	1660	416
26	32100	1200	4700	1110	4040	2420	3130	3380	1730	582	1120	305
27	24500	1530	e3600	1220	4940	2240	2470	4850	2770	628	986	376
28	15900	1560	e2600	1170	4600	2720	3380	3900	5110	567	790	462
29	10300	2170	e2300	1300	---	3380	5260	3560	5000	728	540	411
30	7520	8810	e1950	3040	---	24300	8890	4190	2180	1520	401	721
31	5580	---	e1750	20300	---	48100	---	5280	---	1510	258	---
TOTAL	428101	58740	364440	61280	347290	263080	484270	307010	74903	19494	18396	7436
MEAN	13810	1958	11760	1977	12400	8486	16140	9904	2497	628.8	593.4	247.9
MAX	34800	8810	37400	20300	52100	48100	47400	28900	6070	1520	1660	721
MIN	389	923	1750	1110	2360	1900	2470	3130	842	283	228	81
MED	12800	1450	6910	1300	5130	5770	14400	6550	2010	538	457	172
CFSM	2.18	0.31	1.86	0.31	1.96	1.34	2.55	1.56	0.39	0.10	0.09	0.04
IN.	2.52	0.35	2.14	0.36	2.04	1.55	2.85	1.80	0.44	0.11	0.11	0.04
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)												
MEAN	1594	2980	5394	6790	8007	10790	9817	6094	4350	2402	1203	1107
MAX	13810	19010	23830	34010	30000	38210	25890	29540	24030	11200	9665	10320
(WY)	2002	1993	1967	1950	1976	1982	1957	1943	1981	1992	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 2002												
ANNUAL TOTAL			2169553				2434440					
ANNUAL MEAN			5944				6670			5026		
HIGHEST ANNUAL MEAN										9370		1950
LOWEST ANNUAL MEAN										938		1931
HIGHEST DAILY MEAN				41300	Feb 11		52100	Feb 2		113000	Mar 14	1982
LOWEST DAILY MEAN				107	Aug 21		81	Sep 14		17	Jun 30	1988
ANNUAL SEVEN-DAY MINIMUM				249	Aug 9		110	Sep 12		47	Jun 27	1988
MAXIMUM PEAK FLOW							54200	Feb 2		121000	Mar 14	1982
MAXIMUM PEAK STAGE							11.77	Feb 2		17.18	Mar 14	1982
INSTANTANEOUS LOW FLOW							81	Sep 14		17	Jun 30	1988
ANNUAL RUNOFF (CFSM)			0.94				1.05			0.79		
ANNUAL RUNOFF (INCHES)			12.75				14.31			10.79		
10 PERCENT EXCEEDS			18400				22500			14000		
50 PERCENT EXCEEDS			2150				2420			1660		
90 PERCENT EXCEEDS			511				359			264		

e Estimated.

SURFACE-WATER RECORDS
Maumee River Basin

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04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—April 1950 to current year.

PERIOD OF DAILY RECORD.—

CHLORIDE: October 1987 to September 1994.

NITROGEN, NITRITE + NITRATE: October 1987 to September 1994.

NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1994.

PHOSPHORUS: October 1987 to September 1994.

SUSPENDED SEDIMENT DISCHARGE: April 1950 to September 1984, October 1987 to current year.

INSTRUMENTATION.—Refrigerated water-quality pumping sampler, operated by Heidelberg College Water Quality Laboratory, from Oct. 1987-Sept. 1994. Sampler located at station 04193490.

REMARKS.—Sediment samples were collected by a local observer on an approximate once daily basis. Sediment loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was subdivided into hourly intervals and the daily load was calculated by summation of hourly loads. This required interpolation between measured and estimated concentrations.

EXTREMES FOR PERIOD OF DAILY RECORD.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,240 mg/L, Mar. 26, 1954; minimum daily mean, 1 mg/L, on many days during 1953, 1955, 1963, Jan. 15, and 16, 2001.

SEDIMENT LOADS: Maximum daily, 300,000 tons, Feb. 24, 1990; minimum daily, 0.26 ton, Sept. 18, 1955.

EXTREMES FOR CURRENT YEAR.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 518 mg/L, Oct. 26; minimum daily mean, 3 mg/L, Sept. 15-18.

SEDIMENT LOADS: Maximum daily, 66,000 tons, Feb. 2; minimum daily, 0.78 ton, Sept. 14.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; *, 10-stream cross-section sample collected by equal-width-increment (EWI) method; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; %, percent; MM, millimeters; MG/L, milligrams per liter; --, no data]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM- PLING METHOD, CODES* (82398)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC								
20...	1120	30800	10	374	3.5	6.0	96.7	245
MAY								
15...	1200	27800	10	393	20.5	13.5	99.5	398

SURFACE-WATER RECORDS

Maumee River Basin

04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY RECORDS—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data; e, estimated]

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	611	26	40.8	4920	72	954	25000	276	19100
2	538	23	33.2	3340	54	491	24300	285	18900
3	502	20	27.9	3030	44	359	17700	174	8440
4	389	18	19.7	2950	42	331	11800	109	3520
5	711	15	29.0	2420	37	239	8810	77	1840
6	1540	22	92.3	2030	31	170	6910	71	1330
7	2440	30	203	2040	28	156	5880	58	921
8	3800	33	343	2050	27	149	4580	45	565
9	3470	32	300	1610	26	111	3530	39	371
10	2880	33	260	1500	24	96.5	2830	31	239
11	2410	35	228	1550	17	72.7	2310	27	170
12	6610	62	1600	1400	17	65.5	2150	25	144
13	22900	282	17600	1360	19	68.5	1880	23	114
14	22300	269	16300	1220	18	59.9	2250	23	144
15	23200	247	15500	1290	18	62.6	12600	56	2220
16	25000	277	19000	1140	18	55.4	20600	218	12100
17	34800	436	41200	1190	18	57.2	24500	264	17800
18	34200	424	39300	1120	16	47.8	37400	395	40100
19	26500	265	19200	1090	17	51.2	37200	372	37500
20	18400	176	8870	1050	17	49.0	30500	258	21500
21	13900	126	4730	1020	17	46.5	22200	181	10900
22	12800	110	3880	958	15	38.2	15600	140	5940
23	20600	175	9890	939	16	39.5	11500	109	3420
24	23000	183	11400	923	15	38.3	8970	93	2250
25	28700	320	25200	1330	22	78.4	6540	80	1420
26	32100	518	45000	1200	24	78.3	4700	67	850
27	24500	369	24800	1530	25	105	e3600	53	522
28	15900	236	10300	1560	25	107	e2600	41	291
29	10300	172	4850	2170	25	144	e2300	35	218
30	7520	118	2420	8810	62	1920	e1950	30	161
31	5580	90	1360	---	---	---	e1750	28	133
TOTAL	428101	---	323976.9	58740	---	6241.5	364440	---	213123
JANUARY			FEBRUARY			MARCH			
1	e1650	26	117	45000	363	44800	4180	25	288
2	e1550	24	102	52100	469	66000	3810	25	261
3	e1450	22	87.5	47300	386	49400	12200	181	6840
4	e1400	20	74.1	38700	297	31300	19500	369	19400
5	e1350	17	60.8	26500	211	15300	15700	336	14300
6	e1300	15	52.0	18100	154	7560	11200	276	8400
7	e1270	12	40.5	14200	129	4980	8290	214	4810
8	e1230	10	33.9	10800	107	3140	6850	155	2870
9	e1210	9.0	29.9	7520	86	1750	6880	128	2420
10	e1200	7.0	24.3	6070	64	1050	12200	269	8990
11	e1180	7.0	22.2	4980	53	715	13000	318	11200
12	1440	6.0	24.6	4870	44	584	11200	257	7780
13	1370	7.0	27.2	4700	36	454	8720	183	4330
14	1310	6.0	20.3	4620	28	348	6900	143	2670
15	1360	6.0	20.8	4050	25	273	5820	116	1830
16	1330	6.0	23.2	3350	20	178	5770	89	1400
17	1300	7.0	25.6	2900	17	134	4980	72	970
18	1340	8.0	29.4	2630	15	104	4490	62	754
19	1540	9.0	36.5	2360	13	84.1	3160	51	434
20	1460	8.0	32.4	2630	12	88.8	3800	42	432
21	1130	7.0	22.0	5530	15	234	2670	39	279
22	1290	7.0	23.5	8080	20	436	2340	37	233
23	1200	15	50.3	7040	32	612	2100	35	201
24	1130	15	47.0	5280	29	418	1900	37	189
25	1150	11	35.0	4400	29	348	2260	38	235
26	1110	12	36.2	4040	28	302	2420	38	247
27	1220	19	62.6	4940	33	438	2240	37	221
28	1170	20	61.9	4600	31	390	2720	35	259
29	1300	21	74.4	---	---	---	3380	53	586
30	3040	45	525	---	---	---	24300	205	14800
31	20300	193	11600	---	---	---	48100	382	50000
TOTAL	61280	---	13422.1	347290	---	231420.9	263080	---	167629

SURFACE-WATER RECORDS
Maumee River Basin

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04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY RECORDS—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002—Continued

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data]

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	47400	355	45700	6960	59	1110	4970	35	466
2	37000	239	24100	7650	43	964	2640	31	224
3	32600	231	20300	12500	155	5310	2680	30	220
4	27300	249	18300	8590	110	2560	3150	32	268
5	22000	220	13100	6620	112	1990	2680	31	227
6	17200	182	8520	4340	142	1650	4880	60	834
7	12900	164	5730	3470	127	1190	6070	68	1120
8	10700	156	4510	3130	85	721	5130	60	842
9	20000	221	12300	3720	66	657	3570	37	358
10	28900	400	31300	5800	55	851	2490	29	195
11	25100	364	24800	5870	47	749	2060	26	146
12	18500	275	13900	9050	97	2830	1960	26	139
13	20900	238	13900	24800	282	19200	1630	30	133
14	25900	436	30600	28900	445	34700	1730	36	168
15	23500	422	26800	27800	407	30600	1640	40	176
16	19800	331	17800	25900	335	23500	1310	37	130
17	16000	255	11000	23100	265	16600	1320	30	109
18	12300	184	6210	19000	205	10500	1170	34	106
19	9500	127	3260	15500	167	7050	1030	42	118
20	8380	103	2320	11700	130	4120	1150	44	135
21	7440	84	1700	8400	95	2170	1040	37	104
22	5020	64	881	6550	81	1430	1140	28	87.7
23	4250	55	630	4990	71	958	842	20	45.5
24	4730	48	614	4000	61	662	857	17	38.3
25	3820	55	564	3510	51	484	974	18	46.3
26	3130	69	586	3380	42	381	1730	32	174
27	2470	66	441	4850	39	509	2770	31	234
28	3380	55	499	3900	35	374	5110	32	493
29	5260	54	788	3560	30	292	5000	49	646
30	8890	77	1840	4190	30	343	2180	61	354
31	---	---	---	5280	34	493	---	---	---
TOTAL	484270	---	342993	307010	---	174948	74903	---	8336.8
JULY			AUGUST			SEPTEMBER			
1	1480	56	225	1610	25	110	191	10	5.0
2	1230	44	147	995	23	61.4	222	8.0	4.5
3	963	33	85.6	737	21	42.5	220	6.0	3.4
4	795	32	67.8	596	20	32.7	150	4.0	1.6
5	661	29	51.6	457	19	23.9	139	4.0	1.5
6	611	23	38.0	391	18	18.7	137	5.0	2.1
7	561	21	31.7	498	18	24.6	159	6.0	2.6
8	515	19	26.6	588	20	32.4	180	6.0	2.9
9	613	25	40.9	496	22	29.8	156	6.0	2.3
10	442	25	30.3	381	21	21.9	156	5.0	2.0
11	594	25	40.2	303	19	15.4	161	4.0	1.9
12	538	27	38.6	251	17	11.5	90	4.0	0.95
13	433	27	31.7	228	15	9.5	85	4.0	0.86
14	465	23	29.2	295	14	11.5	81	4.0	0.78
15	476	19	24.0	274	14	10.0	144	3.0	1.3
16	399	16	17.0	264	13	9.1	154	3.0	1.4
17	363	15	15.0	270	12	8.7	116	3.0	1.00
18	354	16	15.1	363	11	11.0	103	3.0	0.85
19	327	16	14.5	413	12	13.8	165	4.0	1.6
20	283	17	13.1	403	10	11.5	187	4.0	2.2
21	309	18	15.0	311	10	8.4	334	5.0	4.6
22	371	21	21.5	507	14	20.2	275	6.0	4.4
23	436	22	26.2	710	17	33.5	478	15	21.4
24	376	19	19.7	1300	30	109	662	22	39.3
25	364	22	21.6	1660	40	180	416	12	14.1
26	582	24	37.9	1120	37	112	305	7.0	5.7
27	628	25	43.2	986	34	91.0	376	11	12.2
28	567	26	39.6	790	25	54.6	462	16	20.6
29	728	26	53.0	540	17	25.6	411	12	13.4
30	1520	36	149	401	14	14.8	721	21	40.7
31	1510	29	119	258	12	8.2	---	---	---
TOTAL	19494	---	1528.6	18396	---	1167.2	7436	---	217.14
YEAR	2434440		1485004.14						

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 mi².

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

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

GAGE.—Water-stage recorder. Datum of gage is 614.75 ft above 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 good 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 ft³/s, from rating curve extended above 11,500 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	140	1470	e70	5520	360	1960	167	145	29	42	14
2	23	125	738	e64	7140	281	1000	880	115	25	29	12
3	20	108	410	e60	3600	629	1410	1590	101	21	20	12
4	17	99	286	e56	1240	931	1160	668	179	17	16	11
5	27	85	214	e50	651	466	671	388	234	16	15	10
6	119	80	169	e52	423	363	481	281	993	14	15	9.8
7	440	72	143	e54	327	268	376	256	501	16	15	9.6
8	243	67	124	e56	266	239	348	365	293	13	11	9.0
9	127	62	110	e58	216	241	2840	738	194	13	9.4	8.5
10	80	58	94	e60	197	544	4240	879	146	14	9.2	8.3
11	62	56	80	e64	517	552	1740	492	116	12	8.6	8.4
12	90	52	71	e66	679	364	859	432	105	10	8.0	8.0
13	629	49	71	e60	516	301	2550	1510	99	9.9	7.4	7.4
14	480	43	142	e54	357	265	3520	2570	87	10	7.0	7.8
15	993	44	1690	e52	280	231	1730	1400	80	9.4	7.1	9.0
16	856	58	1280	e48	247	206	884	621	75	9.1	7.7	13
17	1510	53	1950	e43	210	180	552	1150	66	9.3	9.1	20
18	1260	49	4150	e50	171	163	391	904	56	9.1	7.6	18
19	601	46	2850	e66	145	157	311	583	48	10	8.3	15
20	350	47	1130	e60	202	147	260	367	43	9.5	12	16
21	228	47	608	e58	624	150	224	270	38	16	17	23
22	296	46	402	e56	686	137	212	215	36	18	16	39
23	1250	44	323	e52	470	120	191	183	36	16	61	36
24	1690	43	283	e60	353	119	151	163	35	14	258	25
25	2120	40	203	e80	292	126	135	149	34	17	192	17
26	2000	38	e135	117	350	121	124	218	47	15	85	13
27	889	37	e115	103	724	166	110	327	71	14	47	23
28	455	37	e100	94	547	483	145	236	64	36	32	63
29	282	47	e92	90	---	1870	217	215	47	62	26	112
30	208	442	e84	465	---	5380	216	201	37	76	22	60
31	165	---	e76	2970	---	5600	---	186	---	65	19	---
TOTAL	17536	2214	19593	5288	26950	21160	29008	18604	4121	625.3	1039.4	637.8
MEAN	565.7	73.80	632.0	170.6	962.5	682.6	966.9	600.1	137.4	20.17	33.53	21.26
MAX	2120	442	4150	2970	7140	5600	4240	2570	993	76	258	112
MIN	17	37	71	43	145	119	110	149	34	9.1	7.0	7.4
CFSM	1.32	0.17	1.48	0.40	2.25	1.59	2.26	1.40	0.32	0.05	0.08	0.05
IN.	1.52	0.19	1.70	0.46	2.34	1.84	2.52	1.62	0.36	0.05	0.09	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2002, BY WATER YEAR (WY)

MEAN	90.28	191.2	350.4	452.5	531.7	748.0	651.8	409.6	292.0	148.6	81.57	84.73
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	1.18	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
(+)	7.9	7.1	6.6	6.5	6.7	6.6	7.5	6.9	8.5	9.5	9.0	9.0
MEAN#	557.8	66.7	625.4	164.1	955.8	676.0	959.4	593.2	128.9	10.7	24.5	12.3
CFSM#	1.30	.16	1.46	.38	2.23	1.58	2.24	1.39	.30	.02	.06	.03
IN#	1.50	.17	1.69	.44	2.33	1.82	2.50	1.60	.34	.03	.07	.03

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1928 - 2002

ANNUAL TOTAL	129675.6	146776.5	
ANNUAL MEAN	355.3	402.1	335.7
HIGHEST ANNUAL MEAN			628
LOWEST ANNUAL MEAN			81.4
HIGHEST DAILY MEAN	5380	Apr 7	7140
LOWEST DAILY MEAN	8.7	Aug 8	7.0
ANNUAL SEVEN-DAY MINIMUM	10	Jul 14	7.7
MAXIMUM PEAK FLOW			7450
MAXIMUM PEAK STAGE			11.59
INSTANTANEOUS LOW FLOW			6.6
ANNUAL RUNOFF (CFSM)	0.83		0.94
ANNUAL RUNOFF (INCHES)	11.27		12.76
10 PERCENT EXCEEDS	1040		996
50 PERCENT EXCEEDS	104		112
90 PERCENT EXCEEDS	16		12

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

e Estimated.

Adjusted for diversion.

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

SURFACE-WATER RECORDS

Portage River Basin

61

04195820 PORTAGE RIVER AT 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 mi².

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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	177	1960	e78	6270	462	e2600	251	217	35	65	19
2	27	158	1030	e70	7330	373	e1200	929	167	28	39	15
3	24	135	543	e64	4450	818	e1700	2020	148	24	27	13
4	20	120	373	e60	1660	1260	e1400	922	318	21	21	12
5	42	102	281	e54	903	627	e840	515	381	17	19	12
6	169	91	221	e56	550	467	675	373	1340	16	20	12
7	534	85	180	e58	419	352	507	330	734	14	17	11
8	345	77	154	e62	347	317	497	414	414	15	16	11
9	186	69	134	e66	284	329	3400	858	281	14	12	11
10	110	65	116	e70	281	695	4960	1150	210	15	9.6	11
11	81	60	95	e74	801	756	2250	646	163	13	8.9	9.9
12	170	56	84	e76	1000	472	1230	525	145	11	8.5	10
13	735	52	84	e68	733	391	3080	1830	143	9.6	7.0	9.3
14	726	47	224	e64	482	345	4170	3060	121	8.9	7.5	9.5
15	1290	44	2140	e58	376	305	2230	1830	109	7.9	6.5	12
16	1270	53	1720	e54	330	270	1230	900	99	6.4	6.8	11
17	1940	58	e3000	e50	281	238	778	1720	90	5.7	7.1	16
18	1700	52	4840	e48	228	215	527	1320	74	6.2	8.5	26
19	828	49	3420	e80	193	204	414	834	63	7.0	9.0	24
20	457	48	1520	e74	274	197	376	501	55	7.7	10	24
21	307	48	827	e70	829	197	337	367	51	11	13	24
22	352	47	517	e66	945	185	304	292	44	27	19	36
23	1680	44	e310	e62	634	158	273	e260	42	24	26	57
24	2240	42	e220	e70	456	153	220	222	41	17	338	43
25	2670	41	e180	e100	382	167	193	203	41	13	332	28
26	2530	36	e150	155	447	164	174	257	45	17	159	21
27	1220	36	e140	140	965	217	160	405	78	16	81	32
28	607	35	e120	124	747	633	214	310	83	20	47	49
29	370	47	e110	119	---	e2200	298	360	61	89	33	158
30	271	615	e94	532	---	e6400	312	405	46	112	26	106
31	216	---	e84	3610	---	e6600	---	287	---	102	22	---
TOTAL	23148	2589	24871	6332	32597	26167	36549	24296	5804	730.4	1421.4	832.7
MEAN	746.7	86.30	802.3	204.3	1164	844.1	1218	783.7	193.5	23.56	45.85	27.76
MAX	2670	615	4840	3610	7330	6600	4960	3060	1340	112	338	158
MIN	20	35	84	48	193	153	160	203	41	5.7	6.5	9.3
CFSM	1.51	0.17	1.62	0.41	2.36	1.71	2.47	1.59	0.39	0.05	0.09	0.06
IN.	1.74	0.19	1.87	0.48	2.45	1.97	2.75	1.83	0.44	0.06	0.11	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002
MEAN	259.0	55.31	339.1	364.8	862.8
MAX	747	86.3	802	996	1164
(WY)	2002	2002	2002	1999	2002
MIN	27.4	20.1	37.4	99.8	499
(WY)	2000	2000	1999	2000	1999

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1998 - 2002

ANNUAL TOTAL	165072.3	185337.5	
ANNUAL MEAN	452.3	507.8	400.1
HIGHEST ANNUAL MEAN			508
LOWEST ANNUAL MEAN			347
HIGHEST DAILY MEAN	5780	Apr 7	7330
LOWEST DAILY MEAN	9.3	Aug 9	5.7
ANNUAL SEVEN-DAY MINIMUM	11	Sep 2	7.1
MAXIMUM PEAK FLOW			7470
MAXIMUM PEAK STAGE			11.45
INSTANTANEOUS LOW FLOW			5.5
ANNUAL RUNOFF (CFSM)	0.92	1.03	0.81
ANNUAL RUNOFF (INCHES)	12.43	13.96	11.00
10 PERCENT EXCEEDS	1350	1330	1090
50 PERCENT EXCEEDS	125	154	87
90 PERCENT EXCEEDS	19	13	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

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 mi².

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). 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 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	28	502	e5.4	1360	48	174	42	84	9.9	5.3	3.0
2	22	32	137	e4.7	605	70	194	482	54	8.7	4.9	3.9
3	21	18	81	e4.0	194	282	1440	296	43	8.2	3.9	3.4
4	19	28	59	e3.5	118	153	614	104	944	7.7	3.7	3.1
5	23	14	48	e3.0	65	74	209	72	402	7.2	6.5	2.6
6	28	12	41	e5.0	50	52	135	59	732	6.4	3.5	2.4
7	20	e11	36	e10	42	42	104	54	281	6.0	4.8	2.3
8	12	e9.8	31	e5.6	34	37	95	51	122	5.9	5.8	2.0
9	16	e9.2	28	e4.8	28	40	174	53	80	6.4	4.5	2.5
10	20	8.6	24	e4.0	34	83	232	46	59	6.9	3.6	2.9
11	23	8.1	22	e4.7	81	57	123	39	48	5.5	3.4	2.6
12	31	7.8	21	e6.0	93	43	93	178	77	5.2	3.6	2.5
13	28	7.3	25	e8.6	73	46	281	991	75	5.2	3.4	2.2
14	52	7.0	83	e11	53	43	622	1290	92	5.3	3.2	2.0
15	54	7.4	342	e15	44	53	632	297	131	5.0	3.7	3.8
16	49	7.3	130	e20	38	214	207	141	64	4.9	3.1	2.6
17	47	7.3	515	e14	42	155	121	109	44	4.8	3.6	2.1
18	42	6.9	1350	e11	33	89	87	90	34	5.0	3.5	2.6
19	38	8.2	350	e9.0	26	66	78	79	29	8.2	14	2.8
20	33	7.8	169	e7.4	46	66	164	62	25	5.6	4.7	14
21	34	9.2	98	e6.0	62	74	147	51	22	11	3.5	18
22	36	9.0	59	e7.4	56	63	101	45	20	10	4.7	25
23	68	7.9	52	e10	46	51	74	41	18	5.9	21	12
24	220	7.9	56	39	42	49	58	39	17	4.7	8.7	6.5
25	193	17	40	65	42	56	50	39	17	4.2	14	5.1
26	83	11	28	37	47	77	42	38	17	3.9	8.4	4.6
27	33	15	e18	27	58	212	39	33	15	5.1	5.5	223
28	20	25	e14	24	50	446	55	31	14	4.4	4.3	252
29	21	264	e10	24	---	857	61	55	12	6.6	3.8	50
30	15	655	e7.6	124	---	815	48	540	11	7.0	3.3	24
31	24	---	e6.4	638	---	271	---	185	---	5.2	2.9	---
TOTAL	1342	1266.7	4383.0	1158.1	3462	4684	6454	5632	3583	196.0	172.8	685.5
MEAN	43.29	42.22	141.4	37.36	123.6	151.1	215.1	181.7	119.4	6.323	5.574	22.85
MAX	220	655	1350	638	1360	857	1440	1290	944	11	21	252
MIN	12	6.9	6.4	3.0	26	37	39	31	11	3.9	2.9	2.0
CFSM	0.49	0.48	1.59	0.42	1.39	1.70	2.42	2.05	1.34	0.07	0.06	0.26
IN.	0.56	0.53	1.84	0.49	1.45	1.96	2.70	2.36	1.50	0.08	0.07	0.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	MEAN	23.15	54.42	107.5	139.2	142.4	182.5	153.0	94.34	76.42	34.34	24.20	21.17
MAX	278	271	405	635	339	471	408	252	428	184	212	116	
(WY)	1927	1973	1928	1950	1976	1978	1964	1969	1947	1966	1979	1926	
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1925 - 2002

ANNUAL TOTAL	19207.6	33019.1	
ANNUAL MEAN	52.62	90.46	87.18
HIGHEST ANNUAL MEAN			145
LOWEST ANNUAL MEAN			20.4
HIGHEST DAILY MEAN	1350	Dec 18	4600
LOWEST DAILY MEAN	2.0	Sep 6	0.34
ANNUAL SEVEN-DAY MINIMUM	3.0	Sep 1	0.36
MAXIMUM PEAK FLOW			1870
MAXIMUM PEAK STAGE			7.09
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (CFSM)	0.59	1.02	0.60
ANNUAL RUNOFF (INCHES)	8.05	13.83	13.34
10 PERCENT EXCEEDS	125	210	194
50 PERCENT EXCEEDS	23	29	22
90 PERCENT EXCEEDS	5.0	3.9	3.3

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

63

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 mi².

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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	42	1910	e70	2930	122	940	139	347	29	7.6	6.8
2	11	47	939	e62	3150	120	698	595	199	26	6.6	6.2
3	11	68	453	e58	1360	528	2330	1230	e142	23	4.7	6.9
4	10	73	290	e52	672	938	2830	504	e245	20	3.6	5.0
5	19	64	210	e47	395	744	1150	297	1470	19	4.2	6.5
6	39	55	165	e44	280	246	635	223	911	18	3.8	5.5
7	66	45	135	e42	219	182	437	194	1180	16	3.0	4.1
8	39	40	112	e49	185	157	362	174	496	15	3.6	3.0
9	38	37	96	e46	156	152	420	191	279	13	e3.5	3.7
10	26	35	84	e43	144	163	741	192	194	14	2.4	3.8
11	21	31	74	e39	233	199	538	156	147	13	3.0	2.3
12	31	27	68	e38	385	151	383	301	144	15	3.5	2.6
13	23	24	70	e45	340	128	589	2000	275	12	2.7	2.3
14	51	23	190	e52	265	126	1840	3270	219	12	9.5	1.9
15	109	23	1240	e66	208	117	2300	2290	246	12	11	3.8
16	130	22	953	e73	174	252	1180	893	229	11	6.0	4.3
17	177	22	1120	e78	151	470	617	503	136	8.8	7.1	3.3
18	152	21	2920	e52	137	288	395	407	100	7.7	5.3	3.5
19	130	22	2460	e42	116	204	294	317	80	7.9	14	3.5
20	80	23	1080	e34	111	173	294	249	65	6.3	11	18
21	59	22	561	e30	147	175	418	199	58	4.5	21	22
22	53	21	347	e30	171	173	307	165	53	6.0	16	28
23	50	23	263	e36	151	150	240	145	48	13	38	34
24	363	23	228	e45	130	132	182	130	44	11	26	33
25	777	59	e180	e90	120	136	155	122	42	6.6	38	22
26	517	115	e145	162	127	155	132	127	40	3.8	25	16
27	253	69	e130	114	135	324	115	109	64	4.4	23	105
28	129	82	e120	92	140	932	147	99	47	4.3	20	599
29	80	488	e100	86	---	2020	168	107	39	5.0	16	330
30	61	1600	e90	187	---	2880	164	591	33	5.8	12	116
31	50	---	e78	1130	---	2020	---	730	---	5.2	9.8	---
TOTAL	3566	3246	16811	3034	12732	14557	21001	16649	7572	368.3	360.9	1402.0
MEAN	115.0	108.2	542.3	97.87	454.7	469.6	700.0	537.1	252.4	11.88	11.64	46.73
MAX	777	1600	2920	1130	3150	2880	2830	3270	1470	29	38	599
MIN	10	21	68	30	111	117	115	99	33	3.8	2.4	1.9
CFSM	0.39	0.36	1.82	0.33	1.53	1.58	2.35	1.80	0.85	0.04	0.04	0.16
IN.	0.45	0.41	2.10	0.38	1.59	1.82	2.62	2.08	0.95	0.05	0.05	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

	MEAN	54.09	126.1	267.7	389.6	442.0	564.4	449.5	259.8	190.6	93.60	54.83	61.83
MAX	795	891	1107	1701	1069	1490	1399	761	1283	535	504	839	
(WY)	1927	1973	1978	1930	1971	1963	1957	1969	1947	1966	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1922 - 2002

ANNUAL TOTAL	76330.9	101299.2	
ANNUAL MEAN	209.1	277.5	246.6
HIGHEST ANNUAL MEAN			449
LOWEST ANNUAL MEAN			70.0
HIGHEST DAILY MEAN	2920	Dec 18	8400
LOWEST DAILY MEAN	4.0	Sep 7	0.60
ANNUAL SEVEN-DAY MINIMUM	8.9	Jul 28	0.71
MAXIMUM PEAK FLOW			10000
MAXIMUM PEAK STAGE			15.00
INSTANTANEOUS LOW FLOW			0.50
ANNUAL RUNOFF (CFSM)	0.70		0.83
ANNUAL RUNOFF (INCHES)	9.53		11.24
10 PERCENT EXCEEDS	587	734	625
50 PERCENT EXCEEDS	73	99	62
90 PERCENT EXCEEDS	12	6.1	8.0

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**

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 mi².

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

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

GAGE.—Water-stage recorder. Datum of gage is 785.86 ft above sea level.

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 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	33	912	e31	1670	74	1290	108	281	11	1.4	0.95
2	e14	27	1060	e28	2240	63	530	278	175	10	1.4	0.88
3	11	25	583	e25	2030	187	904	781	97	7.9	1.4	0.77
4	6.3	36	233	e23	812	433	1550	800	76	6.1	1.4	0.69
5	6.0	44	155	e21	322	287	1700	293	57	4.7	1.3	0.62
6	14	44	111	e23	188	152	634	165	47	4.2	1.1	0.60
7	12	35	89	e25	142	116	343	119	51	3.7	1.0	0.60
8	25	29	75	e24	113	95	245	103	94	3.2	1.0	0.59
9	28	24	62	e23	89	87	398	185	75	3.2	0.94	0.52
10	32	21	50	e22	80	109	544	159	52	3.0	0.72	0.52
11	33	19	42	e24	100	143	475	127	39	2.2	0.54	0.49
12	32	18	37	e26	193	128	285	171	43	1.7	0.42	0.41
13	30	17	34	e30	233	102	592	1170	38	1.4	0.26	0.36
14	38	16	64	e33	164	91	1040	1860	30	1.5	0.22	0.37
15	62	16	463	e37	117	82	1440	1940	27	1.9	0.51	0.44
16	72	16	784	e41	96	78	1660	1300	29	2.5	0.40	0.45
17	131	15	758	e45	91	242	986	392	41	2.1	0.30	0.45
18	144	14	1240	e50	82	257	363	244	29	1.6	0.18	0.43
19	129	13	1820	e32	71	152	215	170	21	1.4	0.23	0.44
20	83	12	1670	e24	69	110	147	125	18	1.4	0.37	0.62
21	52	11	578	e17	74	91	141	94	16	1.1	0.42	0.73
22	41	11	254	e20	74	94	141	77	15	0.90	0.81	0.72
23	33	12	169	e26	72	89	123	62	13	0.91	2.0	0.64
24	39	14	132	e30	65	71	107	55	10	0.76	2.0	0.57
25	316	13	e92	e40	57	63	83	50	8.5	0.90	1.7	0.53
26	545	12	e72	62	56	63	67	46	8.5	1.0	1.4	0.53
27	361	13	e62	73	63	113	60	48	8.9	1.2	1.3	2.9
28	150	43	e50	56	76	493	86	47	8.4	1.3	1.1	5.1
29	87	50	e44	47	---	1270	114	46	11	1.4	0.99	32
30	59	530	e38	69	---	2460	135	57	12	1.6	0.98	44
31	44	---	e35	489	---	2160	---	135	---	1.5	0.98	---
TOTAL	2645.3	1183	11768	1516	9439	9955	16398	11207	1431.3	87.27	28.77	98.92
MEAN	85.33	39.43	379.6	48.90	337.1	321.1	546.6	361.5	47.71	2.815	0.928	3.297
MAX	545	530	1820	489	2240	2460	1700	1940	281	11	2.0	44
MIN	6.0	11	34	17	56	63	60	46	8.4	0.76	0.18	0.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	MEAN	31.95	133.4	221.6	226.6	305.6	397.9	340.8	210.5	144.7	104.7	32.88	31.03
MAX	278	844	1104	777	823	1392	946	686	780	741	201	370	
(WY)	1987	1993	1991	1974	1975	1978	1972	1996	1981	1992	1992	1981	
MIN	0.084	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1964 - 2002

ANNUAL TOTAL	55311.5	65757.56	
ANNUAL MEAN	151.5	180.2	181.6
HIGHEST ANNUAL MEAN			330
LOWEST ANNUAL MEAN			72.2
HIGHEST DAILY MEAN	1820	Dec 19	6280
LOWEST DAILY MEAN	3.9	Sep 3	0.00
ANNUAL SEVEN-DAY MINIMUM	4.8	Sep 1	0.00
MAXIMUM PEAK FLOW			2710
MAXIMUM PEAK STAGE			6.97
INSTANTANEOUS LOW FLOW			0.00
10 PERCENT EXCEEDS	514		498
50 PERCENT EXCEEDS	38		33
90 PERCENT EXCEEDS	7.9		1.5

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

65

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 mi².

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

GAGE.—Water-stage recorder. Elevation of gage is 818 ft above sea level (from topographic map).

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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	19	712	e22	2070	44	624	42	37	5.7	1.4	0.29
2	1.2	18	388	e20	1680	43	360	76	30	5.0	1.3	0.27
3	1.4	16	154	e19	761	341	728	110	27	4.3	1.1	0.26
4	1.8	16	96	e16	349	349	780	81	27	4.0	0.97	0.24
5	3.5	18	69	e14	193	151	404	53	47	3.6	1.0	0.23
6	14	16	54	e13	121	93	228	43	54	3.4	0.98	0.22
7	18	15	45	e12	93	77	155	39	56	3.3	0.87	0.20
8	18	13	38	e11	76	67	141	40	49	3.1	0.85	0.19
9	11	12	33	e12	63	64	462	63	33	3.0	0.80	0.18
10	6.8	10	29	e14	58	84	421	66	26	2.9	0.78	0.17
11	4.6	9.0	26	e16	96	66	233	50	22	2.5	0.74	0.15
12	5.5	8.3	23	e19	118	55	206	75	82	2.5	0.73	0.15
13	4.5	7.6	23	e23	126	51	1080	979	67	2.5	0.72	0.17
14	11	7.0	88	e26	98	47	1670	1620	33	2.4	1.1	0.21
15	24	7.0	592	e32	77	44	1310	991	27	2.3	1.2	0.27
16	44	6.5	509	e40	67	42	622	421	24	2.2	1.1	0.33
17	80	5.9	625	38	58	40	289	230	22	2.1	1.0	0.38
18	84	5.8	1230	e28	50	41	171	192	19	2.0	0.99	0.38
19	50	6.0	1030	e25	45	39	118	132	16	1.9	1.1	0.40
20	30	6.6	505	e21	50	38	87	96	14	1.8	1.0	0.62
21	20	6.1	235	e19	72	39	71	74	12	1.7	0.80	0.76
22	28	6.1	135	e17	68	40	61	61	9.9	1.8	0.76	0.58
23	72	6.2	99	e15	58	38	53	52	8.7	2.3	1.4	0.55
24	145	6.1	82	e21	51	36	45	47	8.1	2.0	1.5	0.53
25	337	19	65	30	46	38	40	43	7.7	1.8	1.3	0.48
26	243	27	e50	32	50	41	36	43	8.8	2.2	0.75	0.47
27	102	22	e42	28	58	70	33	39	7.9	2.6	0.54	3.4
28	52	21	e33	26	51	187	40	35	6.7	2.1	0.46	4.0
29	34	140	e30	27	---	948	44	33	6.3	1.9	0.40	35
30	26	647	e27	261	---	2120	48	39	6.3	1.8	0.35	18
31	22	---	e24	665	---	1390	---	39	---	1.6	0.31	---
TOTAL	1495.7	1123.2	7091	1562	6703	6723	10560	5904	794.4	82.3	28.30	69.08
MEAN	48.25	37.44	228.7	50.39	239.4	216.9	352.0	190.5	26.48	2.655	0.913	2.303
MAX	337	647	1230	665	2070	2120	1670	1620	82	5.7	1.5	35
MIN	1.2	5.8	23	11	45	36	33	33	6.3	1.6	0.31	0.15
CFSM	0.32	0.25	1.54	0.34	1.61	1.46	2.36	1.28	0.18	0.02	0.01	0.02
IN.	0.37	0.28	1.77	0.39	1.67	1.68	2.64	1.47	0.20	0.02	0.01	0.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

MEAN	29.56	94.47	158.9	149.8	240.4	260.7	239.6	116.3	109.4	64.92	42.97	34.08
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	54.2	40.4	44.4	8.69	1.05	0.46	0.91	0.84
(WY)	1989	1995	1977	1977	1999	1981	1976	1988	1988	1988	2002	1995

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1976 - 2002

ANNUAL TOTAL	27849.94	42135.98	
ANNUAL MEAN	76.30	115.4	128.2
HIGHEST ANNUAL MEAN			189
LOWEST ANNUAL MEAN			48.1
HIGHEST DAILY MEAN	1230	Dec 18	4000
LOWEST DAILY MEAN	0.41	Sep 6	0.07
ANNUAL SEVEN-DAY MINIMUM	0.53	Sep 1	0.09
MAXIMUM PEAK FLOW			2370
MAXIMUM PEAK STAGE			8.49
INSTANTANEOUS LOW FLOW			0.15
ANNUAL RUNOFF (CFSM)	0.51	Sep 11	0.07
ANNUAL RUNOFF (INCHES)	6.95		0.77
10 PERCENT EXCEEDS	191		272
50 PERCENT EXCEEDS	24		27
90 PERCENT EXCEEDS	1.4		0.77

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**

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 mi².

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 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	3.1	162	e3.8	1080	9.8	46	10	22	2.1	0.81	0.71
2	1.1	3.6	38	e3.6	283	9.5	38	64	13	1.9	0.85	0.67
3	1.2	3.3	16	e3.3	54	145	250	54	11	1.9	0.83	0.67
4	1.5	3.3	11	e3.1	31	54	66	19	15	2.2	0.95	0.56
5	4.4	3.5	9.9	e3.2	20	21	30	12	61	1.9	1.0	0.55
6	8.9	3.2	9.1	e3.7	13	12	21	11	37	1.5	0.97	0.58
7	6.9	3.1	7.4	e4.2	11	11	16	11	18	1.6	0.86	0.60
8	2.2	3.1	6.6	e4.6	10	10	20	12	11	1.5	0.83	0.54
9	1.7	2.5	6.3	e4.8	9.3	11	336	56	8.4	1.6	0.87	0.49
10	1.3	2.5	5.6	e4.0	9.6	34	161	32	7.0	1.6	0.77	0.47
11	0.94	2.3	5.4	e4.3	15	16	42	16	6.2	1.6	0.75	0.39
12	2.7	2.3	5.4	e4.6	21	12	28	29	6.9	1.4	0.80	0.47
13	3.9	2.3	3.4	e5.2	25	11	695	465	7.4	1.5	0.64	0.46
14	9.2	2.5	32	e5.6	16	9.7	843	453	7.0	1.5	1.5	1.6
15	19	2.7	131	e6.2	11	9.0	379	63	6.0	1.4	2.3	1.2
16	10	2.5	46	e7.0	10	8.7	72	28	5.1	1.3	1.3	0.73
17	40	2.3	221	e7.6	9.4	8.4	35	59	4.5	1.2	1.2	0.91
18	19	2.3	376	6.6	8.2	8.1	24	31	4.3	1.1	1.4	1.2
19	5.7	2.7	94	5.5	7.9	7.3	18	19	4.1	1.2	1.9	1.8
20	2.7	2.5	38	5.0	11	7.5	14	14	3.9	1.1	1.6	4.1
21	2.0	2.2	23	4.5	33	7.9	13	11	3.5	0.90	1.2	2.6
22	2.2	2.1	15	4.0	19	7.3	12	10	3.3	0.78	1.4	1.6
23	6.7	2.1	9.8	4.3	13	7.0	11	9.1	3.1	0.93	4.0	1.5
24	22	2.1	9.7	6.0	10	6.8	10	8.4	3.0	0.77	1.9	1.6
25	94	8.0	8.6	7.0	9.8	7.2	9.5	8.7	2.9	0.75	1.2	1.4
26	52	12	e7.3	7.0	12	8.9	8.6	12	2.6	1.1	0.95	1.6
27	15	6.9	e6.2	6.2	22	37	8.4	11	2.5	2.2	0.90	11
28	6.9	5.5	e5.6	5.7	13	94	16	8.6	2.5	1.5	0.89	5.5
29	4.6	60	e5.2	6.8	---	416	17	115	2.3	1.2	0.78	2.3
30	3.5	309	e4.7	227	---	849	12	349	2.3	0.91	0.75	1.7
31	3.2	---	e4.4	350	---	112	---	56	---	0.80	0.66	---
TOTAL	355.64	465.5	1323.6	724.4	1787.2	1968.1	3251.5	2056.8	286.8	42.94	36.76	49.50
MEAN	11.47	15.52	42.70	23.37	63.83	63.49	108.4	66.35	9.560	1.385	1.186	1.650
MAX	94	309	376	350	1080	849	843	465	61	2.2	4.0	11
MIN	0.94	2.1	3.4	3.1	7.9	6.8	8.4	8.4	2.3	0.75	0.64	0.39
CFSM	0.33	0.45	1.23	0.68	1.84	1.83	3.13	1.92	0.28	0.04	0.03	0.05
IN.	0.38	0.50	1.42	0.78	1.92	2.12	3.50	2.21	0.31	0.05	0.04	0.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	MEAN	9.599	26.74	35.51	37.64	59.44	48.63	56.21	29.06	22.39	13.23	11.08	11.63
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	13.0	13.6	17.9	2.29	1.12	0.55	1.19	0.83	
(WY)	2000	2000	1992	2001	1993	1989	1988	1988	1988	1988	2002	1995	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	6645.80	12348.74	
ANNUAL MEAN	18.21	33.83	29.89
HIGHEST ANNUAL MEAN			48.2
LOWEST ANNUAL MEAN			11.6
HIGHEST DAILY MEAN	567	Feb 10	1590
LOWEST DAILY MEAN	0.32	Sep 12	0.32
ANNUAL SEVEN-DAY MINIMUM	0.37	Sep 11	0.37
MAXIMUM PEAK FLOW			2640
MAXIMUM PEAK STAGE		7.62	Feb 1
INSTANTANEOUS LOW FLOW		0.36	Sep 11
ANNUAL RUNOFF (CFSM)	0.53	0.98	0.86
ANNUAL RUNOFF (INCHES)	7.15	13.28	11.74
10 PERCENT EXCEEDS	37	54	56
50 PERCENT EXCEEDS	4.7	6.2	6.1
90 PERCENT EXCEEDS	1.1	0.92	1.4

e Estimated.

SURFACE-WATER RECORDS
Sandusky River Basin

67

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 mi².

WATER-DISCHARGE RECORDS

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

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

GAGE.—Water-stage recorder. Datum of gage is 626.30 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	221	6110	e280	13700	507	8610	580	1260	e26	38	42
2	47	193	4500	e250	14300	477	4760	1080	927	e25	34	44
3	43	178	2750	e230	9580	1130	5100	1950	e600	e25	33	46
4	39	165	1550	e210	6470	2490	6820	2730	e500	e24	31	43
5	44	173	907	e210	2790	2090	6570	1810	e800	e23	32	39
6	199	184	665	e190	1510	1260	4440	983	e2000	e22	32	36
7	228	184	526	e210	1050	829	2160	723	e1000	e22	29	34
8	178	178	432	e230	828	674	1500	632	e800	e21	26	32
9	142	163	371	e250	690	602	3770	845	e680	e21	24	32
10	109	146	317	e220	596	756	4800	990	e600	e21	23	28
11	95	132	277	e200	638	782	2960	758	e540	e20	23	24
12	132	122	251	e190	940	695	2090	727	e500	e21	23	21
13	204	113	247	e200	1200	644	4640	4740	e470	e24	20	18
14	216	109	366	e220	1110	541	10500	11700	457	e30	24	20
15	463	111	2690	e250	861	502	10000	9760	427	e28	26	23
16	478	105	3520	e280	704	467	7630	7570	351	e27	32	33
17	883	99	4410	e320	599	467	5010	4110	376	e28	e40	24
18	894	96	9480	e300	517	810	2690	1910	302	30	e33	19
19	606	95	8010	e250	463	806	1490	1340	238	36	37	e21
20	439	99	6540	e220	467	612	1090	993	192	42	40	e25
21	319	97	4210	e200	603	529	893	792	e170	38	39	36
22	376	92	1920	e170	651	e510	931	656	183	37	47	42
23	506	87	1140	e190	589	e510	824	560	160	46	68	33
24	653	87	871	e220	536	e490	675	491	152	42	186	32
25	1540	95	714	e270	482	e420	578	445	120	40	130	34
26	2240	136	610	313	489	e400	491	464	71	39	82	e40
27	1580	200	e480	372	602	616	430	441	36	50	61	97
28	934	220	e410	374	569	1390	461	411	28	73	50	305
29	539	262	e380	348	---	6180	572	396	e27	66	48	413
30	360	2910	e350	1480	---	14300	625	1890	e26	55	47	524
31	273	---	e310	3970	---	12200	---	1160	---	43	46	---
TOTAL	14809	7052	65314	12617	63534	54686	103110	63637	13993	1045	1404	2160
MEAN	477.7	235.1	2107	407.0	2269	1764	3437	2053	466.4	33.71	45.29	72.00
MAX	2240	2910	9480	3970	14300	14300	10500	11700	2000	73	186	524
MIN	39	87	247	170	463	400	430	396	26	20	20	18
CFSM	0.38	0.19	1.68	0.33	1.81	1.41	2.75	1.64	0.37	0.03	0.04	0.06
IN.	0.44	0.21	1.94	0.38	1.89	1.63	3.07	1.89	0.42	0.03	0.04	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2002, BY WATER YEAR (WY)

	MEAN	224.0	565.1	1089	1539	1918	2281	1858	1074	814.6	447.3	230.6	250.7
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1924 - 2002

ANNUAL TOTAL	287443	403361	
ANNUAL MEAN	787.5	1105	1019
HIGHEST ANNUAL MEAN			2167
LOWEST ANNUAL MEAN			275
HIGHEST DAILY MEAN	9480	Dec 18	14300
LOWEST DAILY MEAN	35	Sep 5	18
ANNUAL SEVEN-DAY MINIMUM	39	Sep 3	21
MAXIMUM PEAK FLOW			16700
MAXIMUM PEAK STAGE			8.17
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (CFSM)	0.63	0.88	0.81
ANNUAL RUNOFF (INCHES)	8.55	11.99	11.07
10 PERCENT EXCEEDS	2350	2840	2720
50 PERCENT EXCEEDS	281	360	276
90 PERCENT EXCEEDS	54	28	39

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

04198000 SANDUSKY RIVER NEAR FREMONT, OHIO—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—Water years 1951-56, 1978 to September 2002 (discontinued).

PERIOD OF DAILY RECORD.—

CHLORIDE: February 1988 to September 1994.

NITROGEN, NITRITE + NITRATE: February 1988 to September 1994.

NITROGEN, AMMONIA + ORGANIC: February 1988 to September 1994.

PHOSPHORUS: February 1988 to September 1994.

SUSPENDED SEDIMENT DISCHARGE: Water years 1951-56, October 1978 to September 2002.

INSTRUMENTATION.—Refrigerated water-quality pumping sampler, operated by Heidelberg College Water Quality Laboratory, from Feb. 1988 to Sept. 1994.

REMARKS.—Sediment samples were collected by a local observer on an approximate once daily basis. Sediment loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was subdivided into half-hour intervals and the daily load was calculated by summing the loads for these half-hour intervals. This required interpolation between measured and estimated concentrations.

EXTREMES FOR PERIOD OF DAILY RECORD.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,420 mg/L, June 9, 1981; minimum daily mean, 1 mg/L, on many days during 1951-56, 1980, 1981, 1988, and 1992.

SEDIMENT LOADS: Maximum daily, 124,000 tons, June 14, 1981; minimum daily, less than 0.05 ton, on several days during 1952, 1954, and 1989.

EXTREMES FOR CURRENT YEAR.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 606 mg/L, May 4; minimum daily mean, 4 mg/L, Jan. 24 and 29.

SEDIMENT LOADS: Maximum daily, 20,500 tons, Feb. 1; minimum daily, 0.50 ton, Aug. 13.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; *, 10—stream cross-section sample collected by equal-width-increment (EWI) method; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; %, percent; MM, millimeters; ---, no data]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM- PLING METHOD, CODES* (82398)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC								
18...	1115	10100	10	388	6.0	7.0	--	364
18...	1200	10100	10	--	--	--	94.7	371
MAY								
14...	1210	12100	10	335	18.0	12.0	--	410
14...	1245	12100	10	--	--	--	--	400

SURFACE-WATER RECORDS
Sandusky River Basin

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04198000 SANDUSKY RIVER NEAR FREMONT, OHIO—Continued

WATER-QUALITY RECORDS—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data; e, estimated.]

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT
	DISCHARGE	CONCEN-		DISCHARGE	CONCEN-	DISCHARGE	DISCHARGE	CONCEN-	
	(CFS)	TRATION	(TONS/DAY)	(CFS)	TRATION	(TONS/DAY)	(CFS)	TRATION	(TONS/DAY)
		(MG/L)			(MG/L)			(MG/L)	
OCTOBER			NOVEMBER			DECEMBER			
1	50	10	1.3	221	64	38.5	6110	355	5890
2	47	10	1.3	193	56	29.0	4500	253	3110
3	43	9.0	1.1	178	45	21.5	2750	178	1340
4	39	9.0	0.92	165	36	16.2	1550	117	500
5	44	10	1.3	173	31	14.5	907	80	198
6	199	53	33.2	184	27	13.5	665	68	122
7	228	46	28.9	184	23	11.5	526	55	78.9
8	178	22	10.8	178	22	10.6	432	41	48.6
9	142	15	5.8	163	22	9.7	371	28	28.2
10	109	17	5.1	146	22	8.7	317	18	15.7
11	95	18	4.6	132	22	7.8	277	15	11.4
12	132	23	9.3	122	22	7.2	251	14	9.6
13	204	35	19.6	113	16	4.9	247	13	8.7
14	216	27	16.9	109	7.0	2.1	366	22	27.4
15	463	62	77.1	111	7.0	2.2	2690	140	1130
16	478	46	59.1	105	7.0	2.1	3520	164	1570
17	883	68	167	99	8.0	2.0	4410	167	2140
18	894	70	170	96	8.0	2.0	9480	332	8560
19	606	57	93.7	95	8.0	2.0	8010	259	5640
20	439	48	56.8	99	8.0	2.1	6540	191	3390
21	319	40	34.6	97	7.0	1.9	4210	133	1550
22	376	42	43.5	92	8.0	2.0	1920	81	430
23	506	50	69.8	87	9.0	2.2	1140	63	196
24	653	55	97.2	87	11	2.5	871	52	123
25	1540	116	534	95	12	3.0	714	41	79.8
26	2240	158	958	136	18	6.9	610	31	50.6
27	1580	121	522	200	24	13.0	e480	27	35.1
28	934	95	242	220	20	11.8	e410	26	28.6
29	539	79	116	262	24	19.9	e380	25	25.3
30	360	75	73.4	2910	221	2140	e350	23	22.2
31	273	73	53.9	---	---	---	e310	22	18.6
TOTAL	14809	---	3508.22	7052	---	2411.3	65314	---	36377.7
JANUARY			FEBRUARY			MARCH			
1	e280	21	15.9	13700	538	20500	507	36	50.0
2	e250	20	13.4	14300	449	17600	477	26	33.8
3	e230	19	11.6	9580	310	8060	1130	110	483
4	e210	17	9.9	6470	228	4060	2490	277	1870
5	e210	16	9.2	2790	148	1160	2090	227	1290
6	e190	15	7.9	1510	98	406	1260	177	611
7	e210	17	9.8	1050	64	182	829	136	306
8	e230	20	12.2	828	44	99.7	674	99	182
9	e250	22	14.5	690	33	61.7	602	70	114
10	e220	20	12.2	596	25	39.7	756	88	181
11	e200	19	10.2	638	27	46.8	782	77	163
12	e190	17	8.9	940	62	159	695	48	90.3
13	e200	16	8.5	1200	92	297	644	35	60.9
14	e220	16	9.7	1110	70	212	541	28	40.5
15	e250	19	12.8	861	45	106	502	21	27.9
16	e280	22	16.3	704	33	62.1	467	15	18.7
17	e320	22	18.9	599	27	43.0	467	18	24.5
18	e300	20	15.8	517	22	31.2	810	112	256
19	e250	17	11.5	463	19	23.3	806	95	211
20	e220	14	8.5	467	17	21.1	612	38	63.5
21	e200	12	6.3	603	54	89.7	529	23	33.5
22	e170	9.0	4.1	651	55	96.1	e510	21	28.5
23	e190	6.0	3.0	589	35	55.2	e510	19	26.7
24	e220	4.0	2.5	536	15	22.5	e490	18	24.0
25	e270	8.0	5.7	482	12	15.7	e420	17	19.2
26	313	15	13.0	489	25	33.8	e400	16	16.9
27	372	13	12.6	602	67	110	616	29	50.3
28	374	6.0	6.5	569	52	81.1	1390	92	378
29	348	4.0	4.1	---	---	---	6180	289	5290
30	1480	126	652	---	---	---	14300	454	17600
31	3970	210	2420	---	---	---	12200	342	11400
TOTAL	12617	---	3367.5	63534	---	53674.7	54686	---	40944.2

SURFACE-WATER RECORDS

Sandusky River Basin

04198000 SANDUSKY RIVER NEAR FREMONT, OHIO—Continued

WATER-QUALITY RECORDS—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002—Continued

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data; e, estimated.]

	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
DAY									
APRIL			MAY			JUNE			
1	8610	241	5680	580	21	32.3	1260	141	485
2	4760	162	2150	1080	99	318	927	115	288
3	5100	185	2710	1950	98	570	e600	105	171
4	6820	395	7280	2730	606	4480	e500	89	120
5	6570	431	7670	1810	377	1910	e800	105	227
6	4440	307	3760	983	175	479	e2000	217	1170
7	2160	204	1220	723	58	115	e1000	186	509
8	1500	129	525	632	38	64.3	e800	164	355
9	3770	180	1990	845	58	138	e680	148	272
10	4800	239	3120	990	74	199	e600	131	213
11	2960	187	1510	758	52	106	e540	111	162
12	2090	153	868	727	51	102	e500	94	127
13	4640	277	4330	4740	256	4550	e470	95	121
14	10500	520	14800	11700	448	14200	457	106	130
15	10000	432	11700	9760	279	7410	427	107	123
16	7630	301	6240	7570	207	4270	351	109	103
17	5010	254	3460	4110	150	1710	376	149	152
18	2690	189	1410	1910	102	530	302	126	103
19	1490	129	526	1340	79	287	238	104	67.0
20	1090	88	261	993	57	155	192	94	48.6
21	893	64	155	792	42	89.4	e170	86	39.4
22	931	44	111	656	33	58.9	183	77	37.9
23	824	31	68.9	560	28	41.7	160	67	29.2
24	675	28	50.9	491	24	31.6	152	58	24.0
25	578	27	41.9	445	24	28.6	120	49	16.0
26	491	25	33.6	464	58	73.3	71	40	7.7
27	430	23	27.3	441	46	55.1	36	35	3.5
28	461	22	27.9	411	34	38.3	28	35	2.7
29	572	24	36.4	396	31	35.0	e27	35	2.6
30	625	23	38.1	1890	180	980	e26	34	2.4
31	---	---	---	1160	103	335	---	---	---
TOTAL	103110	---	81801.0	63637	---	43392.5	13993	---	5112.0
JULY			AUGUST			SEPTEMBER			
1	e26	33	2.3	38	22	2.2	42	11	1.2
2	e25	33	2.2	34	17	1.6	44	9.0	1.1
3	e25	32	2.1	33	14	1.3	46	9.0	1.1
4	e24	31	2.0	31	14	1.2	43	8.0	0.95
5	e23	30	1.9	32	18	1.5	39	8.0	0.88
6	e22	29	1.7	32	16	1.4	36	9.0	0.88
7	e22	27	1.6	29	16	1.3	34	10	0.88
8	e21	20	1.1	26	12	0.85	32	10	0.84
9	e21	19	1.1	24	10	0.66	32	11	0.92
10	e21	19	1.1	23	10	0.61	28	12	0.89
11	e20	20	1.1	23	10	0.59	24	13	0.83
12	e21	19	1.1	23	9.0	0.57	21	14	0.77
13	e24	19	1.2	20	9.0	0.50	18	13	0.64
14	e30	23	1.9	24	11	0.71	20	12	0.66
15	e28	21	1.6	26	12	0.82	23	12	0.79
16	e27	16	1.2	32	20	1.7	33	16	1.4
17	e28	12	0.91	e40	25	2.7	24	13	0.86
18	30	12	0.97	e33	16	1.4	19	12	0.63
19	36	13	1.3	37	16	1.6	e21	12	0.67
20	42	13	1.5	40	27	3.0	e25	11	0.76
21	38	12	1.2	39	23	2.5	36	20	2.2
22	37	11	1.1	47	22	3.2	42	12	1.5
23	46	14	1.7	68	27	5.0	33	8.0	0.75
24	42	15	1.7	186	56	29.3	32	8.0	0.67
25	40	11	1.2	130	43	15.4	34	7.0	0.65
26	39	9.0	0.90	82	34	7.5	e40	6.0	0.61
27	50	18	2.7	61	32	5.2	97	23	8.2
28	73	51	10.0	50	26	3.5	305	43	36.1
29	66	42	7.5	48	21	2.7	413	53	65.4
30	55	32	4.8	47	17	2.2	524	49	70.6
31	43	28	3.2	46	14	1.7	---	---	---
TOTAL	1045	---	65.88	1404	---	104.41	2160	---	204.33
YEAR	403361		270963.74						

SURFACE-WATER RECORDS

Huron River Basin

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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 mi².

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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	60	1140	e68	6700	103	944	138	118	25	17	8.8
2	12	68	414	e64	2830	107	646	649	91	24	15	10
3	11	68	237	e60	966	964	2500	584	81	26	13	12
4	9.6	59	167	e58	552	594	1300	268	295	25	11	11
5	31	51	130	e56	367	276	613	195	242	22	12	9.2
6	140	43	109	e54	274	216	421	165	198	20	11	9.9
7	115	37	96	e52	210	172	354	164	146	18	9.5	7.6
8	63	36	86	e52	164	161	329	188	115	19	8.9	6.0
9	63	35	78	e50	150	166	1350	337	89	17	13	6.7
10	83	33	70	e49	149	175	1060	263	75	20	9.1	6.0
11	78	30	65	e54	211	169	500	175	66	17	7.4	5.4
12	90	29	61	e66	279	141	552	189	315	14	7.8	4.8
13	82	27	63	e78	325	124	2670	2840	362	12	9.9	4.5
14	120	26	165	e96	236	114	3890	3960	145	11	12	13
15	178	27	1470	e72	190	110	2530	1190	109	11	12	46
16	125	28	544	e64	163	112	984	560	86	11	8.0	25
17	136	28	1390	e54	144	113	504	525	68	10	6.0	20
18	175	27	3600	e46	115	110	351	461	59	9.4	5.0	28
19	99	30	1180	e40	107	103	277	332	51	9.0	11	40
20	69	33	464	e54	113	110	246	262	46	8.5	13	47
21	53	32	320	e50	136	118	211	213	42	8.1	8.6	118
22	103	32	233	e46	143	122	197	177	39	9.2	16	41
23	164	28	199	e58	119	109	182	149	37	12	59	30
24	314	28	172	e70	108	106	152	134	35	15	44	24
25	617	39	131	e80	102	116	142	128	34	12	41	29
26	372	45	e110	93	112	144	125	156	39	14	35	23
27	164	53	e100	77	123	340	116	133	34	20	29	499
28	102	51	e92	66	117	718	167	137	31	24	23	662
29	81	181	e82	66	---	3050	206	180	27	46	19	223
30	71	1350	e76	690	---	6110	165	221	26	29	15	86
31	67	---	e72	2150	---	1850	---	165	---	22	11	---
TOTAL	3800.6	2614	13116	4633	15205	16923	23684	15238	3101	540.2	512.2	2055.9
MEAN	122.6	87.13	423.1	149.5	543.0	545.9	789.5	491.5	103.4	17.43	16.52	68.53
MAX	617	1350	3600	2150	6700	6110	3890	3960	362	46	59	662
MIN	9.6	26	61	40	102	103	116	128	26	8.1	5.0	4.5
CFSM	0.33	0.23	1.14	0.40	1.46	1.47	2.13	1.32	0.28	0.05	0.04	0.18
IN.	0.38	0.26	1.32	0.46	1.52	1.70	2.37	1.53	0.31	0.05	0.05	0.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	MEAN	57.44	164.3	345.4	458.6	540.8	677.3	578.8	315.2	237.0	175.5	100.0	75.71
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1951 - 2002

ANNUAL TOTAL	61140.4	101422.9	
ANNUAL MEAN	167.5	277.9	309.3
HIGHEST ANNUAL MEAN			530
LOWEST ANNUAL MEAN			145
HIGHEST DAILY MEAN	3600	Dec 18	31400
LOWEST DAILY MEAN	6.0	Sep 7	3.0
ANNUAL SEVEN-DAY MINIMUM	7.1	Sep 3	3.4
MAXIMUM PEAK FLOW			49600
MAXIMUM PEAK STAGE			31.10
INSTANTANEOUS LOW FLOW			2.2
ANNUAL RUNOFF (CFSM)	0.45		0.83
ANNUAL RUNOFF (INCHES)	6.13		11.33
10 PERCENT EXCEEDS	352		700
50 PERCENT EXCEEDS	67		84
90 PERCENT EXCEEDS	12		15

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 mi².

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 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.51	2.7	52	e2.3	571	8.6	40	10	15	1.1	0.36	0.00
2	0.42	3.3	19	e2.1	79	11	34	66	9.8	1.0	0.17	0.04
3	0.30	20	12	e1.9	31	115	182	24	8.4	0.86	0.00	0.17
4	0.20	8.4	8.9	e1.8	18	25	42	15	111	0.73	0.13	0.00
5	4.4	5.2	7.1	e1.7	14	18	26	12	75	0.72	1.3	0.00
6	83	3.7	5.8	e1.6	11	13	23	11	45	0.71	0.68	0.00
7	10	3.1	5.0	e1.5	12	13	22	11	22	0.54	0.30	0.00
8	2.6	2.7	4.2	e1.4	11	12	24	13	16	0.40	0.12	0.00
9	1.4	2.6	3.6	e1.3	9.9	13	127	27	12	0.36	0.00	0.00
10	1.1	2.2	3.2	e2.5	12	12	51	15	9.3	0.39	0.00	0.00
11	0.87	2.0	2.9	e4.0	18	8.9	27	10	7.3	0.32	0.00	0.00
12	1.3	1.6	2.7	e8.0	21	9.1	57	16	161	0.24	0.00	0.00
13	1.8	1.5	3.3	e12	29	9.2	210	299	191	0.20	0.00	0.00
14	6.4	1.5	48	e9.8	16	8.3	217	203	36	0.13	0.00	0.00
15	20	1.7	98	e7.8	14	8.4	124	44	29	0.08	0.00	0.28
16	8.4	1.6	23	e6.6	13	10	41	25	16	0.01	0.00	0.12
17	54	1.4	176	e5.0	11	8.5	24	37	12	0.00	0.00	0.00
18	9.8	1.4	210	e4.0	8.6	8.0	19	25	9.8	0.00	0.00	0.00
19	4.1	1.7	41	e3.5	8.7	6.8	16	25	7.2	0.00	0.00	0.00
20	2.8	2.6	24	e3.1	11	8.8	18	20	5.3	0.00	0.13	0.79
21	2.3	2.3	16	e2.8	13	9.9	16	17	4.0	0.00	0.00	11
22	48	1.9	12	e2.5	11	8.1	16	14	3.5	0.00	0.00	1.7
23	35	1.6	11	e3.0	9.4	7.1	25	12	2.9	0.00	4.0	0.61
24	40	1.5	9.7	6.8	9.9	7.2	20	10	2.4	0.00	23	0.27
25	57	2.3	6.5	8.4	9.6	9.5	17	9.7	1.9	0.00	3.0	0.27
26	17	2.4	e5.0	5.1	11	14	13	13	1.6	0.00	0.95	0.18
27	8.7	2.8	e4.3	4.5	12	44	11	9.9	1.5	0.00	0.47	93
28	5.6	3.7	e3.8	4.2	9.3	71	17	18	1.5	0.41	0.27	39
29	4.3	68	e3.2	4.4	---	389	14	18	1.3	9.6	0.15	3.9
30	3.4	184	e2.8	75	---	390	12	41	1.2	1.7	0.03	1.3
31	3.0	---	e2.5	175	---	67	---	48	---	0.78	0.00	---
TOTAL	437.70	341.4	826.5	373.6	1004.4	1343.4	1485	1118.6	819.9	20.28	35.06	152.63
MEAN	14.12	11.38	26.66	12.05	35.87	43.34	49.50	36.08	27.33	0.654	1.131	5.088
MAX	83	184	210	175	571	390	217	299	191	9.6	23	93
MIN	0.20	1.4	2.5	1.3	8.6	6.8	11	9.7	1.2	0.00	0.00	0.00
CFSM	0.64	0.51	1.21	0.55	1.62	1.96	2.24	1.63	1.24	0.03	0.05	0.23
IN.	0.74	0.57	1.39	0.63	1.69	2.26	2.50	1.88	1.38	0.03	0.06	0.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)

MEAN	4.432	11.81	22.01	30.55	33.67	32.48	41.71	18.91	17.34	5.609	5.681	5.587
MAX	20.8	68.4	98.2	74.8	78.6	86.3	66.5	52.2	47.4	35.1	23.7	23.1
(WY)	1997	1993	1991	1993	1990	1993	1998	1989	1997	1992	1992	1996
MIN	0.001	0.31	0.70	8.03	7.51	11.2	18.4	2.20	0.17	0.010	0.000	0.000
(WY)	1995	1992	1992	1988	1999	2001	1988	1988	1988	1991	1991	1991

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1988 - 2002

ANNUAL TOTAL	4227.80	7958.47	
ANNUAL MEAN	11.58	21.80	19.04
HIGHEST ANNUAL MEAN			34.1
LOWEST ANNUAL MEAN			8.48
HIGHEST DAILY MEAN	291	Feb 10	571
LOWEST DAILY MEAN	0.00	Jul 9	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 9	0.00
MAXIMUM PEAK FLOW			1120
MAXIMUM PEAK STAGE			10.22
INSTANTANEOUS LOW FLOW			0.00
ANNUAL RUNOFF (CFSM)	0.52	0.99	0.86
ANNUAL RUNOFF (INCHES)	7.12	13.40	11.71
10 PERCENT EXCEEDS	24	46	40
50 PERCENT EXCEEDS	2.7	6.8	4.1
90 PERCENT EXCEEDS	0.00	0.00	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

73

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 mi².

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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	24	822	e38	1030	155	1430	132	200	6.1	4.7	3.6
2	4.0	25	400	e35	4020	133	624	441	113	5.4	4.0	3.7
3	3.5	63	212	e31	2330	143	497	579	84	4.9	3.4	3.8
4	3.2	42	141	e29	733	450	1940	277	225	4.4	2.9	3.2
5	8.9	31	101	e27	393	540	1770	168	135	4.0	2.9	3.0
6	145	25	80	e25	270	237	617	118	88	3.8	3.0	2.9
7	51	21	57	e24	219	184	400	103	189	3.6	2.7	2.9
8	24	20	48	e23	182	145	327	144	166	3.3	2.4	2.7
9	16	19	42	e22	144	131	283	250	98	3.2	2.2	2.6
10	11	18	36	e32	125	121	615	202	74	2.7	2.1	2.5
11	9.0	16	32	e48	115	136	579	121	50	2.6	2.2	2.4
12	11	15	27	e66	123	207	388	126	211	2.3	2.1	2.2
13	12	14	25	e100	150	145	280	1510	244	2.1	2.2	2.2
14	28	13	115	e150	239	119	543	3390	102	2.0	2.0	2.5
15	89	14	663	e130	216	108	2370	1270	83	1.9	2.8	3.0
16	76	14	415	e120	167	100	1780	500	82	1.8	3.0	6.3
17	169	12	712	e110	150	100	786	436	60	1.7	2.6	6.8
18	79	12	2220	e100	134	178	410	428	43	1.8	2.4	6.0
19	42	13	1290	e86	119	179	279	305	30	1.9	2.4	e5.4
20	35	17	485	e76	103	129	231	260	24	1.7	2.9	e6.1
21	33	17	280	e70	105	115	262	206	19	1.6	2.5	e10
22	116	15	187	e62	116	144	172	144	16	1.6	3.2	e8.9
23	144	15	140	e54	144	181	140	115	14	2.0	9.6	e6.8
24	186	15	113	e47	135	140	157	96	12	2.3	59	e5.7
25	241	21	e100	e56	122	121	120	86	10	2.7	20	5.0
26	216	21	e84	e70	113	133	92	108	9.0	2.4	7.4	4.7
27	145	24	e72	e52	117	182	75	148	8.3	2.2	4.9	117
28	90	25	e62	e42	140	319	138	148	7.6	2.8	5.6	314
29	60	160	e56	e36	---	820	233	127	6.6	64	4.5	141
30	46	614	e50	e50	---	2590	193	162	6.3	15	4.1	56
31	32	---	e44	e300	---	4270	---	403	---	7.2	4.0	---
TOTAL	2130.0	1355	9111	2111	11954	12655	17731	12503	2409.8	165.0	179.7	742.9
MEAN	68.71	45.17	293.9	68.10	426.9	408.2	591.0	403.3	80.33	5.323	5.797	24.76
MAX	241	614	2220	300	4020	4270	2370	3390	244	64	59	314
MIN	3.2	12	25	22	103	100	75	86	6.3	1.6	2.0	2.2
CFSM	0.26	0.17	1.12	0.26	1.63	1.56	2.26	1.54	0.31	0.02	0.02	0.09
IN.	0.30	0.19	1.29	0.30	1.70	1.80	2.52	1.78	0.34	0.02	0.03	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	MEAN	31.10	113.7	318.0	360.1	470.1	722.7	460.8	249.8	118.4	129.5	40.22	39.57
MAX	231	906	2340	1396	1289	4759	1170	830	629	2045	329	240	
(WY)	1973	1973	1978	1952	1976	1978	1957	1969	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	0.000	
(WY)	1964	1964	1964	1964	1964	1953	1971	1976	1963	1963	1952	1953	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1950 - 2002

ANNUAL TOTAL	46794.5	73047.4	
ANNUAL MEAN	128.2	200.1	257.1
HIGHEST ANNUAL MEAN			864
LOWEST ANNUAL MEAN			102
HIGHEST DAILY MEAN	2440	Apr 7	22900
LOWEST DAILY MEAN	1.7	Sep 8	0.00
ANNUAL SEVEN-DAY MINIMUM	2.1	Sep 6	0.00
MAXIMUM PEAK FLOW			5710
MAXIMUM PEAK STAGE			6.88
INSTANTANEOUS LOW FLOW			17.14
ANNUAL RUNOFF (CFSM)	0.49	0.76	0.98
ANNUAL RUNOFF (INCHES)	6.64	10.37	13.33
10 PERCENT EXCEEDS	290	420	588
50 PERCENT EXCEEDS	48	70	55
90 PERCENT EXCEEDS	3.6	2.7	3.4

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

04200000 EAST BRANCH BLACK RIVER AT ELYRIA, OHIO

LOCATION.—Latitude 41°20'51", longitude 82°05'40", Lorain County, Hydrologic Unit 04110001, on left downstream side of bridge on Fuller Road, 1.2 mi southeast of center of Elyria and 3 mi above confluence with West Branch Black River.

DRAINAGE AREA.—217 mi².

PERIOD OF RECORD.—November 1922 to November 1935, January 2001 to June 2002 (discontinued).

GAGE.—Water-stage recorder. Elevation of gage is 710 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 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	50	910	66	58	47	57	23	3.1	1.8
2	---	---	---	52	460	60	55	47	96	26	2.9	1.7
3	---	---	---	54	260	56	54	47	202	22	6.9	1.5
4	---	---	---	46	154	55	51	53	157	26	7.0	1.3
5	---	---	---	42	138	54	48	49	91	24	5.1	1.1
6	---	---	---	40	138	54	463	42	63	16	5.2	1.2
7	---	---	---	40	145	51	2370	37	111	12	4.9	1.3
8	---	---	---	41	186	51	929	39	103	12	3.3	2.1
9	---	---	---	54	605	51	281	34	62	11	3.4	3.8
10	---	---	---	79	1400	53	167	31	48	9.1	2.8	2.5
11	---	---	---	52	1010	69	146	31	38	7.9	2.4	1.5
12	---	---	---	40	313	122	145	49	30	7.2	9.9	1.2
13	---	---	---	38	182	442	173	45	25	6.2	7.0	2.4
14	---	---	---	40	223	935	115	45	22	5.6	4.2	7.7
15	---	---	---	81	1060	409	87	42	21	5.1	2.8	4.1
16	---	---	---	260	837	248	222	35	28	4.7	2.3	2.4
17	---	---	---	276	416	552	486	32	25	4.2	2.1	1.9
18	---	---	---	245	247	556	256	35	19	4.2	1.9	1.4
19	---	---	---	186	135	327	149	37	17	5.1	2.1	2.1
20	---	---	---	201	113	210	116	37	16	5.7	2.5	2.7
21	---	---	---	180	103	154	194	83	24	10	3.0	5.2
22	---	---	---	87	89	128	285	804	485	11	2.5	4.6
23	---	---	---	122	76	106	181	961	221	7.0	3.0	3.1
24	---	---	---	96	67	92	127	350	75	5.7	2.2	3.4
25	---	---	---	59	66	83	94	164	44	7.6	1.9	16
26	---	---	---	84	66	71	73	108	30	10	1.9	14
27	---	---	---	45	73	65	63	94	23	6.4	2.5	15
28	---	---	---	68	70	62	59	90	19	6.0	3.0	11
29	---	---	---	45	---	66	53	93	16	4.5	2.4	8.2
30	---	---	---	232	---	64	49	72	16	3.8	2.1	5.8
31	---	---	---	881	---	60	---	54	---	3.4	1.7	---
TOTAL	---	---	---	3816	9542	5372	7549	3687	2184	312.4	108.0	132.0
MEAN	---	---	---	123.1	340.8	173.3	251.6	118.9	72.80	10.08	3.484	4.400
MAX	---	---	---	881	1400	935	2370	961	485	26	9.9	16
MIN	---	---	---	38	66	51	48	31	16	3.4	1.7	1.1
CFSM	---	---	---	0.57	1.57	0.80	1.16	0.55	0.34	0.05	0.02	0.02
IN.	---	---	---	0.65	1.64	0.92	1.29	0.63	0.37	0.05	0.02	0.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2001, BY WATER YEAR (WY)

	MEAN	54.37	85.25	229.8	343.5	336.7	384.6	262.3	140.0	82.98	65.52	42.78	61.98
MAX	533	368	1146	1493	655	962	536	344	453	320	440	528	
(WY)	1927	1926	1928	1930	1928	1933	1929	1933	1924	1929	1935	1926	
MIN	0.24	1.71	5.60	12.8	5.57	111	21.3	13.0	5.28	1.11	0.48	0.24	
(WY)	1934	1931	1931	1934	1934	1931	1925	1934	1925	1930	1933	1933	

SUMMARY STATISTICS

WATER YEARS 1922 - 2001

ANNUAL MEAN	187.2	
HIGHEST ANNUAL MEAN	315	1928
LOWEST ANNUAL MEAN	42.4	1934
HIGHEST DAILY MEAN	7420	Mar 14 1933
LOWEST DAILY MEAN	0.00	Aug 9 1930
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 9 1930
MAXIMUM PEAK FLOW	11400	Mar 14 1933
MAXIMUM PEAK STAGE	10.10	Mar 14 1933
INSTANTANEOUS LOW FLOW	0.00	Aug 9 1930
ANNUAL RUNOFF (CFSM)	0.86	
ANNUAL RUNOFF (INCHES)	11.72	
10 PERCENT EXCEEDS	420	
50 PERCENT EXCEEDS	24	
90 PERCENT EXCEEDS	1.4	

SURFACE-WATER RECORDS

75

Black River Basin

04200000 EAST BRANCH BLACK RIVER AT ELYRIA, OHIO—Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	20	489	45	2780	e92	512	138	156	---	---	---
2	3.1	21	321	25	2220	e430	449	763	85	---	---	---
3	2.6	30	142	37	720	e1100	1820	693	60	---	---	---
4	1.9	24	88	28	281	e330	2100	314	63	---	---	---
5	4.4	19	70	18	187	e140	685	148	112	---	---	---
6	32	13	60	18	122	e110	342	101	255	---	---	---
7	19	13	54	20	122	e120	281	85	685	---	---	---
8	14	11	49	25	100	e110	219	94	271	---	---	---
9	11	10	46	22	96	e250	286	201	125	---	---	---
10	7.4	10	35	28	92	e260	408	173	77	---	---	---
11	5.7	9.3	30	41	96	e180	347	128	56	---	---	---
12	10	8.3	29	54	153	e100	196	119	108	---	---	---
13	7.3	5.6	30	62	239	e90	434	1490	142	---	---	---
14	6.5	8.9	98	67	211	83	1900	2710	162	---	---	---
15	9.5	13	410	69	142	75	1700	1780	137	---	---	---
16	11	12	355	63	118	102	796	438	191	---	---	---
17	58	12	512	57	104	271	340	481	102	---	---	---
18	42	10	1350	60	94	200	194	367	65	---	---	---
19	31	10	1180	79	81	126	137	256	46	---	---	---
20	22	13	447	53	e94	122	272	176	35	---	---	---
21	17	14	216	39	e110	239	200	124	30	---	---	---
22	38	13	130	36	e96	254	129	94	25	---	---	---
23	92	14	90	28	e82	172	106	78	22	---	---	---
24	144	10	75	34	e74	150	96	65	20	---	---	---
25	91	11	67	47	e66	227	85	61	18	---	---	---
26	88	11	66	51	e100	307	68	100	15	---	---	---
27	64	19	54	55	e160	830	59	177	13	---	---	---
28	45	28	43	48	e110	1720	156	169	12	---	---	---
29	32	104	39	46	---	1740	296	455	10	---	---	---
30	24	415	41	256	---	2130	204	185	9.7	---	---	---
31	19	---	43	1060	---	1170	---	239	---	---	---	---
TOTAL	956.6	912.1	6659	2571	8850	13230	14817	12402	3107.7	---	---	---
MEAN	30.86	30.40	214.8	82.94	316.1	426.8	493.9	400.1	103.6	---	---	---
MAX	144	415	1350	1060	2780	2130	2100	2710	685	---	---	---
MIN	1.9	5.6	29	18	66	75	59	61	9.7	---	---	---
CFSM	0.14	0.14	0.99	0.38	1.46	1.97	2.28	1.84	0.48	---	---	---
IN.	0.16	0.16	1.14	0.44	1.52	2.27	2.54	2.13	0.53	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

MEAN	52.80	81.59	228.7	326.1	335.3	387.4	277.7	157.3	84.45	65.52	42.78	61.98
MAX	533	368	1146	1493	655	962	536	400	453	320	440	528
(WY)	1927	1926	1928	1930	1928	1933	1929	2002	1924	1929	1935	1926
MIN	0.24	1.71	5.60	12.8	5.57	111	21.3	13.0	5.28	1.11	0.48	0.24
(WY)	1934	1931	1931	1934	1934	1931	1925	1934	1925	1930	1933	1933

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

WATER YEARS 1922 - 2002

ANNUAL TOTAL	41230.1		
ANNUAL MEAN	113.0	187.2	
HIGHEST ANNUAL MEAN		315	1928
LOWEST ANNUAL MEAN		42.4	1934
HIGHEST DAILY MEAN	2370	7420	Mar 14 1933
LOWEST DAILY MEAN	1.1	0.00	Aug 9 1930
ANNUAL SEVEN-DAY MINIMUM	1.4	0.00	Aug 9 1930
MAXIMUM PEAK FLOW		11400	Mar 14 1933
MAXIMUM PEAK STAGE		10.10	Mar 14 1933
INSTANTANEOUS LOW FLOW		0.00	Aug 9 1930
ANNUAL RUNOFF (CFSM)	0.52	0.86	
ANNUAL RUNOFF (INCHES)	7.07	11.72	
10 PERCENT EXCEEDS	266	420	
50 PERCENT EXCEEDS	42	27	
90 PERCENT EXCEEDS	3.0	1.6	

e Estimated.

SURFACE-WATER RECORDS

Black River Basin

04200300 WEST BRANCH BLACK RIVER AT ELYRIA, OHIO

LOCATION.—Latitude 41°18'50", longitude 82°07'53", Lorain County, Hydrologic Unit 04110001, on right upstream abutment of bridge on Butternut Ridge Road, 0.7 mi east of Oberlin-Elyria Road, and 1 mi west of intersection of State Route 301 and Butternut Ridge Road.

DRAINAGE AREA.—160 mi².

PERIOD OF RECORD.—January 2001 to June 2002 (discontinued).

GAGE.—Water-stage recorder. Elevation of gage is 725 ft (from topographic map).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	45	651	31	45	23	39	42	2.4	2.0
2	---	---	---	42	314	31	37	22	75	36	2.0	1.7
3	---	---	---	39	164	31	33	25	126	24	7.3	1.2
4	---	---	---	37	130	30	30	24	86	17	11	1.0
5	---	---	---	38	119	29	26	22	51	12	25	1.3
6	---	---	---	41	115	28	466	20	40	8.9	12	1.4
7	---	---	---	42	120	27	1760	18	158	7.1	7.0	0.63
8	---	---	---	41	140	26	421	22	115	6.3	4.5	0.61
9	---	---	---	39	535	26	198	25	58	5.7	3.5	2.1
10	---	---	---	36	1120	27	144	22	38	4.8	3.5	2.2
11	---	---	---	33	438	34	129	19	29	4.1	15	2.7
12	---	---	---	32	172	66	133	39	23	3.5	12	1.9
13	---	---	---	32	133	181	116	45	19	3.1	8.5	2.3
14	---	---	---	32	166	336	80	34	13	2.7	5.6	10
15	---	---	---	49	946	155	69	29	9.1	2.4	4.4	e8.0
16	---	---	---	157	471	126	225	31	11	2.0	3.2	e5.0
17	---	---	---	281	243	415	235	33	8.4	2.2	2.6	e1.7
18	---	---	---	204	137	300	137	46	8.4	2.1	2.4	e1.3
19	---	---	---	156	86	218	97	38	4.9	1.9	2.4	e1.5
20	---	---	---	122	77	141	91	31	4.1	6.5	1.9	e5.0
21	---	---	---	86	61	104	165	38	8.4	4.6	1.6	e7.0
22	---	---	---	e60	45	79	171	223	335	3.0	1.7	e5.0
23	---	---	---	e50	48	61	124	231	221	2.2	2.2	e4.0
24	---	---	---	e42	36	50	93	149	71	2.2	2.4	6.3
25	---	---	---	e35	41	41	67	81	38	9.3	1.9	34
26	---	---	---	e30	40	35	53	59	25	34	2.3	24
27	---	---	---	e28	39	31	42	70	18	17	3.0	27
28	---	---	---	e27	34	32	35	85	15	9.0	2.8	22
29	---	---	---	e40	---	30	29	64	12	6.0	4.3	23
30	---	---	---	192	---	36	26	42	20	3.9	2.7	21
31	---	---	---	888	---	36	---	32	---	3.2	2.1	---
TOTAL	---	---	---	2976	6621	2793	5277	1642	1679.3	288.7	163.2	226.84
MEAN	---	---	---	96.00	236.5	90.10	175.9	52.97	55.98	9.313	5.265	7.561
MAX	---	---	---	888	1120	415	1760	231	335	42	25	34
MIN	---	---	---	27	34	26	26	18	4.1	1.9	1.6	0.61

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

	MEAN	MAX	MIN	WY	WY	WY	WY	WY	WY	WY	WY	WY
MEAN	---	---	---	96.00	236.5	90.10	175.9	52.97	55.98	9.313	5.265	7.561
MAX	---	---	---	96.0	236	90.1	176	53.0	56.0	9.31	5.26	7.56
(WY)	---	---	---	2001	2001	2001	2001	2001	2001	2001	2001	2001
MIN	---	---	---	96.0	236	90.1	176	53.0	56.0	9.31	5.26	7.56
(WY)	---	---	---	2001	2001	2001	2001	2001	2001	2001	2001	2001

e Estimated.

SURFACE-WATER RECORDS

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Black River Basin

04200300 WEST BRANCH BLACK RIVER AT ELYRIA, OHIO—Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.5	6.8	423	15	2000	75	354	89	88	---	---	---
2	e2.4	7.5	178	13	1440	93	299	655	51	---	---	---
3	e2.2	30	85	11	352	380	1430	549	35	---	---	---
4	e2.0	22	55	9.9	188	337	979	174	112	---	---	---
5	e5.0	16	38	9.0	108	111	315	98	114	---	---	---
6	e18	11	29	9.6	111	100	214	69	76	---	---	---
7	e11	8.5	23	12	80	79	189	56	113	---	---	---
8	e9.0	6.8	19	12	71	71	157	70	83	---	---	---
9	e6.6	5.9	15	13	71	71	293	194	49	---	---	---
10	e5.0	5.0	13	20	65	161	294	176	34	---	---	---
11	e4.3	4.1	11	34	72	135	184	95	26	---	---	---
12	e3.4	4.1	8.9	42	93	86	126	79	155	---	---	---
13	e5.2	5.9	9.3	50	139	70	308	1030	143	---	---	---
14	e6.6	4.8	61	50	114	62	1120	2370	60	---	---	---
15	e10	3.9	369	48	83	55	968	880	46	---	---	---
16	e19	3.6	234	43	69	70	396	253	36	---	---	---
17	e44	3.3	383	38	67	120	195	371	27	---	---	---
18	29	3.0	1310	30	54	85	129	288	22	---	---	---
19	17	3.0	601	28	50	61	111	173	17	---	---	---
20	10	6.9	216	24	54	62	166	117	14	---	---	---
21	5.9	5.2	130	20	80	126	92	84	12	---	---	---
22	23	3.3	86	18	86	135	78	62	10	---	---	---
23	50	4.0	66	15	77	95	79	50	9.0	---	---	---
24	82	2.9	59	20	68	78	70	42	8.2	---	---	---
25	74	2.1	50	26	61	115	58	40	7.6	---	---	---
26	60	2.9	40	27	63	156	48	50	7.0	---	---	---
27	57	4.0	37	26	85	499	40	53	6.7	---	---	---
28	39	5.7	29	22	82	1020	189	98	6.6	---	---	---
29	24	44	26	21	---	1450	223	181	5.7	---	---	---
30	16	239	22	168	---	2010	146	128	4.9	---	---	---
31	10	---	19	755	---	820	---	195	---	---	---	---
TOTAL	653.1	475.2	4645.2	1629.5	5883	8788	9250	8769	1378.7	---	---	---
MEAN	21.07	15.84	149.8	52.56	210.1	283.5	308.3	282.9	45.96	---	---	---
MAX	82	239	1310	755	2000	2010	1430	2370	155	---	---	---
MIN	2.0	2.1	8.9	9.0	50	55	40	40	4.9	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
MEAN	21.07	15.84	149.8	74.28	223.3	186.8	242.1	167.9	50.97	9.313	5.265	7.561
MAX	21.1	15.8	150	96.0	236	283	308	283	56.0	9.31	5.26	7.56
(WY)	2002	2002	2002	2001	2001	2002	2002	2002	2001	2001	2001	2001
MIN	21.1	15.8	150	52.6	210	90.1	176	53.0	46.0	9.31	5.26	7.56
(WY)	2002	2002	2002	2002	2002	2001	2001	2001	2002	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

WATER YEARS 2001 - 2002

ANNUAL TOTAL	27440.54		
ANNUAL MEAN	75.18		
HIGHEST DAILY MEAN	1760	Apr 7	2370 May 14 2002
LOWEST DAILY MEAN	0.61	Sep 8	0.61 Sep 8 2001
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 2	1.1 Sep 2 2001
MAXIMUM PEAK FLOW			2450 May 14 2002
MAXIMUM PEAK STAGE			14.58 May 14 2002
INSTANTANEOUS LOW FLOW			0.61 Sep 8 2001
10 PERCENT EXCEEDS	174		
50 PERCENT EXCEEDS	28		
90 PERCENT EXCEEDS	2.4		

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 mi².

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

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

GAGE.—Water-stage recorder. Datum of gage is 620.83 ft above sea level.

REMARKS.—Records fair except for periods of estimated record and for discharges greater than 1,000 ft³/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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	32	815	e37	4390	210	795	219	269	15	30	11
2	9.2	46	484	e34	3470	246	676	1090	146	15	24	9.7
3	9.1	64	235	e32	1050	834	2720	1160	101	14	13	11
4	11	55	147	e30	476	924	2770	464	136	13	10	8.5
5	33	44	103	e28	267	398	933	241	247	12	9.6	8.5
6	130	32	81	e27	223	244	507	167	263	11	8.4	8.0
7	59	28	67	e26	215	213	439	132	754	9.8	7.5	7.5
8	42	26	57	e26	178	191	370	148	365	9.4	7.3	7.4
9	25	24	48	e25	172	196	527	341	183	28	7.9	7.1
10	17	20	42	e33	166	335	621	334	116	11	8.0	6.8
11	14	16	36	e47	177	384	487	215	85	8.8	8.3	7.3
12	37	15	33	e60	236	252	325	229	238	8.2	8.9	7.6
13	26	14	35	e80	370	189	600	1980	283	7.5	10	5.7
14	43	14	149	128	332	164	2630	4700	244	7.3	16	7.3
15	44	14	744	128	239	149	2390	2720	174	7.2	22	33
16	55	14	577	122	199	173	1110	765	228	7.3	13	76
17	132	13	847	108	183	360	513	859	137	7.5	15	52
18	88	13	2520	89	159	305	322	704	92	7.7	14	27
19	59	22	1650	76	139	202	236	467	66	7.6	16	18
20	40	23	620	84	148	193	394	333	52	7.6	16	21
21	38	21	350	58	206	333	289	236	69	7.2	13	44
22	90	17	230	49	219	384	201	177	39	7.1	22	41
23	149	15	171	47	222	282	176	142	31	51	78	33
24	229	16	e110	56	198	243	161	119	28	33	159	17
25	185	16	e86	81	168	325	137	113	24	16	167	15
26	155	15	e76	88	174	431	114	147	22	16	79	11
27	134	25	e66	91	223	1090	99	225	19	17	46	396
28	97	41	e58	82	232	2450	283	418	19	56	30	778
29	69	139	e54	79	---	2960	463	662	16	244	22	199
30	49	565	e48	348	---	3860	339	326	15	63	17	82
31	37	---	e40	1490	---	1940	---	444	---	37	14	---
TOTAL	2115.3	1399	10579	3689	14431	20460	21627	20277	4461	762.2	911.9	1956.4
MEAN	68.24	46.63	341.3	119.0	515.4	660.0	720.9	654.1	148.7	24.59	29.42	65.21
MAX	229	565	2520	1490	4390	3860	2770	4700	754	244	167	778
MIN	9.1	13	33	25	139	149	99	113	15	7.1	7.3	5.7
CFSM	0.17	0.12	0.86	0.30	1.30	1.67	1.82	1.65	0.38	0.06	0.07	0.16
IN.	0.20	0.13	0.99	0.35	1.36	1.92	2.03	1.90	0.42	0.07	0.09	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

	MEAN	62.29	218.9	390.7	475.8	595.6	769.8	630.1	358.6	211.6	135.8	73.20	75.97
MAX	463	1238	1885	1825	1505	1866	1728	1122	1245	1472	529	701	
(WY)	1997	1986	1991	1952	1959	1978	1957	1969	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1945 - 2002

ANNUAL TOTAL	66912.8	102668.8	
ANNUAL MEAN	183.3	281.3	331.7
HIGHEST ANNUAL MEAN			534
LOWEST ANNUAL MEAN			130
HIGHEST DAILY MEAN	3900	Apr 7	24900
LOWEST DAILY MEAN	4.4	Sep 18	0.60
ANNUAL SEVEN-DAY MINIMUM	6.1	Sep 3	1.4
MAXIMUM PEAK FLOW			51700
MAXIMUM PEAK STAGE			10.22
INSTANTANEOUS LOW FLOW			5.0
ANNUAL RUNOFF (CFSM)	0.46	0.71	0.84
ANNUAL RUNOFF (INCHES)	6.29	9.64	11.38
10 PERCENT EXCEEDS	452	620	800
50 PERCENT EXCEEDS	73	84	74
90 PERCENT EXCEEDS	10	9.9	10

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

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04200680 FRENCH CREEK NEAR SHEFFIELD, OHIO

LOCATION.—Latitude 41°27'29", longitude 82°06'20", Lorain County, Hydrologic Unit 04110001, on right upstream abutment of East River Road bridge, 0.25 mi south of intersection with State Route 611, 0.5 mi upstream of mouth, 0.57 mi north of Sheffield-French Creek Road, and 2.8 mi north of Sheffield.

DRAINAGE AREA.—38.5 mi².

PERIOD OF RECORD.—January 2001 to June 2002 (discontinued).

GAGE.—Water-stage recorder. Elevation of gage is 600 ft (from topographic map).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	e17	90	14	e16	e13	44	e8.0	4.7	13
2	---	---	---	e17	49	15	e15	e13	47	e9.0	4.7	6.0
3	---	---	---	e17	29	15	e15	e15	42	e7.0	31	5.4
4	---	---	---	e16	25	14	e14	e13	22	e6.0	15	5.4
5	---	---	---	e17	42	14	e14	e12	16	e5.2	6.9	4.3
6	---	---	---	e18	47	14	e380	e11	15	e4.5	4.8	3.8
7	---	---	---	e18	55	15	e180	e12	24	e4.3	3.8	4.2
8	---	---	---	e18	56	e15	e80	e11	15	e4.1	3.7	4.6
9	---	---	---	e18	144	e14	e54	e9.4	12	e3.9	3.5	6.8
10	---	---	---	e17	322	e17	e40	e12	11	e3.8	3.6	7.3
11	---	---	---	e16	86	e30	e31	e15	13	e3.7	3.6	6.2
12	---	---	---	e16	47	e70	e47	e13	10	e4.0	4.9	4.5
13	---	---	---	e15	38	e170	e30	e13	9.4	e3.8	7.0	7.2
14	---	---	---	e17	104	e70	e24	e12	8.2	e3.6	4.1	13
15	---	---	---	e28	218	e49	e29	e11	e7.2	e3.4	4.2	6.5
16	---	---	---	e52	87	e35	e60	e10	e9.8	e3.2	3.7	6.6
17	---	---	---	e39	50	e120	e100	e11	e7.6	e3.1	3.8	6.6
18	---	---	---	e27	31	e88	e38	e11	e6.2	4.3	3.9	4.8
19	---	---	---	e22	25	e74	e30	e12	e5.4	4.2	4.2	6.8
20	---	---	---	e18	25	e44	e40	e13	e6.2	4.4	5.6	14
21	---	---	---	e15	23	e33	e68	e47	e7.4	4.2	7.5	11
22	---	---	---	e11	19	e28	e44	e120	e80	4.2	4.4	22
23	---	---	---	e8.4	19	e25	e29	e40	e30	4.5	4.5	9.5
24	---	---	---	e6.6	17	e22	e23	e22	e17	4.2	5.3	28
25	---	---	---	e6.4	22	e20	e19	e15	e13	5.5	4.5	108
26	---	---	---	12	19	e19	e17	17	e10	7.8	16	33
27	---	---	---	14	17	e18	e16	35	e7.4	4.6	13	35
28	---	---	---	13	16	e17	e15	21	e6.6	4.5	7.3	28
29	---	---	---	14	---	e18	e14	14	e6.2	4.1	5.6	15
30	---	---	---	174	---	e17	e14	12	e7.0	4.3	4.5	10
31	---	---	---	179	---	e16	---	11	---	4.4	7.5	---
TOTAL	---	---	---	876.4	1722	1130	1496	596.4	515.6	145.8	206.8	436.5
MEAN	---	---	---	28.27	61.50	36.45	49.87	19.24	17.19	4.703	6.671	14.55
MAX	---	---	---	179	322	170	380	120	80	9.0	31	108
MIN	---	---	---	6.4	16	14	14	9.4	5.4	3.1	3.5	3.8

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

	---	---	---	28.27	61.50	36.45	49.87	19.24	17.19	4.703	6.671	14.55
MEAN	---	---	---	28.27	61.50	36.45	49.87	19.24	17.19	4.703	6.671	14.55
MAX	---	---	---	2001	2001	2001	2001	2001	2001	2001	2001	2001
(WY)	---	---	---	2001	2001	2001	2001	2001	2001	2001	2001	2001
MIN	---	---	---	28.3	61.5	36.5	49.9	19.2	17.2	4.70	6.67	14.6
(WY)	---	---	---	2001	2001	2001	2001	2001	2001	2001	2001	2001

e Estimated.

SURFACE-WATER RECORDS

Black River Basin

04200680 FRENCH CREEK NEAR SHEFFIELD, OHIO—Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	12	57	12	734	28	104	16	28	---	---	---
2	6.4	28	30	12	150	69	116	90	20	---	---	---
3	5.7	29	23	12	78	209	235	37	19	---	---	---
4	6.6	18	18	12	50	60	86	22	44	---	---	---
5	82	13	17	12	36	36	51	16	24	---	---	---
6	153	12	16	13	32	33	42	16	26	---	---	---
7	27	11	15	15	29	35	33	20	18	---	---	---
8	16	11	14	14	29	32	57	30	16	---	---	---
9	11	13	15	16	27	65	128	39	15	---	---	---
10	8.5	12	14	29	28	67	65	21	18	---	---	---
11	8.1	11	12	31	36	34	36	14	9.5	---	---	---
12	36	10	10	26	37	31	59	76	10	---	---	---
13	19	9.7	14	28	40	28	265	468	11	---	---	---
14	63	9.2	172	22	30	24	415	317	11	---	---	---
15	34	10	117	20	29	26	183	114	13	---	---	---
16	48	9.9	45	18	30	33	78	79	11	---	---	---
17	71	9.1	330	17	30	24	43	163	9.8	---	---	---
18	19	9.4	218	14	25	23	31	89	10	---	---	---
19	12	15	69	15	23	20	24	63	9.6	---	---	---
20	10	24	46	15	30	42	55	48	9.9	---	---	---
21	16	16	31	14	31	41	33	34	85	---	---	---
22	152	12	25	13	28	33	26	26	81	---	---	---
23	75	11	25	14	24	30	22	24	23	---	---	---
24	51	11	23	19	23	46	18	23	14	---	---	---
25	43	11	18	22	23	68	19	28	10	---	---	---
26	27	12	17	17	39	97	14	43	10	---	---	---
27	35	14	16	15	32	233	14	25	9.2	---	---	---
28	21	21	16	15	27	305	44	324	9.7	---	---	---
29	15	69	15	19	---	627	25	126	9.3	---	---	---
30	14	137	14	135	---	445	18	76	9.0	---	---	---
31	12	---	13	312	---	123	---	45	---	---	---	---
TOTAL	1105.4	590.3	1465	948	1730	2967	2339	2512	593.0	---	---	---
MEAN	35.66	19.68	47.26	30.58	61.79	95.71	77.97	81.03	19.77	---	---	---
MAX	153	137	330	312	734	627	415	468	85	---	---	---
MIN	5.7	9.1	10	12	23	20	14	14	9.0	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
MEAN	35.66	19.68	47.26	29.43	61.64	66.08	63.92	50.14	18.48	4.703	6.671	14.55
MAX	35.7	19.7	47.3	30.6	61.8	95.7	78.0	81.0	19.8	4.70	6.67	14.6
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001	2001
MIN	35.7	19.7	47.3	28.3	61.5	36.5	49.9	19.2	17.2	4.70	6.67	14.6
(WY)	2002	2002	2002	2001	2001	2001	2001	2001	2001	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

WATER YEARS 2001 - 2002

ANNUAL TOTAL	10286.2		
ANNUAL MEAN	28.18		
HIGHEST DAILY MEAN	380	Apr 6	734 Feb 1 2002
LOWEST DAILY MEAN	3.1	Jul 17	3.1 Jul 17 2001
ANNUAL SEVEN-DAY MINIMUM	3.5	Jul 11	3.5 Jul 11 2001
MAXIMUM PEAK FLOW			1110 Feb 1 2002
MAXIMUM PEAK STAGE			8.76 Feb 1 2002
INSTANTANEOUS LOW FLOW			3.1 Jul 17 2001
10 PERCENT EXCEEDS	61		
50 PERCENT EXCEEDS	15		
90 PERCENT EXCEEDS	4.5		

SURFACE-WATER RECORDS

Rocky River Basin

81

04201500 ROCKY RIVER NEAR BERE, 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 mi².

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

REVISED RECORDS.—WSP 1437: 1924, 1925(M), 1926, 1927(M), 1928-29, 1930-35(M), 1945. WSP 1912: Drainage area.

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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	43	850	e72	3990	233	615	191	205	e24	44	26
2	28	108	277	e66	1280	345	498	1380	147	e28	37	27
3	23	142	172	e62	485	1820	3870	776	108	e25	26	63
4	20	88	129	e58	320	634	1530	326	210	e22	21	35
5	42	59	103	e56	232	272	598	214	272	e21	21	31
6	475	43	83	e53	215	225	453	168	605	e20	16	24
7	191	39	69	e50	180	224	400	160	385	e19	16	20
8	67	46	61	e100	175	191	336	210	199	e18	16	20
9	37	65	53	261	168	227	528	516	134	e70	14	16
10	27	42	49	333	160	494	638	449	99	e40	18	16
11	23	43	43	425	273	267	352	237	82	e30	17	18
12	106	35	40	267	321	187	259	393	e220	e27	15	21
13	125	31	56	229	342	167	879	2900	e310	e24	22	20
14	136	30	384	174	231	153	1660	3200	e230	e20	59	19
15	131	37	1050	156	203	148	1520	927	e180	e19	91	301
16	143	28	335	139	218	492	654	508	e250	e20	42	371
17	448	27	1140	118	244	418	381	1130	e160	e21	274	112
18	212	27	2780	93	187	244	267	789	e99	20	118	55
19	102	41	702	e78	177	192	214	555	e74	18	52	65
20	53	119	393	e72	214	303	326	339	e63	17	51	43
21	62	85	262	e64	351	566	241	254	e80	18	50	182
22	317	54	e180	e60	357	385	188	199	e53	106	36	85
23	359	40	e160	e56	263	286	165	167	e41	281	546	44
24	552	34	e140	105	228	319	152	143	e36	121	625	28
25	441	201	e130	174	196	528	141	155	e32	57	414	22
26	216	222	e115	128	260	536	125	582	e30	36	124	26
27	205	129	e105	93	392	1580	97	306	e28	34	69	521
28	126	138	e94	81	269	2160	426	787	e31	36	45	633
29	87	877	e86	87	---	1510	532	901	e27	243	36	155
30	60	1340	e80	705	---	2770	278	546	e25	174	31	76
31	50	---	e76	1840	---	794	---	315	---	69	29	---
TOTAL	4904	4213	10197	6255	11931	18670	18323	19723	4415	1678	2975	3075
MEAN	158.2	140.4	328.9	201.8	426.1	602.3	610.8	636.2	147.2	54.13	95.97	102.5
MAX	552	1340	2780	1840	3990	2770	3870	3200	605	281	625	633
MIN	20	27	40	50	160	148	97	143	25	17	14	16
CFSM	0.59	0.53	1.23	0.76	1.60	2.26	2.29	2.38	0.55	0.20	0.36	0.38
IN.	0.68	0.59	1.42	0.87	1.66	2.60	2.55	2.75	0.62	0.23	0.41	0.43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2002, BY WATER YEAR (WY)

	MEAN	96.11	218.6	344.4	410.1	469.7	585.0	509.4	301.2	177.2	113.1	77.44	103.2
MAX	935	1080	1534	1398	1245	1253	1374	845	911	887	553	820	
(WY)	1927	1986	1991	1930	1959	1984	1961	1984	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 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1924 - 2002
ANNUAL TOTAL	73551	106359	
ANNUAL MEAN	201.5	291.4	282.7
HIGHEST ANNUAL MEAN			484
LOWEST ANNUAL MEAN			79.5
HIGHEST DAILY MEAN	3340	May 22	14300
LOWEST DAILY MEAN	13	Sep 3	0.20
ANNUAL SEVEN-DAY MINIMUM	16	Aug 31	0.27
MAXIMUM PEAK FLOW			21400
MAXIMUM PEAK STAGE		5.16	18.60
INSTANTANEOUS LOW FLOW		12	0.20
ANNUAL RUNOFF (CFSM)	0.75	1.09	1.06
ANNUAL RUNOFF (INCHES)	10.25	14.82	14.39
10 PERCENT EXCEEDS	427	619	650
50 PERCENT EXCEEDS	94	141	85
90 PERCENT EXCEEDS	21	24	11

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 mi².

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 ft³/s Jan. 23, 1959, gage height 8.11 ft; minimum daily, 6.6 ft³/s Sept. 10, 1933.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	82	239	84	361	183	611	233	116	63	73	35
2	90	69	255	73	478	181	529	274	95	68	64	34
3	87	72	235	70	554	248	577	308	82	73	59	34
4	82	77	187	68	528	307	630	305	77	74	57	43
5	81	73	139	66	450	323	657	273	95	73	56	50
6	72	65	107	66	359	304	584	225	156	80	62	51
7	67	59	86	69	291	265	483	187	150	84	66	62
8	63	55	75	72	231	219	399	165	130	84	67	69
9	56	55	70	72	193	185	342	169	106	88	66	70
10	53	57	66	75	183	172	325	186	86	96	66	68
11	48	56	64	89	203	167	308	172	75	95	66	67
12	50	53	60	107	216	155	286	190	80	90	65	65
13	67	51	61	119	219	135	293	416	73	89	67	65
14	70	50	72	123	193	114	343	728	77	88	66	71
15	70	49	129	124	164	102	454	938	85	86	72	82
16	68	48	178	124	148	134	570	875	96	85	76	84
17	81	46	229	121	147	161	575	742	91	84	81	68
18	117	46	337	112	146	172	507	655	81	84	83	50
19	113	47	396	97	142	160	427	589	73	84	80	39
20	89	74	427	95	147	155	356	512	71	83	81	34
21	68	96	402	84	190	192	307	433	67	81	72	39
22	83	96	351	77	244	231	266	352	65	81	65	45
23	125	93	302	79	273	238	224	279	58	84	68	39
24	136	93	261	106	266	237	188	218	56	85	78	35
25	141	116	233	136	235	259	167	167	53	84	69	33
26	145	155	207	144	202	294	163	153	51	83	56	30
27	154	172	158	136	185	370	143	160	51	82	48	35
28	165	162	131	120	184	448	156	171	58	82	43	e100
29	158	169	109	105	---	499	216	171	63	89	40	e60
30	134	199	101	137	---	578	241	155	64	97	38	e44
31	104	---	88	218	---	620	---	136	---	93	36	---
TOTAL	2931	2535	5755	3168	7132	7808	11327	10537	2481	2592	1986	1601
MEAN	94.55	84.50	185.6	102.2	254.7	251.9	377.6	339.9	82.70	83.61	64.06	53.37
MAX	165	199	427	218	554	620	657	938	156	97	83	100
MIN	48	46	60	66	142	102	143	136	51	63	36	30
CFSM	0.63	0.56	1.23	0.68	1.69	1.67	2.50	2.25	0.55	0.55	0.42	0.35
IN.	0.72	0.62	1.42	0.78	1.76	1.92	2.79	2.60	0.61	0.64	0.49	0.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2002, BY WATER YEAR (WY)

	MEAN	110.0	194.2	271.0	269.1	349.2	432.7	350.5	202.1	132.0	97.83	93.69	107.0
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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1961 - 2002

ANNUAL TOTAL	52387	59853	
ANNUAL MEAN	143.5	164.0	216.7
HIGHEST ANNUAL MEAN			318
LOWEST ANNUAL MEAN			125
HIGHEST DAILY MEAN	987	Feb 12	3250
LOWEST DAILY MEAN	33	Sep 4	12
ANNUAL SEVEN-DAY MINIMUM	37	Aug 30	36
MAXIMUM PEAK FLOW			964
MAXIMUM PEAK STAGE			4.17
INSTANTANEOUS LOW FLOW			29
ANNUAL RUNOFF (CFSM)	0.95		1.09
ANNUAL RUNOFF (INCHES)	12.91		14.75
10 PERCENT EXCEEDS	299		357
50 PERCENT EXCEEDS	101		96
90 PERCENT EXCEEDS	55		54

e Estimated.

SURFACE-WATER RECORDS

Cuyahoga River Basin

83

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 mi².

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 good except for periods of estimated record, which are fair. Natural flow of stream affected by diversions, storage reservoirs, and power plants. An average of 63 ft³/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 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	301	909	151	1530	377	1390	564	210	128	116	58
2	81	314	838	138	1430	372	1360	1240	164	114	131	55
3	81	404	764	132	1220	630	1960	938	128	108	112	188
4	71	397	658	123	1210	635	1540	689	174	124	178	150
5	77	399	504	113	1100	579	891	565	624	139	148	131
6	190	367	409	110	862	575	879	670	1580	98	93	116
7	119	262	329	125	670	615	738	392	1250	92	85	91
8	98	210	253	133	551	535	520	595	792	84	64	82
9	93	201	199	119	425	503	443	495	538	96	66	87
10	85	192	170	131	396	476	376	317	444	101	69	90
11	110	187	153	169	635	393	284	233	326	95	68	85
12	286	184	143	178	532	322	243	667	810	90	82	73
13	201	196	173	209	457	267	431	1500	589	90	102	73
14	220	197	299	240	388	223	1210	2000	783	93	130	188
15	196	141	327	266	332	239	1800	1920	726	90	200	180
16	238	127	319	253	305	354	1580	1870	563	89	191	231
17	311	123	834	229	292	306	1540	1890	482	134	211	124
18	213	121	1670	214	265	306	1490	1800	418	126	110	118
19	178	183	1460	196	247	297	1230	1460	311	90	135	123
20	147	259	1350	169	261	381	972	1180	252	79	173	222
21	141	195	1290	152	324	440	713	951	220	68	106	335
22	185	170	1190	151	367	444	571	737	179	229	358	125
23	337	160	1030	158	402	427	488	573	199	211	427	102
24	602	154	868	154	408	423	408	451	173	173	371	109
25	627	509	703	179	463	494	356	381	177	154	142	110
26	436	338	524	213	510	825	310	352	173	125	106	96
27	427	319	399	242	491	1230	282	295	160	122	92	527
28	419	375	324	227	457	1350	503	264	164	120	83	258
29	371	494	271	226	---	1270	576	252	150	291	77	149
30	329	731	211	532	---	1590	552	264	143	132	72	120
31	273	---	167	886	---	1470	---	235	---	99	63	---
TOTAL	7228	8210	18738	6518	16530	18348	25636	25740	12902	3784	4361	4396
MEAN	233.2	273.7	604.5	210.3	590.4	591.9	854.5	830.3	430.1	122.1	140.7	146.5
MAX	627	731	1670	886	1530	1590	1960	2000	1580	291	427	527
MIN	71	121	143	110	247	223	243	233	128	68	63	55
CFSM	0.58	0.68	1.50	0.52	1.46	1.47	2.12	2.06	1.06	0.30	0.35	0.36
IN.	0.67	0.76	1.73	0.60	1.52	1.69	2.36	2.37	1.19	0.35	0.40	0.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

	MEAN	217.8	323.1	472.1	565.3	661.5	857.8	737.2	473.1	315.3	227.3	181.4	206.7
MAX	1205	1307	1516	1807	1592	1416	1520	1253	1371	676	772	1150	
(WY)	1927	1986	1928	1952	1976	1927	1940	1996	1989	1976	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1922 - 2002

ANNUAL TOTAL	113489	152391	
ANNUAL MEAN	310.9	417.5	435.6
HIGHEST ANNUAL MEAN			669
LOWEST ANNUAL MEAN			181
HIGHEST DAILY MEAN	1670	2000	6040
LOWEST DAILY MEAN	57	55	24
ANNUAL SEVEN-DAY MINIMUM	64	71	40
MAXIMUM PEAK FLOW		2720	6500
MAXIMUM PEAK STAGE		7.89	13.29
INSTANTANEOUS LOW FLOW		53	26
ANNUAL RUNOFF (CFSM)	0.77	1.03	1.08
ANNUAL RUNOFF (INCHES)	10.45	14.03	14.65
10 PERCENT EXCEEDS	710	1060	1020
50 PERCENT EXCEEDS	223	262	266
90 PERCENT EXCEEDS	81	93	78

SURFACE-WATER RECORDS

Cuyahoga River Basin

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 mi².

PERIOD OF RECORD.—October 2000 to current year.

GAGE.—Water-stage recorder. Datum of gage is 1,027 ft above sea level (from topographic map).

REMARKS.—Records fair except for periods of estimated record and discharge between 0.0 ft³/s and 0.2 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.16	3.1	0.21	15	1.4	2.1	0.81	0.16	0.10	0.00	0.00
2	0.00	0.15	1.4	0.20	5.0	2.2	2.1	13	0.12	0.06	0.00	0.00
3	0.00	0.14	0.82	0.17	e2.0	6.3	19	4.0	0.10	0.04	0.00	0.01
4	0.00	0.10	0.58	0.17	e1.1	2.2	4.9	1.5	0.13	0.02	0.00	0.00
5	0.00	0.10	0.44	0.17	e0.87	1.0	2.3	0.93	8.1	0.01	0.00	0.00
6	0.06	0.08	0.36	0.19	1.0	0.97	1.7	0.69	18	0.03	0.00	0.00
7	0.00	0.06	0.32	0.22	1.0	1.2	1.3	0.63	3.5	0.03	0.00	0.00
8	0.00	0.08	0.27	0.21	1.3	1.1	1.2	0.83	1.4	0.01	0.00	0.00
9	0.00	0.07	0.25	0.23	1.2	0.97	2.4	1.6	0.79	0.05	0.00	0.00
10	0.00	0.06	0.25	0.36	1.3	1.2	2.7	1.1	0.47	0.00	0.00	0.00
11	0.00	0.04	0.21	0.75	2.4	0.89	1.5	0.66	0.33	0.00	0.00	0.00
12	0.11	0.02	0.20	1.0	2.0	0.80	1.1	4.9	2.9	0.00	0.00	0.00
13	0.00	0.02	0.26	1.1	1.7	0.68	3.6	28	1.3	0.00	0.00	0.00
14	0.07	0.02	0.71	0.97	1.1	0.61	12	15	14	0.00	0.00	0.00
15	0.00	0.02	1.4	1.1	1.0	0.78	7.7	3.9	4.3	0.00	0.00	0.04
16	0.12	0.02	0.91	0.89	0.98	4.2	2.7	1.9	1.5	0.01	0.09	0.00
17	0.08	0.02	4.8	0.73	0.99	2.1	1.5	3.2	0.89	0.02	0.00	0.00
18	0.00	0.01	10	0.52	0.83	1.3	1.0	3.0	0.56	0.00	0.00	0.00
19	0.04	0.08	3.3	0.37	0.82	0.98	0.80	1.8	0.35	0.00	0.00	0.00
20	0.04	0.17	1.9	0.30	1.2	2.4	0.58	1.1	0.26	0.00	0.00	0.02
21	0.03	0.16	1.3	0.28	2.7	2.9	0.48	0.73	0.20	0.00	0.00	0.00
22	0.10	0.11	0.90	0.29	2.1	1.8	0.43	0.51	0.14	0.00	0.07	0.00
23	0.28	0.09	1.2	0.39	1.4	1.5	0.40	0.39	0.09	0.05	0.07	0.00
24	1.0	0.06	1.4	0.86	1.1	1.7	0.37	0.41	0.07	0.00	0.00	0.00
25	1.1	1.4	0.90	0.86	1.0	2.6	0.35	0.55	0.07	0.00	0.00	0.00
26	0.52	1.1	0.54	0.61	1.4	6.0	0.27	0.95	0.08	0.00	0.00	0.00
27	0.84	0.71	0.39	0.50	1.7	11	0.26	0.53	0.10	0.00	0.00	0.18
28	1.0	1.3	0.40	0.45	1.5	6.8	1.0	0.32	0.10	0.00	0.00	0.00
29	0.55	3.7	0.38	0.53	---	4.1	2.2	0.26	0.10	0.00	0.00	0.00
30	0.31	4.5	0.31	3.3	---	7.9	1.1	0.23	0.09	0.00	0.00	0.00
31	0.21	---	0.25	9.3	---	2.7	---	0.20	---	0.00	0.00	---
TOTAL	6.46	14.55	39.45	27.23	55.69	82.28	79.04	93.63	60.20	0.43	0.23	0.25
MEAN	0.208	0.485	1.273	0.878	1.989	2.654	2.635	3.020	2.007	0.014	0.007	0.008
MAX	1.1	4.5	10	9.3	15	11	19	28	18	0.10	0.09	0.18
MIN	0.00	0.01	0.20	0.17	0.82	0.61	0.26	0.20	0.07	0.00	0.00	0.00
CFSM	0.14	0.33	0.88	0.61	1.37	1.83	1.82	2.08	1.38	0.01	0.01	0.01
IN.	0.17	0.37	1.01	0.70	1.43	2.11	2.03	2.40	1.54	0.01	0.01	0.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	0.194	0.334	1.474	0.919	2.124	1.997	2.027	1.580	1.023	0.009	0.161	0.033
MAX	0.21	0.48	1.68	0.96	2.26	2.65	2.63	3.02	2.01	0.014	0.46	0.075
(WY)	2002	2002	2001	2001	2001	2002	2002	2002	2002	2002	2000	2000
MIN	0.18	0.18	1.27	0.88	1.99	1.34	1.42	0.14	0.039	0.003	0.007	0.008
(WY)	2001	2001	2002	2002	2002	2001	2001	2001	2001	2001	2002	2002

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 2000 - 2002

ANNUAL TOTAL	244.03	459.44	
ANNUAL MEAN	0.669	1.259	0.967
HIGHEST ANNUAL MEAN			1.26 2002
LOWEST ANNUAL MEAN			0.68 2001
HIGHEST DAILY MEAN	13 Mar 13	28 May 13	28 May 13 2002
LOWEST DAILY MEAN	0.00 Jun 18	0.00 Oct 1	0.00 Jun 18 2001
ANNUAL SEVEN-DAY MINIMUM	0.00 Jul 9	0.00 Jul 24	0.00 Jul 9 2001
MAXIMUM PEAK FLOW		38 Jun 5a	38 Dec 17 2000
MAXIMUM PEAK STAGE		11.75 Jun 5	11.75 Jun 5 2002
INSTANTANEOUS LOW FLOW		0.00 Oct 1	0.00 Jul 13 2001
ANNUAL RUNOFF (CFSM)	0.46	0.87	0.67
ANNUAL RUNOFF (INCHES)	6.26	11.79	9.06
10 PERCENT EXCEEDS	1.4	2.9	2.1
50 PERCENT EXCEEDS	0.13	0.32	0.19
90 PERCENT EXCEEDS	0.00	0.00	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
Cuyahoga River Basin

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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 Maedowbrook Lake outlet structure, 650 ft south of intersection of Judson 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 mi².

PERIOD OF RECORD.—October 2000 to current year.

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

REMARKS.—Records fair except for periods of estimated record and discharge less than 4 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.77	e4.2	11	e3.8	e45	e5.1	9.6	3.2	2.4	1.6	1.0	0.46
2	0.69	e5.2	4.7	e3.6	e11	e6.7	8.7	46	1.3	1.2	0.99	0.50
3	0.70	e4.6	3.0	e3.6	e5.1	e14	79	12	1.3	1.0	0.86	0.80
4	0.61	e3.8	2.8	e3.6	e5.1	e4.9	17	5.1	1.6	0.98	0.68	0.82
5	1.0	e3.7	2.7	e3.6	e4.7	e4.2	8.7	2.9	61	0.89	0.78	0.51
6	5.3	e3.5	2.5	e3.8	e4.4	e4.3	6.2	2.4	76	0.80	0.35	0.34
7	0.86	e3.3	2.2	e3.9	e4.8	e4.2	4.8	6.2	12	0.79	0.22	0.21
8	0.54	e3.4	2.0	e3.8	e4.9	e3.9	5.5	8.5	5.9	0.93	0.21	0.26
9	0.79	e3.5	2.1	e4.0	e4.5	e5.7	11	12	4.1	4.3	0.21	0.38
10	1.3	e3.3	2.0	e4.6	e6.0	e5.2	9.4	4.6	2.9	2.1	0.23	0.41
11	3.4	e3.2	2.0	e4.8	e10	e3.9	5.6	2.5	2.9	0.76	0.29	0.24
12	9.8	e3.1	2.7	e4.5	e5.9	e3.9	5.8	34	32	0.63	0.42	0.12
13	3.8	e3.2	4.7	e4.7	e5.2	e3.9	24	137	6.7	0.75	0.54	0.12
14	8.4	e3.2	9.3	e4.1	e4.3	e3.7	52	52	72	0.80	1.2	1.4
15	4.7	e3.2	7.1	e4.3	e4.2	e4.9	29	13	15	0.88	2.6	12
16	8.1	e3.2	3.7	e3.8	e4.3	e12	10	8.0	6.2	1.0	5.1	5.7
17	14	e3.2	31	e3.7	e4.8	e4.6	6.0	14	4.2	1.2	4.1	0.61
18	3.7	e3.2	38	e3.6	e4.3	e4.2	4.7	14	3.1	1.3	0.55	0.40
19	2.8	e5.5	e6.9	e3.5	e4.0	e3.9	4.1	6.9	2.8	1.3	0.51	0.45
20	2.1	e5.7	e5.7	e3.5	e5.6	e10	3.5	4.5	2.9	1.1	0.49	1.3
21	3.3	e3.6	e4.9	e3.4	e7.7	e6.4	2.9	3.6	2.9	1.1	0.39	4.9
22	9.6	3.2	e4.5	e3.4	e5.2	e5.5	2.8	2.7	3.3	1.8	2.2	0.75
23	11	3.7	e7.4	e3.5	e4.5	e5.2	2.5	3.7	2.8	5.6	5.3	0.35
24	21	5.0	e5.1	e4.5	e4.2	e5.7	2.4	5.0	2.0	1.9	3.4	0.26
25	10	23	e4.5	e3.6	e4.0	e7.3	2.8	4.7	2.0	0.98	0.81	0.29
26	4.1	4.7	e4.2	e3.4	e6.1	e27	2.3	7.8	2.0	0.99	0.54	0.39
27	12	5.9	e4.2	e3.4	e5.0	e30	2.2	2.7	2.1	1.2	0.45	18
28	7.1	13	e4.1	e3.3	e5.0	e13	9.0	2.0	1.7	1.2	0.40	5.2
29	3.7	23	e4.0	e3.7	---	e14	8.9	1.8	1.2	4.1	0.40	1.1
30	e4.5	25	e3.9	e18	---	36	4.5	1.6	1.3	1.9	0.38	1.1
31	e4.4	---	e3.8	e26	---	11	---	2.7	---	1.1	0.45	---
TOTAL	164.06	185.3	196.7	155.0	190.8	274.3	344.9	427.1	337.6	46.18	36.05	59.37
MEAN	5.292	6.177	6.345	5.000	6.814	8.848	11.50	13.78	11.25	1.490	1.163	1.979
MAX	21	25	38	26	45	36	79	137	76	5.6	5.3	18
MIN	0.54	3.1	2.0	3.3	4.0	3.7	2.2	1.6	1.2	0.63	0.21	0.12
CFSM	0.90	1.05	1.08	0.85	1.16	1.51	1.96	2.35	1.92	0.25	0.20	0.34
IN.	1.04	1.17	1.25	0.98	1.21	1.74	2.19	2.71	2.14	0.29	0.23	0.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	4.236	4.204	7.021	4.902	7.871	7.561	9.008	8.293	6.659	1.182	2.735	2.521
MAX	5.29	6.18	7.70	5.00	8.93	8.85	11.5	13.8	11.3	1.49	5.76	3.83
(WY)	2002	2002	2001	2002	2001	2002	2002	2002	2002	2002	2000	2000
MIN	3.18	2.23	6.35	4.80	6.81	6.27	6.52	2.81	2.06	0.87	1.16	1.75
(WY)	2001	2001	2002	2001	2002	2001	2001	2001	2001	2001	2002	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 2000 - 2002

ANNUAL TOTAL	1603.35	2417.36	
ANNUAL MEAN	4.393	6.623	5.313
HIGHEST ANNUAL MEAN			6.62
LOWEST ANNUAL MEAN			4.00
HIGHEST DAILY MEAN	51	Mar 13	137
LOWEST DAILY MEAN	0.14	Aug 30	0.12
ANNUAL SEVEN-DAY MINIMUM	0.23	Jul 27	0.25
MAXIMUM PEAK FLOW			266
MAXIMUM PEAK STAGE			12.03
INSTANTANEOUS LOW FLOW			0.09
ANNUAL RUNOFF (CFSM)	0.75		1.13
ANNUAL RUNOFF (INCHES)	10.16		15.32
10 PERCENT EXCEEDS	9.1		12
50 PERCENT EXCEEDS	2.8		3.8
90 PERCENT EXCEEDS	0.51		0.59

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**

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 mi².

PERIOD OF RECORD.—October 2000 to current year.

GAGE.—Water-stage recorder. Datum of gage is 966 ft above sea level (from topographic map).

REMARKS.—Records fair except for periods estimated record and discharge less than 1.4 ft³/s or greater than 150 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	7.1	63	3.6	110	14	45	12	7.7	e1.8	2.3	1.5
2	3.0	6.4	38	3.3	113	16	30	47	5.8	e2.2	1.6	1.5
3	2.5	7.3	22	3.3	77	36	102	76	4.0	e2.6	1.3	1.8
4	2.2	6.3	15	3.2	47	39	127	46	4.1	e2.7	1.1	2.2
5	2.3	4.9	11	3.1	25	22	79	25	25	e2.6	1.4	2.0
6	5.9	4.4	8.5	3.3	18	16	43	16	170	e5.2	1.4	1.8
7	6.6	3.9	7.3	3.7	14	14	26	17	126	8.7	1.1	1.7
8	4.0	3.6	6.4	3.6	14	12	21	25	48	6.2	0.91	1.5
9	3.0	3.7	5.6	3.6	13	11	24	33	17	6.2	0.86	1.5
10	2.5	3.8	5.2	4.0	12	16	34	27	9.2	8.8	0.93	1.3
11	2.3	3.4	4.7	5.8	20	14	26	17	6.4	6.8	0.93	1.1
12	5.1	3.3	4.3	7.2	23	11	18	32	29	5.2	0.93	0.98
13	10	3.1	4.8	7.9	20	9.3	29	174	37	4.5	0.97	1.0
14	7.2	2.9	7.7	7.8	16	8.2	79	249	109	4.1	1.1	1.7
15	11	2.9	20	7.6	12	8.0	133	154	126	4.0	2.8	8.7
16	10	3.1	17	7.2	11	27	94	73	57	3.8	4.6	18
17	28	3.0	31	6.7	11	33	48	48	24	3.7	11	8.5
18	21	3.0	90	6.1	9.5	22	26	45	15	3.8	5.9	4.4
19	10	3.3	81	5.3	8.7	15	18	35	10	3.9	3.6	3.2
20	6.5	7.3	56	4.6	9.7	17	14	24	7.3	3.8	2.9	2.6
21	4.6	7.6	37	4.3	18	30	11	18	5.8	3.6	2.1	5.5
22	7.2	6.0	19	3.9	23	26	9.7	14	4.8	3.7	2.1	5.6
23	12	4.6	16	4.0	19	20	8.6	12	4.1	5.9	8.5	3.6
24	41	3.9	18	5.2	14	18	7.6	11	3.6	8.5	14	2.7
25	47	25	13	6.7	12	25	7.2	15	3.2	6.8	8.0	2.1
26	28	34	9.2	6.3	12	38	6.7	19	e2.1	5.4	4.3	2.0
27	23	19	7.1	5.6	15	83	6.2	15	e0.40	4.7	3.1	9.1
28	31	21	6.1	5.1	16	100	9.0	9.4	e2.0	4.7	2.4	28
29	22	51	5.4	5.1	---	73	22	7.5	e2.2	7.8	2.0	11
30	13	67	4.6	20	---	81	17	6.7	e1.6	6.9	1.8	4.9
31	8.8	---	4.0	57	---	70	---	6.5	---	3.3	1.6	---
TOTAL	384.5	325.8	637.9	224.1	712.9	924.5	1121.0	1309.1	867.30	151.9	97.53	141.48
MEAN	12.40	10.86	20.58	7.229	25.46	29.82	37.37	42.23	28.91	4.900	3.146	4.716
MAX	47	67	90	57	113	100	133	249	170	8.8	14	28
MIN	2.2	2.9	4.0	3.1	8.7	8.0	6.2	6.5	0.40	1.8	0.86	0.98
CFSM	0.72	0.63	1.20	0.42	1.48	1.73	2.17	2.46	1.68	0.28	0.18	0.27
IN.	0.83	0.70	1.38	0.48	1.54	2.00	2.42	2.83	1.88	0.33	0.21	0.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	9.758	7.873	20.87	7.998	25.38	23.77	28.24	24.60	16.61	3.153	5.749	5.333
MAX	12.4	10.9	21.2	8.77	25.5	29.8	37.4	42.2	28.9	4.90	10.7	6.97
(WY)	2002	2002	2001	2001	2002	2002	2002	2002	2002	2002	2000	2000
MIN	7.11	4.89	20.6	7.23	25.3	17.7	19.1	6.98	4.29	1.41	3.15	4.32
(WY)	2001	2001	2002	2002	2001	2001	2001	2001	2001	2001	2002	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 2000 - 2002

ANNUAL TOTAL	4073.99	6898.01	
ANNUAL MEAN	11.16	18.90	14.59
HIGHEST ANNUAL MEAN			18.9
LOWEST ANNUAL MEAN			10.3
HIGHEST DAILY MEAN	90	Dec 18	249
LOWEST DAILY MEAN	0.10	Jul 18	0.40
ANNUAL SEVEN-DAY MINIMUM	0.16	Jul 17	0.95
MAXIMUM PEAK FLOW			270
MAXIMUM PEAK STAGE			14.36
INSTANTANEOUS LOW FLOW			0.70
ANNUAL RUNOFF (CFSM)	0.65		1.10
ANNUAL RUNOFF (INCHES)	8.81		14.92
10 PERCENT EXCEEDS	28		47
50 PERCENT EXCEEDS	5.8		7.8
90 PERCENT EXCEEDS	1.5		2.1

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

SURFACE-WATER RECORDS
Cuyahoga River Basin

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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 mi².

PERIOD OF RECORD.—October 2000 to current year.

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

REMARKS.—Records fair except for periods of estimated record and discharges less than 0.4 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.01	1.1	3.6	0.80	33	1.8	3.2	0.86	1.1	e0.71	0.32	0.40
2	e0.01	1.9	1.9	0.71	6.7	3.1	4.6	24	0.50	e0.59	0.31	0.40
3	0.00	1.5	1.4	0.67	2.7	8.7	42	2.4	0.46	e0.42	0.31	0.49
4	0.04	0.88	1.3	0.66	1.9	1.7	8.8	1.2	0.72	e0.42	0.28	0.56
5	0.22	0.75	0.75	0.68	1.6	1.2	3.3	0.80	35	e0.38	0.30	0.53
6	4.0	0.62	0.61	0.81	1.3	1.3	2.3	0.67	53	e0.33	0.29	0.55
7	0.16	0.48	0.58	0.92	1.6	1.2	1.6	7.3	9.4	e0.33	0.25	0.49
8	0.05	0.53	0.50	0.84	1.7	0.95	2.1	6.2	1.7	e0.38	0.22	0.43
9	0.09	0.60	0.57	0.96	1.4	2.3	5.3	4.3	1.2	e1.9	0.23	0.41
10	0.17	0.42	0.53	1.5	2.6	1.9	2.5	1.2	0.96	e0.96	0.23	0.45
11	0.71	0.34	0.42	1.6	5.6	0.89	1.4	0.74	0.84	e0.33	0.23	0.49
12	7.0	0.32	0.41	1.4	2.5	0.90	1.9	30	11	e0.29	0.23	0.49
13	0.80	0.34	0.98	1.5	1.9	0.91	11	109	3.3	e0.33	0.26	0.43
14	3.9	0.35	5.3	1.1	1.2	0.77	34	55	59	e0.33	0.49	0.49
15	1.0	0.34	2.2	1.2	1.2	1.7	14	17	9.5	e0.38	1.2	11
16	5.3	0.36	0.90	0.84	1.2	7.0	4.2	3.5	e2.7	e0.46	3.4	3.7
17	7.5	0.36	21	0.77	1.6	1.5	1.9	4.8	e1.8	e0.63	2.0	0.99
18	0.55	0.38	15	0.66	1.2	1.2	1.4	5.3	e1.4	e0.71	0.42	0.64
19	0.24	2.2	3.3	0.64	0.99	0.92	1.1	1.6	e1.2	e0.75	0.44	0.60
20	0.16	2.3	2.3	0.61	2.3	6.0	1.3	1.2	e1.3	e0.59	0.58	0.92
21	0.42	0.70	1.7	0.55	3.9	2.9	1.0	0.95	e1.3	e0.50	0.31	5.1
22	4.0	0.48	1.4	0.54	2.0	2.2	0.94	0.71	e1.5	1.2	2.7	1.4
23	7.1	0.42	3.7	0.62	1.4	2.0	0.77	0.61	e1.2	1.7	4.7	1.1
24	11	0.39	1.9	1.4	1.2	2.3	0.64	1.8	e0.84	0.77	3.1	0.91
25	4.6	16	1.4	0.72	1.0	3.6	0.87	1.3	e0.84	0.55	0.81	0.77
26	2.2	1.7	1.2	0.56	2.7	19	0.62	2.5	e0.84	0.41	0.65	0.71
27	7.4	3.3	1.2	0.51	1.8	21	0.78	0.67	e0.92	0.54	0.65	14
28	2.9	8.6	1.1	0.43	1.8	8.4	6.0	0.60	e0.71	0.50	0.63	2.2
29	1.7	11	0.97	0.79	---	8.7	1.9	0.60	e0.46	2.1	1.2	0.99
30	1.4	14	0.89	12	---	15	1.2	0.60	e0.59	0.67	0.40	0.77
31	1.3	---	0.84	19	---	3.0	---	1.8	---	0.36	0.40	---
TOTAL	75.93	72.66	79.85	55.99	89.99	134.04	162.62	289.21	205.28	20.52	27.54	52.41
MEAN	2.449	2.422	2.576	1.806	3.214	4.324	5.421	9.329	6.843	0.662	0.888	1.747
MAX	11	16	21	19	33	21	42	109	59	2.1	4.7	14
MIN	0.00	0.32	0.41	0.43	0.99	0.77	0.62	0.60	0.46	0.29	0.22	0.40
CFSM	0.79	0.78	0.83	0.58	1.03	1.39	1.74	3.00	2.20	0.21	0.29	0.56
IN.	0.91	0.87	0.96	0.67	1.08	1.60	1.95	3.46	2.46	0.25	0.33	0.63

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	2.036	1.571	3.329	1.748	3.110	3.572	4.077	5.154	3.872	0.665	1.654	1.624
MAX	2.45	2.42	4.08	1.81	3.21	4.32	5.42	9.33	6.84	0.67	3.19	2.23
(WY)	2002	2002	2001	2002	2002	2002	2002	2002	2002	2001	2000	2000
MIN	1.62	0.72	2.58	1.69	3.01	2.82	2.73	0.98	0.90	0.66	0.88	0.90
(WY)	2001	2001	2002	2001	2001	2001	2001	2001	2001	2002	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 2000 - 2002

ANNUAL TOTAL	666.73	1266.04	
ANNUAL MEAN	1.827	3.469	2.607
HIGHEST ANNUAL MEAN			3.47
LOWEST ANNUAL MEAN			1.74
HIGHEST DAILY MEAN	28	109	109
LOWEST DAILY MEAN	0.00	0.00	0.00
ANNUAL SEVEN-DAY MINIMUM	0.04	0.24	0.04
MAXIMUM PEAK FLOW		169	169
MAXIMUM PEAK STAGE		14.01	14.01
INSTANTANEOUS LOW FLOW		0.01	0.01
ANNUAL RUNOFF (CFSM)	0.59	1.12	0.84
ANNUAL RUNOFF (INCHES)	7.98	15.14	11.39
10 PERCENT EXCEEDS	4.1	7.3	5.1
50 PERCENT EXCEEDS	0.71	1.1	0.84
90 PERCENT EXCEEDS	0.17	0.36	0.25

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**

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 mi².

PERIOD OF RECORD.—October 2000 to current year.

GAGE.—Water-stage recorder. Datum 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 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	e10	e82	7.7	111	21	e57	e16	e11	3.3	3.2	1.7
2	3.9	e9.7	e49	7.4	100	26	e40	e61	e9.1	2.9	2.4	2.5
3	3.4	e11	e28	6.9	78	51	e116	e96	e7.0	2.5	2.0	4.1
4	2.9	e9.6	e20	6.5	55	46	e139	e59	e7.1	2.6	1.7	3.7
5	3.9	e8.3	17	6.3	32	30	e98	e32	e31	2.6	1.7	3.2
6	21	e7.6	14	6.6	23	21	e54	e21	e172	2.0	2.0	2.6
7	10	e6.8	12	8.0	20	20	e34	e23	e139	4.7	2.0	2.6
8	5.9	e6.3	11	7.5	19	17	e26	e34	e62	3.9	1.7	2.3
9	2.5	e6.4	9.7	7.7	18	19	e31	e44	e23	3.9	1.3	2.1
10	1.4	e6.5	8.8	9.2	20	22	e45	e35	e13	5.8	1.1	1.5
11	e2.6	e6.0	8.0	11	33	19	e34	e22	e9.7	4.5	1.1	2.0
12	e7.9	e5.7	7.5	13	29	14	e22	e41	e39	3.2	1.2	2.1
13	e14	e5.4	11	15	26	13	e36	e170	e48	2.7	1.0	1.8
14	e11	e5.1	23	14	20	e10	e93	e214	e120	2.4	4.1	3.3
15	e14	e5.1	30	14	17	e11	e144	e160	e139	2.2	8.9	27
16	e14	e5.3	24	12	16	e34	e111	e91	e73	2.1	15	26
17	e38	e5.2	61	11	17	e43	e62	e62	e32	2.0	22	12
18	e28	e5.2	91	10	15	e27	e33	e58	21	2.0	12	6.2
19	e14	e5.7	82	9.1	13	e19	e22	e46	16	2.3	7.1	3.8
20	e9.8	e11	63	7.8	17	e21	e17	e32	12	2.2	5.2	6.2
21	e7.9	e11	48	7.3	28	e39	e15	e23	10	2.0	3.1	15
22	e11	e9.3	29	6.9	29	e34	e13	e18	8.5	9.8	14	7.8
23	e16	e7.9	29	7.0	24	e25	e11	e16	7.4	6.1	27	5.2
24	e54	e6.7	26	11	20	e22	e11	e15	6.7	5.4	25	3.4
25	e60	e33	21	11	17	e32	e10	e19	6.1	4.5	14	2.8
26	e37	e44	17	10	21	e49	e9.5	e24	5.4	3.4	7.4	2.6
27	e30	e25	14	9.2	22	e102	e9.1	e19	3.6	3.2	4.5	37
28	e42	e27	12	8.3	23	e117	e12	e13	2.7	3.7	3.4	36
29	e28	e65	11	10	---	e93	e27	e11	3.7	13	3.0	17
30	e17	e87	9.9	47	---	e101	e21	e9.9	4.4	6.0	2.5	7.9
31	e12	---	8.7	73	---	e89	---	e8.1	---	5.1	2.0	---
TOTAL	528.6	457.8	877.6	391.4	863	1187	1352.6	1493.0	1042.4	122.0	202.60	251.4
MEAN	17.05	15.26	28.31	12.63	30.82	38.29	45.09	48.16	34.75	3.935	6.535	8.380
MAX	60	87	91	73	111	117	144	214	172	13	27	37
MIN	1.4	5.1	7.5	6.3	13	10	9.1	8.1	2.7	2.0	1.0	1.5
CFSM	0.67	0.60	1.11	0.49	1.20	1.50	1.76	1.88	1.36	0.15	0.26	0.33
IN.	0.77	0.67	1.28	0.57	1.25	1.72	1.97	2.17	1.51	0.18	0.29	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	13.50	11.93	28.79	13.95	33.65	31.60	36.19	29.55	21.26	3.665	10.34	8.252
MAX	17.1	15.3	29.3	15.3	36.5	38.3	45.1	48.2	34.7	3.94	18.9	9.34
(WY)	2002	2002	2001	2001	2001	2002	2002	2002	2002	2002	2000	2000
MIN	9.95	8.60	28.3	12.6	30.8	24.9	27.3	10.9	7.78	3.40	5.60	7.03
(WY)	2001	2001	2002	2002	2002	2001	2001	2001	2001	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 2000 - 2002

ANNUAL TOTAL	6012.15	8769.40	
ANNUAL MEAN	16.47	24.03	19.71
HIGHEST ANNUAL MEAN			24.0
LOWEST ANNUAL MEAN			15.4
HIGHEST DAILY MEAN	103	Feb 10	214
LOWEST DAILY MEAN	0.67	Jul 18	1.0
ANNUAL SEVEN-DAY MINIMUM	0.95	Jul 18	1.3
MAXIMUM PEAK FLOW			e222
MAXIMUM PEAK STAGE			May 14
INSTANTANEOUS LOW FLOW			0.47
ANNUAL RUNOFF (CFSM)	0.64		0.94
ANNUAL RUNOFF (INCHES)	8.74		12.74
10 PERCENT EXCEEDS	43		60
50 PERCENT EXCEEDS	9.5		13
90 PERCENT EXCEEDS	2.6		2.6

e Estimated.

SURFACE-WATER RECORDS

Cuyahoga River Basin

89

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 mi².

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 fair except for periods of estimated record and discharge less than 2.3 ft³/s, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.57	1.7	8.1	1.1	64	5.1	11	2.7	4.3	1.1	0.72	0.55
2	0.41	2.1	4.2	1.1	12	8.5	15	38	2.7	1.0	0.68	0.58
3	0.46	2.7	3.2	1.1	7.3	22	90	6.0	2.4	1.0	0.66	0.63
4	0.28	1.7	2.6	1.1	5.6	5.9	15	3.4	3.3	0.98	0.63	0.63
5	1.1	1.4	2.4	1.1	e4.7	4.4	9.7	3.2	6.2	0.80	0.63	0.35
6	8.6	1.3	2.1	1.1	3.9	4.5	8.7	3.0	10	0.77	0.63	0.30
7	0.99	0.99	2.0	1.1	4.2	4.2	6.5	3.2	3.8	0.66	0.63	0.30
8	0.37	1.1	1.8	1.0	4.4	3.4	7.5	5.6	2.8	0.61	0.59	0.30
9	0.22	2.0	1.7	1.0	3.7	6.9	13	14	2.2	0.95	0.54	0.30
10	0.24	1.2	1.6	1.7	4.4	6.6	8.2	6.2	1.9	1.1	0.41	0.28
11	0.29	1.0	1.4	2.8	7.7	3.3	5.7	3.4	1.7	0.75	0.25	0.26
12	4.0	1.0	1.4	2.5	5.5	3.2	5.0	22	14	0.85	2.0	0.20
13	1.8	1.0	1.7	2.8	4.8	2.9	20	79	13	0.80	1.6	0.20
14	2.9	1.0	7.8	2.4	3.3	2.7	38	25	51	0.80	1.1	1.8
15	2.0	1.0	6.4	2.6	3.5	4.2	20	11	12	0.66	3.2	9.4
16	4.3	1.0	3.0	2.1	3.7	14	9.6	10	7.3	0.50	14	2.8
17	11	1.1	35	2.0	4.2	5.3	6.2	21	5.6	0.50	7.8	0.90
18	2.0	1.1	26	1.7	3.5	4.3	4.8	13	4.1	0.50	1.4	0.73
19	1.3	2.2	7.5	1.5	3.5	3.3	4.1	7.1	3.1	0.50	1.2	1.8
20	0.99	3.4	5.4	1.7	7.0	12	3.7	5.7	2.8	0.50	2.0	0.99
21	0.64	1.5	3.7	1.5	10	7.6	3.4	4.6	2.6	0.50	0.81	4.3
22	7.6	1.1	3.2	1.5	6.4	5.7	3.2	3.7	2.6	2.2	7.5	0.87
23	4.8	1.0	5.4	1.7	4.5	5.3	2.9	3.4	2.3	1.8	11	0.63
24	12	1.0	3.8	3.5	4.1	7.1	2.5	4.7	2.0	0.82	9.8	0.55
25	9.4	8.9	2.6	2.4	3.6	11	2.8	4.5	2.0	0.51	2.6	0.48
26	2.8	2.8	2.2	2.0	7.1	20	2.4	11	1.9	0.50	1.4	0.40
27	3.4	2.9	2.0	1.8	5.6	40	2.3	3.6	1.9	0.77	0.91	23
28	2.3	14	2.0	1.8	4.8	22	13	15	2.1	1.0	0.80	4.0
29	1.6	17	1.9	2.3	---	28	5.9	7.7	1.5	6.3	0.66	1.6
30	1.6	29	1.6	17	---	32	3.5	4.4	1.4	1.9	0.62	1.1
31	1.7	---	1.4	34	---	9.8	---	5.0	---	0.88	0.50	---
TOTAL	91.66	109.19	155.1	103.0	207.0	315.2	343.6	350.1	174.5	32.51	77.27	60.23
MEAN	2.957	3.640	5.003	3.323	7.393	10.17	11.45	11.29	5.817	1.049	2.493	2.008
MAX	12	29	35	34	64	40	90	79	51	6.3	14	23
MIN	0.22	0.99	1.4	1.0	3.3	2.7	2.3	2.7	1.4	0.50	0.25	0.20
CFSM	0.53	0.65	0.90	0.60	1.32	1.82	2.05	2.02	1.04	0.19	0.45	0.36
IN.	0.61	0.73	1.03	0.69	1.38	2.10	2.29	2.33	1.16	0.22	0.52	0.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

MEAN	3.044	5.994	6.604	9.569	8.354	10.40	11.58	6.451	4.574	3.115	2.227	2.536
MAX	7.75	15.3	18.3	17.4	12.6	22.3	17.5	12.3	11.7	16.9	6.94	7.21
(WY)	1997	1993	1997	1993	1996	1993	1998	1997	1997	1992	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1992 - 2002

ANNUAL TOTAL	1308.40	2019.36	
ANNUAL MEAN	3.585	5.532	6.188
HIGHEST ANNUAL MEAN			8.97
LOWEST ANNUAL MEAN			3.51
HIGHEST DAILY MEAN	52	Mar 13	90
LOWEST DAILY MEAN	0.07	Sep 17	0.20
ANNUAL SEVEN-DAY MINIMUM	0.17	Jul 18	0.26
MAXIMUM PEAK FLOW			224
MAXIMUM PEAK STAGE			11.69
INSTANTANEOUS LOW FLOW			0.10
ANNUAL RUNOFF (CFSM)	0.64		0.99
ANNUAL RUNOFF (INCHES)	8.72		13.46
10 PERCENT EXCEEDS	7.8		12
50 PERCENT EXCEEDS	1.7		2.7
90 PERCENT EXCEEDS	0.25		0.62
			190
			0.07
			0.10
			885
			12.93
			0.01
			1.11
			15.07
			13
			2.6
			0.51

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**

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 mi².

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 2001 TO SEPTEMBER 2002 **DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	9.0	56	e8.7	314	25	58	23	28	9.1	6.9	4.5
2	4.8	10	30	e8.1	73	33	60	131	18	8.9	6.7	4.5
3	4.3	13	21	e7.9	42	95	441	45	16	8.3	5.6	5.7
4	6.2	9.9	16	e7.8	33	e28	101	32	23	8.1	5.2	7.9
5	5.8	16	14	e7.9	e34	e25	62	23	107	7.6	5.1	5.3
6	38	11	13	e22	e28	24	52	20	125	7.1	4.9	4.7
7	12	9.1	11	36	22	23	42	25	47	6.8	4.6	4.4
8	7.0	11	10	29	24	20	41	32	28	6.5	4.5	4.1
9	5.5	12	9.9	23	20	27	75	56	20	6.7	4.2	4.0
10	5.4	9.2	9.6	20	23	40	59	47	17	7.5	4.1	3.8
11	6.4	8.1	9.0	16	41	23	39	27	14	6.1	3.8	3.4
12	23	7.3	8.7	14	32	21	33	120	91	5.9	4.4	3.4
13	15	7.0	11	15	28	19	88	447	80	5.7	8.2	6.4
14	20	7.0	31	13	23	18	207	185	341	5.6	5.3	4.2
15	17	7.0	39	14	20	21	136	90	91	5.3	15	20
16	21	6.9	20	12	20	75	68	62	52	4.9	14	12
17	58	7.0	136	11	25	35	46	99	34	4.7	27	6.1
18	18	6.9	160	e10	22	28	37	73	26	4.6	7.9	5.4
19	12	11	48	e9.6	20	22	34	48	21	4.8	6.9	6.9
20	9.4	20	33	e9.2	30	48	29	38	18	4.7	13	5.7
21	8.3	11	23	e9.0	49	44	27	31	16	4.4	7.0	19
22	28	9.3	19	e8.9	35	35	27	27	16	15	31	8.7
23	33	8.6	27	9.5	25	31	24	24	14	14	55	5.5
24	65	8.1	25	16	22	33	21	25	13	8.1	44	4.9
25	62	45	e17	14	20	51	21	28	12	9.5	19	4.8
26	23	21	e15	11	30	95	19	43	12	6.1	17	4.9
27	19	19	e13	10	32	186	19	24	11	6.3	8.5	73
28	15	52	e12	9.7	27	120	44	65	12	7.0	8.4	32
29	12	86	e11	10	---	105	37	50	10	35	6.7	12
30	12	136	e10	72	---	179	26	29	9.6	11	6.7	9.0
31	10	---	e9.1	162	---	62	---	30	---	7.5	5.4	---
TOTAL	581.4	594.4	867.3	626.3	1114	1591	1973	1999	1322.6	252.8	366.0	296.2
MEAN	18.75	19.81	27.98	20.20	39.79	51.32	65.77	64.48	44.09	8.155	11.81	9.873
MAX	65	136	160	162	314	186	441	447	341	35	55	73
MIN	4.3	6.9	8.7	7.8	20	18	19	20	9.6	4.4	3.8	3.4
CFSM	0.61	0.65	0.91	0.66	1.30	1.67	2.14	2.10	1.44	0.27	0.38	0.32
IN.	0.70	0.72	1.05	0.76	1.35	1.93	2.39	2.42	1.60	0.31	0.44	0.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	16.15	31.04	34.89	51.39	43.55	51.01	60.20	38.66	29.68	17.59	14.28
MAX	40.3	76.2	94.0	98.2	66.8	108	95.4	65.5	70.5	74.8	41.1
(WY)	1997	1993	1997	1993	1997	1993	1994	2000	1997	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
(WY)	1995	1992	1992	1992	1995	2000	2001	1999	1999	2001	1993

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1992 - 2002

ANNUAL TOTAL	7619.1	11584.0	
ANNUAL MEAN	20.87	31.74	33.53
HIGHEST ANNUAL MEAN			50.2
LOWEST ANNUAL MEAN			20.5
HIGHEST DAILY MEAN	221	Mar 13	447
LOWEST DAILY MEAN	2.3	Sep 12	3.4
ANNUAL SEVEN-DAY MINIMUM	2.6	Sep 6	4.0
MAXIMUM PEAK FLOW			912
MAXIMUM PEAK STAGE			14.08
INSTANTANEOUS LOW FLOW			3.1
ANNUAL RUNOFF (CFSM)	0.68	1.03	1.09
ANNUAL RUNOFF (INCHES)	9.23	14.04	14.84
10 PERCENT EXCEEDS	40	66	67
50 PERCENT EXCEEDS	13	19	18
90 PERCENT EXCEEDS	4.4	5.4	6.0

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

91

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 mi².

PERIOD OF RECORD.—November 1962 to current year.

REVISED RECORDS.—WSP 1912: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 876.18 ft above sea level.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	67	301	e46	e460	e90	241	e78	e45	27	e70	22
2	33	107	166	e42	e330	e150	247	e320	e43	28	e47	64
3	30	88	136	e41	e190	e420	957	e260	e41	25	e35	45
4	28	70	126	e39	e150	e200	630	e140	e74	24	e30	33
5	55	61	111	e38	e130	e150	261	e90	e86	21	e25	28
6	230	57	99	e37	e122	111	166	e68	e50	20	e22	25
7	75	53	90	e44	e117	118	144	e62	e150	20	e21	23
8	43	83	82	e56	e113	106	123	e92	e86	22	e20	20
9	36	92	80	62	e110	138	174	e120	e60	96	e20	22
10	32	70	65	99	e105	153	e200	e150	e47	78	e19	23
11	29	60	47	e130	e135	105	e130	e74	e42	38	e18	22
12	128	56	45	e110	e160	92	e100	e280	e80	29	e18	21
13	96	51	64	e100	e130	87	e260	e780	e170	25	e24	20
14	105	49	281	e88	e110	80	e500	e290	215	e25	21	108
15	98	49	226	e80	e100	108	e660	e190	317	e24	41	244
16	154	46	118	e74	e130	269	e280	e120	157	e23	96	87
17	311	43	579	e68	e170	168	e180	e400	81	e22	162	44
18	121	41	687	e62	e140	114	e120	e230	88	e22	55	32
19	72	66	383	e56	e110	95	e100	e140	61	e22	53	285
20	58	105	205	e54	e190	212	122	e90	51	e21	41	85
21	152	78	135	e52	e270	209	74	e64	42	e20	32	114
22	310	61	102	e58	e180	156	68	e54	37	e56	55	49
23	184	51	140	e110	e130	134	63	e50	34	e84	121	35
24	213	46	130	e190	e100	164	57	e48	33	e64	140	32
25	336	208	94	e300	e88	200	66	e46	31	e42	61	27
26	155	173	70	e150	e100	353	53	e170	30	e31	39	27
27	320	116	78	e100	e130	754	49	e110	35	e28	32	499
28	183	171	62	e90	e110	585	339	e90	36	e25	27	151
29	118	397	57	e84	---	544	200	e80	30	e23	27	61
30	95	526	e52	e300	---	559	147	e70	27	e230	27	40
31	80	---	e48	e740	---	333	---	e58	---	e140	24	---
TOTAL	3916	3141	4859	3500	4310	6957	6711	4814	2279	1355	1423	2288
MEAN	126.3	104.7	156.7	112.9	153.9	224.4	223.7	155.3	75.97	43.71	45.90	76.27
MAX	336	526	687	740	460	754	957	780	317	230	162	499
MIN	28	41	45	37	88	80	49	46	27	20	18	20
CFSM	1.51	1.25	1.87	1.35	1.83	2.67	2.67	1.85	0.91	0.52	0.55	0.91
IN.	1.74	1.39	2.15	1.55	1.91	3.08	2.98	2.13	1.01	0.60	0.63	1.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	MEAN	72.28	135.8	170.6	151.0	194.5	236.1	194.7	122.6	88.34	77.25	64.05	72.94
MAX	261	402	506	396	463	457	323	339	257	329	255	289	
(WY)	1991	1986	1991	1993	1976	1963	1998	1989	1975	1969	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1963 - 2002

ANNUAL TOTAL	37642	45553	
ANNUAL MEAN	103.1	124.8	132.3
HIGHEST ANNUAL MEAN			185
LOWEST ANNUAL MEAN			81.7
HIGHEST DAILY MEAN	1460	957	2920
LOWEST DAILY MEAN	20	18	5.8
ANNUAL SEVEN-DAY MINIMUM	23	20	6.5
MAXIMUM PEAK FLOW		1850	7220
MAXIMUM PEAK STAGE		6.39	10.10
INSTANTANEOUS LOW FLOW		13	5.2
ANNUAL RUNOFF (CFSM)	1.23	1.49	1.58
ANNUAL RUNOFF (INCHES)	16.69	20.20	21.43
10 PERCENT EXCEEDS	208	280	317
50 PERCENT EXCEEDS	64	85	63
90 PERCENT EXCEEDS	28	25	22

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

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 mi².

WATER-DISCHARGE RECORDS

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

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

GAGE.—Water-stage recorder. Datum of gage is 583.57 ft above 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 ft³/s, when channels merge. Satellite telemeter at gage. Water-quality data collected at this site.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	440	1450	e318	e4780	738	2140	938	575	250	214	185
2	270	504	962	e327	2660	932	1920	3360	472	239	203	187
3	260	579	781	311	1820	2500	5840	2130	405	232	192	247
4	249	516	697	307	1510	1260	3430	1500	542	225	178	311
5	265	498	613	298	1350	892	2400	1160	590	242	279	209
6	915	487	533	298	1170	830	2010	1120	2680	217	212	203
7	424	434	473	331	983	866	1790	1040	1960	204	197	185
8	313	e380	423	335	911	776	1540	1420	1140	205	186	173
9	282	420	396	336	766	755	1610	1840	736	340	178	168
10	268	361	366	403	673	1070	1570	1270	573	320	178	178
11	259	340	336	e600	1130	681	1220	762	481	235	177	174
12	513	311	322	e560	1040	565	1120	1880	1240	207	177	168
13	594	325	376	e540	935	519	2060	5790	1130	201	188	165
14	443	321	895	e500	758	485	3100	5160	1970	200	188	261
15	569	301	1130	e480	669	499	3510	3580	1620	199	271	905
16	509	269	571	444	662	1430	2510	2680	1090	198	301	656
17	1300	262	1960	418	708	924	1960	3310	693	193	830	290
18	578	255	3310	391	577	729	1800	2800	599	195	292	228
19	413	277	1820	363	549	636	1530	2220	466	206	227	867
20	342	526	1380	343	634	1050	1390	1770	392	205	313	292
21	358	396	1070	345	1050	1230	1070	1500	388	197	229	681
22	1020	327	917	337	934	1050	926	1270	365	436	214	320
23	612	299	975	353	804	918	800	1050	308	931	940	225
24	1370	286	868	e440	752	966	680	892	294	384	1070	204
25	1470	935	680	e520	715	1270	619	869	279	250	473	206
26	804	684	553	e560	926	1690	555	1250	281	222	282	200
27	1140	539	508	e500	934	3600	513	796	279	211	250	1480
28	823	651	482	e440	795	3240	1430	961	278	219	229	1170
29	622	1680	437	395	---	2760	1330	799	261	663	214	393
30	541	2160	380	1270	---	3830	1040	689	251	391	208	280
31	479	---	351	2290	---	2380	---	598	---	238	196	---
TOTAL	18291	15763	26015	15353	31195	41071	53413	56404	22338	8655	9286	11211
MEAN	590.0	525.4	839.2	495.3	1114	1325	1780	1819	744.6	279.2	299.5	373.7
MAX	1470	2160	3310	2290	4780	3830	5840	5790	2680	931	1070	1480
MIN	249	255	322	298	549	485	513	598	251	193	177	165

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

	MEAN	384.0	642.9	936.9	1114	1299	1631	1456	946.0	630.4	452.2	363.0	373.3
MAX	1747	2713	2889	3585	3217	3008	3175	2396	2450	1543	1363	1866	
(WY)	1955	1986	1978	1952	1959	1963	1957	1984	1989	1992	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1922 - 2002

ANNUAL TOTAL	234688	308995	
ANNUAL MEAN	643.0	846.6	853.1
HIGHEST ANNUAL MEAN			1393
LOWEST ANNUAL MEAN			278
HIGHEST DAILY MEAN	3950	Apr 7	5840 Apr 3
LOWEST DAILY MEAN	208	Aug 2	165 Sep 13
ANNUAL SEVEN-DAY MINIMUM	223	Sep 7	173 Sep 7
MAXIMUM PEAK FLOW			7180 May 13
MAXIMUM PEAK STAGE			13.36 May 13
INSTANTANEOUS LOW FLOW			153 Sep 12
10 PERCENT EXCEEDS	1320		2000
50 PERCENT EXCEEDS	501		488
90 PERCENT EXCEEDS	252		135

e Estimated.

SURFACE-WATER RECORDS
Cuyahoga River Basin

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04208000 CUYAHOGA RIVER AT INDEPENDENCE, OHIO—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.—October 1948 to September 1949, October 1950 to September 2002 (discontinued).

PERIOD OF DAILY RECORD.—

CHLORIDE: October 1987 to September 1994.

NITROGEN, NITRITE + NITRATE: October 1987 to September 1994.

NITROGEN, AMMONIA + ORGANIC: October 1987 to September 1994.

PHOSPHORUS: October 1987 to September 1994.

SUSPENDED SEDIMENT DISCHARGE: Water years 1950-74, December 1976 to September 1984, October 1987 to September 2002.

INSTRUMENTATION.—Alcohol-actuated thermograph October 1956 to June 1965, water-quality monitor from July 1965 to Sept. 1991, and a refrigerated water-quality pumping sampler, operated by Heidelberg College Water Quality Laboratory, from Oct. 1987 to Sept. 1994.

REMARKS.—Sediment samples were collected by a local observer on an approximate once daily basis. Sediment loads were calculated using the mean-interval method (Porterfield, George, 1972, Computation of Fluvial-Sediment Discharge: U.S. Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chap. C3, 66 p.). For days with unsteady concentration, discharge, or both, the day was subdivided into half-hour intervals and the daily load was calculated by summing the loads for these half-hour intervals. This required interpolation between measured and estimated concentrations.

EXTREMES FOR PERIOD OF DAILY RECORD.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,400 mg/L, Dec. 31, 1992; minimum daily mean, 1 mg/L, Feb. 12 and 13, 1989.

SEDIMENT LOADS: Maximum daily, 82,900 tons, Dec. 31, 1992; minimum daily, 1.2 tons, Feb. 13, 1989.

EXTREMES FOR CURRENT YEAR.—

SEDIMENT CONCENTRATIONS: Maximum daily mean, 835 mg/L, May 13 and Aug. 17; minimum daily mean, 5 mg/L, on several days during the year.

SEDIMENT LOADS: Maximum daily, 13,800 tons, May 13; minimum daily, 4.6 tons, Jan. 20.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; *, 10—stream cross-section sample collected by equal-width-increment (EWI) method; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; %, percent; ---, no data]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAM- PLING METHOD, CODES* (82398)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
FEB								
01...	1330	5580	10	550	5.5	6.0	--	839
MAY								
13...	1240	6440	10	436	9.0	14.5	--	709
13...	1310	6400	10	--	--	--	86.2	703

SURFACE-WATER RECORDS **Cuyahoga River Basin**

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OHIO—Continued

WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data; e, estimated]

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	286	21	15.8	440	27	31.8	1450	131	537
2	270	27	19.5	504	31	44.8	962	59	156
3	260	25	17.3	579	40	63.7	781	33	69.9
4	249	21	14.2	516	23	32.0	697	32	60.5
5	265	32	26.1	498	19	25.3	613	35	58.3
6	915	201	534	487	18	23.1	533	35	50.1
7	424	50	61.9	434	19	22.3	473	28	36.4
8	313	15	12.6	e380	21	21.3	423	18	21.2
9	282	12	8.8	420	25	29.1	396	13	13.8
10	268	18	12.7	361	14	13.9	366	10	10.1
11	259	40	27.7	340	11	9.8	336	8.0	7.6
12	513	98	156	311	10	8.3	322	8.0	7.2
13	594	85	153	325	9.0	7.7	376	15	15.3
14	443	44	59.6	321	11	9.9	895	102	453
15	569	75	124	301	13	10.4	1130	147	516
16	509	43	68.7	269	12	9.1	571	40	63.4
17	1300	176	659	262	11	8.0	1960	227	1870
18	578	56	93.2	255	8.0	5.5	3310	383	3710
19	413	24	27.5	277	12	10.0	1820	141	713
20	342	21	19.6	526	48	69.5	1380	65	247
21	358	27	36.3	396	21	23.5	1070	42	122
22	1020	193	571	327	8.0	7.4	917	32	79.1
23	612	99	167	299	7.0	5.8	975	33	88.1
24	1370	225	889	286	8.0	5.9	868	29	67.5
25	1470	208	880	935	161	522	680	21	39.2
26	804	65	148	684	91	175	553	18	27.3
27	1140	71	218	539	48	71.2	508	16	22.5
28	823	35	79.1	651	56	119	482	15	19.7
29	622	25	41.5	1680	184	839	437	13	15.8
30	541	31	45.7	2160	282	1800	380	13	13.2
31	479	32	40.9	---	---	---	351	11	10.2
TOTAL	18291	---	5227.7	15763	---	4024.3	26015	---	9120.4
JANUARY			FEBRUARY			MARCH			
1	e318	11	9.3	e4780	776	11000	738	14	28.9
2	e327	11	9.3	2660	201	1480	932	85	296
3	311	10	8.5	1820	96	479	2500	302	2220
4	307	9.0	7.7	1510	57	233	1260	69	249
5	298	9.0	7.1	1350	48	176	892	25	60.9
6	298	8.0	6.6	1170	46	145	830	18	39.3
7	331	7.0	6.6	983	40	107	866	17	39.3
8	335	8.0	7.6	911	34	82.8	776	15	32.5
9	336	7.0	6.2	766	28	57.7	755	45	120
10	403	8.0	9.1	673	26	48.5	1070	109	341
11	e600	10	15.6	1130	67	202	681	24	44.6
12	e560	8.0	12.3	1040	37	108	565	15	22.7
13	e540	7.0	10.4	935	21	53.5	519	12	17.5
14	e500	6.0	8.7	758	19	38.1	485	13	17.1
15	e480	6.0	7.5	669	18	33.0	499	17	24.9
16	444	5.0	6.2	662	14	25.9	1430	112	445
17	418	5.0	5.7	708	12	23.8	924	38	99.4
18	391	6.0	6.0	577	13	20.2	729	17	33.4
19	363	5.0	5.0	549	15	21.6	636	14	23.8
20	343	5.0	4.6	634	20	36.6	1050	52	187
21	345	5.0	4.8	1050	44	125	1230	43	145
22	337	7.0	6.4	934	26	65.3	1050	24	70.5
23	353	9.0	8.2	804	16	35.0	918	14	33.8
24	e440	10	11.8	752	14	27.5	966	19	53.7
25	e520	7.0	9.1	715	14	26.4	1270	38	132
26	e560	6.0	9.1	926	31	85.0	1690	204	1350
27	e500	6.0	8.0	934	22	57.3	3600	439	4450
28	e440	5.0	6.5	795	12	24.8	3240	296	2700
29	395	11	12.8	---	---	---	2760	230	1990
30	1270	134	478	---	---	---	3830	452	5040
31	2290	347	2400	---	---	---	2380	163	1070
TOTAL	15353	---	3114.7	31195	---	14818.0	41071	---	21377.3

SURFACE-WATER RECORDS
Cuyahoga River Basin

95

04208000 CUYAHOGA RIVER AT INDEPENDENCE, OHIO—Continued

WATER-QUALITY RECORDS

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002—Continued

[CFS, cubic feet per second; MG/L, milligrams per liter; TONS/DAY, tons per day; ---, no data; e, estimated]

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT
	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	2140	109	632	938	21	54.4	575	38	58.5
2	1920	110	630	3360	556	6220	472	34	43.0
3	5840	670	10800	2130	215	1260	405	32	34.8
4	3430	284	2690	1500	91	380	542	70	109
5	2400	152	997	1160	51	160	590	220	518
6	2010	96	522	1120	43	128	2680	487	3630
7	1790	78	377	1040	69	210	1960	227	1230
8	1540	64	266	1420	148	585	1140	109	348
9	1610	75	338	1840	159	813	736	62	125
10	1570	72	309	1270	98	344	573	47	73.3
11	1220	57	186	762	60	125	481	58	75.3
12	1120	60	186	1880	468	3520	1240	222	990
13	2060	198	1360	5790	835	13800	1130	161	499
14	3100	420	4350	5160	543	8220	1970	465	3180
15	3510	370	3720	3580	261	2530	1620	286	1280
16	2510	142	975	2680	187	1370	1090	134	415
17	1960	107	566	3310	347	3260	693	69	129
18	1800	90	437	2800	133	1010	599	73	120
19	1530	79	328	2220	91	551	466	46	58.2
20	1390	78	296	1770	67	319	392	34	36.0
21	1070	56	165	1500	63	255	388	41	44.5
22	926	42	105	1270	66	224	365	38	38.5
23	800	36	77.8	1050	59	168	308	38	31.2
24	680	39	71.0	892	52	126	294	40	31.5
25	619	35	58.1	869	58	145	279	33	24.9
26	555	28	42.3	1250	237	869	281	32	23.9
27	513	19	27.1	796	53	117	279	24	18.5
28	1430	166	711	961	129	371	278	21	16.1
29	1330	108	404	799	56	122	261	25	17.5
30	1040	37	105	689	39	73.6	251	30	20.2
31	---	---	---	598	38	62.0	---	---	---
TOTAL	53413	---	31731.3	56404	---	47392.0	22338	---	13218.9
JULY			AUGUST			SEPTEMBER			
1	250	35	23.9	214	23	13.3	185	21	10.5
2	239	37	24.2	203	28	15.1	187	22	11.0
3	232	30	18.7	192	32	16.7	247	21	13.8
4	225	35	21.6	178	22	10.7	311	19	16.2
5	242	27	17.7	279	49	40.2	209	18	10.0
6	217	21	12.6	212	29	16.4	203	20	10.7
7	204	25	14.0	197	20	10.5	185	19	9.4
8	205	19	10.8	186	18	9.1	173	13	6.3
9	340	100	138	178	16	7.7	168	13	6.1
10	320	76	70.0	178	15	7.1	178	14	6.5
11	235	34	22.1	177	13	6.1	174	13	6.2
12	207	25	13.7	177	13	6.1	168	12	5.3
13	201	21	11.2	188	13	6.8	165	15	6.7
14	200	26	13.8	188	20	10.0	261	81	80.6
15	199	22	11.7	271	29	21.3	905	503	1480
16	198	31	16.3	301	85	118	656	273	539
17	193	27	14.2	830	835	2130	290	81	68.3
18	195	19	10.0	292	98	85.8	228	31	18.9
19	206	16	9.0	227	35	21.2	867	479	2020
20	205	20	11.0	313	34	28.5	292	83	67.3
21	197	22	11.5	229	26	16.0	681	190	366
22	436	116	248	214	29	16.9	320	57	53.3
23	931	404	1280	940	245	713	225	29	18.0
24	384	94	106	1070	341	1060	204	27	15.0
25	250	51	34.8	473	108	156	206	28	15.7
26	222	36	22.0	282	34	26.5	200	22	12.1
27	211	26	14.8	250	26	17.5	1480	394	3040
28	219	31	18.9	229	23	14.2	1170	278	1160
29	663	142	289	214	23	13.1	393	63	72.3
30	391	102	117	208	21	11.7	280	29	21.9
31	238	35	23.2	196	20	10.6	---	---	---
TOTAL	8655	---	2649.7	9286	---	4636.1	11211	---	9167.1
YEAR	308995		166477.5						

SURFACE-WATER RECORDS **Cuyahoga River Basin**

04208504 CUYAHOGA RIVER AT LTV STEEL AT CLEVELAND, OHIO

LOCATION.—Latitude 41°27'45", longitude 81°40'52", Cuyahoga County, Hydrologic Unit 04110002, on left bank at LTV Steel Company footbridge, 1.2 mi downstream from Big Creek, and 5.5 mi upstream from mouth at Cleveland, Ohio.

DRAINAGE AREA.—788 mi².

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.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 15,500 ft³/s Aug. 13, 1994; minimum daily discharge, 310 ft³/s Aug. 29, 1993.

EXTREMES FOR CURRENT YEAR.—Maximum daily discharge, 5,710 ft³/s Dec. 12; minimum daily discharge, 410 ft³/s Oct. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e455	767	2240	563	5190	993	2280	1000	e1050	e574	e512	e461
2	442	1100	1460	561	2890	1230	1970	3250	e913	e555	e494	e465
3	432	1030	1210	548	2040	3190	4780	2080	e817	e544	e472	e569
4	e412	e975	1070	619	1590	1580	3420	1490	e1010	e532	e447	e673
5	647	e950	1010	573	1550	1130	2490	1160	e1070	e560	e622	e504
6	2170	e934	896	548	1340	978	2030	1130	3880	e517	e509	e493
7	775	e859	758	625	1020	1110	1840	1140	2360	e495	e481	e460
8	536	e779	685	651	740	967	1660	1470	1720	e496	e463	e439
9	481	e719	607	686	447	1240	1730	1930	1640	e718	e448	e430
10	456	e750	502	805	769	1370	1630	1310	2000	e687	e448	e447
11	410	e719	529	907	1300	929	1320	910	1710	e549	e446	e441
12	1000	e672	520	841	1270	831	1390	2150	2160	e499	e447	e429
13	980	e694	545	855	1160	698	2350	e5710	1930	e489	e466	e423
14	868	e686	1580	785	845	e670	3110	e5250	3070	e487	e465	e591
15	912	e657	1950	855	934	e952	3420	e4010	2110	e485	e609	e1470
16	995	e605	977	795	973	e2050	2560	e3250	1510	e483	e658	e1160
17	2070	e596	2910	754	1010	e1490	2130	e3790	1190	e475	e1380	e640
18	960	e582	4260	699	931	933	2110	e3360	e1090	e478	e644	e537
19	685	e619	2370	648	864	810	2030	e2830	e905	e497	e535	e1420
20	569	e988	1890	656	978	1340	1820	e2400	e798	e496	e677	e643
21	843	e804	1520	653	1300	1440	1590	e2130	e792	e482	e538	e1190
22	2230	e698	1350	627	1190	1310	1280	e1880	e756	e862	e513	e687
23	1380	e653	1520	648	1010	1160	1100	e1640	e668	e1500	e1510	e531
24	2010	e634	1480	693	988	1290	905	e1450	e645	e786	e1660	e495
25	2030	e1510	1090	802	952	1540	816	e1430	e622	e574	e915	e497
26	1310	e1200	952	731	1340	1820	888	1790	e625	e526	e627	e487
27	1990	e1010	933	697	1220	3970	868	1240	e622	e507	e574	e2100
28	1340	e1160	876	688	979	3690	1710	e1540	e620	e521	e538	e1770
29	1060	e2310	763	775	---	3260	1440	e1340	e592	e1170	e513	e798
30	904	e2770	712	2150	---	4100	1120	e1200	e576	e796	e502	e624
31	815	---	646	2980	---	2450	---	e1090	---	e554	e479	---
TOTAL	32167	28430	39811	25418	36820	50521	57787	66350	39451	18894	19592	21874
MEAN	1038	948	1284	820	1315	1630	1926	2140	1315	609	632	729
MAX	2230	2770	4260	2980	5190	4100	4780	5710	3880	1500	1660	2100
MIN	410	582	502	548	447	670	816	910	576	475	446	423

e Estimated.

SURFACE-WATER RECORDS
Chagrin River Basin

97

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 mi².

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 September 2002. (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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	154	1140	e100	3130	262	680	252	148	52	e38	32
2	102	134	808	e98	1420	283	506	738	100	52	e37	31
3	89	160	478	e96	623	1480	2170	725	95	51	e36	52
4	78	163	304	e92	368	803	1100	285	137	48	e35	50
5	72	145	228	e88	270	309	523	228	113	42	e43	36
6	184	130	187	e85	258	253	370	200	265	42	e36	28
7	235	121	162	e84	259	257	290	193	233	40	32	20
8	185	114	148	e80	252	241	271	223	169	38	22	13
9	148	121	137	e80	251	219	509	277	110	64	e18	12
10	124	129	131	e140	245	346	605	334	87	168	e17	8.6
11	107	123	126	327	276	249	322	224	81	83	e17	7.2
12	95	116	121	267	290	206	258	1020	112	59	e15	6.3
13	108	111	121	e220	277	197	924	3350	128	48	e17	6.1
14	108	109	154	e200	243	189	2020	2540	129	43	e25	14
15	108	106	913	e180	241	181	1780	701	234	38	e34	109
16	102	105	741	e170	282	373	934	282	200	36	e43	186
17	456	105	835	e150	354	354	470	1480	139	35	e190	109
18	552	105	2550	e140	281	241	320	827	111	35	e84	65
19	339	104	825	e130	264	212	266	493	89	33	e54	82
20	226	137	557	e120	412	273	305	355	74	32	59	115
21	169	159	334	e115	653	570	294	282	76	31	49	127
22	269	149	236	e110	498	369	241	213	120	63	40	110
23	458	136	290	e120	329	294	222	156	69	165	140	65
24	479	127	401	217	284	420	200	128	63	118	323	52
25	642	190	236	248	269	591	197	127	59	63	157	50
26	585	425	190	183	288	486	190	455	59	45	102	44
27	442	308	167	159	371	1310	173	280	57	39	70	244
28	471	237	e140	149	281	1560	506	267	70	e45	53	546
29	346	447	e130	146	---	1620	740	235	61	e130	47	125
30	247	1010	e120	737	---	2590	335	220	56	e80	42	84
31	190	---	e110	1240	---	1120	---	198	---	e43	36	---
TOTAL	7838	5680	13020	6271	12969	17858	17721	17288	3444	1861	1911	2429.2
MEAN	252.8	189.3	420.0	202.3	463.2	576.1	590.7	557.7	114.8	60.03	61.65	80.97
MAX	642	1010	2550	1240	3130	2590	2170	3350	265	168	323	546
MIN	72	104	110	80	241	181	173	127	56	31	15	6.1
CFSM	1.03	0.77	1.71	0.82	1.88	2.34	2.40	2.27	0.47	0.24	0.25	0.33
IN.	1.19	0.86	1.97	0.95	1.96	2.70	2.68	2.61	0.52	0.28	0.29	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	MEAN	159.0	309.9	415.1	470.2	541.5	676.9	552.0	356.7	212.9	127.0	122.3	127.1
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 2002 WATER YEAR

WATER YEARS 1925 - 2002

ANNUAL TOTAL	108290.2		
ANNUAL MEAN	296.7	339.3	
HIGHEST ANNUAL MEAN		465	1975
LOWEST ANNUAL MEAN		148	1934
HIGHEST DAILY MEAN	3350	May 13	12300
LOWEST DAILY MEAN	6.1	Sep 13	3.0
ANNUAL SEVEN-DAY MINIMUM	9.6	Sep 8	7.0
MAXIMUM PEAK FLOW	4960	May 13a	28000
MAXIMUM PEAK STAGE	7.80	May 13	17.95
INSTANTANEOUS LOW FLOW	5.6	Sep 13	3.0
ANNUAL RUNOFF (CFSM)	1.21		1.38
ANNUAL RUNOFF (INCHES)	16.38		18.74
10 PERCENT EXCEEDS	646		765
50 PERCENT EXCEEDS	165		150
90 PERCENT EXCEEDS	40		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 mi².

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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	297	3040	e130	7690	624	2800	980	238	51	73	16
2	30	221	1880	e120	5840	667	1940	981	165	51	55	13
3	25	209	1200	e110	3270	1620	3490	1220	123	49	42	12
4	23	178	973	e110	2300	1680	3430	1140	105	43	31	11
5	30	158	685	e100	1780	1300	2340	1060	94	35	28	9.6
6	156	144	412	e100	1170	1170	1940	935	104	31	25	8.3
7	72	134	282	e110	774	1360	1630	593	150	28	20	6.9
8	56	126	215	e120	684	1100	1110	407	498	27	16	6.1
9	42	141	180	e130	795	834	1160	440	799	26	15	5.5
10	33	138	160	572	919	931	1330	714	857	34	13	4.9
11	28	127	140	1370	1090	742	1200	779	497	31	12	4.8
12	32	117	128	1130	1100	637	956	3120	228	28	9.3	4.7
13	41	108	126	e840	1040	547	1900	8440	129	26	8.7	4.7
14	36	103	308	e660	826	448	4190	8890	99	24	7.9	5.1
15	43	103	2130	e500	684	387	5430	5760	98	29	13	15
16	57	101	1610	e410	750	507	3730	4090	130	23	17	33
17	344	97	2170	e350	863	911	2420	4850	332	19	18	19
18	224	82	5130	e310	700	941	1980	3770	412	16	15	27
19	171	78	4000	e280	603	833	1380	2280	230	14	14	32
20	179	133	2440	e260	953	866	875	1340	141	13	12	37
21	154	132	1890	e250	1410	1520	701	903	107	13	11	42
22	162	125	1470	e310	1590	1580	664	618	305	29	8.8	35
23	198	118	1100	e500	1210	1350	540	445	208	34	8.9	31
24	261	113	1430	1990	960	1490	432	330	197	31	22	31
25	661	723	1330	2070	754	1600	367	263	158	17	30	26
26	809	782	851	1160	675	1670	313	918	114	13	26	22
27	1200	512	575	837	747	3140	270	825	91	13	22	169
28	1550	438	343	677	702	4850	648	518	76	13	22	189
29	1100	863	e240	592	---	4860	1940	384	65	37	30	199
30	637	1900	e180	2280	---	6030	1430	281	54	152	26	143
31	436	---	e150	3740	---	4260	---	278	---	138	21	---
TOTAL	8825	8501	36768	22118	41879	50455	52536	57552	6804	1088	672.6	1162.6
MEAN	284.7	283.4	1186	713.5	1496	1628	1751	1857	226.8	35.10	21.70	38.75
MAX	1550	1900	5130	3740	7690	6030	5430	8890	857	152	73	199
MIN	23	78	126	100	603	387	270	263	54	13	7.9	4.7
CFSM	0.42	0.41	1.73	1.04	2.18	2.38	2.56	2.71	0.33	0.05	0.03	0.06
IN.	0.48	0.46	2.00	1.20	2.27	2.74	2.85	3.13	0.37	0.06	0.04	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	MEAN	464.2	1127	1511	1400	1761	1896	1497	838.4	638.6	244.2	223.0	374.8
MAX	1880	4026	3816	3327	4044	3753	2598	3214	2851	1106	1106	1854	
(WY)	1991	1986	1978	1993	1981	1993	1987	1989	1986	1987	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 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1975 - 2002

ANNUAL TOTAL	213836.7	288361.2	
ANNUAL MEAN	585.9	790.0	993.1
HIGHEST ANNUAL MEAN			1406
LOWEST ANNUAL MEAN			524
HIGHEST DAILY MEAN	9130	Feb 10	15300
LOWEST DAILY MEAN	8.2	Sep 17	4.7
ANNUAL SEVEN-DAY MINIMUM	9.7	Sep 15	5.1
MAXIMUM PEAK FLOW			11700
MAXIMUM PEAK STAGE			9.91
INSTANTANEOUS LOW FLOW			4.2
ANNUAL RUNOFF (CFSM)	0.86	1.15	1.45
ANNUAL RUNOFF (INCHES)	11.61	15.66	19.70
10 PERCENT EXCEEDS	1590	1960	2700
50 PERCENT EXCEEDS	212	270	390
90 PERCENT EXCEEDS	24	17	36

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

99

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 mi².

PERIOD OF RECORD.—July 1922 to December 1935, March 1950 to September 1961 (published as "at Amboy"), October 1961 to current year.

REVISED RECORDS.—WSP 714: 1926. WSP 784: 1933. WSP 1437: 1923-25(M), 1926-30, 1931-32(M), 1933, 1935(M). WSP 1912: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 610.3 ft above sea level. Prior to Aug. 17, 1924, nonrecording gage at same site and datum.

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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	94	1540	e40	2690	175	430	345	104	20	78	5.2
2	26	77	621	e38	2360	172	349	267	84	19	46	4.6
3	19	64	235	e36	592	444	1020	405	66	18	32	4.5
4	14	64	150	e34	337	618	1310	273	58	17	26	3.8
5	15	62	113	e33	220	318	476	175	53	15	22	3.4
6	40	51	91	e32	216	262	337	146	117	14	19	3.2
7	23	44	79	e33	178	504	286	129	319	13	16	e2.9
8	25	41	70	e43	171	434	248	198	175	13	15	e3.0
9	28	40	63	e46	190	295	317	247	100	19	13	e2.8
10	21	39	57	e90	233	283	637	282	69	23	13	e2.7
11	17	44	52	139	320	300	424	231	56	21	12	e2.6
12	18	41	50	195	330	244	252	855	51	18	11	e2.5
13	18	37	49	264	243	231	384	3080	50	16	13	e2.6
14	13	34	69	e200	190	195	1260	3700	56	14	13	e7.0
15	15	34	697	e160	156	161	2140	1840	68	13	14	32
16	14	32	627	e290	210	204	1150	525	258	12	13	26
17	27	31	421	e240	351	465	517	907	207	11	15	19
18	61	31	1800	235	276	278	330	874	110	10	17	18
19	79	33	1430	184	180	204	242	596	70	9.7	21	13
20	47	38	448	e140	217	229	254	354	52	9.5	20	10
21	35	84	334	e110	586	652	287	244	42	8.8	13	18
22	33	88	229	e100	633	508	243	189	39	9.9	11	11
23	89	64	250	e150	386	343	222	153	42	15	10	7.3
24	111	52	853	906	254	446	188	124	36	12	12	7.1
25	197	70	459	1490	204	467	151	104	30	9.6	11	6.9
26	358	137	222	549	185	449	140	436	27	10	9.5	7.4
27	399	176	123	333	218	1100	125	649	25	11	8.9	58
28	920	106	109	288	228	1130	236	236	24	11	9.1	53
29	458	156	58	261	---	874	902	151	23	12	8.2	74
30	222	923	e46	807	---	1310	656	118	21	591	6.4	36
31	134	---	e43	1770	---	911	---	108	---	202	5.6	---
TOTAL	3513	2787	11388	9236	12354	14206	15513	17941	2432	1197.5	533.7	447.5
MEAN	113.3	92.90	367.4	297.9	441.2	458.3	517.1	578.7	81.07	38.63	17.22	14.92
MAX	920	923	1800	1770	2690	1310	2140	3700	319	591	78	74
MIN	13	31	43	32	156	161	125	104	21	8.8	5.6	2.5
CFSM	0.65	0.53	2.10	1.70	2.52	2.62	2.95	3.31	0.46	0.22	0.10	0.09
IN.	0.75	0.59	2.42	1.96	2.63	3.02	3.30	3.81	0.52	0.25	0.11	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2002, BY WATER YEAR (WY)

	MEAN	133.9	315.4	414.2	420.0	458.0	525.3	393.2	237.3	133.5	74.32	68.57	99.98
MAX	804	1373	1049	929	1115	987	839	670	1013	415	493	709	
(WY)	1927	1986	1928	1990	1981	1972	1957	1953	1986	1969	1980	1990	
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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1922 - 2002

ANNUAL TOTAL	63770.1	91548.7	
ANNUAL MEAN	174.7	250.8	272.3
HIGHEST ANNUAL MEAN			401
LOWEST ANNUAL MEAN			140
HIGHEST DAILY MEAN	3410	3700	11000
LOWEST DAILY MEAN	3.0	2.5	0.30
ANNUAL SEVEN-DAY MINIMUM	3.7	2.7	0.64
MAXIMUM PEAK FLOW		4700	17000
MAXIMUM PEAK STAGE		7.28	12.94
INSTANTANEOUS LOW FLOW			0.20
ANNUAL RUNOFF (CFSM)	1.00	1.43	1.56
ANNUAL RUNOFF (INCHES)	13.56	19.46	21.14
10 PERCENT EXCEEDS	399	623	680
50 PERCENT EXCEEDS	79	100	97
90 PERCENT EXCEEDS	8.0	11	10

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. The maximum peak discharge and gage height for the water year are flagged with an asterisk (*).

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[ft³/s, cubic feet per second; *, maximum peak discharge and gage height; ---, no data; e, estimated]

DATE	TIME	DISCHARGE (FT ³ /S)	GAGE HEIGHT (FEET)	DATE	TIME	DISCHARGE (FT ³ /S)	GAGE HEIGHT (FEET)
LAKE ERIE BASIN							
Ottawa River Basin							
<u>04177000 OTTAWA RIVER AT TOLEDO UNIVERSITY, TOLEDO, OHIO</u>							
(Base discharge: 1,150 ft ³ /s)							
Oct. 18	0100	1380	10.08	Apr. 4	0100	1530	10.72
Dec. 18	1400	1210	9.60	Apr. 14	0900	1310	10.17
Feb. 1	2230	1990	11.39	May 14	0030	*2160	*11.94
Mar. 31	0630	1170	9.80				
Maumee River Basin							
<u>04184500 BEAN CREEK AT POWERS, OHIO</u>							
(Base discharge: 1,200 ft ³ /s)							
Oct. 16	2200	1400	14.86	Apr. 9	---	1370e	---
Feb. 1	0815	2160	16.90	Apr. 13	---	1400e	---
Apr. 3	0815	1730	15.98	May 13	0045	*4190	*19.84
<u>04185000 TIFFIN RIVER AT STRYKER, OHIO</u>							
(Base discharge: 1,850 ft ³ /s)							
Oct. 19	0030	2220	12.46	Apr. 4	2130	2470	13.02
Dec. 19	1400	2010	11.96	May 14	1530	*4120	*15.21
Feb. 3	1030	3240	14.15				
<u>04185440 UNNAMED TRIBUTARY TO LOST CREEK NEAR FARMER, OHIO</u>							
(Base discharge: 120 ft ³ /s)							
Oct. 12	0800	*293	*4.29	Jan. 31	1245	219	3.95
Oct. 16	1230	270	4.19	Mar. 3	0130	132	3.44
Oct. 22	0830	173	3.70	Mar. 30	1545	174	3.71
Nov. 30	0545	142	3.51	Apr. 8	2045	156	3.60
Dec. 14	1745	144	3.52	May 12	1300	198	3.84
Dec. 17	0915	129	3.42	July 28	1645	257	4.13
<u>04186500 AUGLAIZE RIVER NEAR FORT JENNINGS, OHIO</u>							
(Base discharge: 2,700 ft ³ /s)							
Dec. 19	0130	3200	11.91	Mar. 31	0900	*4510	*13.77
Feb. 2	1200	4280	13.50	May 14	2130	2910	11.38
<u>04189000 BLANCHARD RIVER NEAR FINDLAY, OHIO</u>							
(Base discharge: 2,800 ft ³ /s)							
Dec. 18	1100	3390	8.59	Apr. 14	0300	3560	8.89
Feb. 1	1900	*5590	*11.80	May 14	0930	4520	10.47
Mar. 30	2000	4980	11.14				
Portage River Basin							
<u>04195500 PORTAGE RIVER AT WOODVILLE, OHIO</u>							
(Base discharge: 3,500 ft ³ /s)							
Dec. 18	1600	4350	9.17	Apr. 10	0500	4820	9.60
Feb. 2	1400	*7450	*11.59	Apr. 14	0230	4050	8.88
Mar. 31	0300	6880	11.20				
<u>04195820 PORTAGE RIVER AT ELMORE, OHIO</u>							
(Base discharge: 3,800 ft ³ /s)							
Dec. 18	1430	5030	9.12	Apr. 10	0600	5520	9.57
Feb. 2	1500	*7470	*11.45	Apr. 14	0300	4730	8.83

PEAK DISCHARGE AND STAGE AT CONTINUOUS-RECORD SURFACE DISCHARGE STATIONS

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PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002—Continued

[ft³/s, cubic feet per second; *, maximum peak discharge and gage height; ---, no data; e, estimated]

DATE	TIME	DISCHARGE (FT ³ /S)	GAGE HEIGHT (FEET)	DATE	TIME	DISCHARGE (FT ³ /S)	GAGE HEIGHT (FEET)
Sandusky River Basin							
<u>04196000 SANDUSKY RIVER NEAR BUCYRUS, OHIO</u> (Base discharge: 1,200 ft ³ /s)							
Dec. 18	1230	1610	6.50	May 14	1130	1640	6.75
Feb. 1	2030	1600	6.69	Jan. 4	2230	1530	6.58
Apr. 3	1930	*1870	*7.09				
<u>04196500 SANDUSKY RIVER NEAR UPPER SANDUSKY, OHIO</u> (Base discharge: 2,500 ft ³ /s)							
Dec. 18	1945	3190	6.52	Apr. 4	0900	3100	6.42
Feb. 2	0030	3450	6.82	May 14	1145	3360	6.72
Mar. 30	1330	2970	6.26				
<u>04196800 TYMOCHTEE CREEK AT CRAWFORD, OHIO</u> (Base discharge: 1,800 ft ³ /s)							
Dec. 19	2330	2240	6.53	Apr. 5	0245	2080	6.37
Feb. 3	0045	2310	6.60	May 14	1845	2040	6.32
Mar. 30	2145	*2710	*6.97				
<u>04197100 HONEY CREEK AT MELMORE, OHIO</u> (Base discharge: 1,500 ft ³ /s)							
Feb. 1	1830	2370	8.49	Apr. 14	1230	1850	7.68
Mar. 30	1130	2330	8.43	May 14	0830	1770	7.53
<u>04198000 SANDUSKY RIVER NEAR FREMONT, OHIO</u> (Base discharge: 10,000 ft ³ /s)							
Dec. 18	1100	10100	6.10	Apr. 14	0530	10900	6.37
Feb. 2	0030	*16700	*8.17	May 14	0900	12200	6.76
Mar. 30	1500	15400	7.75				
Huron River Basin							
<u>04199000 HURON RIVER AT MILAN, OHIO</u> (Base discharge: 4,700 ft ³ /s)							
Feb. 1	1245	*7900	*18.44	Apr. 14	2000	4820	15.05
Mar. 30	0400	7480	18.02	May 14	0100	5720	16.12
Old Woman Creek Basin							
<u>04199155 OLD WOMAN CREEK AT BERLIN ROAD NEAR HURON, OHIO</u> (Base discharge: 400 ft ³ /s)							
Dec. 18	0315	418	7.26	Apr. 14	1715	447	7.45
Feb. 1	0845	*1120	*10.22	May 13	2215	634	8.52
Mar. 30	0100	1000	9.91	June 13	0000	526	7.93
Black River Basin							
<u>04199500 VERMILION RIVER NEAR VERMILION, OHIO</u> (Base discharge: 3,200 ft ³ /s)							
Feb. 2	0945	4930	6.56	Apr. 15	1545	3420	5.84
Mar. 31	0015	*5710	*6.88	May 14	0745	4030	6.15
<u>04200500 BLACK RIVER AT ELYRIA, OHIO</u> (Base discharge: 3,200 ft ³ /s)							
Feb. 1	1230	*4890	*10.22	Apr. 14	1800	3210	8.22
Mar. 30	0730	4090	9.32	May 14	1030	4840	10.17
Apr. 3	1900	3480	8.58				
Rocky River Basin							
<u>04201500 ROCKY RIVER NEAR BERE, OHIO</u> (Base discharge: 4,000 ft ³ /s)							
Feb. 1	1200	4790	4.99	May 13	2230	4920	5.05
Apr. 3	1430	*5160	*5.16				

PEAK DISCHARGE AND STAGE AT CONTINUOUS-RECORD SURFACE DISCHARGE STATIONS

PEAK DISCHARGES EQUAL TO OR GREATER THAN BASE DISCHARGES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002—Continued

[ft³/s, cubic feet per second; *, maximum peak discharge and gage height; ---, no data; e, estimated]

DATE	TIME	DISCHARGE (FT3/S)	GAGE HEIGHT (FEET)	DATE	TIME	DISCHARGE (FT3/S)	GAGE HEIGHT (FEET)
Cuyahoga River Basin							
04206014 POWERS BROOK AT HUDSON, OHIO (Base discharge: 20 ft³/s)							
June 5	1735	*38	*11.75	No other peaks above base			
04206021 POWERS BROOK AT STOW, OHIO (Base discharge: 70 ft³/s)							
June 5	2140	*266	*12.03	No other peaks above base			
04206029 MUD BROOK AT STOW, OHIO (Base discharge: 90 ft³/s)							
May 14	0400	*270	*14.36	No other peaks above base			
04206038 CRYSTAL CREEK AT STOW, OHIO (Base discharge: 60 ft³/s)							
June 5	2055	*169	*14.01	No other peaks above base			
04206043 MUD BROOK AT CUYAHOGA FALLS, OHIO (Base discharge: 140 ft³/s)							
May 14	---	*222e	---	No other peaks above base			
04206212 NORTH FORK AT BATH CENTER, OHIO (Base discharge: 230 ft³/s)							
Apr. 3	0355	*224	11.69	No other peaks above base			
04206220 YELLOW CREEK AT BOTZUM, OHIO (Base discharge: 650 ft³/s)							
Apr. 3	0400	802	13.83	June 14	0515	*912	*14.08
June 5	1925	785	13.79				
04207200 TINKERS CREEK AT BEDFORD, OHIO (Base discharge: 1,500 ft³/s)							
May 29	2130	1710	6.26	Sept. 27	1300	*1850	*6.39
Apr. 3	0230	1740	6.29				
Chagrin River Basin							
04209000 CHAGRIN RIVER AT WILLOUGHBY, OHIO (Base discharge: 4,800 ft³/s)							
May 13	2300	*4960	*7.80	No other peaks above base			
Grand River Basin							
04212100 GRAND RIVER NEAR PAINESVILLE, OHIO (Base discharge: 6,500 ft³/s)							
Feb. 1	0800	9820	9.01	May 13	2230	*11700	*9.91
Mar. 30	0100	8300	8.26				
Conneaut River Basin							
04213000 CONNEAUT CREEK AT CONNEAUT, OHIO (Base discharge: 2,900 ft³/s)							
Feb. 1	0900	3510	6.33	May 13	2300	*4700	*7.28

GROUND-WATER RECORDS
Crawford County

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404838082563100. LOCAL NUMBER, CR-1

LOCATION.—Latitude 40°48'38", longitude 82°56'31", 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.

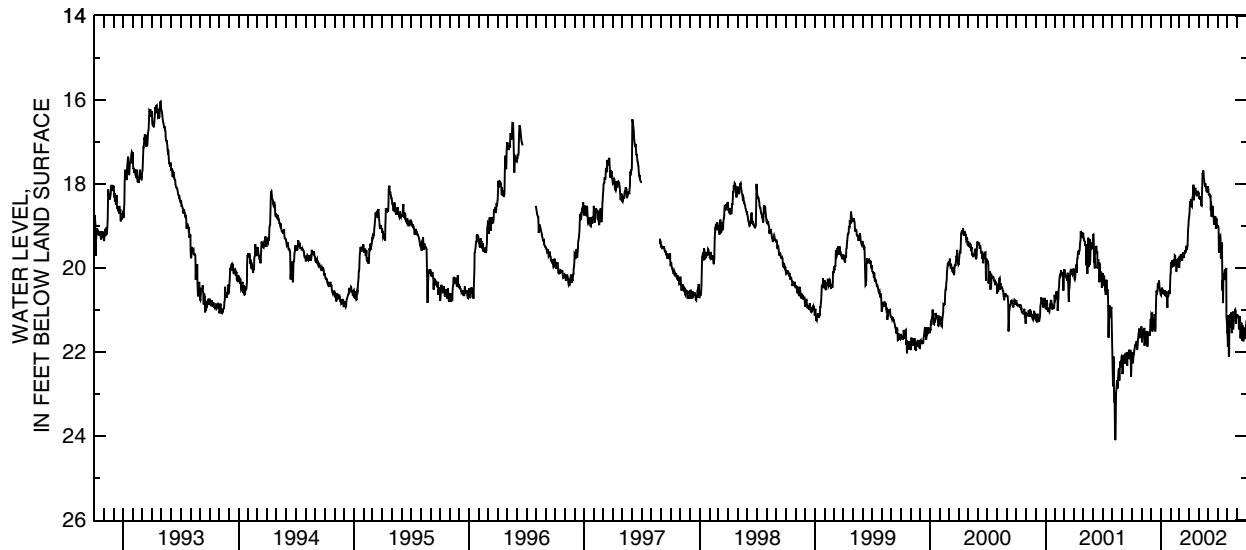
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.12	21.39	21.24	20.64	20.16	20.00	18.81	18.23	18.09	18.99	21.50	21.11
2	22.05	21.44	21.20	20.65	20.12	19.86	18.72	18.23	18.23	19.02	21.88	21.14
3	22.03	21.77	21.09	20.56	19.86	19.78	18.62	18.34	18.27	19.03	21.44	21.12
4	22.01	21.65	21.10	20.58	19.99	19.79	18.49	18.34	18.22	19.07	21.13	21.15
5	22.27	21.53	21.09	20.55	19.98	19.76	18.41	18.36	18.26	19.63	22.11	21.16
6	22.20	21.49	21.51	20.47	19.84	19.67	18.45	18.29	18.25	19.34	22.02	21.46
7	22.09	21.46	21.45	20.62	19.82	19.72	18.39	18.35	18.29	19.26	21.38	21.35
8	22.07	21.54	21.21	20.59	19.89	19.68	18.36	18.35	18.29	19.25	21.21	21.26
9	22.00	21.54	21.25	20.52	19.92	19.76	18.53	18.39	18.63	19.23	21.11	21.22
10	21.94	21.43	21.20	20.59	19.85	19.83	18.54	18.51	18.42	19.30	21.42	21.15
11	21.91	21.85	21.24	20.63	19.97	19.80	18.38	18.52	18.78	19.78	21.32	21.68
12	21.84	21.75	21.20	20.59	19.80	19.67	18.33	18.33	18.63	19.56	21.09	21.54
13	21.82	21.59	21.10	20.56	19.92	19.63	18.29	18.01	18.61	19.39	21.06	21.35
14	21.82	21.53	21.16	20.53	19.86	19.70	18.19	17.74	18.52	19.42	21.55	21.30
15	21.86	21.50	21.51	20.65	19.70	19.68	18.02	17.77	18.79	19.69	21.38	21.32
16	21.75	21.58	21.37	20.66	19.72	19.76	18.27	17.68	18.57	20.54	21.15	21.73
17	21.77	21.60	20.92	20.57	19.90	19.66	18.39	17.74	18.75	20.28	21.09	21.59
18	21.74	21.55	20.68	20.60	19.91	19.64	18.23	17.85	18.78	20.84	21.04	21.40
19	21.95	21.50	20.54	20.55	19.79	19.62	18.15	17.91	18.98	20.24	21.46	21.37
20	21.84	21.87	20.59	20.58	20.09	19.58	18.14	17.97	18.88	20.13	21.33	21.75
21	21.73	21.76	20.60	20.64	19.95	19.62	18.09	18.02	18.82	20.25	21.16	21.62
22	21.69	21.58	20.54	20.95	19.95	19.61	18.18	18.06	18.81	20.16	21.06	21.48
23	21.56	21.57	20.37	20.73	19.93	19.47	18.20	17.98	18.79	20.06	21.25	21.49
24	21.51	21.52	20.41	20.66	19.92	19.53	18.16	18.08	18.79	20.04	21.07	21.51
25	21.44	21.59	20.42	20.69	19.79	19.57	18.23	18.08	19.07	20.29	21.00	21.50
26	21.67	21.59	20.34	20.65	19.78	19.52	18.28	18.16	18.92	20.14	20.99	21.42
27	21.59	21.58	20.30	20.61	19.89	19.49	18.28	18.16	18.82	20.05	21.04	21.69
28	21.60	21.61	20.36	20.55	19.91	19.37	18.17	18.20	18.94	20.00	21.33	21.50
29	21.54	21.42	20.52	20.55	---	19.10	18.22	18.18	18.98	21.15	21.20	21.32
30	21.54	21.24	20.53	20.62	---	18.96	18.21	18.13	18.99	21.30	21.14	21.25
31	21.43	---	20.55	20.53	---	18.86	---	18.06	---	21.55	21.15	---
MAX	22.27	21.87	21.51	20.95	20.16	20.00	18.81	18.52	19.07	21.55	22.11	21.75
CAL YR 2001	LOW 24.10											
WTR YR 2002	LOW 22.27											



GROUND-WATER RECORDS

Geauga County

412518081221500. LOCAL NUMBER, GE-3A

LOCATION.—Latitude 41°25'18", longitude 81°22'15", 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.

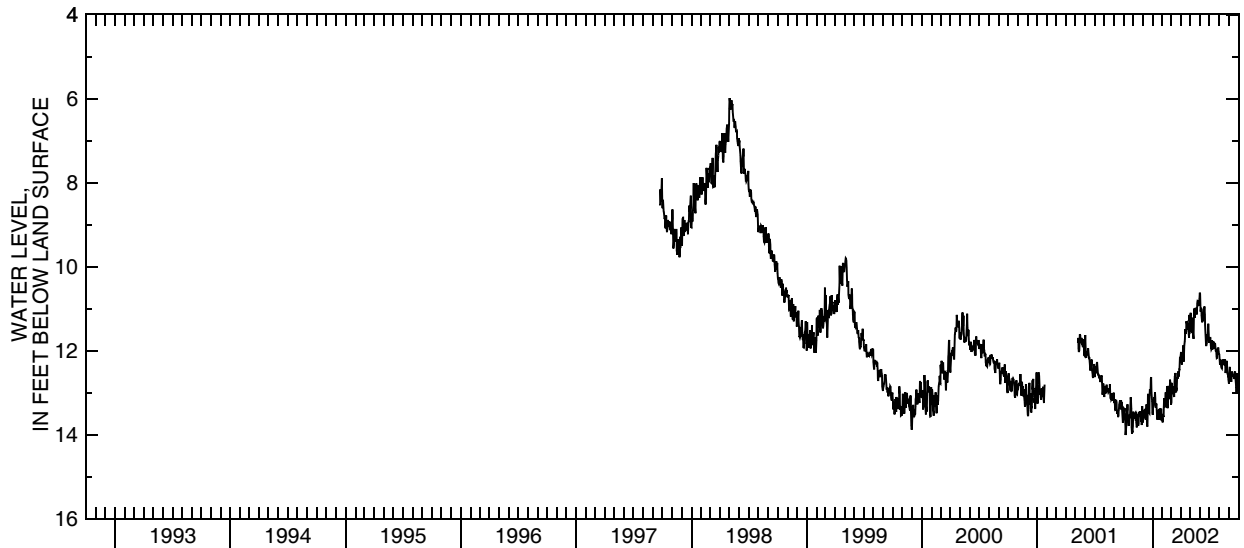
PERIOD OF RECORD.—October 1951 to September 1991 continuous. Discontinued October 1991 to March 1996. Periodic measurements April 1996 to September 1997. Continuous September 1997 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.55	13.47	13.64	13.47	13.59	13.29	12.06	11.22	10.65	11.73	12.09	12.71
2	13.37	13.47	13.71	13.53	13.71	13.23	12.03	11.10	10.89	11.73	12.20	12.53
3	13.38	13.62	13.64	13.34	13.51	12.77	12.21	11.49	11.07	11.70	12.33	12.39
4	13.40	13.59	13.58	13.31	13.55	12.98	12.33	11.55	10.98	11.70	12.30	12.54
5	13.37	13.59	13.58	13.20	13.58	12.99	12.27	11.54	11.01	11.88	12.21	12.62
6	13.50	13.59	13.44	13.11	13.35	12.93	12.21	11.45	11.16	11.94	12.33	12.63
7	13.77	13.50	13.41	13.19	13.13	12.99	12.20	11.37	11.31	11.97	12.38	12.67
8	14.01	13.49	13.41	13.22	13.23	12.99	11.88	11.37	11.31	11.94	12.41	12.74
9	13.92	13.67	13.58	12.99	13.35	12.85	12.09	11.22	11.30	11.76	12.42	12.66
10	13.77	13.46	13.58	13.14	13.19	13.07	12.26	11.61	11.28	11.91	12.32	12.51
11	13.60	13.71	13.64	13.34	13.28	13.10	12.15	11.72	11.19	11.97	12.26	12.50
12	13.49	13.83	13.60	13.34	12.99	12.74	11.88	11.39	11.07	11.91	12.26	12.62
13	13.40	13.79	13.28	13.28	13.35	12.60	11.78	11.00	11.09	11.78	12.27	12.60
14	13.28	13.58	13.35	13.28	13.34	12.63	11.72	11.07	10.98	11.81	12.20	12.56
15	13.58	13.51	13.79	13.51	13.10	12.53	11.49	11.22	10.95	11.88	12.27	12.57
16	13.56	13.67	13.79	13.64	12.85	12.98	11.60	11.07	11.15	11.94	12.33	12.65
17	13.70	13.79	13.38	13.47	13.26	12.98	11.54	11.00	11.39	11.94	12.33	12.67
18	13.79	13.73	13.05	13.59	13.37	12.89	11.54	11.00	11.58	11.84	12.23	12.62
19	13.53	13.47	13.05	13.58	13.22	12.90	11.30	11.04	11.78	11.84	12.23	12.51
20	13.55	13.50	13.20	13.47	12.89	12.65	11.36	11.09	11.87	11.97	12.45	12.50
21	13.58	13.47	13.47	13.41	12.84	12.65	11.34	11.12	11.87	12.02	12.53	12.63
22	13.56	13.44	13.49	13.65	13.11	12.67	11.37	11.12	11.82	11.96	12.42	12.75
23	13.35	13.50	13.07	13.46	13.14	12.51	11.49	10.88	11.72	12.14	12.33	12.87
24	13.11	13.49	12.92	13.38	13.13	12.50	11.49	10.82	11.63	12.18	12.24	12.99
25	13.19	13.56	13.00	13.56	12.95	12.62	11.40	10.83	11.63	12.17	12.33	13.02
26	13.38	13.68	12.98	13.59	12.69	12.53	11.61	10.92	11.54	12.03	12.39	12.87
27	13.82	13.53	12.67	13.56	12.80	12.45	11.69	10.91	11.36	11.97	12.56	12.54
28	13.98	13.77	12.63	13.47	13.00	12.45	11.15	10.91	11.61	11.94	12.59	12.87
29	13.90	13.59	12.99	13.38	---	12.15	11.28	10.83	11.78	11.94	12.57	12.95
30	13.95	13.32	13.11	13.67	---	12.17	11.28	10.76	11.81	12.03	12.69	12.89
31	13.79	---	13.20	13.65	---	12.17	---	10.62	---	12.08	12.78	---
MAX	14.01	13.83	13.79	13.67	13.71	13.29	12.33	11.72	11.87	12.18	12.78	13.02

CAL YR 2001 LOW 14.01
WTR YR 2002 LOW 14.01



GROUND-WATER RECORDS
Hancock County

105

405940083275500. LOCAL NUMBER, HA-3

LOCATION.—Latitude 40°59'40", longitude 83°27'55", 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.

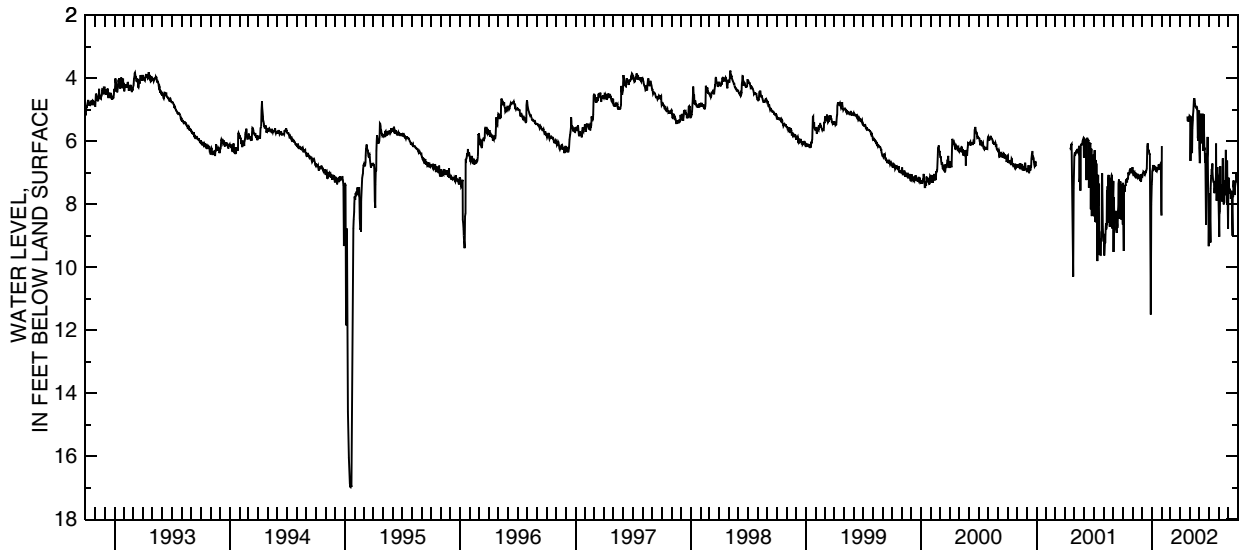
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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, 3.76 ft below land-surface datum, May 7, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.65	6.83	7.11	7.39	8.36	---	---	5.20	6.22	9.34	7.84	7.49
2	7.33	6.95	7.12	7.22	6.16	---	---	5.22	6.70	8.15	8.58	7.16
3	8.64	7.02	7.04	6.97	---	---	---	5.35	6.67	7.66	9.04	7.41
4	9.49	6.99	7.01	6.88	---	---	---	6.63	5.60	7.86	8.30	7.65
5	7.77	7.02	7.01	6.79	---	---	---	5.52	5.13	8.82	8.23	7.51
6	7.45	7.00	6.97	6.76	---	---	---	5.26	6.07	9.22	6.80	7.62
7	7.47	6.98	6.98	6.87	---	---	---	5.25	5.99	7.51	7.83	7.64
8	7.60	7.09	6.98	6.86	---	---	---	6.28	5.96	7.11	7.38	7.65
9	7.39	7.11	7.06	6.77	---	---	---	6.38	5.89	7.10	7.87	7.83
10	7.42	7.00	7.04	6.85	---	---	---	5.60	5.93	6.88	7.65	7.69
11	7.27	7.14	7.06	6.89	---	---	---	5.33	5.62	6.91	7.62	7.58
12	7.23	7.15	7.03	6.88	---	---	---	5.15	5.13	6.71	7.87	7.70
13	7.22	7.12	6.97	6.84	---	---	---	5.04	6.31	7.01	7.92	8.43
14	7.25	7.05	6.97	6.84	---	---	---	4.72	5.77	7.22	6.55	9.01
15	7.31	7.05	6.94	6.95	---	---	---	4.68	5.15	7.26	7.72	7.79
16	7.20	7.14	6.87	6.97	---	---	---	4.64	5.60	7.30	7.59	7.76
17	7.20	7.16	6.60	6.87	---	---	---	4.72	6.25	7.30	8.01	7.25
18	7.17	7.13	6.19	6.89	---	---	---	4.82	6.24	7.11	7.66	7.47
19	7.00	7.08	6.07	6.86	---	---	---	4.87	6.68	7.65	7.24	7.27
20	7.04	7.12	6.19	6.83	---	---	---	4.90	6.51	7.46	7.72	7.32
21	7.06	7.09	6.30	6.86	---	---	---	4.94	7.92	7.65	7.60	7.71
22	7.06	7.10	6.30	6.92	---	---	---	4.95	8.65	7.34	7.60	7.44
23	6.92	7.12	6.27	6.74	---	---	---	4.88	6.40	7.14	6.54	7.36
24	6.89	7.11	6.38	6.84	---	---	5.22	4.97	6.85	6.08	6.28	7.30
25	6.89	7.24	6.43	6.88	---	---	5.35	4.97	6.57	7.89	7.13	7.24
26	6.93	7.25	6.40	6.84	---	---	5.36	5.03	6.41	7.84	7.45	7.02
27	6.99	7.23	8.78	6.79	---	---	5.36	5.91	5.87	7.52	7.96	6.99
28	7.02	7.29	10.47	6.74	---	---	5.24	5.63	6.73	6.82	6.62	7.30
29	6.94	7.17	11.51	6.72	---	---	5.28	5.99	7.94	7.04	7.79	7.21
30	6.95	7.05	10.49	6.74	---	---	5.23	5.27	8.75	7.10	8.46	7.04
31	6.89	---	8.02	8.21	---	---	---	5.03	---	7.56	8.79	---
MAX	9.49	7.29	11.51	8.21	8.36	---	5.36	6.63	8.75	9.34	9.04	9.01
CAL YR 2001 LOW 11.51												
WTR YR 2002 LOW 11.51												



GROUND-WATER RECORDS

Hardin County

404648083412600. LOCAL NUMBER, HN-2A

LOCATION.—Latitude 40°46'48", longitude 83°41'26", 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.

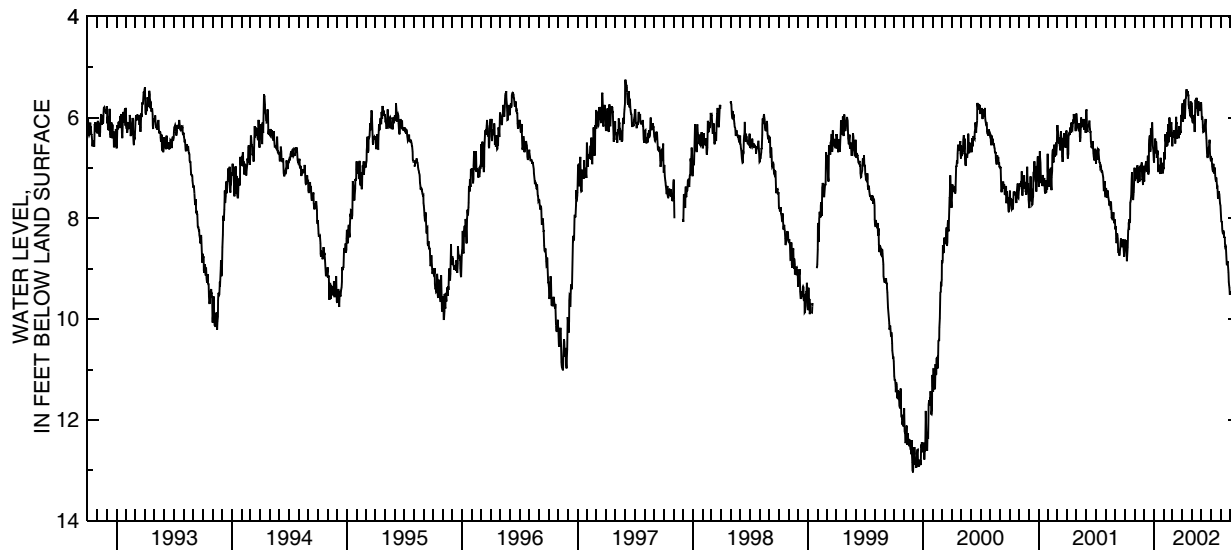
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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, 5.25 ft below land-surface datum, June 2, 1997.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.55	7.00	7.23	6.84	7.01	6.57	5.88	5.71	5.75	6.81	7.75	9.50
2	8.44	7.10	7.27	6.89	7.02	6.34	5.72	5.79	5.97	6.84	7.94	9.45
3	8.44	7.26	7.08	6.68	6.69	6.29	6.03	6.06	6.05	6.81	8.06	9.48
4	8.45	7.14	7.06	6.69	6.83	6.40	6.08	6.09	5.98	6.82	8.06	---
5	8.43	7.21	7.04	6.58	6.81	6.38	5.97	6.11	6.08	6.97	8.07	---
6	8.57	7.15	6.95	6.42	6.56	6.26	5.99	5.97	6.20	7.02	8.21	---
7	8.73	7.07	6.89	6.69	6.33	6.33	5.87	5.97	6.29	7.04	8.25	---
8	8.85	7.16	6.87	6.66	6.45	6.27	5.65	5.97	6.28	7.03	8.30	---
9	8.73	7.22	7.04	6.48	6.51	6.29	5.95	6.00	6.27	6.92	8.31	---
10	8.57	6.95	6.99	6.63	6.37	6.52	6.03	6.27	6.25	7.07	8.24	---
11	8.42	7.23	7.08	6.80	6.58	6.48	5.84	6.27	6.17	7.11	8.29	---
12	8.25	7.30	7.00	6.74	6.29	6.15	5.63	5.93	6.14	7.04	8.38	---
13	8.19	7.21	6.76	6.70	6.56	5.99	5.61	5.65	6.14	6.99	8.37	---
14	8.08	7.04	6.87	6.66	6.47	6.11	5.50	5.74	6.03	7.06	8.38	---
15	8.23	7.00	7.13	7.05	6.20	6.11	5.44	5.83	6.13	7.15	8.49	---
16	8.02	7.18	7.07	7.08	6.13	6.42	5.53	5.61	6.30	7.22	8.57	---
17	8.09	7.27	6.56	6.96	6.47	6.38	5.54	5.63	6.41	7.27	8.56	10.72
18	8.06	7.16	6.45	7.03	6.49	6.39	5.56	5.73	6.58	7.19	8.58	10.66
19	7.69	6.96	6.36	6.94	6.29	6.39	5.48	5.81	6.71	7.22	8.70	10.72
20	7.65	7.06	6.56	6.95	6.00	6.25	5.56	5.88	6.79	7.35	8.90	10.80
21	7.59	6.96	6.68	7.01	6.21	6.41	5.56	5.95	6.79	7.38	8.93	11.06
22	7.55	6.96	6.63	7.12	6.37	6.40	5.74	5.95	6.74	7.37	8.88	11.28
23	7.22	6.97	6.21	6.80	6.37	6.17	5.83	5.68	6.64	7.59	8.85	11.37
24	7.08	6.89	6.33	6.98	6.35	6.23	5.75	5.74	6.61	7.61	8.89	11.56
25	7.13	7.17	6.37	7.10	6.15	6.34	5.85	5.72	6.62	7.56	8.99	11.59
26	7.32	7.24	6.25	7.08	6.09	6.26	5.96	5.87	6.52	7.46	9.08	11.44
27	7.55	7.22	6.10	7.05	6.30	6.31	5.97	5.84	6.44	7.51	9.26	11.44
28	7.64	7.34	6.17	6.96	6.36	6.24	5.68	5.85	6.69	7.52	9.33	11.69
29	7.51	7.11	6.56	6.90	---	5.95	5.79	5.78	6.78	7.57	9.38	11.77
30	7.49	6.96	6.61	7.11	---	5.98	5.71	5.76	6.82	7.70	9.50	11.73
31	7.27	---	6.63	7.04	---	5.97	---	5.70	---	7.74	9.50	---
MAX	8.85	7.34	7.27	7.12	7.02	6.57	6.08	6.27	6.82	7.74	9.50	11.77
CAL YR 2001	LOW 8.85											
WTR YR 2002	LOW 11.77											



GROUND-WATER RECORDS
Henry County

107

412123083574000. LOCAL NUMBER, HY-2

LOCATION.—Latitude 41°21'23", longitude 83°57'40", 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.

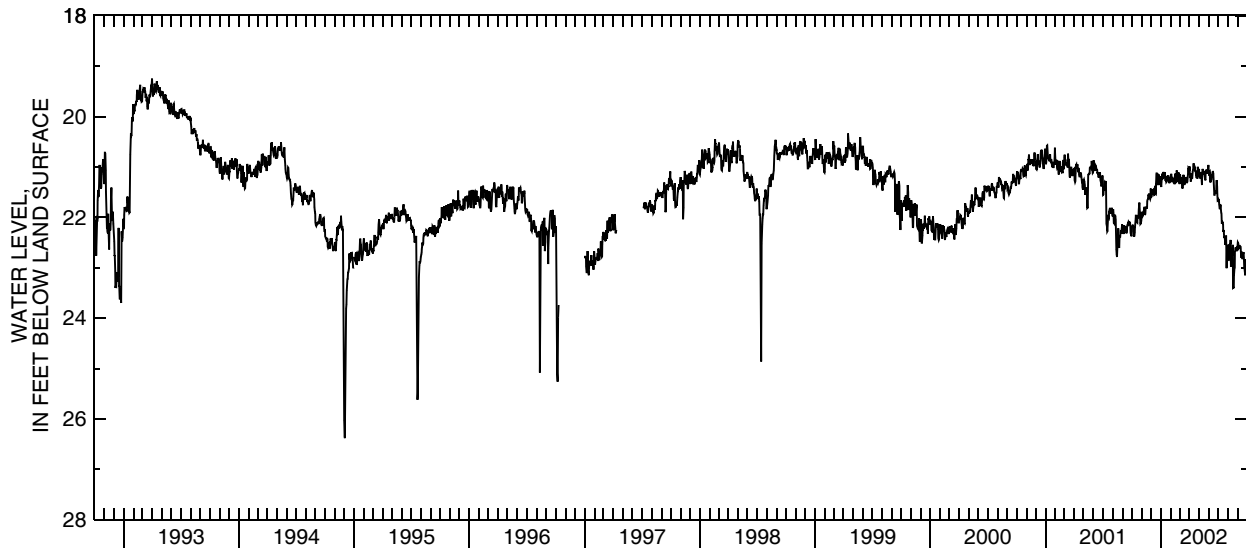
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.28	21.91	21.58	21.37	21.17	21.34	21.07	21.09	20.99	21.66	22.73	22.58
2	22.17	21.91	21.59	21.40	21.25	21.26	20.99	21.04	21.11	21.67	22.71	22.50
3	22.16	21.96	21.57	21.30	21.14	21.15	21.14	21.18	21.17	21.65	22.54	22.52
4	22.16	21.96	21.54	21.24	21.30	21.22	21.21	21.19	21.11	21.66	22.86	22.62
5	22.18	21.97	21.53	21.16	21.28	21.25	21.19	21.23	21.10	21.75	22.81	22.61
6	22.20	21.95	21.46	21.13	21.20	21.20	21.29	21.20	21.26	21.81	22.59	22.57
7	22.32	21.88	21.46	21.24	21.22	21.30	21.24	21.16	21.31	21.84	22.55	22.55
8	22.38	21.87	21.45	21.20	21.24	21.25	21.13	21.16	21.27	21.79	22.55	22.61
9	22.36	21.93	21.55	21.10	21.28	21.22	21.18	21.10	21.27	21.75	22.52	22.59
10	22.30	21.79	21.53	21.14	21.26	21.43	21.23	21.27	21.25	21.83	22.45	22.57
11	22.21	21.93	21.56	21.18	21.32	21.41	21.19	21.36	21.17	21.90	22.98	22.61
12	22.09	21.94	21.55	21.18	21.22	21.22	21.10	21.19	21.15	21.93	22.95	22.72
13	22.02	21.93	21.40	21.11	21.33	21.16	21.05	21.04	21.12	22.13	22.92	22.80
14	21.95	21.83	21.39	21.12	21.33	21.17	20.99	21.07	21.11	22.10	22.89	22.68
15	22.09	21.80	21.53	21.23	21.19	21.18	20.93	21.15	21.08	22.09	22.76	22.73
16	22.08	21.80	21.54	21.28	21.13	21.36	21.03	21.08	21.14	22.10	22.74	22.80
17	22.10	21.83	21.32	21.19	21.28	21.34	21.02	21.10	21.19	22.14	22.55	22.83
18	22.11	21.80	21.13	21.30	21.30	21.29	21.03	21.13	21.32	22.29	23.40	22.75
19	22.00	21.68	21.13	21.29	21.29	21.32	21.02	21.16	21.53	22.25	23.39	22.72
20	21.99	21.65	21.28	21.25	21.07	21.21	21.09	21.18	21.57	22.36	23.39	22.69
21	22.01	21.63	21.36	21.24	21.11	21.29	21.07	21.24	21.53	22.41	23.16	22.80
22	22.02	21.57	21.34	21.27	21.20	21.27	21.13	21.27	21.51	22.38	23.02	22.98
23	21.85	21.57	21.14	21.17	21.30	21.20	21.19	21.12	21.47	22.46	22.99	23.02
24	21.73	21.53	21.18	21.21	21.28	21.32	21.18	21.07	21.53	22.55	22.68	23.08
25	21.71	21.61	21.19	21.24	21.20	21.31	21.14	21.07	21.49	22.52	22.64	23.15
26	21.87	21.62	21.15	21.24	21.11	21.29	21.22	21.14	21.36	22.44	22.60	23.00
27	22.04	21.62	21.36	21.31	21.17	21.20	21.22	21.09	21.26	22.36	22.63	22.83
28	22.13	21.64	21.18	21.31	21.21	21.17	21.00	21.10	21.39	23.01	22.66	22.94
29	22.12	21.61	21.25	21.20	---	21.02	21.10	21.11	21.54	22.83	22.66	22.98
30	22.12	21.43	21.26	21.29	---	21.03	21.05	21.05	21.67	22.57	22.61	22.97
31	22.07	---	21.28	21.29	---	21.08	---	20.96	---	22.72	22.62	---
MAX	22.38	21.97	21.59	21.40	21.33	21.43	21.29	21.36	21.67	23.01	23.40	23.15
CAL YR 2001	LOW 22.79											
WTR YR 2002	LOW 23.40											



GROUND-WATER RECORDS

Lucas County

413704083362200. LOCAL NUMBER, LU-1

LOCATION.—Latitude 41°37'04", longitude 83°36'22", 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.

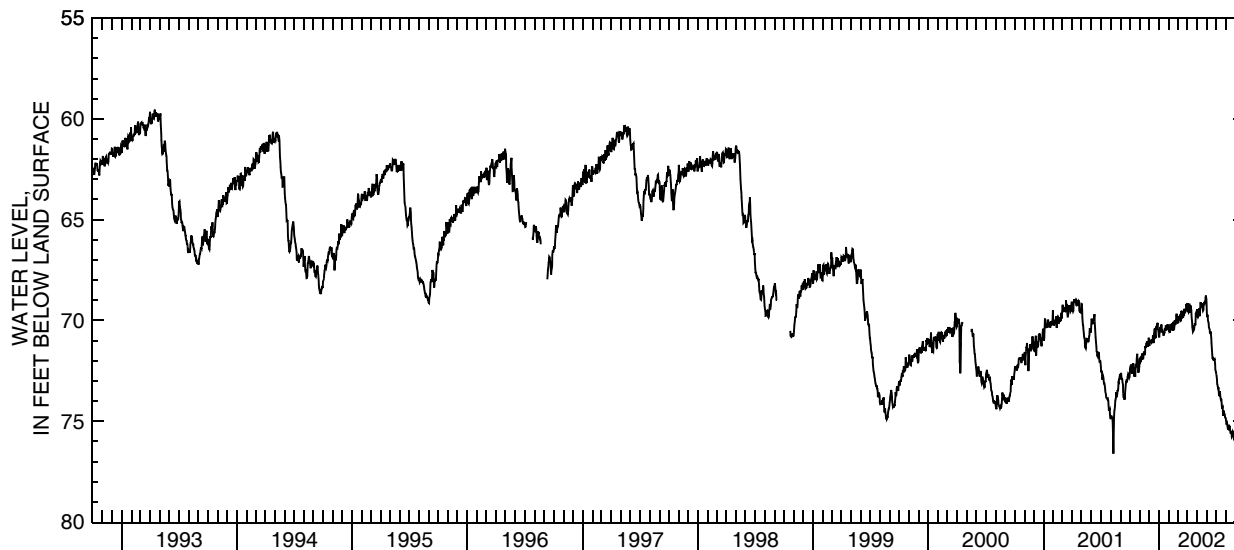
PERIOD OF RECORD.—June 1950 to July 1982 continuous, November 1982 to January 1985 periodic, continuous thereafter. This well replaced LU-1A, which has continuous record from March 1946 to June 1950.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.59	71.91	71.18	70.78	70.47	70.15	69.24	69.55	69.08	72.56	74.85	75.90
2	72.37	71.90	71.26	70.84	70.56	70.00	69.14	69.45	69.62	72.68	74.97	75.72
3	72.26	72.07	71.10	70.63	70.32	69.80	69.52	69.79	69.84	72.75	75.16	75.73
4	72.22	71.96	71.09	70.58	70.58	69.93	69.58	69.84	69.71	72.90	75.13	75.87
5	72.22	72.01	71.08	70.41	70.57	69.92	69.53	69.78	69.82	73.19	75.10	76.08
6	72.29	71.94	71.00	70.31	70.36	69.87	69.56	69.64	70.02	73.24	75.23	76.09
7	72.50	71.83	70.98	70.50	70.17	69.93	69.50	69.59	70.09	73.30	75.30	76.23
8	72.64	71.85	70.98	70.47	70.31	69.87	69.17	69.58	70.20	73.35	75.38	76.38
9	72.51	71.92	71.07	70.20	70.37	69.71	69.53	69.40	70.36	73.31	75.40	76.32
10	72.33	71.63	71.04	70.39	70.20	70.03	69.61	69.74	70.43	73.60	75.25	76.17
11	72.16	71.87	71.09	70.56	70.44	70.02	69.51	69.79	70.46	73.75	75.21	76.41
12	72.16	71.92	71.07	70.56	70.15	69.67	69.26	69.44	70.61	73.60	75.21	76.55
13	72.20	71.85	70.73	70.53	70.50	69.53	69.51	69.10	70.62	73.51	75.27	76.53
14	72.48	71.61	70.79	70.55	70.43	69.58	69.51	69.23	70.54	73.61	75.28	76.37
15	72.78	71.54	71.09	70.69	70.19	69.52	69.87	69.36	70.66	73.77	75.43	76.13
16	72.72	71.64	71.11	70.75	70.07	69.87	70.07	69.15	70.89	73.91	75.58	76.21
17	72.73	71.72	70.68	70.54	70.44	69.86	70.33	69.22	71.10	74.00	75.58	76.22
18	72.74	71.61	70.44	70.63	70.49	69.82	70.41	69.29	71.38	73.89	75.54	76.18
19	72.44	71.29	70.39	70.59	70.30	69.82	70.55	69.35	71.71	74.13	75.59	76.17
20	72.33	71.37	70.68	70.42	70.00	69.58	70.52	69.43	71.88	74.38	75.76	76.17
21	72.25	71.25	70.86	70.40	70.10	69.74	70.45	69.51	71.89	74.30	75.74	76.44
22	72.26	71.16	70.84	70.52	70.19	69.71	70.36	69.47	71.94	74.27	75.63	76.61
23	71.89	71.14	70.38	70.25	70.18	69.42	70.39	69.15	71.93	74.64	75.62	76.77
24	71.66	71.05	70.41	70.31	70.09	69.56	70.27	69.12	71.89	74.72	75.52	77.00
25	71.89	71.17	70.45	70.41	69.87	69.62	70.13	69.12	71.92	74.63	75.57	77.00
26	72.17	71.26	70.39	70.40	69.67	69.58	70.20	69.14	71.94	74.48	75.69	76.70
27	72.50	71.16	70.16	70.35	69.88	69.54	70.20	69.06	71.92	74.60	75.88	76.53
28	72.59	71.30	70.11	70.26	69.92	69.52	69.63	69.01	72.18	74.64	75.92	76.84
29	72.48	71.15	70.44	70.19	---	69.18	69.73	68.87	72.44	74.68	75.88	76.93
30	72.51	70.86	70.50	70.45	---	69.27	69.57	68.77	72.52	74.80	75.95	76.79
31	72.29	---	70.55	70.43	---	69.30	---	68.95	---	74.83	76.04	---
MAX	72.78	72.07	71.26	70.84	70.58	70.15	70.55	69.84	72.52	74.83	76.04	77.00

CAL YR 2001 LOW 76.61
WTR YR 2002 LOW 77.00



GROUND-WATER RECORDS

Medina County

109

410142082005900. LOCAL NUMBER, MD-1

LOCATION.—Latitude 41°01'42", longitude 82°00'59", 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 65 ft, cased.

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 1.90 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.

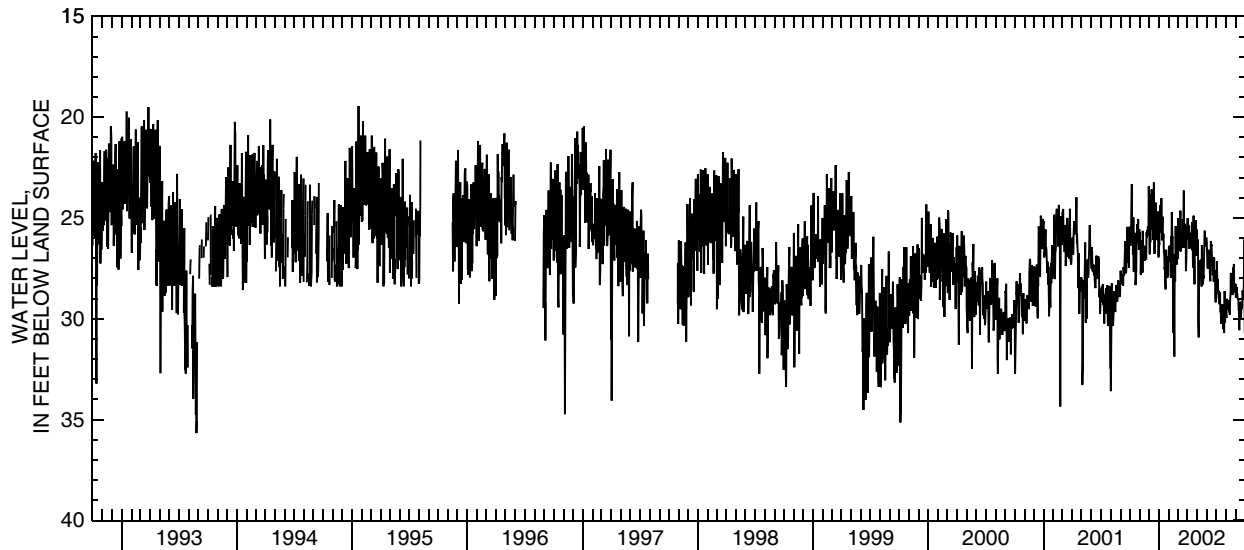
PERIOD OF RECORD.—September 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 45.21 ft below land-surface datum, July 8, 1988; minimum daily low, 7.60 ft below land-surface datum, July 6, 1969.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.31	26.34	24.38	25.76	26.65	27.05	25.46	25.57	26.13	27.82	29.72	28.28
2	25.97	25.73	26.19	26.37	26.39	25.81	25.01	26.82	26.27	28.10	29.73	28.95
3	26.39	26.24	26.81	25.26	26.48	25.02	25.95	26.51	26.57	28.25	29.96	28.74
4	25.75	26.37	24.89	25.71	26.80	26.12	26.10	26.13	27.44	27.14	29.06	28.95
5	25.98	27.83	26.22	25.09	27.08	26.36	25.34	26.12	27.52	28.16	29.02	28.43
6	24.86	26.38	24.96	24.37	27.15	26.51	25.51	30.09	26.93	28.70	29.30	28.76
7	23.33	26.59	23.82	25.24	26.36	26.63	25.49	30.93	26.95	28.06	29.34	28.79
8	26.17	26.39	24.87	25.69	27.96	25.87	26.54	28.80	26.58	28.70	29.53	29.00
9	25.62	26.10	23.59	24.03	25.93	26.01	25.74	27.11	26.71	28.89	29.32	29.03
10	25.46	27.71	25.39	25.75	26.74	24.65	25.89	27.58	26.78	29.00	29.41	29.04
11	26.81	25.65	25.57	26.11	24.71	26.67	26.04	28.01	27.52	28.79	29.09	29.62
12	24.97	26.42	25.09	25.10	25.55	26.55	26.19	27.32	27.79	29.29	29.65	29.58
13	27.67	26.35	24.62	24.94	25.97	26.46	25.88	27.58	28.14	28.72	29.70	30.57
14	26.44	26.54	26.10	26.09	25.98	26.46	26.33	27.08	26.98	28.75	29.82	29.26
15	27.07	26.41	24.99	25.78	30.70	26.49	26.49	27.12	26.14	29.61	29.17	29.27
16	25.74	26.95	23.25	25.87	27.51	25.80	25.21	28.41	26.39	29.59	28.74	29.24
17	27.26	27.13	25.47	26.59	26.80	25.74	26.61	26.37	26.32	30.24	27.73	29.59
18	26.77	26.71	26.79	26.87	29.81	25.06	25.54	27.12	26.67	29.38	28.50	29.99
19	28.33	26.97	25.35	27.56	31.89	26.29	27.19	27.25	27.35	29.61	28.04	29.64
20	28.08	26.40	25.61	27.45	27.70	25.41	27.47	27.79	27.05	29.73	28.24	29.43
21	27.64	26.79	25.35	27.92	27.54	23.65	24.90	28.30	27.85	29.29	28.31	29.45
22	26.47	27.07	25.41	28.55	28.15	26.49	25.77	27.87	27.01	30.10	28.83	29.39
23	25.88	25.71	24.25	26.58	25.41	25.44	27.09	28.00	26.94	29.98	28.63	28.61
24	25.31	25.99	25.90	27.35	26.78	25.49	28.30	27.55	28.17	30.49	27.63	28.78
25	25.98	25.61	25.37	26.90	25.76	25.30	25.95	26.42	26.98	30.51	27.46	29.01
26	26.20	25.90	26.06	27.32	27.32	26.36	26.79	25.64	27.68	29.92	27.77	28.82
27	25.08	25.44	24.89	27.52	27.03	25.45	26.60	25.72	27.82	30.71	27.29	28.39
28	26.20	25.59	26.11	27.99	26.11	27.65	25.13	26.17	27.62	28.63	28.70	26.73
29	26.23	25.61	25.53	27.68	---	27.04	26.01	26.12	28.68	29.34	28.54	26.07
30	26.59	23.44	24.69	27.90	---	26.12	26.88	26.43	29.19	30.21	28.51	30.74
31	25.56	---	26.96	27.44	---	25.65	---	25.98	---	29.38	28.60	---
MAX	28.33	27.83	26.96	28.55	31.89	27.65	28.30	30.93	29.19	30.71	29.96	30.74

CAL YR 2001 LOW 34.36
WTR YR 2002 LOW 31.89



GROUND-WATER RECORDS

Ottawa County

413434082494000. LOCAL NUMBER, O-2

LOCATION.—Latitude 41°34'34", longitude 82°49'40", 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. Some historical records not published by the USGS are available from ODNR.

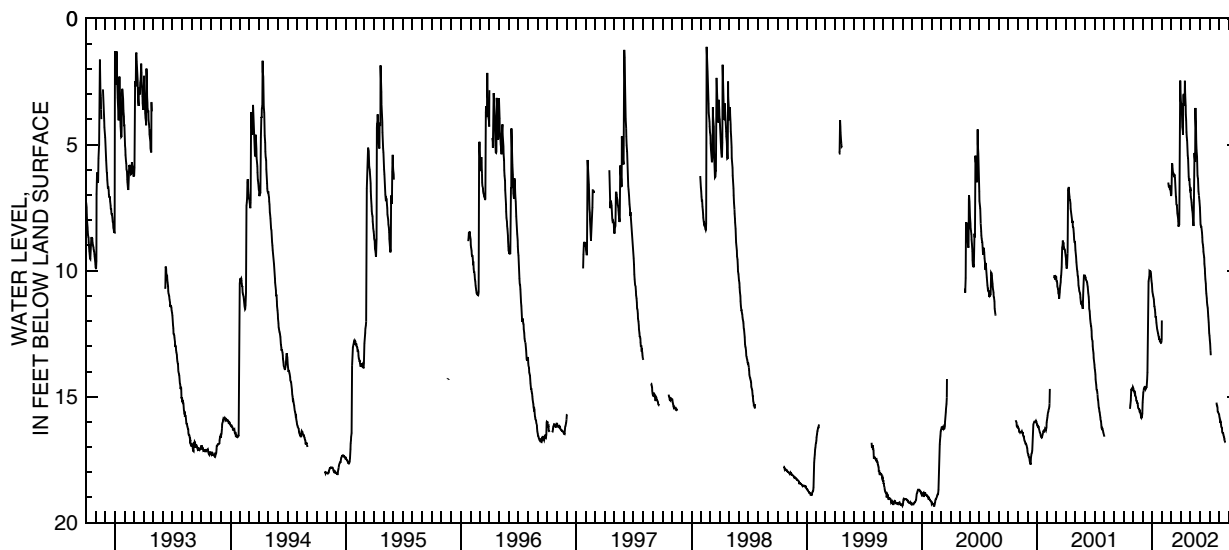
PERIOD OF RECORD.—March 1988 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	14.66	15.24	10.84	---	7.04	3.29	6.82	7.73	12.58	15.77	---
2	---	14.68	15.03	10.94	---	6.95	3.40	6.80	8.04	12.76	15.83	---
3	---	14.77	14.85	10.98	---	6.49	3.35	7.08	8.17	12.90	15.96	---
4	---	14.78	14.77	11.04	---	5.74	3.66	7.18	8.25	13.15	16.03	---
5	---	14.84	14.68	11.14	---	5.81	3.94	7.30	8.26	13.36	16.00	---
6	---	14.90	14.64	11.23	---	5.94	4.30	7.40	8.32	---	16.11	---
7	---	14.88	14.61	11.41	---	6.11	4.46	7.61	8.49	---	16.17	---
8	---	14.96	14.61	11.42	---	6.15	4.62	7.68	8.67	---	16.22	---
9	---	15.02	14.64	11.55	---	6.15	3.04	7.79	8.86	---	16.24	---
10	---	15.04	14.64	11.68	---	6.24	2.99	8.12	8.98	---	16.39	---
11	---	15.16	14.69	11.86	---	6.23	3.23	8.23	9.10	---	16.44	---
12	---	15.19	14.65	11.82	---	6.18	3.46	8.10	9.25	---	16.45	---
13	---	15.19	14.64	11.98	---	6.31	2.99	6.76	9.40	---	16.45	---
14	---	15.25	14.63	12.07	---	6.47	2.47	5.33	9.49	---	16.52	---
15	---	15.26	14.34	12.23	---	6.73	3.01	5.48	9.73	---	16.56	---
16	---	15.36	14.04	12.34	---	7.06	3.47	5.68	9.93	---	16.61	---
17	---	15.45	13.66	12.36	---	7.09	3.82	3.55	10.11	---	16.69	---
18	---	15.48	11.86	12.45	---	7.38	4.02	3.97	10.33	---	16.75	---
19	---	15.48	10.83	12.50	---	7.40	4.50	4.45	10.52	---	16.79	---
20	---	15.50	10.43	12.56	6.51	7.53	4.71	4.86	10.72	---	16.78	---
21	---	15.58	10.30	12.63	6.58	7.72	4.83	5.22	10.90	---	---	---
22	15.48	15.57	10.22	12.75	6.66	7.77	5.19	5.48	11.09	---	---	---
23	15.34	15.63	10.01	12.71	6.65	7.90	5.44	5.76	11.24	15.24	---	---
24	15.16	15.67	10.03	12.75	6.67	8.07	5.54	6.23	11.36	15.33	---	---
25	14.96	15.71	10.06	12.84	6.72	8.25	5.98	6.36	11.49	15.37	---	---
26	14.71	15.79	10.05	12.80	6.70	8.17	6.27	6.56	11.58	15.44	---	---
27	14.69	15.77	10.12	12.86	6.79	8.16	6.42	6.85	11.81	15.60	---	---
28	14.78	15.82	10.22	12.85	6.85	7.76	6.34	7.02	12.06	15.63	---	---
29	14.69	15.79	10.40	12.85	---	6.56	6.59	7.10	12.21	15.64	---	---
30	14.73	15.67	10.54	12.77	---	2.46	6.70	7.23	12.48	15.67	---	---
31	14.63	---	10.65	11.98	---	2.87	---	7.48	---	15.70	---	---
MAX	15.48	15.82	15.24	12.86	6.85	8.25	6.70	8.23	12.48	15.70	16.79	---

CAL YR 2001 LOW 16.63
WTR YR 2002 LOW 16.79



GROUND-WATER RECORDS
Portage County

111

410931081192900. LOCAL NUMBER, PO-123

LOCATION.—Latitude 41°09'31", longitude 81°19'29", 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.—Digital 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. Some historical records not published by the USGS are available from ODNR.

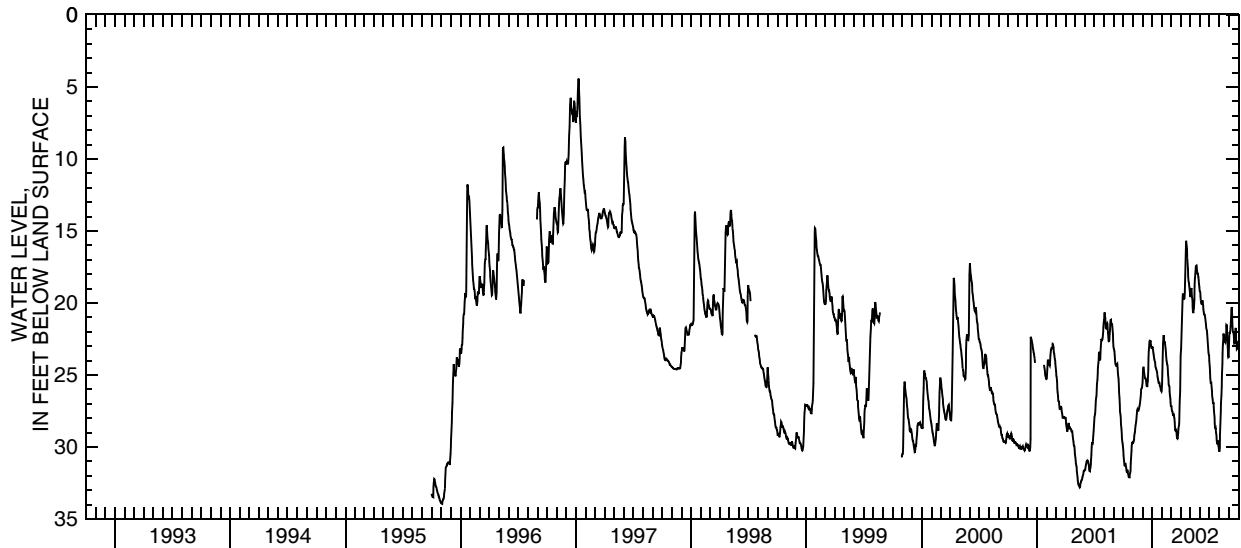
PERIOD OF RECORD.—September 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 33.97 ft below land-surface datum, Nov. 3, 1995; minimum daily low, 4.43 ft below land-surface datum, Jan. 9, 1997.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.26	29.75	25.58	23.06	25.62	27.17	23.66	19.51	19.20	24.03	30.29	23.16
2	30.57	29.69	24.98	23.08	24.68	27.17	23.18	19.60	19.29	24.43	30.29	22.32
3	30.84	29.64	24.63	23.18	23.47	27.22	22.87	19.25	19.55	24.82	30.07	22.03
4	31.13	29.50	24.44	23.42	22.80	27.48	21.98	19.08	19.83	25.21	29.14	22.13
5	31.29	29.26	24.61	23.57	22.47	27.55	21.19	18.98	20.05	25.56	28.17	21.98
6	31.31	29.10	24.80	23.67	22.24	27.56	20.55	19.28	20.07	25.56	27.59	21.63
7	31.12	28.95	25.03	23.89	22.47	27.69	19.79	19.60	20.05	25.49	26.98	21.34
8	31.17	28.74	25.18	23.95	22.70	27.79	19.36	19.82	20.00	25.85	26.44	20.90
9	31.31	28.55	25.24	24.06	22.71	27.79	19.68	20.27	19.81	26.14	25.83	20.44
10	31.46	28.34	25.25	24.18	22.73	27.78	19.67	20.65	20.02	26.46	25.09	20.29
11	31.62	28.26	25.25	24.39	22.88	27.85	19.69	20.65	20.22	26.71	24.26	20.82
12	31.73	27.98	25.35	24.50	23.17	28.00	19.72	20.45	20.44	26.96	23.53	21.37
13	31.73	27.73	25.59	24.57	23.43	28.28	19.71	20.38	20.63	26.97	22.92	22.00
14	31.59	27.51	25.76	24.62	23.64	28.54	19.30	19.78	20.81	26.96	22.43	22.06
15	31.73	27.41	25.78	24.74	24.03	28.87	18.50	18.87	20.83	27.25	22.13	22.00
16	31.86	27.47	25.78	24.83	24.12	28.88	17.55	18.35	20.83	27.58	22.33	22.21
17	31.97	27.50	25.52	24.99	24.25	28.75	16.63	17.95	20.92	27.93	22.39	22.61
18	32.06	27.50	25.43	25.16	24.33	28.89	15.69	17.78	21.08	28.37	22.50	22.82
19	32.07	27.42	24.63	25.31	24.65	29.09	15.73	17.47	21.26	28.69	22.69	22.79
20	32.12	27.35	23.86	25.40	24.95	29.27	16.07	17.45	21.47	28.72	22.74	22.48
21	32.12	27.21	23.31	25.54	25.30	29.43	16.26	17.42	21.73	28.71	22.63	22.17
22	31.89	27.11	22.92	25.55	25.67	29.44	16.86	17.58	21.86	28.98	22.50	21.73
23	31.78	26.98	22.67	25.50	25.75	29.35	17.31	17.73	21.92	29.22	22.06	22.12
24	31.67	26.75	22.64	25.61	25.81	29.01	17.65	17.98	22.18	29.52	21.52	22.61
25	31.17	26.56	22.66	25.76	26.14	28.76	18.17	17.98	22.49	29.67	21.55	22.98
26	30.67	26.28	22.61	25.84	26.43	28.61	18.58	18.02	22.81	29.79	21.96	23.20
27	30.27	25.98	22.70	25.89	26.68	28.41	18.64	18.25	23.15	29.79	22.47	23.18
28	29.95	25.92	22.92	26.00	26.93	27.82	18.77	18.42	23.47	29.56	22.96	23.10
29	29.71	25.91	23.12	26.11	---	26.90	19.03	18.64	23.61	29.79	23.50	22.67
30	29.69	25.83	23.14	26.14	---	26.13	19.30	18.89	23.65	29.97	23.79	22.98
31	29.75	---	23.13	26.01	---	24.83	---	19.16	---	30.16	23.78	---
MAX	32.12	29.75	25.78	26.14	26.93	29.44	23.66	20.65	23.65	30.16	30.29	23.20

CAL YR 2001 LOW 32.81
WTR YR 2002 LOW 32.12



GROUND-WATER RECORDS

Putnam County

405505084032900. LOCAL NUMBER, PU-1

LOCATION.—Latitude 40°55'05", longitude 84°03'29", 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.

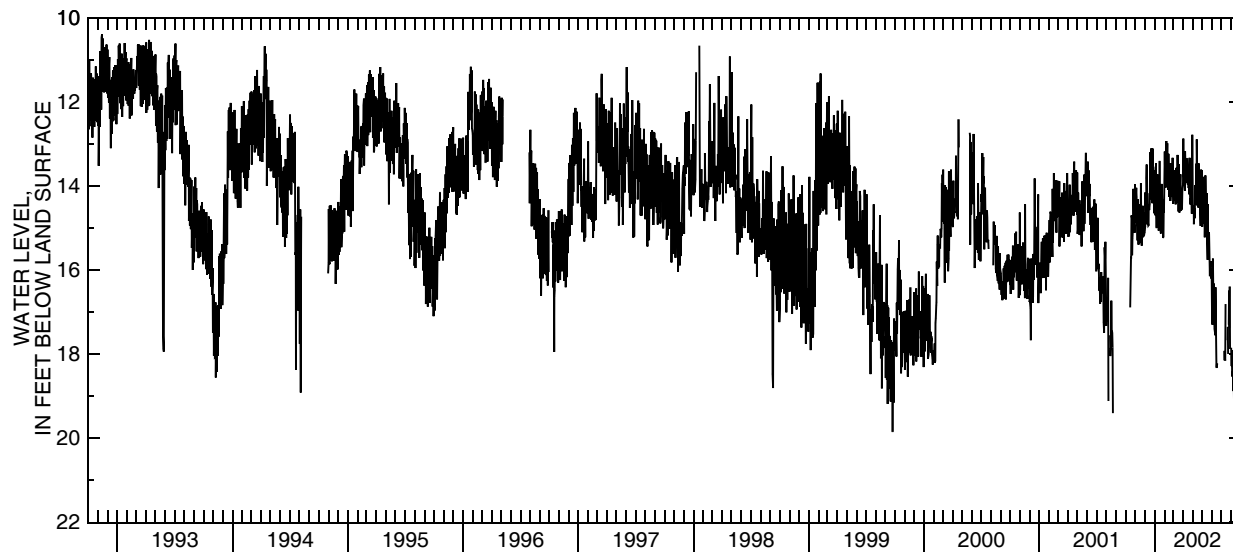
PERIOD OF RECORD.—July 1946 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	14.64	15.06	14.61	14.03	14.42	13.92	13.37	14.97	16.04	---	17.85
2	---	14.88	14.96	13.63	13.18	14.35	12.87	14.32	14.51	16.90	---	18.29
3	---	14.19	14.15	14.24	13.48	14.20	13.71	14.60	14.79	17.30	---	17.91
4	---	14.04	14.64	14.70	13.84	13.63	13.80	14.50	14.86	17.07	---	18.50
5	---	14.26	14.91	13.46	13.74	14.15	13.17	14.46	14.85	15.73	---	18.54
6	---	14.95	13.81	14.71	14.03	13.78	13.92	14.91	13.78	16.72	---	18.40
7	---	14.85	13.49	14.97	12.93	14.26	14.12	14.53	14.70	16.32	---	18.88
8	---	15.30	14.65	15.00	13.89	13.64	13.17	14.77	14.71	16.92	---	18.13
9	---	14.32	14.17	14.70	13.79	14.44	13.61	14.64	15.22	17.24	---	18.87
10	---	15.08	14.66	13.72	12.98	13.57	13.76	13.98	14.92	17.40	18.15	19.25
11	---	15.40	14.82	14.80	13.84	14.15	13.93	14.42	13.75	17.46	17.92	19.40
12	---	14.43	14.94	13.95	14.00	14.39	13.57	14.45	14.36	17.55	18.10	19.54
13	---	14.98	14.93	14.68	14.09	14.10	13.55	13.47	14.71	16.41	18.16	19.30
14	---	14.93	14.44	15.06	13.23	14.16	13.34	14.15	15.02	17.17	16.81	18.14
15	---	15.36	14.57	14.95	13.90	13.26	13.61	12.89	15.00	17.44	---	18.67
16	16.89	15.25	14.48	14.99	13.94	14.17	13.97	13.75	14.17	18.31	18.17	18.93
17	16.33	15.24	14.43	13.41	14.26	13.54	13.63	14.47	15.34	18.31	---	19.04
18	15.71	14.26	13.20	14.88	13.63	14.61	13.82	14.21	15.76	18.23	18.47	19.08
19	15.71	13.93	13.62	14.78	13.85	13.48	14.05	14.27	14.44	18.25	---	18.65
20	14.70	15.22	13.93	15.09	14.35	14.57	13.79	14.51	15.36	---	17.67	19.33
21	14.77	15.42	13.11	15.13	14.22	14.63	14.20	13.46	15.52	---	17.36	18.95
22	15.65	14.61	14.14	14.80	13.46	13.91	13.33	14.14	15.10	---	18.00	19.28
23	15.25	15.21	14.32	13.95	14.21	13.95	14.11	14.01	15.14	---	---	18.05
24	15.02	15.21	14.17	14.13	13.46	13.72	14.44	14.37	15.61	---	17.30	19.08
25	14.99	14.47	14.41	14.20	14.24	14.39	14.30	14.59	16.15	---	16.49	19.54
26	14.07	15.21	13.11	14.93	14.01	14.59	14.44	14.71	15.80	---	17.37	18.76
27	14.78	15.04	14.09	14.31	13.33	14.30	14.03	14.95	15.91	---	16.40	19.06
28	14.86	14.62	13.54	15.24	14.12	14.56	13.98	13.61	15.79	---	17.88	17.92
29	14.96	15.11	13.70	15.20	---	14.50	14.66	14.80	16.20	---	---	18.90
30	15.11	15.12	14.29	14.41	---	14.09	12.78	14.81	15.97	---	---	18.72
31	13.96	---	14.65	14.63	---	14.01	---	13.62	---	---	---	---
MAX	16.89	15.42	15.06	15.24	14.35	14.63	14.66	14.95	16.20	18.31	18.47	19.54

CAL YR 2001 LOW 19.41
WTR YR 2002 LOW 19.54



GROUND-WATER RECORDS
Sandusky County

113

411914083045300. LOCAL NUMBER, S-3

LOCATION.—Latitude 41°19'14", longitude 83°04'53", 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.

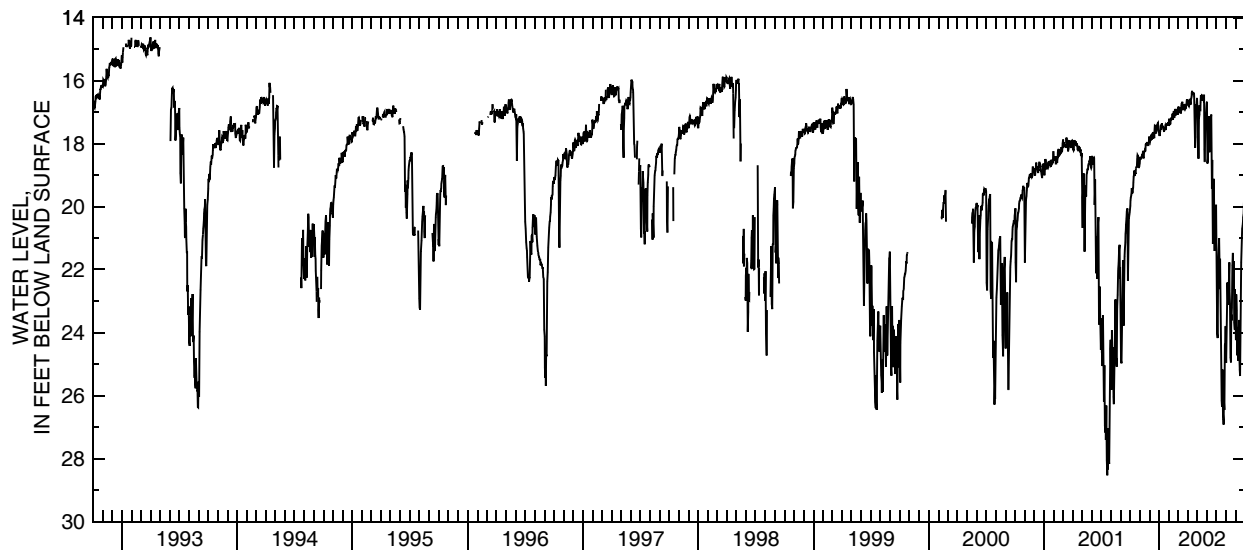
PERIOD OF RECORD.—December 1974 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.98	18.44	17.93	17.70	17.21	17.08	16.69	16.55	16.67	20.55	24.96	24.24
2	19.81	18.42	17.95	17.76	17.35	16.96	16.61	16.99	17.53	22.30	23.74	22.79
3	19.72	18.48	17.89	17.65	17.23	16.82	16.76	16.87	18.63	23.32	23.11	23.30
4	19.64	18.48	17.86	17.61	17.39	16.98	16.79	17.77	18.48	24.03	22.73	24.27
5	19.60	18.46	17.84	17.47	17.37	16.99	16.73	18.48	17.54	24.17	22.41	24.72
6	19.41	18.45	17.75	17.40	17.26	16.92	16.77	17.70	17.34	22.68	22.85	23.83
7	19.53	18.35	17.73	17.56	17.18	16.96	16.73	17.20	17.24	21.87	23.12	24.33
8	19.58	18.35	17.71	17.52	17.23	16.90	16.58	17.08	17.13	21.49	22.99	24.89
9	19.50	18.44	17.84	17.36	17.23	16.85	16.67	16.78	18.28	21.15	22.53	24.38
10	19.38	18.23	17.82	17.43	17.17	17.04	16.76	16.93	17.89	21.00	22.15	23.86
11	19.23	18.44	17.83	17.46	17.22	17.02	16.67	16.94	17.48	22.19	21.77	23.60
12	19.06	18.45	17.82	17.46	17.05	16.80	16.58	16.68	17.29	22.62	22.66	24.66
13	18.95	18.42	17.64	17.46	17.22	16.71	16.51	16.46	17.24	21.66	23.08	25.18
14	18.86	18.27	17.65	17.46	17.24	16.74	16.40	16.52	17.12	22.55	24.16	25.38
15	19.02	18.23	17.80	17.58	17.04	16.67	16.33	16.63	17.08	23.58	24.79	23.89
16	18.99	18.22	17.83	17.63	16.97	16.91	16.43	16.47	18.93	24.77	24.95	22.92
17	18.93	18.26	17.60	17.50	17.16	16.90	16.43	16.48	19.43	25.57	23.43	22.30
18	18.96	18.21	17.43	17.54	17.16	16.87	16.42	16.51	18.52	26.16	23.62	21.77
19	18.79	18.03	17.45	17.52	17.07	16.88	16.39	16.58	20.02	26.35	23.21	21.33
20	18.75	18.02	17.53	17.48	16.90	16.76	16.44	16.62	21.18	25.17	22.29	21.00
21	18.74	18.00	17.66	17.52	16.99	16.84	16.39	16.63	20.87	25.69	21.87	20.71
22	18.73	17.98	17.65	17.57	17.10	16.82	16.50	16.64	19.60	26.55	21.47	20.60
23	18.49	17.98	17.40	17.39	17.07	16.74	17.29	16.45	19.12	26.77	22.20	20.48
24	18.37	17.95	17.49	17.40	17.05	16.85	17.70	18.18	20.50	26.92	22.60	20.34
25	18.39	18.05	17.51	17.41	16.99	16.89	18.13	18.58	21.41	26.15	21.73	20.24
26	18.51	18.07	17.46	17.40	16.90	16.86	17.79	17.70	20.49	26.45	22.45	20.03
27	18.70	18.01	17.36	17.39	16.94	16.79	17.32	17.33	20.64	25.39	23.68	19.72
28	18.77	18.03	17.34	17.39	16.97	16.79	16.75	17.14	21.22	24.39	23.91	19.68
29	18.73	17.97	17.59	17.32	---	16.62	16.79	16.98	20.33	24.34	22.62	19.61
30	18.72	17.78	17.61	17.40	---	16.62	16.63	16.85	19.94	23.80	23.01	19.51
31	18.62	---	17.61	17.40	---	16.68	---	16.70	---	24.59	24.06	---
MAX	19.98	18.48	17.95	17.76	17.39	17.08	18.13	18.58	21.41	26.92	24.96	25.38

CAL YR 2001 LOW 28.53
WTR YR 2002 LOW 26.92



GROUND-WATER RECORDS

Sandusky County

412703083213600. LOCAL NUMBER, S-2

LOCATION.—Latitude 41°27'03", longitude 83°21'36", 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.

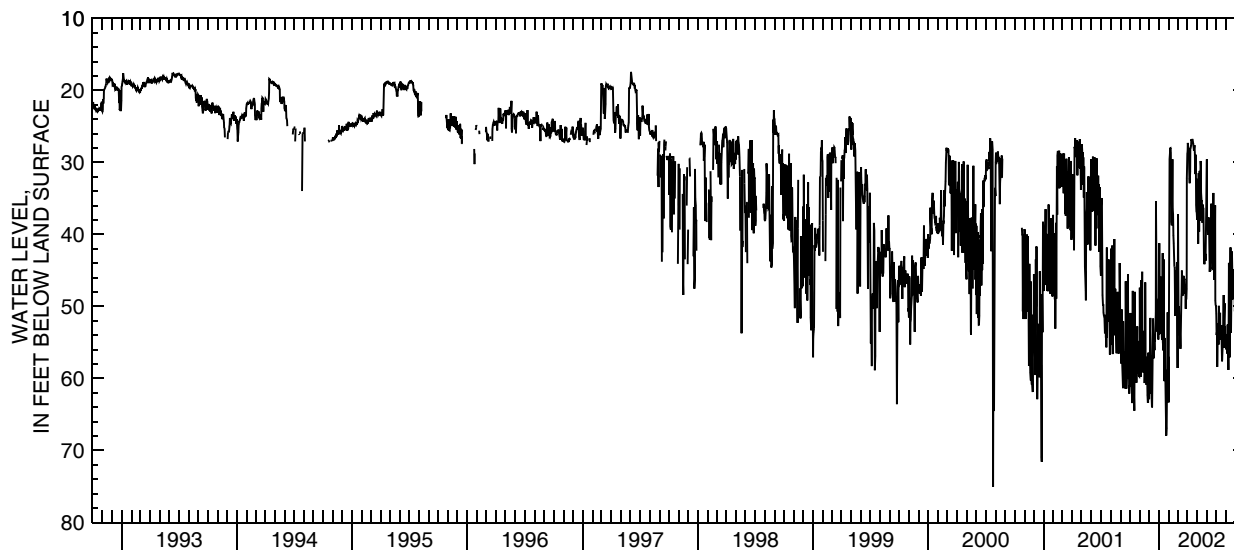
PERIOD OF RECORD.—June 1976 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61.09	59.05	62.90	53.89	63.35	58.58	28.83	37.02	32.53	49.97	53.89	47.01
2	59.86	47.41	61.47	41.26	49.72	40.66	28.45	37.99	29.60	51.03	55.75	49.01
3	50.94	57.53	62.20	47.20	36.17	37.26	27.31	32.31	37.80	54.00	56.00	44.88
4	55.57	58.94	53.48	53.88	29.55	50.18	27.94	36.45	38.79	53.58	53.88	48.58
5	57.38	59.80	51.62	50.30	28.55	50.67	28.02	37.54	38.84	58.42	56.55	44.60
6	58.79	46.39	58.40	53.11	28.05	49.97	28.28	41.32	40.05	55.07	55.16	48.46
7	58.45	57.52	60.71	45.93	28.03	54.01	31.38	31.51	37.66	53.03	52.56	50.21
8	62.85	55.18	56.77	52.65	28.72	52.97	32.30	34.26	37.82	52.35	53.69	51.05
9	63.45	45.23	62.74	51.33	34.42	53.45	32.90	39.64	37.83	55.33	58.86	50.03
10	47.86	58.35	64.05	53.82	38.28	55.92	31.32	31.19	41.49	49.95	51.18	56.46
11	59.39	59.16	63.95	54.39	38.75	55.49	28.08	38.07	45.24	51.35	43.98	45.69
12	59.23	58.53	61.36	54.68	35.10	51.88	27.96	35.72	44.48	53.22	49.16	45.35
13	62.13	57.70	59.10	42.62	29.58	48.67	27.65	29.80	43.04	54.66	57.12	47.25
14	61.69	53.41	51.72	54.97	36.49	48.31	26.79	30.48	39.75	50.90	51.45	48.00
15	64.51	58.50	57.25	56.12	37.24	45.04	26.96	34.21	42.85	53.43	46.64	46.35
16	62.86	59.49	54.88	43.50	40.20	46.91	27.03	35.33	35.75	53.95	41.81	46.75
17	47.99	60.67	54.30	54.94	41.26	47.17	26.76	35.39	41.96	54.51	52.71	49.38
18	58.63	58.63	56.11	60.41	43.16	48.52	26.99	36.24	41.05	52.65	53.71	70.54
19	57.70	46.69	54.02	54.41	44.49	46.07	27.21	38.42	44.84	56.11	47.84	50.17
20	59.60	57.58	54.95	59.64	44.62	45.93	27.44	35.87	44.79	57.66	47.14	48.22
21	59.45	57.01	52.36	58.79	49.59	45.79	27.85	36.28	44.59	57.31	42.39	46.38
22	60.61	59.83	50.93	63.96	51.31	46.40	28.34	36.45	35.51	55.51	46.69	45.79
23	58.65	60.93	35.44	65.01	47.62	46.16	27.95	41.09	34.27	54.27	49.03	47.77
24	52.79	59.18	43.85	67.96	47.10	47.05	27.64	43.25	43.79	54.45	44.88	63.27
25	57.82	59.78	50.30	67.79	45.01	48.10	28.72	44.17	46.34	48.46	46.79	50.99
26	58.03	62.31	49.22	66.92	47.05	48.13	31.64	43.74	45.57	55.80	47.23	57.42
27	54.83	63.28	50.32	63.54	43.92	50.36	28.95	42.85	45.86	51.91	45.30	48.06
28	59.40	63.29	53.56	62.40	52.02	49.06	29.10	42.85	35.97	49.58	48.42	56.13
29	58.18	56.45	49.77	50.85	---	48.98	35.91	43.68	49.19	55.36	48.01	57.08
30	59.65	58.19	54.60	59.48	---	47.59	36.91	40.22	49.86	52.81	50.71	59.15
31	59.73	---	48.93	57.02	---	32.22	---	34.79	---	54.65	49.12	---
MAX	64.51	63.29	64.05	67.96	63.35	58.58	36.91	44.17	49.86	58.42	58.86	70.54

CAL YR 2001 LOW 64.51
WTR YR 2002 LOW 70.54



GROUND-WATER RECORDS
Seneca County

115

410802083093900. LOCAL NUMBER, SE-2

LOCATION.—Latitude 41°08'02", longitude 83°09'39", 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.

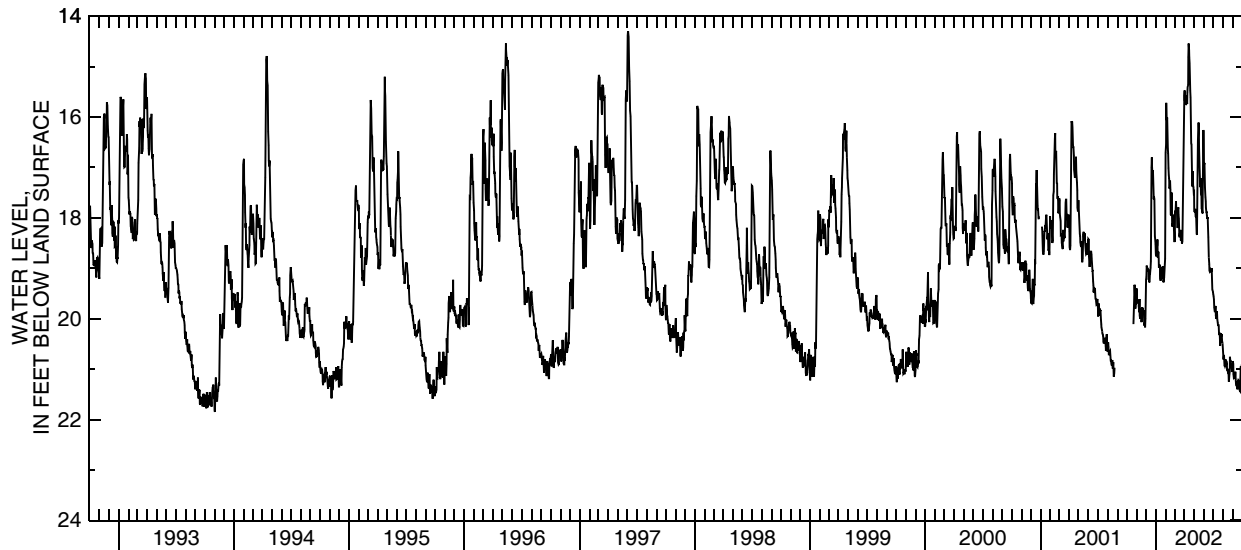
PERIOD OF RECORD.—July 1962 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.40	19.22	18.72	16.71	18.48	15.58	17.50	16.28	19.47	20.54	20.98
2	---	19.59	19.17	18.76	16.54	18.30	15.47	17.49	16.70	19.52	20.64	20.84
3	---	19.68	18.95	18.59	15.72	17.86	15.67	17.87	16.96	19.56	20.81	20.90
4	---	19.66	19.00	18.60	16.06	17.89	15.71	17.88	16.91	19.61	20.77	21.10
5	---	19.68	19.07	18.54	16.03	17.76	15.57	17.89	17.17	19.78	20.72	21.16
6	---	19.69	18.99	18.43	16.01	17.67	15.76	17.82	17.39	19.83	20.93	21.14
7	---	19.63	19.04	18.79	16.23	17.90	15.74	17.98	17.59	19.87	20.93	21.16
8	---	19.75	19.02	18.76	16.62	17.82	15.72	17.97	17.67	19.83	20.95	21.18
9	---	19.87	19.23	18.67	16.73	17.89	15.67	17.98	17.80	19.75	20.92	21.16
10	---	19.61	19.18	18.81	17.01	18.20	15.74	18.31	17.89	19.94	20.81	21.05
11	---	19.94	19.28	18.99	17.15	18.17	15.52	18.34	17.89	20.00	20.85	21.20
12	---	20.00	19.26	18.96	17.22	17.83	15.39	17.89	17.96	19.87	20.88	21.29
13	---	19.93	19.10	18.94	17.42	17.79	15.36	17.45	18.02	19.85	20.90	21.28
14	---	19.81	19.10	18.93	17.39	17.94	14.81	16.47	17.99	19.92	20.89	21.24
15	---	19.81	18.99	19.20	17.26	18.02	14.54	16.40	18.13	20.01	21.01	21.32
16	---	20.04	18.86	19.25	17.44	18.37	14.67	16.11	18.38	20.08	21.04	21.40
17	---	20.07	18.18	19.01	17.94	18.37	14.81	16.24	18.54	20.14	21.01	21.37
18	---	19.98	17.00	19.09	17.95	18.30	14.93	16.59	18.78	20.11	21.01	21.24
19	---	19.77	16.80	19.03	17.77	18.33	15.19	16.88	18.92	20.15	21.05	21.22
20	---	19.86	16.96	18.98	17.50	18.24	15.48	17.07	19.05	20.31	21.25	21.23
21	---	19.84	17.16	19.12	17.92	18.45	15.61	17.25	19.07	20.31	21.23	21.31
22	20.11	19.86	17.19	19.20	18.17	18.43	16.21	17.39	19.06	20.28	21.10	21.38
23	19.88	19.89	17.05	18.96	18.12	18.25	16.53	17.21	19.02	20.45	21.05	21.40
24	19.57	19.83	17.44	19.19	18.10	18.42	16.55	17.53	19.03	20.54	20.76	21.43
25	19.33	20.10	17.63	19.28	17.97	18.51	16.95	17.55	19.07	20.42	20.84	21.44
26	19.34	20.14	17.57	19.26	17.96	18.47	17.30	17.81	19.04	20.29	20.83	21.23
27	19.68	20.08	17.63	19.18	18.23	18.20	17.38	17.81	19.00	20.36	20.93	20.95
28	19.80	20.17	17.90	19.12	18.26	17.98	17.07	17.90	19.28	20.31	20.95	21.19
29	19.69	20.00	18.36	18.99	---	17.02	17.36	17.90	19.42	20.32	20.92	21.09
30	19.72	19.64	18.46	18.81	---	16.18	17.39	16.77	19.45	20.44	21.00	20.91
31	19.58	---	18.52	17.91	---	15.93	---	16.26	---	20.49	21.06	---
MAX	20.11	20.17	19.28	19.28	18.26	18.51	17.39	18.34	19.45	20.54	21.25	21.44

CAL YR 2001 LOW 21.15
WTR YR 2002 LOW 21.44



GROUND-WATER RECORDS

Summit County

410330081282000. LOCAL NUMBER, SU-6

LOCATION.—Latitude 41°03'30", longitude 81°28'20", 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.

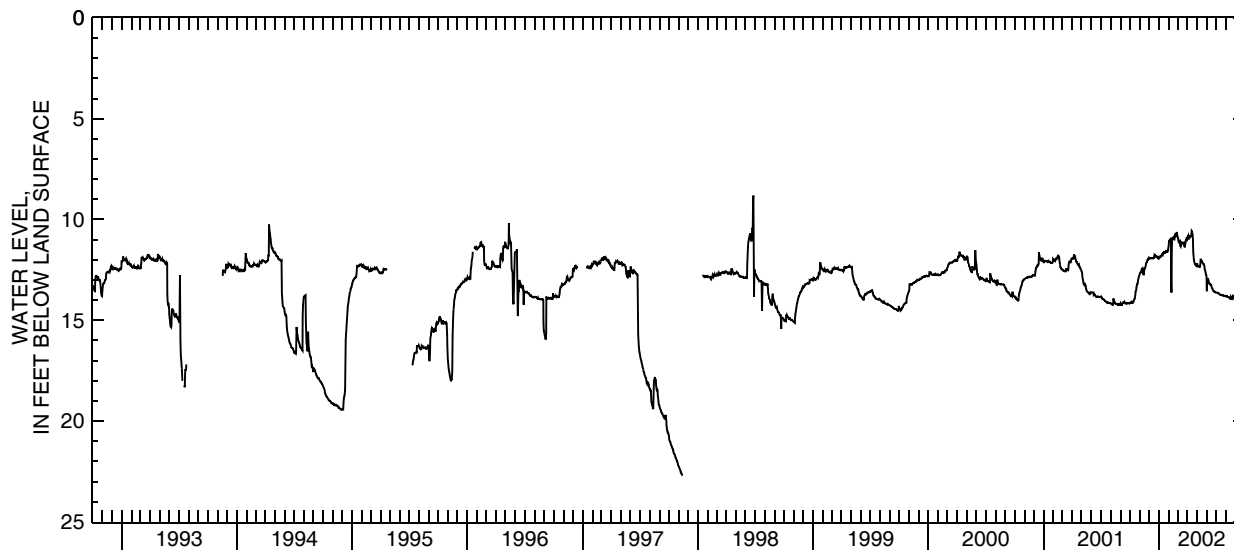
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.13	12.72	11.93	11.92	11.35	10.84	10.98	12.32	12.84	13.63	13.82	13.95
2	14.13	12.69	11.94	11.90	11.02	10.90	10.94	12.17	13.56	13.63	13.83	13.94
3	14.13	12.66	11.94	11.85	11.05	10.92	10.86	12.25	13.01	13.63	13.83	13.95
4	14.12	12.63	11.94	11.85	11.05	11.08	10.79	12.28	13.03	13.64	13.83	13.94
5	14.11	12.60	11.94	11.84	11.12	11.14	10.84	12.31	13.07	13.64	13.80	13.96
6	14.08	12.59	11.92	11.83	11.15	11.14	10.93	12.32	12.92	13.64	13.83	13.97
7	14.10	12.51	11.91	11.84	11.00	11.10	10.94	12.33	13.02	13.65	13.84	13.97
8	14.13	12.46	11.91	11.83	10.91	11.06	10.92	12.27	13.09	13.65	13.85	13.98
9	14.14	12.44	11.92	11.81	13.22	11.05	10.85	12.32	13.15	13.66	13.86	13.98
10	14.14	12.42	11.92	11.76	13.63	11.31	10.86	12.35	13.20	13.67	13.86	13.99
11	14.13	12.63	11.93	11.73	11.58	11.33	10.86	12.35	13.22	13.70	13.86	14.09
12	14.09	12.68	11.93	11.70	11.03	11.20	10.85	12.33	13.23	13.71	13.87	14.03
13	14.03	12.72	11.91	11.73	10.94	11.14	10.81	11.99	13.21	13.73	13.90	14.04
14	13.98	12.73	11.91	11.74	10.95	11.15	10.74	11.99	13.23	13.73	13.92	14.04
15	13.95	12.58	11.92	11.65	10.94	11.14	10.57	12.07	13.25	13.73	13.92	14.03
16	13.95	12.49	11.92	11.64	10.89	11.17	10.61	12.05	13.27	13.74	13.93	13.97
17	13.91	12.45	11.88	11.62	10.84	11.20	10.74	12.08	13.35	13.74	13.84	14.01
18	13.75	12.42	11.74	11.62	10.98	11.20	10.75	12.10	13.40	13.74	13.86	14.03
19	13.62	12.38	11.76	11.63	10.99	11.19	10.98	12.13	13.43	13.75	13.91	14.07
20	13.55	12.34	11.81	11.67	10.83	11.15	11.61	12.17	13.45	13.76	13.93	14.03
21	13.49	12.19	11.84	11.66	10.74	11.14	11.81	12.21	13.48	13.76	13.94	14.00
22	13.38	12.16	11.85	11.63	10.73	11.25	11.99	12.22	13.54	13.77	13.95	13.99
23	13.29	12.15	11.82	11.60	10.77	11.34	12.11	12.22	13.55	13.76	13.80	14.07
24	13.20	12.11	11.82	11.52	10.78	11.35	12.15	12.22	13.56	13.76	13.78	14.05
25	13.20	12.07	11.85	11.57	10.81	11.28	12.21	12.34	13.58	13.78	13.80	14.07
26	13.16	12.01	11.87	11.61	10.77	11.20	12.25	12.44	13.59	13.79	13.84	14.06
27	12.98	11.98	11.86	11.62	10.62	11.10	12.25	12.50	13.59	13.80	13.86	14.06
28	12.93	11.99	11.88	11.62	10.78	11.03	12.23	12.58	13.62	13.80	13.91	13.96
29	12.89	11.94	11.91	11.59	---	10.99	12.25	12.64	13.63	13.79	13.92	13.98
30	12.83	11.90	11.95	11.51	---	10.91	12.31	12.72	13.63	13.80	13.94	14.01
31	12.77	---	11.95	11.43	---	10.91	---	12.78	---	13.81	13.95	---
MAX	14.14	12.73	11.95	11.92	13.63	11.35	12.31	12.78	13.63	13.81	13.95	14.09
CAL YR 2001	LOW 14.25											
WTR YR 2002	LOW 14.14											



GROUND-WATER RECORDS

Summit County

117

410846081271600. LOCAL NUMBER, SU-7

LOCATION.—Latitude 41°08'46", longitude 81°27'16", 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.

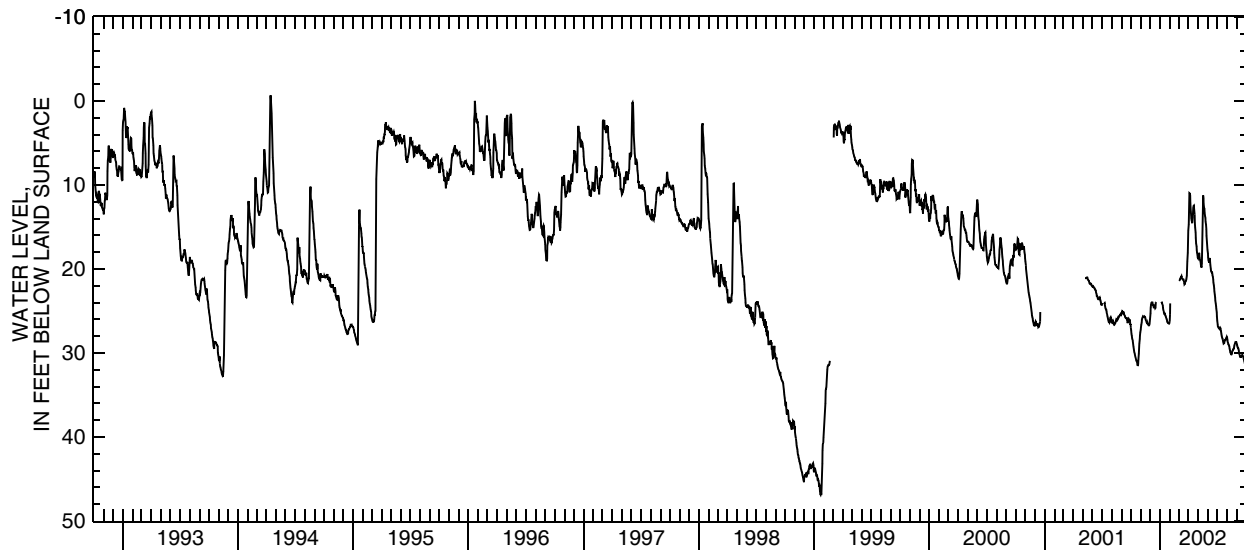
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.01	27.24	25.95	---	26.22	---	15.42	18.67	17.72	25.64	28.07	28.83
2	27.31	26.98	25.30	---	25.38	---	14.70	18.73	18.16	26.15	28.23	28.97
3	27.73	26.68	24.65	---	24.10	21.44	14.03	18.55	18.63	26.61	28.48	29.14
4	27.95	26.36	24.28	---	---	21.38	12.09	18.09	18.93	26.88	28.73	29.29
5	28.25	26.09	24.01	23.93	---	21.28	10.99	18.21	19.17	26.95	28.88	29.38
6	28.44	25.86	23.98	23.96	---	21.19	11.05	18.20	19.25	26.97	28.94	29.44
7	28.56	25.71	23.98	23.98	---	21.14	11.29	18.70	18.97	27.01	29.05	29.50
8	28.89	25.74	24.00	24.05	---	21.05	12.18	18.89	18.70	27.11	29.12	29.71
9	29.20	25.73	24.20	24.24	---	20.92	13.21	19.03	19.05	27.16	29.26	29.95
10	29.45	25.69	24.29	24.40	---	20.86	13.62	19.16	19.53	27.07	29.47	30.17
11	29.73	25.68	24.31	24.66	---	20.98	14.01	19.54	19.98	27.01	29.67	30.35
12	29.97	25.66	24.46	24.90	---	21.14	14.36	19.75	20.21	27.12	29.90	30.43
13	30.08	25.67	24.43	25.11	---	21.21	14.49	19.76	20.36	27.27	30.01	30.49
14	30.26	25.70	24.51	25.23	---	21.22	14.46	19.35	20.42	27.48	30.17	30.49
15	30.45	25.73	24.54	25.37	---	21.27	13.91	17.34	20.42	27.74	30.19	30.49
16	30.55	25.82	24.53	25.38	---	21.27	13.13	14.45	20.53	27.96	30.18	30.42
17	30.73	26.03	24.68	25.37	---	21.27	12.75	12.91	20.73	28.12	30.03	30.34
18	30.87	26.23	24.63	25.52	---	21.55	12.47	11.26	20.96	28.28	29.89	30.27
19	30.95	26.28	23.98	25.64	---	21.65	12.44	11.60	21.27	28.36	29.74	30.23
20	31.05	26.36	23.94	25.74	---	21.81	12.98	12.25	21.61	28.57	29.69	30.28
21	31.17	26.40	---	25.87	---	21.74	13.55	12.76	21.95	28.73	29.57	30.41
22	31.45	26.34	---	25.95	---	21.62	14.51	12.83	22.30	28.87	29.52	30.47
23	31.47	26.54	---	26.08	---	21.49	15.07	13.28	22.65	28.86	29.50	30.60
24	31.31	26.57	---	26.20	---	21.44	15.66	13.73	23.08	28.78	29.34	30.70
25	30.82	26.59	---	26.35	---	21.41	16.31	13.94	23.42	28.53	29.14	30.88
26	30.10	26.61	---	26.40	---	21.22	16.99	14.37	23.79	28.48	29.00	31.03
27	29.40	26.70	---	26.45	---	20.84	17.33	14.74	24.16	28.47	28.85	31.24
28	28.90	26.71	---	26.46	---	20.11	17.75	15.25	24.44	28.40	28.77	31.27
29	28.33	26.54	---	26.49	---	19.09	18.10	16.06	24.73	28.34	28.69	31.27
30	27.92	26.28	---	26.52	---	18.10	18.39	16.80	25.15	28.19	28.72	31.42
31	27.56	---	---	26.50	---	16.70	---	17.35	---	28.16	28.73	---
MAX	31.47	27.24	25.95	26.52	26.22	21.81	18.39	19.76	25.15	28.87	30.19	31.42
CAL YR 2001	LOW 31.47											
WTR YR 2002	LOW 31.47											



GROUND-WATER RECORDS

Van Wert County

405215084335400. LOCAL NUMBER, VW-1

LOCATION.—Latitude 40°52'15", longitude 84°33'54", 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.

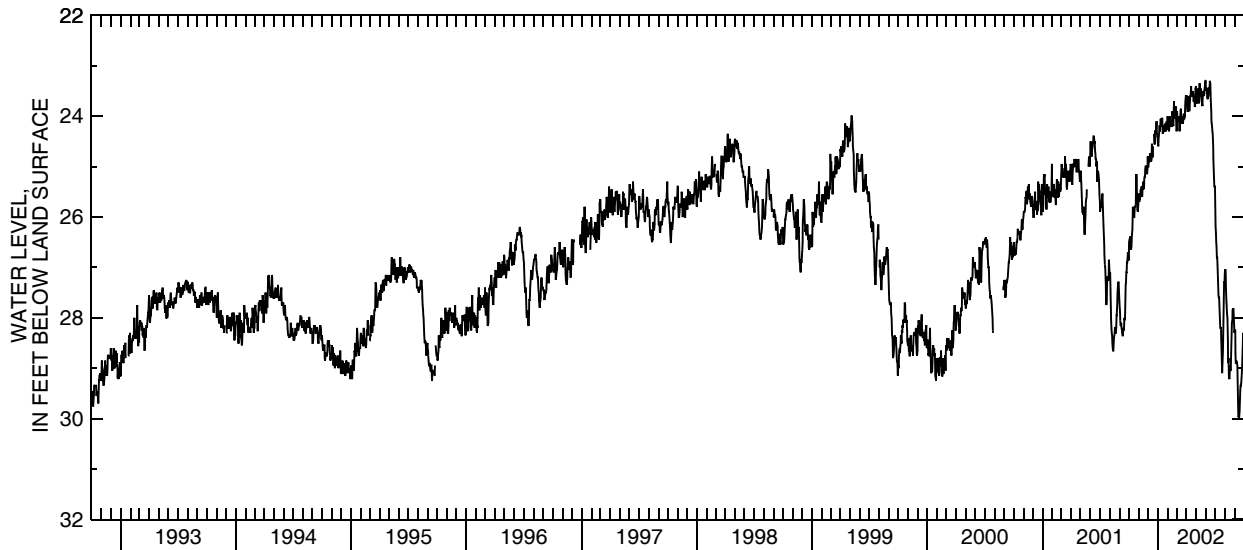
PERIOD OF RECORD.—August 1957 to current year.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.85	25.55	25.00	24.50	24.00	24.30	23.60	23.45	23.30	25.40	27.15	28.30
2	26.50	25.55	25.00	24.60	24.20	24.25	23.60	23.40	23.40	25.75	27.05	28.25
3	26.45	25.70	24.90	24.50	24.20	23.90	23.60	23.65	23.50	26.20	27.05	28.25
4	26.45	25.65	24.90	24.40	24.15	24.10	23.85	23.70	23.45	26.30	27.10	28.70
5	26.40	25.65	24.90	24.30	24.30	24.10	23.90	23.75	23.45	26.50	27.45	28.90
6	26.40	25.60	24.80	24.20	24.25	24.10	23.90	23.70	23.55	26.60	27.70	28.90
7	26.60	25.50	24.75	24.20	24.10	24.10	23.90	23.60	23.65	26.80	27.75	28.85
8	26.65	25.45	24.75	24.30	24.00	24.10	23.85	23.65	23.65	26.80	27.90	28.90
9	26.60	25.60	24.85	24.15	24.10	24.00	23.60	23.45	23.60	26.95	28.00	28.90
10	26.45	25.40	24.80	24.05	24.10	24.25	23.85	23.70	23.60	27.20	28.20	28.95
11	26.35	25.50	24.90	24.10	24.20	24.30	23.90	23.75	23.55	27.40	28.45	29.35
12	26.25	25.60	24.85	24.20	24.20	24.15	23.80	23.70	23.45	27.55	28.90	29.65
13	26.00	25.55	24.55	24.15	24.15	23.95	23.65	23.35	23.45	27.60	28.80	29.95
14	25.80	25.40	24.60	24.05	24.20	23.90	23.60	23.45	23.40	27.60	29.15	29.95
15	26.00	25.35	24.80	24.05	24.20	23.85	23.60	23.60	23.30	27.70	29.20	30.00
16	26.00	25.30	24.80	24.30	23.90	24.10	23.40	23.55	23.35	27.90	29.20	29.95
17	26.00	25.45	24.60	24.35	24.00	24.15	23.55	23.45	23.45	28.10	29.05	29.85
18	26.00	25.40	---	24.25	24.15	24.10	23.55	23.55	23.70	28.20	28.95	29.60
19	25.90	25.25	---	24.30	24.20	24.10	23.60	23.65	23.90	28.20	29.00	29.45
20	25.80	25.20	24.35	24.30	24.00	24.05	23.55	23.70	24.10	28.20	29.05	29.35
21	25.80	25.20	24.55	24.20	23.70	24.00	23.50	23.75	24.15	28.40	28.85	29.35
22	25.80	25.05	24.55	24.20	23.95	24.15	23.60	23.80	24.25	28.65	28.60	29.30
23	25.75	25.00	24.30	24.30	24.05	24.05	23.55	23.65	24.30	28.90	28.35	29.20
24	25.35	25.00	24.30	24.15	24.00	23.95	23.70	23.50	24.35	29.10	28.10	29.10
25	25.15	25.00	24.30	24.20	24.00	24.05	23.70	23.55	24.60	28.85	28.05	28.95
26	25.40	25.10	24.30	24.25	23.80	24.05	23.60	23.60	24.85	28.65	27.85	28.79
27	25.70	25.05	24.15	24.30	24.00	24.00	23.70	23.55	25.05	28.30	27.85	28.45
28	25.85	25.15	24.10	24.25	24.10	24.00	23.80	23.55	25.30	27.90	27.81	28.30
29	25.85	25.05	24.35	24.10	---	23.70	23.80	23.45	25.40	27.65	27.85	28.45
30	25.90	24.80	24.40	24.25	---	23.65	23.45	23.40	25.40	27.30	28.05	28.30
31	25.75	---	24.40	24.25	---	23.60	---	23.30	---	27.30	28.25	---
MAX	26.85	25.70	25.00	24.60	24.30	24.30	23.90	23.80	25.40	29.10	29.20	30.00

CAL YR 2001 LOW 28.65
WTR YR 2002 LOW 30.00



GROUND-WATER RECORDS
Williams County

119

412821084313600. LOCAL NUMBER, WM-1

LOCATION.—Latitude 41°28'21", longitude 84°31'36", 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 118 ft, cased.

INSTRUMENTATION.—Type F continuous recorder.

DATUM.—Elevation of land-surface datum is 747 ft above sea level (from topographic map). Measuring point: Floor of instrument shelter 3.3 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.

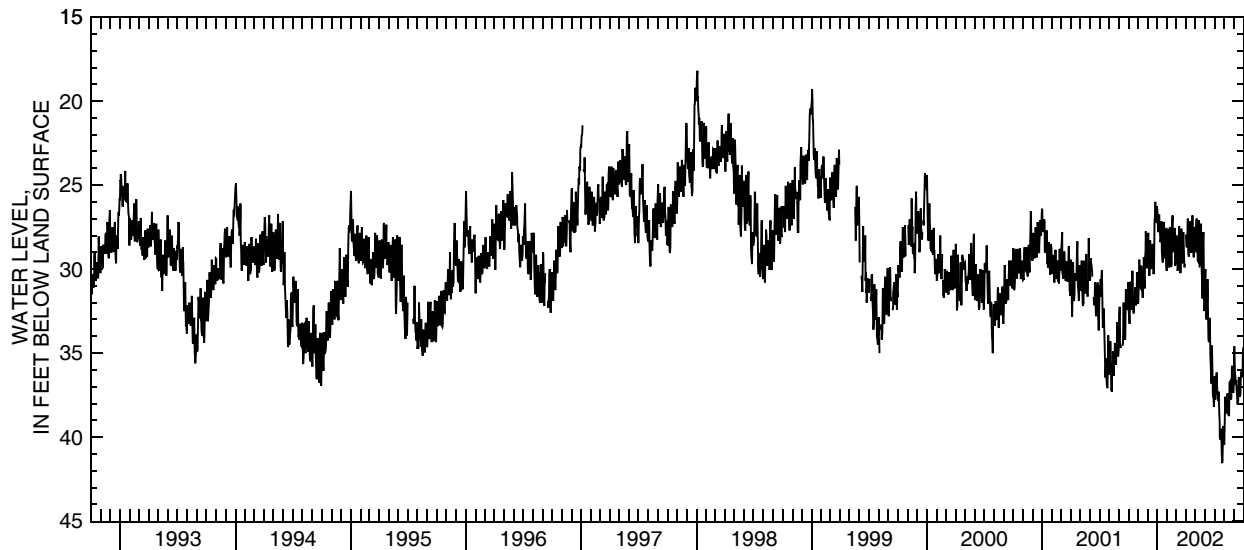
PERIOD OF RECORD.—May 1951 to May 1957, discontinued June 1957 to September 1984, reactivated October 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 41.55 ft below land-surface datum, July 25, 2002; minimum daily low, 1.45 ft below land-surface datum, Jan. 27, 1952.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.10	32.05	28.85	26.45	29.35	29.50	27.95	28.50	30.65	36.40	40.45	35.00
2	32.40	31.90	28.35	27.35	28.50	29.10	28.20	29.00	30.00	37.50	39.95	34.60
3	32.75	30.85	27.85	27.80	27.60	28.00	28.60	28.75	31.40	37.70	38.75	35.65
4	33.10	30.05	29.15	27.75	29.20	28.60	28.70	27.50	32.10	37.75	37.60	36.30
5	33.25	29.45	29.60	27.00	29.00	28.90	28.50	27.00	32.90	37.30	38.00	36.35
6	31.85	30.50	30.40	26.80	29.45	30.10	28.15	27.90	33.00	36.80	38.20	36.90
7	31.00	30.80	30.30	26.80	29.60	29.90	27.00	28.90	32.30	36.20	38.40	36.85
8	30.75	31.00	29.00	27.55	29.90	28.95	28.00	29.05	31.60	36.15	38.45	36.60
9	31.95	31.20	28.30	27.80	28.45	28.50	29.05	29.50	30.60	37.00	38.55	37.15
10	32.40	30.55	29.30	28.20	27.50	27.70	29.25	29.55	31.95	37.35	38.55	37.40
11	32.30	29.80	29.90	28.40	28.20	27.45	29.20	28.40	32.90	37.45	37.40	37.70
12	32.20	30.20	29.95	28.20	28.90	28.75	28.80	27.10	34.15	37.85	37.70	38.05
13	30.75	31.30	29.95	27.40	29.25	29.30	28.00	28.85	34.35	37.75	38.50	37.95
14	30.10	31.25	29.70	27.15	29.85	29.35	27.20	29.60	33.55	37.30	38.60	37.85
15	32.40	31.70	29.30	29.00	29.60	30.25	27.20	29.80	32.95	37.60	38.70	36.95
16	32.30	31.55	28.50	29.30	27.70	29.40	28.10	29.75	32.95	38.65	38.70	36.45
17	32.60	30.50	28.65	29.45	27.10	28.45	29.05	29.60	34.30	39.00	37.95	37.50
18	32.60	30.10	29.40	29.60	26.80	27.60	28.80	28.30	35.10	40.00	36.75	37.40
19	32.25	29.30	29.90	29.00	28.45	28.95	29.00	27.30	35.75	40.15	36.70	37.55
20	31.70	30.65	30.30	28.00	28.35	28.85	28.55	29.35	36.10	39.80	37.25	37.55
21	31.45	31.05	29.90	27.20	28.65	29.55	27.75	30.00	36.80	39.80	37.55	37.45
22	31.10	31.15	28.70	28.00	29.00	29.65	26.80	30.65	35.10	39.50	37.75	36.45
23	31.70	29.30	27.20	28.80	28.20	28.65	28.15	31.10	34.55	40.35	37.70	36.20
24	31.90	28.95	26.80	28.90	27.55	27.80	28.80	31.75	35.50	40.95	37.25	36.10
25	32.15	27.75	26.00	29.35	27.70	28.00	28.80	30.00	37.25	41.55	35.75	36.40
26	32.05	27.95	26.75	29.00	29.80	28.90	29.30	28.05	37.55	41.35	37.00	36.40
27	31.50	29.10	27.20	28.45	29.60	29.60	27.85	27.80	37.55	40.60	37.25	36.05
28	30.20	29.85	27.25	27.55	29.60	29.90	27.50	31.05	37.85	39.35	37.30	35.95
29	31.30	29.95	27.00	29.55	---	29.70	27.55	32.00	38.20	39.75	37.30	35.00
30	31.95	29.80	26.25	30.10	---	---	28.50	32.50	37.75	39.85	37.35	34.65
31	31.95	---	26.35	29.30	---	---	---	32.05	---	40.35	36.70	---
MAX	33.25	32.05	30.40	30.10	29.90	30.25	29.30	32.50	38.20	41.55	40.45	38.05

CAL YR 2001 LOW 37.30
WTR YR 2002 LOW 41.55



GROUND-WATER RECORDS

Williams County

412930084320900. LOCAL NUMBER, WM-3

LOCATION.—Latitude 41°29'30", longitude 84°32'09", 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.

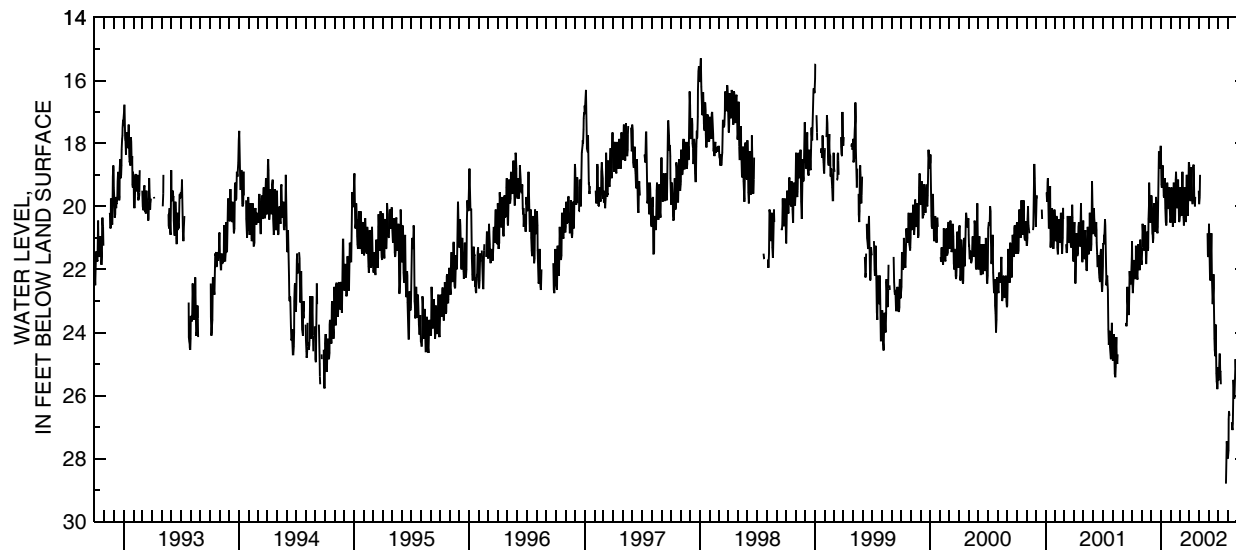
REMARKS.—Station operated by Ohio Department of Natural Resources (ODNR), Division of Water. Some historical records not published by the USGS are available from ODNR.

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 BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.55	21.85	20.10	18.10	20.50	20.45	18.70	19.50	21.55	25.10	28.00	24.85
2	21.10	21.70	19.65	18.80	20.30	20.30	19.10	19.90	20.95	25.50	27.95	24.20
3	22.50	21.30	19.90	19.30	19.55	19.40	19.55	19.90	20.55	25.50	27.75	24.00
4	22.75	20.55	20.45	19.40	19.40	19.45	19.80	19.70	21.30	25.40	26.75	24.30
5	22.65	20.70	20.85	19.30	19.85	19.70	19.80	19.00	21.80	25.00	26.50	24.70
6	22.30	21.00	20.90	18.75	20.15	20.20	19.55	---	22.20	24.70	26.65	25.10
7	21.85	21.10	21.15	18.70	20.20	20.30	18.95	---	22.35	24.70	---	25.10
8	21.70	21.30	21.00	19.00	20.65	19.95	18.75	---	21.95	25.25	---	25.15
9	22.10	21.40	20.20	19.30	20.50	19.50	19.40	---	21.60	25.25	---	25.00
10	22.15	21.15	19.90	19.65	19.55	18.90	19.75	---	20.85	25.65	---	25.45
11	22.25	20.60	20.30	19.70	19.25	19.20	19.90	---	21.55	---	---	25.90
12	22.30	20.65	20.55	19.70	19.95	19.65	19.90	---	22.20	---	---	26.30
13	22.10	21.10	20.70	19.10	20.10	20.00	19.50	---	22.75	---	---	26.40
14	21.25	21.20	20.80	19.30	20.50	20.35	18.70	---	23.10	---	26.85	26.45
15	21.40	21.80	20.55	20.05	20.50	20.60	18.70	---	23.00	---	27.00	26.15
16	21.75	21.80	20.05	20.30	19.90	20.25	19.25	---	22.60	---	27.10	25.55
17	22.10	21.55	19.70	20.50	19.15	19.40	19.70	---	22.15	---	26.90	26.10
18	22.30	20.95	20.10	20.60	18.90	19.60	19.75	---	22.95	---	26.20	26.05
19	22.30	20.80	20.40	20.50	19.25	19.85	20.00	---	23.70	---	25.50	26.25
20	22.00	21.15	20.75	19.80	19.60	20.25	19.70	---	24.20	---	25.70	26.20
21	21.20	21.40	20.85	19.25	19.95	20.50	---	---	24.55	---	26.05	26.00
22	21.25	21.30	20.65	19.50	20.05	20.40	---	---	24.75	---	26.10	25.50
23	21.50	20.40	19.75	19.80	19.90	19.80	---	---	24.45	---	25.85	25.20
24	21.75	19.95	19.00	19.85	19.30	19.00	---	---	23.75	---	25.65	25.25
25	22.00	19.25	18.55	20.05	19.15	19.45	---	---	24.95	---	25.10	25.35
26	22.00	19.60	18.25	20.05	19.90	19.95	---	---	25.30	28.80	24.85	25.25
27	21.70	20.10	18.60	19.60	20.25	20.20	---	---	25.55	28.65	25.10	25.15
28	21.05	20.35	18.80	19.40	20.50	20.30	---	---	25.70	27.80	25.30	25.00
29	21.30	20.50	18.75	19.95	---	19.60	---	20.85	25.80	27.45	25.40	24.55
30	21.65	20.50	18.50	20.30	---	18.95	---	21.55	25.65	27.60	25.45	24.15
31	21.75	---	18.10	20.50	---	18.60	---	21.60	---	27.85	25.25	---
MAX	22.75	21.85	21.15	20.60	20.65	20.60	20.00	21.60	25.80	28.80	28.00	26.45
CAL YR 2001	LOW 25.40											
WTR YR 2002	LOW 28.80											



GROUND-WATER RECORDS
Williams County

121

413108084415300. LOCAL NUMBER, WM-12

LOCATION.—Latitude 41°31'08", longitude 84°41'53", 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.—Periodic measurement with chalked tape by ODNR personnel.

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 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.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION,
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL
10/01/01	10.26	03/15/02	6.72
10/08/01	10.16	03/18/02	7.42
10/15/01	8.21	03/22/02	7.88
10/22/01	6.90	03/25/02	8.13
10/29/01	7.50	04/01/02	6.73
11/02/01	7.85	05/06/02	7.80
11/05/01	8.25	05/20/02	6.10
11/12/01	8.71	05/28/02	7.50
11/19/01	8.83	06/03/02	7.96
11/30/01	8.00	06/10/02	7.19
12/07/01	7.94	06/17/02	8.50
12/21/01	7.00	06/24/02	8.85
12/28/01	7.98	07/01/02	9.15
12/31/01	8.38	07/08/02	9.50
01/04/02	8.54	07/15/02	9.72
01/07/02	8.73	07/22/02	9.96
01/11/02	8.83	07/30/02	9.96
01/14/02	8.77	08/05/02	10.08
01/21/02	8.88	08/12/02	10.25
02/01/02	7.04	08/19/02	10.23
02/04/02	5.90	09/12/02	10.63
02/08/02	6.67	09/16/02	10.67
02/11/02	7.38	09/23/02	10.67
02/18/02	8.00	09/10/02	10.57
03/08/02	7.18		

GROUND-WATER RECORDS

Wyandot County

405009083172600. LOCAL NUMBER, WY-1

LOCATION.—Latitude 40°50'09", longitude 83°17'26", 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.

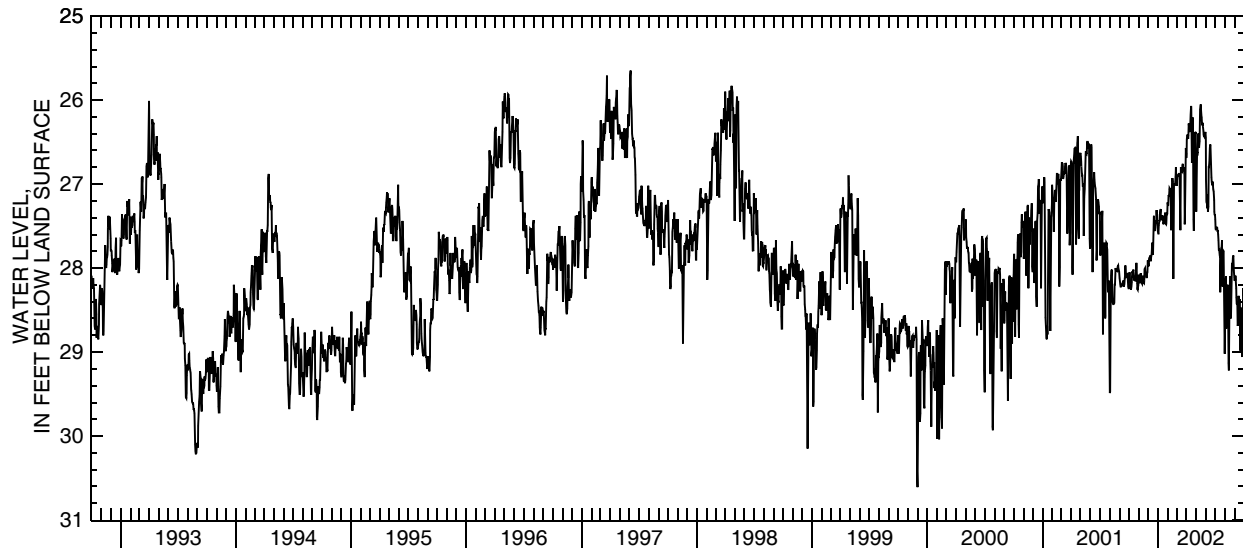
PERIOD OF RECORD.—September 1951 to current year.

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, 25.45 ft below land-surface datum, Mar. 26 and Apr. 21, 1982.

DEPTH BELOW LAND SURFACE (WATER LEVEL), FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.24	28.13	27.93	27.56	27.22	27.01	26.69	26.38	26.39	27.36	29.02	28.15
2	28.14	28.08	27.97	27.59	27.26	27.02	26.64	26.81	26.45	27.42	28.83	28.14
3	28.05	28.16	27.98	27.59	27.25	26.91	26.47	27.33	26.95	27.53	28.32	28.14
4	28.13	28.17	27.99	27.49	27.13	26.89	26.41	26.97	27.20	27.55	28.15	28.09
5	28.17	28.17	27.88	27.44	27.15	26.91	26.42	26.66	27.23	27.54	28.10	28.16
6	28.16	28.17	27.88	27.44	27.11	26.90	26.45	26.62	27.12	27.52	28.72	28.24
7	28.23	28.12	27.86	27.37	27.05	26.88	26.46	26.63	27.29	27.52	28.69	28.35
8	28.26	28.06	27.86	27.37	27.06	26.88	26.42	26.50	27.15	27.52	28.34	28.43
9	28.22	28.13	27.91	27.31	27.10	26.88	26.28	26.40	27.33	27.56	28.26	28.42
10	28.17	28.13	27.91	27.30	27.10	26.93	26.34	26.46	27.27	27.56	28.21	28.44
11	28.11	28.18	27.87	27.41	27.22	26.95	26.38	26.56	26.80	27.60	28.20	28.69
12	28.04	28.19	27.84	27.43	27.55	27.12	26.37	26.56	26.80	27.67	28.52	28.67
13	28.06	28.17	27.77	27.39	27.20	27.55	26.34	26.49	26.74	27.78	29.13	28.49
14	28.04	28.13	27.70	27.40	27.13	27.09	26.29	26.24	26.62	27.78	29.22	28.33
15	28.02	28.09	27.82	27.37	27.06	26.80	26.17	26.11	26.57	27.79	28.69	28.39
16	28.03	28.11	27.84	27.43	26.93	26.84	26.07	26.06	26.53	27.85	28.37	28.42
17	28.11	28.17	27.82	27.39	26.97	26.86	26.09	26.06	26.55	27.87	28.29	28.37
18	28.15	28.18	27.50	27.47	27.74	26.84	26.59	26.12	26.71	28.29	28.10	28.44
19	28.14	28.15	27.39	27.48	28.13	26.85	26.75	26.20	26.85	28.10	28.25	28.98
20	28.13	28.01	27.38	27.46	27.60	26.78	26.51	26.21	26.92	27.87	28.20	28.98
21	28.15	28.00	27.53	27.45	27.02	26.76	26.31	26.28	26.98	27.76	28.60	28.57
22	28.15	28.03	27.56	27.39	26.99	26.83	26.21	26.30	27.01	27.74	28.36	28.48
23	28.08	28.06	27.53	27.39	27.01	26.83	26.69	26.27	27.01	27.67	28.10	28.48
24	27.99	28.06	27.44	27.34	27.01	26.80	27.42	26.32	26.97	28.06	27.97	28.96
25	27.94	28.05	27.46	27.43	27.01	26.81	27.56	26.37	27.06	28.22	27.94	29.02
26	28.05	28.11	27.46	27.47	26.91	26.80	26.83	26.41	27.07	27.95	27.96	29.06
27	28.18	28.11	27.43	27.48	26.80	27.48	26.66	26.43	27.09	27.79	27.88	28.72
28	28.25	28.06	27.31	27.47	26.89	27.44	26.57	26.44	27.19	27.80	27.85	28.24
29	28.26	28.05	27.40	27.37	---	26.97	26.38	26.41	27.33	28.17	27.93	28.32
30	28.23	27.91	27.49	27.35	---	26.64	26.39	26.41	27.37	28.67	28.03	28.33
31	28.21	---	27.52	27.35	---	26.57	---	26.38	---	28.96	28.11	---
MAX	28.26	28.19	27.98	27.59	28.13	27.55	27.56	27.33	27.37	28.96	29.22	29.06

CAL YR 2001 LOW 29.49
WTR YR 2002 LOW 29.22



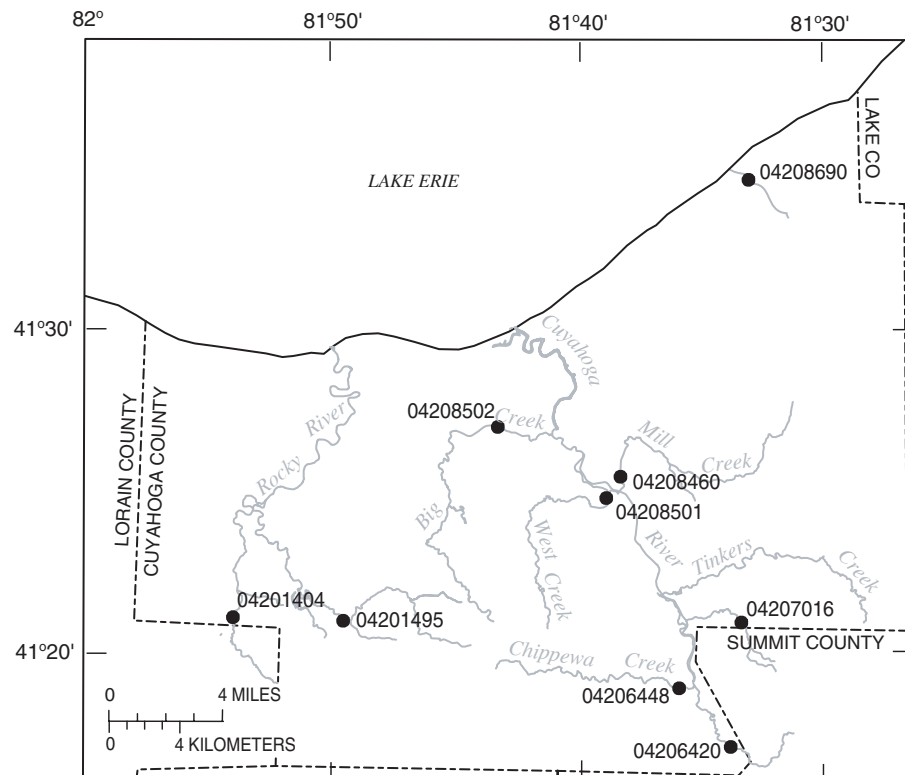
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

The following tables contain daily surface-water flow data collected as part of a cooperative study with Northeast Ohio Regional Sewer District.



EXPLANATION

- GAGE LOCATION
- 04201404 Baker Creek near Olmstead Falls
- 04201495 Baldwin Creek near Strongsville
- 04206420 Brandywine Creek near Jaite
- 04206448 Chippewa Creek in Chippewa Metro Park near Brecksville
- 04207016 Sagamore Creek at Sagamore Road
- 04208460 Mill Creek at Garfield Heights
- 04208501 West Creek at Independence
- 04208502 Big Creek at Cleveland
- 04208690 Euclid Creek near Euclid



PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04201404 BAKER CREEK NEAR OLMSTEAD FALLS, OHIO

LOCATION.—Latitude 41°21'03", longitude 81°54'01", Cuyahoga County, Hydrologic Unit 04110001, on right downstream wingwall of Sprague Road bridge, 0.2 mi upstream from the mouth at West Branch Rocky River and 1.9 mi south of Olmstead Falls.

DRAINAGE AREA.—5.99 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 775 ft above sea level (from topographic map).

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

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 406 ft³/s, May 2, 2002, gage height 4.43 ft (from crest-stage gage); minimum daily, 0.01 ft³/s, Aug. 9, 2002.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 3,381.08 ft³/s; mean, 6.53 ft³/s; maximum, 127 ft³/s; minimum, 0.01 ft³/s; runoff, 1.09 CFSM; 14.8 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	e0.06	e0.44	1.4	2.1	9.0
2	---	---	---	---	---	---	---	e0.03	e0.15	1.1	18	4.5
3	---	---	---	---	---	---	---	e16	e0.05	0.88	6.0	3.2
4	---	---	---	---	---	---	---	2.3	e0.03	0.74	2.9	2.5
5	---	---	---	---	---	---	---	0.69	e0.05	0.89	2.5	1.7
6	---	---	---	---	---	---	---	e0.25	e0.02	32	2.3	1.7
7	---	---	---	---	---	---	---	0.09	e7.6	3.8	2.1	1.6
8	---	---	---	---	---	---	---	0.06	4.0	2.0	2.3	1.5
9	---	---	---	---	---	---	---	e0.03	2.3	1.6	4.6	1.3
10	---	---	---	---	---	---	---	e2.0	e0.90	1.2	3.2	1.2
11	---	---	---	---	---	---	---	e0.44	e0.45	1.1	2.7	1.1
12	---	---	---	---	---	---	---	e0.66	e0.32	7.8	2.6	1.1
13	---	---	---	---	---	---	---	0.71	e0.05	4.2	2.6	2.1
14	---	---	---	---	---	---	---	e0.60	e0.20	5.5	2.6	63
15	---	---	---	---	---	---	---	e0.20	1.6	5.4	2.7	14
16	---	---	---	---	---	---	---	e0.10	0.68	21	2.3	4.0
17	---	---	---	---	---	---	---	e1.3	0.41	20	2.7	127
18	---	---	---	---	---	---	---	e0.78	0.20	3.8	2.7	36
19	---	---	---	---	---	---	---	e0.30	0.40	2.4	6.6	6.9
20	---	---	---	---	---	---	---	0.66	4.7	2.0	5.5	5.6
21	---	---	---	---	---	---	---	e1.1	4.0	2.0	2.3	3.4
22	---	---	---	---	---	---	---	e0.60	14	28	1.8	2.8
23	---	---	---	---	---	---	---	1.1	2.0	16	1.5	e2.4
24	---	---	---	---	---	---	---	1.1	1.8	30	1.4	e2.0
25	---	---	---	---	---	---	---	e0.44	15	17	22	e1.8
26	---	---	---	---	---	---	---	6.2	3.2	5.0	3.0	e1.6
27	---	---	---	---	---	---	---	10	9.4	6.2	2.9	e1.5
28	---	---	---	---	---	---	---	1.2	10	3.6	18	e1.4
29	---	---	---	---	---	---	---	e0.70	4.3	2.7	66	e1.3
30	---	---	---	---	---	---	---	e0.50	1.9	2.2	80	e1.2
31	---	---	---	---	---	---	---	e1.0	---	2.1	---	e1.1
TOTAL	---	---	---	---	---	---	---	51.20	90.15	233.61	277.9	309.5
MEAN	---	---	---	---	---	---	---	1.652	3.005	7.536	9.263	9.984
MAX	---	---	---	---	---	---	---	16	15	32	80	127
MIN	---	---	---	---	---	---	---	0.03	0.02	0.74	1.4	1.1
CFSM	---	---	---	---	---	---	---	0.28	0.50	1.26	1.55	1.67
IN.	---	---	---	---	---	---	---	0.32	0.56	1.45	1.73	1.92

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04201404 BAKER CREEK NEAR OLMSTEAD FALLS, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e1.0	84	6.4	15	3.8	2.6	0.79	0.56	0.20	0.58	1.1	5.3
2	e1.1	10	31	60	70	2.2	0.75	0.41	2.1	0.53	1.2	3.5
3	e1.0	6.1	43	63	7.0	2.1	0.65	0.27	2.5	0.50	1.2	3.0
4	e0.98	4.3	5.9	11	4.4	8.0	0.63	0.19	1.3	0.53	0.97	e2.5
5	e0.94	3.9	4.6	7.1	3.3	18	0.53	0.14	0.63	1.9	1.7	e2.3
6	e1.1	3.4	4.6	6.3	3.3	12	0.40	e0.04	0.46	1.0	3.3	e2.0
7	e1.5	3.7	4.4	5.1	3.8	4.1	0.29	e0.03	0.20	0.69	1.9	e1.9
8	1.9	3.4	3.8	7.2	8.1	2.5	0.40	e0.02	0.12	0.60	2.1	e1.8
9	2.2	3.1	15	12	7.0	2.1	2.6	e0.01	0.09	0.60	1.8	e1.7
10	5.5	3.9	8.1	6.7	3.9	1.8	1.4	e0.02	0.28	0.57	25	1.7
11	5.8	7.4	4.3	4.8	2.8	1.8	0.57	e0.04	0.16	0.53	13	1.8
12	4.6	6.6	4.0	5.6	16	31	0.44	e0.20	e0.05	0.54	1.9	2.7
13	5.0	5.8	3.7	47	111	4.3	0.28	0.82	e0.05	0.68	1.2	4.8
14	3.3	4.2	3.3	43	19	11	0.20	2.7	e23	1.1	0.91	37
15	3.4	4.4	6.6	15	9.3	4.5	0.21	2.5	19	0.84	0.99	8.9
16	2.6	5.2	11	7.2	14	2.5	0.05	8.2	3.0	1.4	4.2	6.4
17	2.2	5.2	4.2	4.8	22	2.1	0.06	4.4	0.80	1.9	3.5	4.3
18	2.0	4.1	3.4	3.9	13	1.7	e0.02	0.95	0.49	1.2	2.7	4.9
19	1.7	3.9	2.9	4.8	6.5	1.5	e0.02	1.3	1.2	7.0	4.9	20
20	1.8	6.1	13	3.6	5.1	1.3	e0.02	1.1	6.0	1.6	2.4	17
21	1.7	5.9	7.1	3.5	3.9	1.2	e0.03	0.60	4.8	0.74	4.2	6.0
22	1.7	5.8	5.6	3.4	3.2	1.3	1.8	9.0	1.1	0.68	23	5.1
23	2.3	5.0	5.0	3.0	2.9	1.2	9.5	14	0.65	0.77	11	e2.4
24	4.3	4.7	7.3	2.7	2.7	1.1	1.5	9.1	0.53	0.77	8.4	e2.0
25	3.3	4.1	8.4	3.5	9.1	0.96	0.54	2.3	0.45	4.8	6.7	e1.8
26	2.3	10	18	2.7	8.5	0.76	0.25	0.96	0.37	4.3	4.4	e1.6
27	2.1	6.1	55	2.8	3.2	0.82	0.67	0.66	41	1.3	4.8	e1.5
28	1.9	5.9	39	27	47	0.92	2.6	0.52	3.6	0.85	3.9	e1.4
29	6.1	---	87	7.2	10	0.75	8.1	0.34	1.3	0.77	4.5	e1.3
30	30	---	28	4.2	7.6	0.74	3.4	0.28	0.74	1.0	6.7	e1.2
31	106	---	11	---	3.7	---	0.86	0.22	---	1.2	---	e1.1
TOTAL	211.32	226.2	454.6	393.1	435.1	126.85	39.56	61.88	116.17	41.47	153.57	158.9
MEAN	6.817	8.079	14.66	13.10	14.04	4.228	1.276	1.996	3.872	1.338	5.119	5.126
MAX	106	84	87	63	111	31	9.5	14	41	7.0	25	37
MIN	0.94	3.1	2.9	2.7	2.7	0.74	0.02	0.01	0.05	0.50	0.91	1.1
CFSM	1.14	1.35	2.45	2.19	2.34	0.71	0.21	0.33	0.65	0.22	0.85	0.86
IN.	1.31	1.40	2.82	2.44	2.70	0.79	0.25	0.38	0.72	0.26	0.95	0.99

e Estimated.

PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04201495 BALDWIN CREEK NEAR STRONGSVILLE, OHIO

LOCATION.—Latitude 41°20'58", longitude 81°49'33", Cuyahoga County, Hydrologic Unit 04110001, on left bank, 20 ft downstream from Big Creek Parkway, 2.4 mi upstream from mouth at Rocky River, and 2.6 mi north of Strongsville.

DRAINAGE AREA.—8.9 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 790 ft above sea level (from topographic map).

REMARKS.—Records fair except for periods of estimated record and discharge above 130 ft³/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 659 ft³/s, May 2, 2002, gage height 6.36 ft; minimum daily, 1.2 ft³/s, Aug. 31–Sept. 1, 2002.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 6,871.7 ft³/s; mean, 11.87 ft³/s; maximum, 207 ft³/s; minimum, 1.2 ft³/s; runoff, 1.33 CFSM; 18.11 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	17	13	2.5	e2.8	5.2	6.0	15
2	---	---	---	---	---	24	3.6	e2.2	e3.0	5.5	25	8.5
3	---	---	---	---	---	13	2.9	42	e3.0	4.7	11	6.3
4	---	---	---	---	---	7.3	4.5	4.7	2.7	4.7	7.7	5.4
5	---	---	---	---	---	5.4	3.2	e3.3	e2.7	32	6.8	4.5
6	---	---	---	---	---	10	e3.0	2.9	e2.6	40	5.9	4.3
7	---	---	---	---	---	6.0	2.8	2.7	16	7.1	5.6	4.0
8	---	---	---	---	---	4.4	3.6	2.7	7.9	6.4	8.4	4.0
9	---	---	---	---	---	3.8	2.6	2.9	3.5	5.7	7.5	4.8
10	---	---	---	---	---	3.9	2.6	2.8	3.0	5.0	6.5	4.2
11	---	---	---	---	---	8.7	5.0	2.4	e2.9	5.1	5.2	3.9
12	---	---	---	---	---	3.8	2.4	4.4	e2.8	20	4.9	4.1
13	---	---	---	---	---	3.2	2.3	3.5	e11	8.5	4.8	7.5
14	---	---	---	---	---	3.2	2.3	e3.9	e6.3	19	4.7	90
15	---	---	---	---	---	5.3	e2.2	e2.9	2.3	9.7	4.7	21
16	---	---	---	---	---	7.7	2.7	3.3	2.3	40	4.6	10
17	---	---	---	---	---	3.3	2.4	3.4	2.3	25	4.3	207
18	---	---	---	---	---	3.0	2.2	2.9	2.2	9.5	4.4	52
19	---	---	---	---	---	2.9	3.1	4.8	9.5	7.7	15	21
20	---	---	---	---	---	25	3.2	9.2	5.4	7.0	9.5	18
21	---	---	---	---	---	70	3.4	5.6	19	16	5.7	11
22	---	---	---	---	---	81	3.3	e6.4	7.5	40	4.8	9.1
23	---	---	---	---	---	6.7	3.9	5.2	3.9	29	4.4	e7.6
24	---	---	---	---	---	4.1	4.2	3.1	21	25	4.7	e6.6
25	---	---	---	---	---	3.7	9.9	2.9	38	21	28	e5.6
26	---	---	---	---	---	3.2	5.2	22	14	16	6.8	e5.1
27	---	---	---	---	---	2.9	3.4	5.9	13	24	8.6	e4.8
28	---	---	---	---	---	3.3	2.7	3.4	23	10	18	e4.5
29	---	---	---	---	---	3.1	2.7	e2.8	7.6	7.8	51	e4.3
30	---	---	---	---	---	3.3	2.9	2.6	5.8	7.3	85	e4.1
31	---	---	---	---	---	---	2.6	4.1	---	6.7	---	e4.0
TOTAL	---	---	---	---	---	342.2	113.8	173.4	247.0	470.6	369.5	562.2
MEAN	---	---	---	---	---	11.41	3.671	5.594	8.233	15.18	12.32	18.14
MAX	---	---	---	---	---	81	13	42	38	40	85	207
MIN	---	---	---	---	---	2.9	2.2	2.2	2.2	4.7	4.3	3.9
CFSM	---	---	---	---	---	1.28	0.41	0.63	0.93	1.71	1.38	2.04
IN.	---	---	---	---	---	1.43	0.48	0.72	1.03	1.97	1.54	2.35

e Estimated.

PROJECT DATA

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Suface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04201495 BALDWIN CREEK NEAR STRONGSVILLE, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e3.9	152	14	23	6.0	5.9	2.2	5.9	1.2	2.9	3.7	6.9
2	e3.7	19	66	64	152	4.9	2.0	5.2	4.9	2.6	4.1	2.8
3	e3.7	12	83	79	15	4.8	2.1	3.2	6.1	2.4	4.5	e2.2
4	e3.6	9.0	15	18	9.9	11	2.0	2.9	2.3	3.7	4.7	e1.9
5	e3.5	7.8	10	14	8.2	15	1.8	6.1	1.4	4.3	10	e1.6
6	e4.8	6.6	11	14	9.6	14	1.9	2.5	1.3	2.7	5.9	e1.5
7	7.3	6.7	11	9.1	10	5.4	2.0	2.3	1.2	2.6	9.4	e1.4
8	5.9	6.4	7.8	17	18	4.2	1.9	2.1	1.2	2.7	3.9	e1.3
9	11	5.9	24	22	12	3.8	12	2.1	1.2	2.9	4.0	e1.3
10	17	9.9	16	11	7.3	3.4	3.0	1.9	1.2	2.0	67	e1.4
11	14	15	8.0	8.1	6.9	3.8	2.0	1.9	1.2	2.1	16	2.5
12	11	13	7.4	17	42	14	1.8	3.4	1.2	2.5	2.8	4.5
13	12	11	6.6	75	149	4.0	1.8	2.5	1.2	3.5	1.8	10
14	7.1	8.1	5.4	61	31	23	1.8	12	1.5	2.8	1.5	59
15	7.7	9.6	16	27	13	7.1	1.7	9.1	36	3.1	2.5	13
16	5.8	13	19	14	24	4.2	1.5	18	4.8	6.6	8.9	7.4
17	5.3	13	8.2	9.3	34	3.6	1.5	6.8	2.1	4.6	8.9	4.0
18	4.2	8.4	6.5	7.8	21	3.3	1.4	2.4	1.7	3.2	4.1	7.6
19	3.7	8.2	5.2	8.7	9.2	2.7	1.9	4.3	16	22	7.9	27
20	3.6	16	25	7.4	10	2.5	1.6	2.3	15	4.2	2.4	27
21	3.6	14	15	6.3	6.0	5.0	1.7	1.6	9.2	3.1	16	11
22	3.3	12	10	5.7	5.2	3.3	2.5	2.4	2.7	2.6	65	10
23	5.6	10	10	5.1	4.4	2.5	22	14	2.1	3.2	17	7.3
24	12	9.6	17	4.8	4.1	2.4	3.1	9.7	1.7	2.8	12	5.5
25	6.2	8.2	17	7.1	26	2.3	2.1	2.6	1.3	16	7.8	5.6
26	4.7	23	30	4.5	18	3.0	2.7	2.1	1.6	8.4	4.7	6.3
27	4.7	14	68	6.2	7.7	3.5	2.4	1.6	91	3.8	6.9	5.3
28	4.6	12	53	46	42	2.5	44	1.5	8.0	3.5	3.7	5.4
29	15	---	140	12	19	2.1	26	1.4	3.9	4.2	6.9	6.7
30	41	---	40	7.5	14	2.1	8.5	1.3	3.2	5.2	8.0	111
31	100	---	18	---	8.1	---	3.8	1.2	---	3.5	---	143
TOTAL	339.5	453.4	783.1	611.6	742.6	169.3	166.7	136.3	227.4	139.7	322.0	501.4
MEAN	10.95	16.19	25.26	20.39	23.95	5.643	5.377	4.397	7.580	4.506	10.73	16.17
MAX	100	152	140	79	152	23	44	18	91	22	67	143
MIN	3.3	5.9	5.2	4.5	4.1	2.1	1.4	1.2	1.2	2.0	1.5	1.3
CFSM	1.23	1.82	2.84	2.29	2.69	0.63	0.60	0.49	0.85	0.51	1.21	1.82
IN.	1.42	1.90	3.27	2.56	3.10	0.71	0.70	0.57	0.95	0.58	1.35	2.10

e Estimated.

PROJECT DATA
Suface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04206420 BRANDYWINE CREEK NEAR JAITE, OHIO

LOCATION.—Latitude 41°17'02", longitude 81°33'07", Summit County, Hydrologic Unit 04110002, on left bank at service road for Brandywine Ski Resort, 1 mi upstream from mouth.

DRAINAGE AREA.—26.6 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 640 ft above sea level (from topographic map).

REMARKS.—Records good except for periods of estimated record and discharge of less than 1 ft³/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 664 ft³/s, Apr. 3, 2002, gage height 3.71 ft; minimum daily, 0.83 ft³/s, Aug. 10, 2002.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 11,985.91 ft³/s; mean, 23.14 ft³/s; maximum, 428 ft³/s; minimum 0.85 ft³/s; runoff, 0.87 CFSM; 11.81 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
 DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	1.0	10	9.6	17	59
2	---	---	---	---	---	---	---	0.98	3.6	8.4	19	39
3	---	---	---	---	---	---	---	18	1.9	8.1	11	31
4	---	---	---	---	---	---	---	8.0	1.5	7.3	6.6	26
5	---	---	---	---	---	---	---	3.4	1.4	9.2	5.8	23
6	---	---	---	---	---	---	---	2.3	1.2	55	5.1	14
7	---	---	---	---	---	---	---	2.3	2.6	15	5.1	7.4
8	---	---	---	---	---	---	---	1.3	2.6	11	6.1	5.7
9	---	---	---	---	---	---	---	2.1	1.5	8.6	12	5.9
10	---	---	---	---	---	---	---	8.4	1.5	7.8	17	5.2
11	---	---	---	---	---	---	---	3.5	1.5	7.8	14	5.1
12	---	---	---	---	---	---	---	2.7	1.5	28	5.0	6.6
13	---	---	---	---	---	---	---	2.0	4.3	17	4.6	17
14	---	---	---	---	---	---	---	1.7	15	21	4.8	63
15	---	---	---	---	---	---	---	1.4	3.9	21	5.1	56
16	---	---	---	---	---	---	---	1.3	2.3	27	5.9	27
17	---	---	---	---	---	---	---	1.3	2.8	60	5.5	203
18	---	---	---	---	---	---	---	1.0	1.5	19	4.6	170
19	---	---	---	---	---	---	---	3.4	7.8	13	7.9	50
20	---	---	---	---	---	---	---	2.9	9.3	11	24	42
21	---	---	---	---	---	---	---	9.4	12	10	16	29
22	---	---	---	---	---	---	---	2.4	20	62	8.3	24
23	---	---	---	---	---	---	---	17	9.3	37	5.8	38
24	---	---	---	---	---	---	---	7.9	13	85	4.1	29
25	---	---	---	---	---	---	---	3.2	46	103	54	21
26	---	---	---	---	---	---	---	10	15	31	29	e8.0
27	---	---	---	---	---	---	---	20	26	75	27	e5.0
28	---	---	---	---	---	---	---	6.6	37	40	67	e3.9
29	---	---	---	---	---	---	---	3.1	17	26	100	e2.7
30	---	---	---	---	---	---	---	2.0	11	21	146	e2.4
31	---	---	---	---	---	---	---	4.7	---	19	---	e2.3
TOTAL	---	---	---	---	---	---	---	155.28	284.0	873.8	643.3	1021.2
MEAN	---	---	---	---	---	---	---	5.009	9.467	28.19	21.44	32.94
MAX	---	---	---	---	---	---	---	20	46	103	146	203
MIN	---	---	---	---	---	---	---	0.98	1.2	7.3	4.1	2.3
CFSM	---	---	---	---	---	---	---	0.18	0.35	1.04	0.79	1.21
IN.	---	---	---	---	---	---	---	0.21	0.39	1.20	0.88	1.40

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04206420 BRANDYWINE CREEK NEAR JAITE, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e2.2	323	27	44	15	5.8	1.9	1.5	1.0	3.2	2.5	5.4
2	e2.1	64	56	63	223	4.2	1.9	1.2	1.00	2.4	2.3	4.7
3	e2.0	32	143	394	44	3.4	1.8	1.1	1.5	2.8	2.1	2.3
4	e1.9	23	37	71	23	10	1.7	1.00	2.1	1.9	1.9	e2.0
5	e1.8	22	22	41	16	48	1.6	1.0	1.3	6.5	2.6	e1.7
6	e4.4	21	22	32	13	73	1.6	1.0	1.1	2.7	8.7	e1.5
7	10	18	22	27	39	24	1.6	0.93	0.97	1.7	9.1	e1.4
8	10	19	19	29	45	12	1.6	0.92	0.91	1.5	6.8	e1.3
9	8.4	17	26	32	66	7.4	16	0.87	0.85	1.4	4.6	e1.3
10	20	16	38	24	40	5.0	10	0.86	0.85	1.3	19	e1.2
11	24	33	20	15	19	3.8	4.4	0.86	0.92	1.3	60	e4.0
12	19	29	18	12	126	89	2.9	0.92	0.96	1.4	15	13
13	18	26	17	77	428	26	2.2	0.93	1.2	1.3	7.6	16
14	12	24	14	186	192	136	2.0	0.98	23	1.3	4.3	53
15	12	15	21	108	45	39	1.7	2.9	43	1.3	3.4	29
16	10	15	93	42	38	20	1.6	15	22	3.4	11	17
17	9.3	19	33	28	94	11	1.6	38	7.3	3.4	21	10
18	6.6	16	25	21	56	8.4	2.2	7.2	3.5	2.5	23	9.9
19	10	19	19	17	31	5.5	1.4	4.9	25	20	19	23
20	8.3	28	57	14	21	4.1	1.4	4.3	7.2	11	14	59
21	7.0	51	48	19	17	6.0	1.4	1.9	29	4.6	8.6	25
22	13	35	34	18	13	4.8	5.6	4.8	6.9	2.7	67	16
23	12	25	30	17	11	2.8	21	30	3.3	2.2	45	12
24	17	21	33	9.4	10	2.5	6.2	41	2.4	1.8	21	9.0
25	13	20	52	9.8	20	2.2	2.3	11	1.7	9.2	14	9.5
26	7.9	41	132	7.2	44	2.2	2.0	4.4	1.4	29	9.4	12
27	5.8	32	241	6.4	16	3.7	2.1	2.6	115	10	8.0	12
28	5.7	22	116	54	12	3.2	1.6	2.0	38	5.2	5.8	11
29	7.1	---	105	26	9.7	2.3	11	1.7	11	3.3	6.0	8.4
30	67	---	169	18	8.3	2.0	5.9	1.4	5.1	4.3	7.6	74
31	162	---	46	---	7.0	---	2.9	1.2	---	3.3	---	272
TOTAL	509.5	1026	1735	1461.8	1742.0	567.3	123.1	188.37	359.46	147.9	430.3	717.6
MEAN	16.44	36.64	55.97	48.73	56.19	18.91	3.971	6.076	11.98	4.771	14.34	23.15
MAX	162	323	241	394	428	136	21	41	115	29	67	272
MIN	1.8	15	14	6.4	7.0	2.0	1.4	0.86	0.85	1.3	1.9	1.2
CFSM	0.60	1.35	2.06	1.79	2.07	0.70	0.15	0.22	0.44	0.18	0.53	0.85
IN.	0.70	1.40	2.37	2.00	2.38	0.78	0.17	0.26	0.49	0.20	0.59	0.98

e Estimated.

PROJECT DATA

Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04206448 CHIPPEWA CREEK IN CHIPPEWA METRO PARK NEAR BRECKSVILLE, OHIO

LOCATION.—Latitude 41°19'00", longitude 81°35'53", Cuyahoga County, Hydrologic Unit 04110002, on right bank at upstream side of bikeway bridge, 100 ft upstream from Ford on Chippewa Parkway, ½ mi upstream from the mouth.

DRAINAGE AREA.—17.5 mi².

PERIOD OF RECORD.—July 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 630 ft above sea level (from topographic map).

REMARKS.—Records fair except for periods of estimated record and discharge above 200 ft³/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 2,790 ft³/s, May 2, 2002, gage height 6.80 ft; minimum daily, 0.48 ft³/s, July 28, 2001.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 10,470.04 ft³/s; mean, 19.07 ft³/s; maximum, 420 ft³/s; minimum, 0.57 ft³/s; runoff, 1.09 CFSM; 14.8 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	e3.2	1.1	6.6	4.9	e6.0	e26
2	---	---	---	---	---	---	e5.0	1.2	1.6	4.3	e36	e15
3	---	---	---	---	---	---	2.9	58	1.5	4.1	e15	e9.0
4	---	---	---	---	---	---	3.4	9.0	1.6	3.8	e8.0	e7.0
5	---	---	---	---	---	---	3.4	5.2	1.7	17	e6.0	e6.2
6	---	---	---	---	---	---	3.6	7.0	1.8	76	e5.4	e5.6
7	---	---	---	---	---	---	2.4	5.3	3.9	10	e5.0	e5.2
8	---	---	---	---	---	---	5.7	2.3	5.5	6.1	e7.4	e4.9
9	---	---	---	---	---	---	2.7	3.0	3.5	5.2	e9.6	e4.7
10	---	---	---	---	---	---	2.2	4.1	2.9	4.8	e4.7	e4.5
11	---	---	---	---	---	---	2.0	2.5	2.7	4.5	e3.4	e4.3
12	---	---	---	---	---	---	2.0	3.3	2.3	32	e2.6	e4.1
13	---	---	---	---	---	---	2.1	5.4	13	16	e2.2	e10
14	---	---	---	---	---	---	2.0	4.2	20	25	e2.1	e100
15	---	---	---	---	---	---	1.8	2.3	4.8	16	e2.2	e40
16	---	---	---	---	---	---	1.7	2.6	3.5	41	e2.1	e15
17	---	---	---	---	---	---	1.7	8.3	3.1	73	e1.9	e150
18	---	---	---	---	---	---	1.7	4.2	2.9	12	e1.7	e70
19	---	---	---	---	---	---	11	6.2	6.1	7.9	e22	22
20	---	---	---	---	---	---	4.7	6.5	8.1	6.7	e16	29
21	---	---	---	---	---	---	1.4	13	23	6.3	e6.0	12
22	---	---	---	---	---	---	0.83	7.5	19	66	e2.7	8.6
23	---	---	---	---	---	---	0.82	19	5.1	32	e1.8	e7.0
24	---	---	---	---	---	---	0.86	6.8	13	66	e1.7	e5.8
25	---	---	---	---	---	---	1.7	4.6	59	e40	e60	e5.0
26	---	---	---	---	---	---	3.0	53	13	e32	e10	e4.5
27	---	---	---	---	---	---	0.86	18	24	e50	e12	e4.1
28	---	---	---	---	---	---	0.58	3.1	35	e18	e22	e3.8
29	---	---	---	---	---	---	0.60	1.8	10	e11	e60	e3.5
30	---	---	---	---	---	---	0.57	1.3	6.0	e8.0	e80	e3.3
31	---	---	---	---	---	---	0.72	3.1	---	e7.0	---	e3.1
TOTAL	---	---	---	---	---	---	77.14	272.9	304.2	706.6	415.5	593.2
MEAN	---	---	---	---	---	---	2.488	8.803	10.14	22.79	13.85	19.14
MAX	---	---	---	---	---	---	11	58	59	76	80	150
MIN	---	---	---	---	---	---	0.57	1.1	1.5	3.8	1.7	3.1
CFSM	---	---	---	---	---	---	0.14	0.50	0.58	1.30	0.79	1.09
IN.	---	---	---	---	---	---	0.16	0.58	0.65	1.50	0.88	1.26

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04206448 CHIPPEWA CREEK IN CHIPPEWA METRO PARK NEAR BRECKSVILLE, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e2.9	239	e11	48	7.8	7.3	1.4	3.6	3.1	5.1	e4.2	17
2	e2.8	32	e26	90	306	5.8	1.9	3.2	6.8	5.0	e6.0	10
3	e2.7	20	e87	420	26	5.5	2.4	2.0	9.3	4.6	e8.0	e7.2
4	e2.6	15	e18	40	18	16	2.3	1.6	5.7	4.0	e7.0	e6.4
5	e2.5	15	e13	23	14	25	2.3	3.7	3.9	7.4	e9.0	e5.8
6	e3.4	11	e9.2	20	13	31	2.1	2.5	3.9	4.1	e11	e5.1
7	4.7	11	e10	15	60	13	2.2	1.7	3.4	3.7	e20	e4.7
8	4.8	11	e7.6	20	51	8.2	2.3	1.6	3.3	3.6	e5.6	e4.5
9	5.5	9.3	e36	61	48	6.2	12	1.5	3.0	3.2	e5.0	e4.3
10	21	10	e21	27	22	5.3	5.8	1.4	1.7	3.2	e160	e4.2
11	25	19	e12	15	14	5.0	2.9	1.3	1.7	3.2	e80	e4.8
12	17	e15	e10	21	103	47	2.6	1.4	1.9	3.2	e10	9.8
13	17	e13	e8.5	162	277	8.7	3.0	2.3	2.0	3.6	e7.0	17
14	11	e10	7.7	141	60	13	2.8	1.8	26	3.8	e5.6	166
15	12	e9.8	14	59	22	8.5	2.5	6.3	92	3.2	e5.2	43
16	9.2	e12	53	23	22	6.6	2.1	16	15	4.5	e21	26
17	8.3	e14	14	15	62	4.5	2.1	18	5.7	7.6	e23	12
18	5.5	e11	12	11	34	3.8	2.2	4.1	4.3	3.8	e18	e15
19	5.1	e10	10	8.4	20	3.0	2.3	4.6	33	21	e15	e37
20	8.3	e15	50	11	16	2.4	2.3	4.6	7.6	6.7	9.7	e50
21	4.5	e13	26	7.6	13	3.8	2.2	2.2	20	4.1	6.5	e20
22	4.2	e15	20	7.0	9.6	4.6	66	2.2	6.5	3.4	110	e11
23	7.8	e11	20	6.3	8.3	2.4	73	16	5.9	e3.8	56	e9.0
24	18	e9.0	29	4.7	7.3	2.0	8.7	25	4.7	e5.6	39	e7.6
25	11	e8.2	34	6.3	11	3.0	5.2	6.1	4.3	e22	35	e10
26	6.6	e24	62	4.3	26	2.0	4.4	3.8	5.0	e16	21	e9.4
27	5.5	e14	141	3.9	8.8	1.9	4.8	3.1	101	e7.0	21	e8.6
28	5.2	e12	110	98	37	1.9	15	3.6	16	e5.0	14	e9.6
29	6.4	---	211	21	18	1.4	61	5.9	7.5	e4.2	14	e9.6
30	81	---	124	11	27	1.4	16	4.3	6.0	e5.4	28	e130
31	150	---	26	---	11	---	5.6	3.2	---	e3.6	---	e240
TOTAL	471.5	608.3	1233.0	1400.5	1372.8	250.2	321.4	158.6	410.2	184.6	774.8	914.6
MEAN	15.21	21.73	39.77	46.68	44.28	8.340	10.37	5.116	13.67	5.955	25.83	29.50
MAX	150	239	211	420	306	47	73	25	101	22	160	240
MIN	2.5	8.2	7.6	3.9	7.3	1.4	1.4	1.3	1.7	3.2	4.2	4.2
CFSM	0.87	1.24	2.27	2.67	2.53	0.48	0.59	0.29	0.78	0.34	1.48	1.69
IN.	1.00	1.29	2.62	2.98	2.92	0.53	0.68	0.34	0.87	0.39	1.65	1.94

e Estimated.

PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04207016 SAGAMORE CREEK NEAR NORTHFIELD, OHIO

LOCATION.—Latitude 41°21'02", longitude 81°33'17", Cuyahoga County, Hydrologic Unit 04110002, on left bank 10 ft upstream from Sagamore Road bridge.

DRAINAGE AREA.—3.84 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 850 ft above sea level (from topographic map).

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

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 327 ft³/s, Sept. 19, 2002, gage height 5.74 ft (from crest-stage gage); minimum daily, 0.26 ft³/s, Aug. 1, 2001.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 1,891.91 ft³/s; mean, 3.65 ft³/s; maximum, 37 ft³/s; minimum, 0.26 ft³/s; runoff, 0.95 CFSM; 12.91 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	0.26	3.5	e2.3	e1.4	e2.8
2	---	---	---	---	---	---	---	0.26	e0.74	e2.0	3.6	e2.6
3	---	---	---	---	---	---	---	13	e0.38	e0.53	e2.5	e1.9
4	---	---	---	---	---	---	---	2.4	0.35	e0.53	e1.6	e1.8
5	---	---	---	---	---	---	---	0.90	0.33	e0.53	e1.3	1.6
6	---	---	---	---	---	---	---	0.54	e0.33	e5.0	e1.3	e1.6
7	---	---	---	---	---	---	---	0.48	0.84	e2.0	e5.9	e1.4
8	---	---	---	---	---	---	---	0.41	0.65	e0.96	e3.7	e1.3
9	---	---	---	---	---	---	---	0.35	0.38	e0.74	e1.4	e1.2
10	---	---	---	---	---	---	---	0.43	0.34	e0.65	e1.3	e1.1
11	---	---	---	---	---	---	---	0.31	0.28	0.55	e0.96	e1.0
12	---	---	---	---	---	---	---	0.68	1.5	6.6	e0.74	e0.96
13	---	---	---	---	---	---	---	0.47	2.3	2.2	e0.65	e2.1
14	---	---	---	---	---	---	---	0.38	e3.1	e3.9	e0.85	18
15	---	---	---	---	---	---	---	0.36	e0.53	e2.4	1.0	7.2
16	---	---	---	---	---	---	---	0.41	e0.38	e1.7	e0.74	2.9
17	---	---	---	---	---	---	---	1.0	e0.38	e2.8	e0.65	37
18	---	---	---	---	---	---	---	0.42	0.30	e1.6	e0.53	e20
19	---	---	---	---	---	---	---	1.2	0.62	1.3	e0.75	e3.8
20	---	---	---	---	---	---	---	2.8	1.1	1.1	e3.0	e3.0
21	---	---	---	---	---	---	---	2.6	e3.2	1.7	e1.3	e1.9
22	---	---	---	---	---	---	---	0.89	2.7	13	e1.2	e1.5
23	---	---	---	---	---	---	---	2.6	e0.74	7.8	e1.2	e1.4
24	---	---	---	---	---	---	---	0.86	2.1	11	e1.2	e1.3
25	---	---	---	---	---	---	---	0.54	e3.1	15	8.2	e1.2
26	---	---	---	---	---	---	---	10	e1.6	e1.9	e2.0	e1.1
27	---	---	---	---	---	---	---	4.2	e1.6	e1.4	e2.9	e1.1
28	---	---	---	---	---	---	---	1.2	e7.9	e3.3	e0.85	e1.0
29	---	---	---	---	---	---	---	0.66	e1.6	e2.1	e11	e0.96
30	---	---	---	---	---	---	---	0.45	e2.5	e1.8	24	e0.92
31	---	---	---	---	---	---	---	2.4	---	1.6	---	e0.88
TOTAL	---	---	---	---	---	---	---	53.46	45.37	99.99	87.72	126.52
MEAN	---	---	---	---	---	---	---	1.725	1.512	3.225	2.924	4.081
MAX	---	---	---	---	---	---	---	13	7.9	15	24	37
MIN	---	---	---	---	---	---	---	0.26	0.28	0.53	0.53	0.88
CFSM	---	---	---	---	---	---	---	0.45	0.39	0.84	0.76	1.06
IN.	---	---	---	---	---	---	---	0.52	0.44	0.97	0.85	1.23

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04207016 SAGAMORE CREEK NEAR NORTHFIELD, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e0.86	37	e4.3	6.4	2.5	2.2	1.0	0.52	0.40	1.2	1.5	2.0
2	e0.84	4.9	9.6	14	38	2.0	1.0	0.44	0.85	1.1	1.2	1.6
3	e0.80	3.0	19	44	5.0	2.0	0.99	0.38	1.8	1.0	1.2	3.3
4	e0.78	2.6	4.1	6.8	3.1	3.3	1.0	0.37	0.88	1.6	1.3	1.8
5	e0.76	3.0	2.8	4.8	2.7	4.6	0.98	0.91	0.47	1.9	2.0	e1.3
6	e0.98	2.0	2.8	3.8	2.7	5.9	0.91	0.41	0.43	1.1	2.2	e1.2
7	e1.5	2.1	2.6	3.2	12	2.3	0.93	0.36	0.38	0.91	2.1	e1.1
8	e1.1	1.9	2.3	4.4	12	1.9	0.96	0.39	0.36	0.90	1.3	e1.1
9	e1.9	1.8	7.0	7.1	11	1.7	4.6	0.40	0.36	0.91	1.1	e1.0
10	e2.9	2.4	4.4	3.9	4.4	1.6	1.6	0.35	0.36	0.86	14	e1.0
11	e2.6	3.9	2.5	2.9	3.0	1.6	0.82	0.33	0.34	0.88	10	e1.6
12	e2.1	2.9	2.3	4.0	27	5.7	0.74	0.33	0.33	1.0	2.1	2.9
13	e2.2	2.7	2.1	24	46	1.8	0.72	0.38	0.34	1.3	1.6	3.3
14	e2.0	2.0	1.9	20	13	4.5	0.73	0.55	6.0	1.1	1.3	8.2
15	e2.0	2.2	5.5	9.0	5.7	3.0	0.70	1.3	13	1.1	1.4	3.8
16	e1.7	2.7	9.8	4.5	7.0	1.9	0.68	e6.1	3.5	1.9	3.7	2.6
17	e1.6	3.1	3.1	3.3	12	1.6	0.66	4.5	0.91	1.4	e4.4	1.9
18	e1.5	2.7	2.6	2.7	9.4	2.2	0.67	0.92	0.65	1.1	3.8	2.2
19	e1.4	2.1	2.3	2.5	5.4	1.3	0.70	1.6	36	5.7	3.4	5.5
20	e1.4	4.1	11	3.6	4.2	1.2	0.69	0.98	4.2	1.7	2.2	7.2
21	e1.3	5.2	5.7	2.5	3.6	4.4	0.68	e0.65	5.9	1.2	2.0	3.3
22	1.3	e3.4	4.1	2.5	3.2	2.5	6.2	e3.6	1.6	1.2	15	2.5
23	1.9	e3.1	3.8	2.3	3.1	1.4	11	4.8	1.2	1.2	6.1	2.0
24	2.5	2.6	5.4	2.0	3.0	1.3	1.8	5.3	0.98	1.1	3.8	1.8
25	1.9	2.2	6.7	2.6	6.0	1.2	1.1	0.95	1.0	3.9	3.0	2.4
26	1.5	5.8	18	e1.9	7.0	1.2	1.1	0.65	0.93	3.9	2.1	2.2
27	e1.4	3.5	29	e2.0	3.1	1.2	1.2	0.55	29	1.6	2.6	1.8
28	e1.4	e3.2	13	18	3.8	1.1	1.9	0.50	4.5	1.3	2.0	2.1
29	2.5	---	27	4.1	3.2	1.0	5.9	0.51	1.8	1.3	1.8	2.0
30	12	---	18	3.1	3.2	1.0	2.0	0.48	1.3	1.6	2.3	17
31	22	---	5.3	---	2.5	---	0.82	0.41	---	1.2	---	33
TOTAL	80.62	118.1	238.0	215.9	267.8	68.6	54.78	39.92	119.77	48.16	102.5	124.7
MEAN	2.601	4.218	7.677	7.197	8.639	2.287	1.767	1.288	3.992	1.554	3.417	4.023
MAX	22	37	29	44	46	5.9	11	6.1	36	5.7	15	33
MIN	0.76	1.8	1.9	1.9	2.5	1.0	0.66	0.33	0.33	0.86	1.1	1.0
CFSM	0.68	1.10	2.00	1.87	2.25	0.60	0.46	0.34	1.04	0.40	0.89	1.05
IN.	0.78	1.14	2.31	2.09	2.59	0.66	0.53	0.39	1.16	0.47	0.99	1.21

e Estimated.

PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

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 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 600 ft above sea level (from topographic map).

REMARKS.—Records good except for periods of estimated record and discharges above 1,000 ft³/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 3,900 ft³/s, Aug. 31, 2001, gage height 7.64 ft; minimum daily, no flow, Oct. 3 and 11, 2001.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 12,951.5 ft³/s; mean, 25 ft³/s; maximum, 479 ft³/s; minimum, 0.0 ft³/s; runoff, 1.4 CFSM; 18.97 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	1.6	49	0.06	7.2	18
2	---	---	---	---	---	---	---	1.7	9.0	0.03	33	10
3	---	---	---	---	---	---	---	273	5.5	0.0	12	8.4
4	---	---	---	---	---	---	---	12	4.3	0.02	7.6	7.5
5	---	---	---	---	---	---	---	5.2	3.8	51	6.9	7.3
6	---	---	---	---	---	---	---	4.2	3.6	135	6.6	6.7
7	---	---	---	---	---	---	---	3.9	48	0.97	6.4	6.3
8	---	---	---	---	---	---	---	12	11	0.14	12	6.0
9	---	---	---	---	---	---	---	5.7	4.7	0.05	10	7.0
10	---	---	---	---	---	---	---	11	3.8	0.03	6.2	5.8
11	---	---	---	---	---	---	---	4.6	3.6	0.0	5.7	5.6
12	---	---	---	---	---	---	---	4.8	3.1	43	5.5	5.5
13	---	---	---	---	---	---	---	4.4	52	6.6	5.4	11
14	---	---	---	---	---	---	---	3.6	35	26	5.3	154
15	---	---	---	---	---	---	---	3.5	5.0	1.6	6.3	32
16	---	---	---	---	---	---	---	3.5	3.8	57	6.2	11
17	---	---	---	---	---	---	---	5.2	3.4	52	5.4	247
18	---	---	---	---	---	---	---	3.5	3.3	0.95	5.1	98
19	---	---	---	---	---	---	---	4.5	24	0.24	26	19
20	---	---	---	---	---	---	---	24	21	0.09	17	22
21	---	---	---	---	---	---	---	14	64	125	7.1	11
22	---	---	---	---	---	---	---	4.1	26	176	6.1	9.4
23	---	---	---	---	---	---	---	7.2	4.6	59	6.1	e7.8
24	---	---	---	---	---	---	---	3.9	47	56	5.5	e6.6
25	---	---	---	---	---	---	---	3.4	326	28	73	e6.0
26	---	---	---	---	---	---	---	99	7.3	36	8.3	e5.4
27	---	---	---	---	---	---	---	11	33	68	11	e4.9
28	---	---	---	---	---	---	---	39	37	14	28	e4.5
29	---	---	---	---	---	---	---	2.0	1.3	9.6	76	e4.3
30	---	---	---	---	---	---	---	1.1	0.19	8.8	106	e4.1
31	---	---	---	---	---	---	---	479	---	8.3	---	e3.9
TOTAL	---	---	---	---	---	---	---	1055.6	843.29	963.48	522.9	756.0
MEAN	---	---	---	---	---	---	---	34.05	28.11	31.08	17.43	24.39
MAX	---	---	---	---	---	---	---	479	326	176	106	247
MIN	---	---	---	---	---	---	---	1.1	0.19	0.00	5.1	3.9

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208460 MILL CREEK AT GARFIELD HEIGHTS, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e3.8	230	15	35	11	9.5	4.1	4.7	3.8	4.8	5.3	9.9
2	e3.7	22	49	52	109	8.5	4.2	4.8	83	4.0	8.1	8.3
3	e3.5	14	129	148	15	7.8	4.2	4.1	27	4.2	9.5	10
4	e3.4	11	21	21	11	21	4.4	3.8	5.5	5.1	9.2	e8.8
5	e3.3	13	17	15	9.7	36	4.0	5.0	4.6	11	10	e8.0
6	e6.0	10	15	12	10	34	3.9	3.7	4.0	4.1	13	e7.6
7	8.9	8.8	14	11	13	9.2	3.9	3.6	3.9	4.6	27	e7.4
8	7.3	8.6	11	19	26	7.6	3.9	3.5	3.6	3.9	6.5	e7.2
9	9.7	8.0	31	30	20	6.9	143	4.6	3.5	4.1	6.0	e7.0
10	17	8.5	21	14	11	6.3	11	3.6	3.5	3.9	279	e7.8
11	15	20	14	11	8.8	14	4.7	3.5	3.4	3.9	122	12
12	11	14	13	33	213	20	4.0	3.7	3.2	3.8	12	20
13	13	12	10	90	304	7.4	3.8	3.9	3.1	4.0	7.8	20
14	8.7	11	9.6	166	55	47	3.8	8.9	3.1	4.0	6.3	90
15	8.9	9.4	31	70	20	15	3.7	35	176	3.8	5.7	23
16	7.9	15	35	32	48	9.1	3.7	82	24	6.2	22	15
17	7.7	18	11	18	88	6.2	3.6	27	4.5	5.2	24	10
18	9.7	12	10	14	40	10	3.7	6.7	3.5	4.1	17	11
19	7.1	10	9.0	12	20	5.6	3.9	8.6	141	43	16	36
20	7.9	21	52	40	13	5.4	3.6	8.0	7.6	6.2	8.0	50
21	6.0	22	22	13	10	44	3.4	4.5	30	4.3	6.9	16
22	6.2	19	16	12	10	7.3	66	7.1	5.0	4.2	104	13
23	7.6	14	18	11	7.6	4.9	139	80	4.1	4.5	48	10
24	13	18	37	10	6.8	4.8	7.4	48	3.7	5.3	31	7.9
25	8.6	13	31	15	45	5.3	4.5	6.1	3.5	33	23	11
26	7.0	35	66	9.9	35	5.0	4.0	4.6	3.4	22	12	11
27	7.1	15	128	9.6	7.2	5.2	4.1	4.3	210	6.3	14	9.7
28	7.0	15	66	103	176	5.2	43	4.0	17	5.3	10	11
29	32	---	182	19	29	4.9	102	3.8	6.2	4.9	8.6	11
30	81	---	84	13	26	4.1	24	4.0	4.8	6.3	12	108
31	91	---	23	---	12	---	5.6	3.8	---	4.6	---	194
TOTAL	430.0	627.3	1190.6	1058.5	1410.1	377.2	628.1	398.9	799.5	234.6	883.9	771.6
MEAN	13.87	22.40	38.41	35.28	45.49	12.57	20.26	12.87	26.65	7.568	29.46	24.89
MAX	91	230	182	166	304	47	143	82	210	43	279	194
MIN	3.3	8.0	9.0	9.6	6.8	4.1	3.4	3.5	3.1	3.8	5.3	7.0

e Estimated.

PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208501 WEST CREEK AT INDEPENDENCE, OHIO

LOCATION.—Latitude 41°24'29", longitude 81°38'51", Cuyahoga County, Hydrologic Unit 04110002, on left downstream abutment of Schaff Road bridge, 0.2 mi upstream from mouth at Cuyahoga River.

DRAINAGE AREA.—13.8 mi².

PERIOD OF RECORD.—August 2001 to December 2002.

GAGE.—Water-stage recorder. Elevation of gage is 580 ft above sea level (from topographic map).

REMARKS.—Records good except for periods of estimated record and discharges above 500 ft³/s, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 2,260 ft³/s, July 23, 2002, gage height 7.45 ft; minimum daily, 2.4 ft³/s, Jan. 4, 2002.

STATISTICS FOR DAILY DISCHARGE FOR PERIOD OF RECORD.—Total, 13,498.4 ft³/s; mean, 26.06 ft³/s; maximum, 787 ft³/s; minimum, 2.4 ft³/s; runoff, 1.89 ft³/s; 25.63 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
 DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	e4.0	20	8.4	9.2	26
2	---	---	---	---	---	---	---	e60	10	7.7	37	15
3	---	---	---	---	---	---	---	e20	9.6	6.8	19	10
4	---	---	---	---	---	---	---	e9.0	9.9	7.1	12	8.1
5	---	---	---	---	---	---	---	e5.0	6.6	55	10	7.2
6	---	---	---	---	---	---	---	e4.3	6.1	102	8.9	6.4
7	---	---	---	---	---	---	---	e4.4	40	15	8.1	5.9
8	---	---	---	---	---	---	---	5.1	18	10	15	5.4
9	---	---	---	---	---	---	---	6.5	7.3	7.7	13	6.4
10	---	---	---	---	---	---	---	e4.2	11	7.1	7.4	5.1
11	---	---	---	---	---	---	---	e11	4.1	6.5	6.5	4.6
12	---	---	---	---	---	---	---	e4.6	3.4	46	6.2	4.9
13	---	---	---	---	---	---	---	e4.6	25	24	6.5	16
14	---	---	---	---	---	---	---	e3.8	19	43	6.2	120
15	---	---	---	---	---	---	---	e5.0	5.2	17	6.4	33
16	---	---	---	---	---	---	---	6.0	4.4	63	6.2	16
17	---	---	---	---	---	---	---	8.8	4.1	54	5.9	229
18	---	---	---	---	---	---	---	4.3	4.3	15	5.9	136
19	---	---	---	---	---	---	---	12	17	11	22	22
20	---	---	---	---	---	---	---	33	13	8.5	19	19
21	---	---	---	---	---	---	---	16	44	81	9.1	9.4
22	---	---	---	---	---	---	---	11	18	94	7.1	6.8
23	---	---	---	---	---	---	---	15	6.2	53	6.5	e4.5
24	---	---	---	---	---	---	---	5.4	39	44	8.3	e4.0
25	---	---	---	---	---	---	---	4.2	129	35	54	e3.6
26	---	---	---	---	---	---	---	80	25	39	13	e3.4
27	---	---	---	---	---	---	---	19	31	55	18	e3.2
28	---	---	---	---	---	---	---	8.8	36	21	29	e3.0
29	---	---	---	---	---	---	---	6.9	15	16	76	e2.9
30	---	---	---	---	---	---	---	6.2	9.9	12	120	e2.8
31	---	---	---	---	---	---	---	69	---	12	---	e2.7
TOTAL	---	---	---	---	---	---	---	457.1	591.1	976.8	571.4	742.3
MEAN	---	---	---	---	---	---	---	14.75	19.70	31.51	19.05	23.95
MAX	---	---	---	---	---	---	---	80	129	102	120	229
MIN	---	---	---	---	---	---	---	3.8	3.4	6.5	5.9	2.7
CFSM	---	---	---	---	---	---	---	1.07	1.43	2.28	1.38	1.74
IN.	---	---	---	---	---	---	---	1.23	1.59	2.63	1.54	2.00

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208501 WEST CREEK AT INDEPENDENCE, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e2.6	471	18	42	5.5	18	3.6	5.0	7.6	8.1	10	17
2	e2.6	25	58	75	151	11	3.7	5.2	23	6.5	10	14
3	e2.5	23	120	642	17	11	3.6	4.3	17	5.9	11	e10
4	e2.4	19	18	34	12	26	3.2	4.2	6.9	12	13	e8.6
5	e2.4	16	13	27	8.2	38	2.7	15	3.5	14	20	e8.0
6	e3.5	13	13	22	9.2	28	3.0	6.1	3.3	5.9	17	e7.4
7	8.1	10	13	20	23	9.9	3.2	4.3	3.3	6.0	25	e7.0
8	5.4	9.8	9.7	31	27	7.7	3.5	4.0	3.8	6.9	14	e6.6
9	12	8.9	38	32	15	6.7	50	3.9	3.9	6.0	12	e6.2
10	23	14	19	21	4.5	6.3	6.5	3.9	3.9	4.9	132	e6.0
11	19	20	10	15	2.9	12	3.3	3.9	3.2	6.0	56	e8.0
12	13	16	11	34	96	20	3.0	4.1	2.6	8.0	13	16
13	14	12	12	98	787	6.4	3.0	4.7	2.8	10	13	23
14	8.1	8.0	8.6	148	286	36	3.1	31	6.6	9.5	11	117
15	9.6	9.8	26	46	18	15	3.0	27	106	8.5	13	28
16	7.1	15	30	21	44	8.2	3.0	82	18	15	39	16
17	6.5	17	13	15	66	6.1	3.1	23	8.4	12	40	9.4
18	4.7	10	11	12	32	10	3.3	12	4.9	4.8	24	15
19	4.0	10	9.0	10	18	4.4	3.3	15	104	50	22	60
20	4.3	19	42	21	15	4.0	3.0	9.5	32	7.5	6.6	59
21	4.3	18	25	11	8.6	41	3.0	5.7	31	4.3	14	e17
22	4.5	18	19	9.6	6.3	13	25	21	7.7	4.6	192	18
23	9.6	15	18	7.9	5.2	10	162	44	6.2	8.8	47	9.4
24	18	16	30	5.7	5.8	13	12	25	5.9	6.4	36	5.9
25	9.1	12	29	9.3	44	12	7.2	7.6	4.1	39	32	6.0
26	6.5	30	47	4.1	22	8.1	10	6.1	4.2	24	23	8.2
27	6.0	18	107	5.6	5.8	7.8	9.2	5.4	190	14	26	6.4
28	6.5	19	81	76	e70	3.5	44	5.1	21	13	17	8.2
29	34	---	181	16	54	3.1	84	7.0	11	12	17	14
30	68	---	113	8.5	43	3.3	17	12	8.6	13	27	187
31	109	---	32	---	23	---	6.3	8.8	---	9.9	---	243
TOTAL	430.3	892.5	1174.3	1519.7	1925.0	399.5	493.8	415.8	654.4	356.5	932.6	965.3
MEAN	13.88	31.88	37.88	50.66	62.10	13.32	15.93	13.41	21.81	11.50	31.09	31.14
MAX	109	471	181	642	787	41	162	82	190	50	192	243
MIN	2.4	8.0	8.6	4.1	2.9	3.1	2.7	3.9	2.6	4.3	6.6	5.9
CFSM	1.01	2.31	2.74	3.67	4.50	0.96	1.15	0.97	1.58	0.83	2.25	2.26
IN.	1.16	2.41	3.17	4.10	5.19	1.08	1.33	1.12	1.76	0.96	2.51	2.60

e Estimated.

PROJECT DATA
Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208502 BIG CREEK AT CLEVELAND, OHIO

LOCATION.—Latitude 41°27'01", longitude 81°43'18", Cuyahoga County, Hydrologic Unit 04110002, on right bank, 0.2 mi upstream from bridge on Fulton Road, 2.5 mi upstream from mouth.

DRAINAGE AREA.—35.3 mi².

PERIOD OF RECORD.—October 1972 to September 1986; August 2001 to December 2002.

REVISED RECORDS.—WRD-OH-82-2: 1973-81.

GAGE.—Water-stage recorder. Datum of gage is 620.7 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.—Records good except for periods of estimated record, which are poor. Flow slightly regulated industry upstream from station. Water-quality data formerly collected at this site, 1972-1977

EXTREMES FOR AUGUST 2001 TO DECEMBER 2002.—Maximum discharge, 4,110 ft³/s, Aug. 31, 2001, gage height 10.75 ft (from crest-stage gage); minimum daily, 3.3 ft³/s, July 21, 2002.

STATISTICS FOR AUGUST 2001 TO DECEMBER 2002.—Total, 19,764.7 ft³/s; mean, 38.16 ft³/s; maximum, 490 ft³/s; minimum, 3.3 ft³/s; runoff, 1.08 CFSM; 14.68 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	---	---	4.9	60	7.7	8.1	42
2	---	---	---	---	---	---	---	4.5	10	6.8	67	18
3	---	---	---	---	---	---	---	273	7.6	6.2	28	13
4	---	---	---	---	---	---	---	20	7.9	7.9	12	10
5	---	---	---	---	---	---	---	7.3	7.1	108	8.7	9.1
6	---	---	---	---	---	---	---	6.0	6.2	295	7.3	8.6
7	---	---	---	---	---	---	---	6.3	59	18	6.5	8.2
8	---	---	---	---	---	---	---	5.1	35	10	11	7.4
9	---	---	---	---	---	---	---	4.9	13	7.9	17	7.5
10	---	---	---	---	---	---	---	5.1	7.2	6.9	7.2	7.4
11	---	---	---	---	---	---	---	4.4	6.3	6.5	6.0	7.0
12	---	---	---	---	---	---	---	13	5.6	77	5.1	6.7
13	---	---	---	---	---	---	---	5.8	46	17	4.6	19
14	---	---	---	---	---	---	---	7.9	43	57	4.5	231
15	---	---	---	---	---	---	---	4.5	9.1	22	4.7	82
16	---	---	---	---	---	---	---	4.4	6.8	85	4.5	20
17	---	---	---	---	---	---	---	5.8	6.1	103	4.2	402
18	---	---	---	---	---	---	---	4.4	6.3	17	3.8	190
19	---	---	---	---	---	---	---	6.8	24	10	37	34
20	---	---	---	---	---	---	---	58	32	8.5	30	30
21	---	---	---	---	---	---	---	27	74	105	7.9	16
22	---	---	---	---	---	---	---	7.9	48	267	4.8	12
23	---	---	---	---	---	---	---	17	10	127	4.1	e11
24	---	---	---	---	---	---	---	6.4	78	75	3.8	e9.6
25	---	---	---	---	---	---	---	4.6	355	59	100	e8.8
26	---	---	---	---	---	---	---	156	41	45	14	e8.2
27	---	---	---	---	---	---	---	45	51	112	19	e7.6
28	---	---	---	---	---	---	---	22	38	23	43	e7.2
29	---	---	---	---	---	---	---	5.6	15	14	133	e6.8
30	---	---	---	---	---	---	---	4.5	9.4	10	205	e6.6
31	---	---	---	---	---	---	---	437	---	9.7	---	e6.4
TOTAL	---	---	---	---	---	---	---	1185.1	1117.6	1724.1	811.8	1253.1
MEAN	---	---	---	---	---	---	---	38.23	37.25	55.62	27.06	40.42
MAX	---	---	---	---	---	---	---	437	355	295	205	402
MIN	---	---	---	---	---	---	---	4.4	5.6	6.2	3.8	6.4
CFSM	---	---	---	---	---	---	---	1.08	1.06	1.58	0.77	1.15
IN.	---	---	---	---	---	---	---	1.25	1.18	1.82	0.86	1.32

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208502 BIG CREEK AT CLEVELAND, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e6.2	490	24	65	12	e10	7.4	10	3.8	5.9	4.6	22
2	e6.0	53	49	79	187	e10	8.6	20	24	6.1	4.3	12
3	e6.0	33	211	214	24	e15	8.1	10	18	5.2	4.3	e10
4	e5.8	25	32	37	13	e27	6.1	8.1	7.9	6.6	6.8	e9.4
5	e5.6	24	27	26	11	e13	5.8	16	5.4	14	20	e9.0
6	e6.8	25	19	22	13	e25	5.4	9.4	4.6	5.4	22	e8.8
7	15	14	20	17	35	e14	4.8	5.7	4.3	4.1	28	e8.6
8	11	14	16	42	49	e9.8	4.8	5.4	4.7	4.4	10	e8.4
9	21	12	81	59	43	e9.2	68	5.8	4.1	3.9	6.6	e8.2
10	33	18	46	26	16	e10	15	4.8	4.2	4.8	142	e8.0
11	29	43	18	18	9.6	e8.8	8.3	4.7	4.4	4.3	125	e7.8
12	21	31	15	34	203	e44	7.3	4.9	4.0	4.0	16	e16
13	23	27	14	176	464	13	5.3	5.7	4.0	8.4	9.2	27
14	13	18	12	273	109	39	4.4	111	12	6.1	6.7	190
15	14	18	33	79	e29	20	4.2	58	148	4.2	6.9	47
16	13	25	54	30	e70	12	4.7	144	30	12	44	26
17	11	33	18	21	e190	9.6	3.9	50	9.0	13	45	15
18	11	18	14	16	e60	13	4.4	9.1	6.1	6.4	28	18
19	18	17	12	16	e30	9.5	3.9	14	97	101	49	83
20	17	34	66	54	e21	8.7	5.9	10	58	15	16	106
21	12	28	37	16	e16	43	3.3	5.6	75	6.7	31	32
22	13	31	25	14	e13	13	23	21	11	5.2	309	26
23	12	22	21	13	e11	8.2	368	57	6.8	10	86	20
24	28	19	48	11	e11	7.6	44	63	5.7	8.7	31	15
25	17	17	53	15	e90	7.9	16	13	4.6	62	26	16
26	11	55	92	10	e110	8.3	16	8.5	4.2	53	17	23
27	9.3	27	193	9.9	e22	10	20	5.4	443	10	29	26
28	8.8	26	142	113	e15	7.8	83	4.4	57	6.7	18	26
29	33	---	333	26	e12	7.2	207	4.7	11	6.7	16	22
30	141	---	172	14	e28	6.5	53	4.1	8.0	8.8	32	260
31	193	---	40	---	e15	---	15	5.1	---	5.9	---	330
TOTAL	764.5	1197	1937	1545.9	1931.6	440.1	1034.6	698.4	1079.8	418.5	1189.4	1436.2
MEAN	24.66	42.75	62.48	51.53	62.31	14.67	33.37	22.53	35.99	13.50	39.65	46.33
MAX	193	490	333	273	464	44	368	144	443	101	309	330
MIN	5.6	12	12	9.9	9.6	6.5	3.3	4.1	3.8	3.9	4.3	7.8
CFSM	0.70	1.21	1.77	1.46	1.77	0.42	0.95	0.64	1.02	0.38	1.12	1.31
IN.	0.81	1.26	2.04	1.63	2.04	0.46	1.09	0.74	1.14	0.44	1.25	1.51

e Estimated.

PROJECT DATA

Suface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208690 EUCLID CREEK NEAR EUCLID, OHIO

LOCATION.—Latitude 41°34'28", longitude 81°32'51", Cuyahoga County, Hydrologic Unit 04110003, on left bank 10 ft upstream from St. Clair Avenue bridge near the intersection of St. Clair Avenue and Nottingham Road, 1.6 mi above the mouth, and 3.3 mi southwest of the City of Euclid Community Center.

DRAINAGE AREA.—22.6 mi².

PERIOD OF RECORD.—May 16, 1977 to September 30, 1980; September 15, 1983 to September 30, 1986; June 2001 to December 2002.

GAGE.—Water-stage recorder. Datum of gage is 599.16 ft above sea level.

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

EXTREMES FOR JUNE 2001 TO DECEMBER 2002.—Maximum discharge, 1,750 ft³/s, Mar. 29, 2002, gage height 6.43 ft; minimum daily, 2.3 ft³/s, July 7 and Sept. 13, 2002.

STATISTICS FOR JUNE 2001 TO DECEMBER 2002.—Total, 16,440.4 ft³/s; mean, 28.39 ft³/s; maximum, 515 ft³/s; minimum, 2.3 ft³/s; runoff, 1.26 CFSM; 17.05 inches.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2001 DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	---	---	---	---	---	22	13	4.9	28	e21	14	28
2	---	---	---	---	---	27	7.1	4.4	8.9	e17	28	15
3	---	---	---	---	---	22	6.7	215	6.7	e14	24	12
4	---	---	---	---	---	9.7	21	18	13	e18	16	10
5	---	---	---	---	---	7.8	33	8.8	7.2	e50	14	9.7
6	---	---	---	---	---	9.1	7.2	6.5	6.0	e170	13	9.1
7	---	---	---	---	---	12	20	7.5	21	e40	13	9.0
8	---	---	---	---	---	8.0	33	e14	14	e25	18	8.5
9	---	---	---	---	---	8.8	9.0	e6.6	8.1	e21	22	8.3
10	---	---	---	---	---	6.6	6.9	e6.8	6.0	e18	14	8.1
11	---	---	---	---	---	38	6.0	e6.4	5.6	e16	12	8.3
12	---	---	---	---	---	8.7	5.7	e11	5.7	e44	11	7.9
13	---	---	---	---	---	10	5.0	e7.8	34	e23	11	13
14	---	---	---	---	---	11	4.9	e7.4	31	e34	11	121
15	---	---	---	---	---	12	5.1	e6.8	5.5	e25	15	57
16	---	---	---	---	---	42	4.8	e6.6	5.6	e44	13	23
17	---	---	---	---	---	11	4.6	e7.0	4.4	e52	12	222
18	---	---	---	---	---	9.0	5.9	e6.4	4.1	e29	11	180
19	---	---	---	---	---	8.3	49	e9.0	17	e23	24	36
20	---	---	---	---	---	12	8.7	e25	19	e19	35	35
21	---	---	---	---	---	34	5.3	e16	e30	e56	17	20
22	---	---	---	---	---	107	4.8	e11	e15	e150	14	15
23	---	---	---	---	---	15	9.7	7.0	e9.4	e70	12	e12
24	---	---	---	---	---	16	11	6.6	e30	e54	11	e10
25	---	---	---	---	---	9.8	28	5.8	e200	34	63	e9.0
26	---	---	---	---	---	8.5	14	45	e28	24	16	e8.0
27	---	---	---	---	---	8.4	19	19	e30	32	13	e7.4
28	---	---	---	---	---	7.0	5.7	21	e22	18	21	e7.0
29	---	---	---	---	---	6.6	4.6	9.8	e20	15	73	e6.8
30	---	---	---	---	---	11	4.6	6.9	e18	15	102	e6.4
31	---	---	---	---	---	---	4.8	149	---	14	---	e6.0
TOTAL	---	---	---	---	---	518.3	368.1	683.0	653.2	1185	673	928.5
MEAN	---	---	---	---	---	17.28	11.87	22.03	21.77	38.23	22.43	29.95
MAX	---	---	---	---	---	107	49	215	200	170	102	222
MIN	---	---	---	---	---	6.6	4.6	4.4	4.1	14	11	6.0
CFSM	---	---	---	---	---	0.76	0.53	0.97	0.96	1.69	0.99	1.33
IN.	---	---	---	---	---	0.85	0.61	1.12	1.08	1.95	1.11	1.53

e Estimated.

PROJECT DATA

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Surface-Water Discharge Records for Selected Gages in the Cleveland, Ohio, Area

04208690 EUCLID CREEK NEAR EUCLID, OHIO—CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2002
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e5.8	472	e18	68	13	9.9	3.7	5.4	3.5	5.4	25	13
2	e5.6	48	e36	72	99	8.1	3.1	6.8	11	4.2	10	21
3	e5.5	29	e130	237	20	8.1	3.0	3.9	11	4.1	6.5	69
4	e5.4	62	e33	37	14	22	2.9	3.7	6.2	5.9	6.4	10
5	e5.2	49	e21	27	11	11	2.6	4.5	4.0	9.9	8.2	e6.6
6	e9.0	14	e17	22	12	20	2.4	4.1	3.2	4.0	15	e5.6
7	16	12	e18	19	12	9.4	2.3	3.2	2.9	3.3	8.7	e4.9
8	15	12	e15	41	17	7.2	2.7	3.1	2.7	3.2	5.3	e4.6
9	17	10	e50	94	22	6.9	69	2.8	2.6	3.0	4.3	e4.4
10	38	11	e28	36	12	7.4	11	2.7	2.6	4.0	153	e4.2
11	34	e21	e20	22	8.5	6.6	4.3	2.7	2.7	3.4	110	e7.0
12	23	e18	e15	47	287	8.2	3.3	2.9	2.5	3.2	14	30
13	24	e15	14	244	515	5.0	3.1	2.5	2.3	3.2	9.0	28
14	16	e14	12	425	108	26	3.0	8.7	7.3	3.3	5.1	161
15	17	e14	19	89	26	40	2.5	15	39	3.1	4.2	38
16	17	e16	40	34	60	14	2.5	112	11	5.8	26	24
17	16	e22	15	24	212	7.4	2.8	27	3.7	e4.2	30	14
18	21	e13	13	18	68	13	2.7	6.1	3.0	e3.4	20	12
19	11	e12	10	15	25	6.3	2.8	8.0	24	e52	24	48
20	12	e23	57	44	18	4.3	2.9	12	7.7	e5.4	13	69
21	11	e20	32	18	15	11	3.1	4.2	34	e4.2	7.4	24
22	9.8	e21	25	16	13	11	81	3.9	6.1	e3.9	141	20
23	12	e16	73	13	12	4.7	103	174	4.0	6.7	49	14
24	18	e13	60	11	12	4.8	13	61	3.5	5.7	30	10
25	15	e12	54	18	89	3.7	6.6	11	3.2	30	26	18
26	10	e35	64	11	107	3.6	5.0	6.6	3.8	34	15	16
27	9.0	e22	142	11	16	4.3	4.2	5.6	219	8.9	15	14
28	8.6	e19	138	113	13	14	25	5.4	24	5.7	11	15
29	10	---	445	30	12	6.0	71	4.3	8.9	4.5	9.5	18
30	98	---	226	16	24	3.3	22	3.9	5.8	4.6	13	241
31	120	---	44	---	11	---	7.4	3.6	---	3.9	---	320
TOTAL	634.9	1045	1884	1872	1883.5	307.2	473.9	520.6	465.2	246.1	814.6	1284.3
MEAN	20.48	37.32	60.77	62.40	60.76	10.24	15.29	16.79	15.51	7.939	27.15	41.43
MAX	120	472	445	425	515	40	103	174	219	52	153	320
MIN	5.2	10	10	11	8.5	3.3	2.3	2.5	2.3	3.0	4.2	4.2
CFSM	0.91	1.65	2.69	2.76	2.69	0.45	0.68	0.74	0.69	0.35	1.20	1.83
IN.	1.05	1.72	3.10	3.08	3.10	0.51	0.78	0.86	0.77	0.41	1.34	2.11

e Estimated.

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.



PROJECT DATA
City of Akron Water Diversion

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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 fair, and Oct. 1-14, Nov. 13 -26, Mar. 29-Apr. 21, Apr. 25-30, May 9-17, and June 3-Sept. 30, 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e22	21	e20	e17	e19	e17	e16	22	e20	e17	e17	e36
2	e26	21	e19	e16	e20	e17	e15	23	e19	e18	e18	e35
3	e22	20	e19	e17	e19	e17	e15	23	e18	e18	e16	e33
4	e22	20	e19	e18	e19	e16	e15	22	e20	e17	e17	e31
5	e26	20	e18	e17	e18	e14	e14	22	e20	e17	e17	e35
6	e25	20	e18	e17	e18	e16	e14	21	e19	e17	e17	e29
7	e24	20	e18	e17	e19	e17	e14	20	e18	e18	e18	e10
8	e23	21	e18	e16	e20	e18	e14	e20	e18	e18	e20	e11
9	e23	21	e18	e16	e20	e18	e14	e20	e18	e18	e19	e11
10	e22	21	e18	e17	e20	e18	e15	e21	e19	e17	e18	e12
11	e21	21	e17	e17	e19	e17	e15	e22	e20	e17	e18	e12
12	e21	e19	e16	e17	e19	e17	e24	e22	e22	e25	e19	e12
13	e23	e19	e17	e17	e19	e17	23	e19	e30	e22	20	e13
14	e25	e19	e17	e18	e18	e18	e24	e18	e36	e22	e20	e16
15	e38	e19	e16	e18	e17	e17	e23	e18	e33	e21	e20	e20
16	e49	e19	e17	e19	e17	13	e22	e19	e28	e20	20	e18
17	e50	e20	e16	e20	e18	14	e20	e24	e24	e19	e20	e16
18	e51	e20	e19	e18	e18	13	e20	e23	e22	e18	e21	e15
19	e41	e20	e18	e16	e18	13	e26	23	e22	e17	e21	e16
20	24	e20	e18	e17	e19	14	e22	22	e22	e15	e21	e19
21	25	e20	e18	e18	e20	13	e23	22	e21	e14	e21	e21
22	18	e20	e18	e17	e18	14	23	22	e20	e13	e21	e21
23	16	e20	e18	e16	e18	13	23	20	e21	e14	e26	e21
24	16	e20	e18	17	e18	13	22	19	e22	e15	e25	e20
25	18	e20	e17	e18	e19	14	e20	21	e21	e16	e18	e20
26	17	e20	e15	e18	e19	16	e20	22	e20	e18	e17	e21
27	14	e20	e16	e19	e19	14	e19	21	e18	e18	e17	e25
28	15	e19	e16	e19	e17	19	e20	20	e18	e18	e18	e22
29	18	e19	e16	e20	---	e19	e20	21	e17	e17	e25	e26
30	21	e19	e17	e20	---	e18	e25	e22	e17	e17	e36	e36
31	21	---	e18	e20	---	e17	---	e22	---	e17	37	---
TOTAL	777	598	543	547	522	491	580	656	643	548	638	633
MEAN	25.06	19.93	17.52	17.65	18.64	15.84	19.33	21.16	21.43	17.68	20.58	21.10
MAX	51	21	20	20	20	19	26	24	36	25	37	36
MIN	14	19	15	16	17	13	14	18	17	13	16	10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002
MEAN	19.40	17.67	19.82	20.56	21.17
MAX	27.0	22.2	23.1	23.7	24.5
(WY)	1999	1999	1999	1999	1999
MIN	10.8	10.9	17.5	17.6	18.6
(WY)	2001	2001	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1998 - 2002

	2001	2002	1998-2002
ANNUAL TOTAL	7190	7176	
ANNUAL MEAN	19.70	19.66	19.63
HIGHEST ANNUAL MEAN			22.0
LOWEST ANNUAL MEAN			17.8
HIGHEST DAILY MEAN	51	51	73
LOWEST DAILY MEAN	12	10	9.0
ANNUAL SEVEN-DAY MINIMUM	12	12	9.2
MAXIMUM PEAK FLOW		61	76
MAXIMUM PEAK STAGE		4.00	4.00
INSTANTANEOUS LOW FLOW		10	9.0
10 PERCENT EXCEEDS	22	24	23
50 PERCENT EXCEEDS	20	19	20
90 PERCENT EXCEEDS	16	15	14

e Estimated.

PROJECT DATA

City of Akron Water Diversion

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 ft³/s, and a significant in-channel weed growth May 9-Sept. 30, which are fair. Flow is completely regulated by operation of gate at Lock 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	14	19	11	35	7.4	22	16	12	8.1	10	11
2	13	14	19	11	20	13	19	48	10	0.94	12	11
3	13	11	12	11	20	27	55	18	19	4.2	2.1	13
4	14	11	9.0	11	20	8.3	13	14	33	8.0	31	14
5	14	10	9.8	11	15	8.5	15	14	40	24	23	14
6	14	11	9.4	11	7.7	8.3	14	18	43	13	21	5.6
7	14	9.7	9.3	15	12	17	14	23	20	11	15	2.0
8	14	13	9.4	28	17	9.7	13	18	15	4.3	1.4	3.3
9	14	12	9.5	11	11	17	22	21	4.3	5.5	6.0	13
10	14	14	9.6	7.6	15	26	18	18	13	6.4	9.0	14
11	14	12	9.1	8.1	38	8.5	9.2	15	17	14	8.9	8.5
12	52	11	12	8.7	21	2.3	13	39	58	9.0	4.1	2.7
13	17	12	22	9.7	8.4	8.1	37	61	16	17	2.1	5.3
14	22	9.8	28	23	5.4	14	27	26	18	27	11	23
15	35	4.0	18	20	9.5	20	27	25	19	16	14	17
16	43	3.9	18	10	15	22	12	13	18	11	9.9	27
17	40	6.5	27	7.5	14	15	6.4	16	15	10	9.8	14
18	42	7.2	44	8.3	14	14	7.3	27	12	11	9.6	14
19	33	21	17	8.8	14	11	15	25	12	35	26	8.3
20	19	25	17	9.0	20	16	20	19	9.2	37	14	15
21	19	8.9	7.2	9.6	15	18	19	12	15	22	5.8	70
22	17	7.0	4.0	20	7.4	18	17	10	18	30	50	1.5
23	27	10	29	25	8.2	17	15	26	18	40	67	3.1
24	58	14	15	6.3	8.7	16	15	23	1.8	34	64	16
25	23	43	9.3	8.4	23	16	15	24	18	18	12	14
26	15	8.3	9.8	8.7	16	26	15	24	14	11	12	13
27	8.1	15	11	9.1	16	25	14	19	9.5	11	12	55
28	9.2	32	11	14	9.3	27	26	16	18	12	12	22
29	13	23	11	25	---	19	18	19	22	71	12	16
30	14	25	11	41	---	29	21	33	23	11	12	13
31	14	---	11	25	---	5.6	---	22	---	15	11	---
TOTAL	671.3	418.3	457.4	432.8	435.6	489.7	553.9	702	560.8	547.44	509.7	459.3
MEAN	21.65	13.94	14.75	13.96	15.56	15.80	18.46	22.65	18.69	17.66	16.44	15.31
MAX	58	43	44	41	38	29	55	61	58	71	67	70
MIN	8.1	3.9	4.0	6.3	5.4	2.3	6.4	10	1.8	0.94	1.4	1.5

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002
MEAN	18.01	11.83	13.42	15.91	15.41
MAX	21.7	15.2	15.1	18.9	15.7
(WY)	2002	2000	2000	1999	2000
MIN	13.1	6.28	11.4	13.2	14.7
(WY)	2001	2001	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1998 - 2002

ANNUAL TOTAL	5886.8	6238.24	
ANNUAL MEAN	16.13	17.09	17.47
HIGHEST ANNUAL MEAN			20.5
LOWEST ANNUAL MEAN			14.5
HIGHEST DAILY MEAN	76	71	153
LOWEST DAILY MEAN	1.8	0.94	0.70
ANNUAL SEVEN-DAY MINIMUM	5.7	6.1	2.2
MAXIMUM PEAK FLOW		237	337
MAXIMUM PEAK STAGE		2.62	3.44
INSTANTANEOUS LOW FLOW		0.60	0.60
10 PERCENT EXCEEDS	25	29	27
50 PERCENT EXCEEDS	14	14	15
90 PERCENT EXCEEDS	8.2	7.6	8.0

PROJECT DATA
City of Akron Water Diversion

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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 m. 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 June 19-Sept. 20, 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 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.1	3.3	3.0	4.2	3.7	4.1	3.6	1.9	e2.4	e6.4	5.0
2	3.5	3.1	2.9	2.9	3.5	4.0	3.4	5.3	2.4	e2.4	e6.1	4.7
3	3.8	3.5	2.5	2.8	3.1	3.6	5.9	3.6	2.8	e2.7	e6.3	4.5
4	3.8	3.5	2.8	2.6	2.8	3.2	4.2	3.4	2.8	e2.9	e6.4	4.6
5	4.0	3.6	3.0	2.7	2.5	3.7	3.9	3.1	2.4	e3.2	e6.1	4.3
6	5.0	3.4	3.3	3.0	2.8	3.8	3.8	3.0	2.9	e3.5	e5.6	4.2
7	4.7	3.6	3.6	3.3	3.4	3.8	3.6	2.7	1.8	e3.8	e5.4	4.9
8	4.5	3.5	3.8	2.5	3.1	3.2	3.7	2.5	1.4	e4.2	5.6	5.6
9	4.2	3.6	3.9	1.6	3.3	3.3	4.1	2.8	1.4	e4.6	6.1	5.9
10	4.1	3.2	4.0	2.3	3.9	2.8	3.8	2.3	1.8	e5.1	e5.9	5.2
11	4.4	3.3	4.1	2.8	4.3	2.5	3.6	2.1	1.6	e5.6	e5.9	4.7
12	5.5	2.9	4.0	3.3	2.1	3.5	4.0	3.4	2.9	e6.3	e5.5	4.8
13	3.9	2.8	3.7	3.6	2.5	4.1	4.3	4.3	2.0	6.4	e5.1	5.2
14	4.1	2.5	3.2	3.4	3.0	4.0	4.6	2.8	2.0	6.2	e5.4	5.6
15	4.4	2.8	3.0	2.5	3.6	3.6	3.8	2.4	2.0	5.6	e4.9	5.4
16	5.9	3.5	2.6	2.2	3.6	4.5	3.0	1.9	2.0	5.5	e4.6	5.8
17	6.7	3.8	4.0	2.7	3.9	4.1	3.5	3.2	1.9	5.4	e5.1	4.5
18	6.5	4.1	4.2	3.0	3.7	3.7	4.2	4.1	2.0	e5.4	e5.8	4.2
19	5.8	4.2	2.7	3.3	3.5	3.9	4.8	3.1	e10	e7.8	e6.3	4.0
20	4.7	3.9	2.3	3.4	3.4	4.5	4.7	2.6	5.7	e7.8	e6.1	5.0
21	4.3	2.7	2.5	3.5	2.8	4.4	4.4	2.3	5.5	e7.8	e6.0	5.3
22	4.4	3.2	3.3	3.4	3.5	3.9	3.9	2.6	5.0	e8.0	e6.3	3.5
23	4.5	3.6	3.4	1.8	3.9	3.3	3.7	2.7	4.6	e7.7	e7.2	4.2
24	4.9	3.6	2.3	2.2	4.1	3.4	3.6	2.2	4.5	e8.0	8.3	4.7
25	3.5	4.1	2.6	2.6	3.5	3.8	3.4	2.5	5.0	e7.1	7.0	4.4
26	2.7	3.6	2.9	2.8	3.0	4.9	3.5	2.6	4.7	e6.4	6.4	4.2
27	3.6	4.2	3.0	3.1	2.9	4.8	3.6	2.2	5.2	e6.1	6.5	6.3
28	4.0	3.6	3.1	3.3	3.0	4.2	4.2	2.4	5.2	e6.0	6.6	5.7
29	4.2	3.3	3.1	2.7	---	3.6	4.1	2.6	4.6	e5.5	6.6	4.2
30	4.0	3.8	3.1	3.8	---	3.5	4.0	2.5	3.7	e6.1	6.0	3.8
31	3.5	---	3.0	3.3	---	3.8	---	1.9	---	e6.7	5.5	---
TOTAL	136.4	103.6	99.2	89.4	92.9	117.1	119.4	88.7	101.7	172.2	187.0	144.4
MEAN	4.400	3.453	3.200	2.884	3.318	3.777	3.980	2.861	3.390	5.555	6.032	4.813
MAX	6.7	4.2	4.2	3.8	4.3	4.9	5.9	5.3	10	8.0	8.3	6.3
MIN	2.7	2.5	2.3	1.6	2.1	2.5	3.0	1.9	1.4	2.4	4.6	3.5

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	4.485	4.195	4.473	4.468	4.170	3.635	3.506	2.910	3.242	3.840	4.298	3.917
MEAN	4.485	4.195	4.473	4.468	4.170	3.635	3.506	2.910	3.242	3.840	4.298	3.917
MAX	7.98	7.19	8.31	7.59	6.52	4.03	3.98	3.20	4.91	5.55	6.03	6.15
(WY)	1999	1999	1999	1999	1999	1999	2002	2001	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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1998 - 2002

ANNUAL TOTAL	1274.0	1452.0	
ANNUAL MEAN	3.490	3.978	3.820
HIGHEST ANNUAL MEAN			5.15
LOWEST ANNUAL MEAN			2.81
HIGHEST DAILY MEAN	6.7 Oct 17	e10 Jun 19	13 Oct 8 1998
LOWEST DAILY MEAN	1.6 Apr 7	1.4 Jun 8	0.07 Jul 2 2000
ANNUAL SEVEN-DAY MINIMUM	2.3 Jul 27	1.8 Jun 7	1.2 Sep 12 2000
MAXIMUM PEAK FLOW		e20 Jun 19	34 Mar 17 1999
MAXIMUM PEAK STAGE		10.82 Sep 27	10.86 Aug 9 2001
INSTANTANEOUS LOW FLOW		1.0 Jun 8	0.01 Jul 2 2000
10 PERCENT EXCEEDS	4.4	6.0	6.4
50 PERCENT EXCEEDS	3.5	3.7	3.4
90 PERCENT EXCEEDS	2.6	2.5	2.1

e Estimated.

PROJECT DATA

Monitoring of Truetown Mine Outflow

The following tables list the results of chemical analysis of surface-water samples collected from Truetown mine drain (392652082062200), Sunday Creek above mine drain (392705082061400), and Sunday Creek below mine drain (392637082062100). Samples were collected monthly beginning in May 1999 to characterize water quality at these sites before reclamation projects to reduce acid-mine drainage are conducted.



PROJECT DATA
Monitoring of Truetown Mine Outflow

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392652082062200 MINE DRAIN AT TRUETOWN, OHIO

LOCATION.—Latitude 39°26'52", longitude 82°06'22", Athens County, Hydrologic Unit 05030204, left bank of impoundment pool mine drain outlet at Truetown, Ohio.

DRAINAGE AREA.—Not determined.

PERIOD OF RECORD.—June 1, 1999, to June, 2002 (station discontinued).

GAGE.—Water-stage recorder.

REMARKS.—Records fair except for period of estimated discharge, which are poor.

EXTREMES FOR PERIOD OF RECORD.—Maximum instantaneous discharge, 3.4 ft³/s June 2 and 3, 1999; minimum instantaneous discharge, 1.1 ft³/s Oct. 24, 25, 27-31, 1999.

EXTREMES FOR CURRENT YEAR.—Maximum discharge, 2.5 ft³/s, many days, gage height 4.22 ft, many days; minimum discharge, 1.3 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1.9	1.7	1.4	1.5	e1.6	1.9	2.1	2.3	---	---	---
2	2.1	1.9	1.7	1.4	1.4	e1.6	2.0	2.1	2.2	---	---	---
3	1.9	1.9	1.8	1.4	1.5	e1.6	1.9	1.9	2.2	---	---	---
4	1.9	1.9	1.8	1.4	1.4	1.6	1.9	1.9	2.2	---	---	---
5	2.0	1.9	1.8	1.4	1.4	1.6	1.9	1.9	2.2	---	---	---
6	1.9	1.9	1.9	1.5	1.5	1.6	1.9	2.0	2.3	---	---	---
7	1.9	1.9	1.9	1.4	e1.5	1.6	1.9	2.0	2.3	---	---	---
8	1.8	1.9	1.9	1.4	e1.5	1.6	2.0	2.1	2.3	---	---	---
9	1.8	1.8	1.8	1.4	e1.5	1.7	1.9	2.1	2.4	---	---	---
10	1.9	1.9	1.9	1.4	e1.5	1.5	1.8	1.9	2.3	---	---	---
11	1.9	1.8	1.8	1.3	e1.5	1.6	1.9	2.0	2.4	---	---	---
12	2.0	1.8	1.9	1.5	e1.5	1.7	1.9	2.1	2.4	---	---	---
13	2.0	1.9	1.9	1.4	e1.5	1.8	1.9	2.3	2.4	---	---	---
14	2.1	1.9	1.9	1.4	e1.5	1.7	2.0	2.2	2.4	---	---	---
15	1.9	1.9	1.7	1.3	e1.5	1.8	1.9	2.1	2.4	---	---	---
16	2.0	1.9	1.8	1.3	e1.5	1.6	1.9	2.2	2.3	---	---	---
17	1.9	1.8	1.9	1.3	e1.5	1.7	1.9	2.3	2.2	---	---	---
18	1.9	1.9	1.4	1.3	e1.5	1.7	1.9	2.3	2.1	---	---	---
19	2.0	1.9	1.5	1.5	e1.5	1.8	2.0	2.2	2.1	---	---	---
20	1.9	1.9	1.4	1.5	e1.5	1.9	2.0	2.2	2.0	---	---	---
21	1.9	1.9	1.3	1.5	e1.5	1.9	2.0	2.2	2.1	---	---	---
22	1.9	1.9	1.4	1.4	e1.5	1.9	2.0	2.3	2.1	---	---	---
23	2.0	1.9	1.5	1.6	e1.5	1.9	1.9	2.4	2.1	---	---	---
24	2.0	1.9	1.5	1.6	e1.5	1.9	1.9	2.4	2.1	---	---	---
25	1.9	1.8	1.4	1.5	e1.5	1.9	1.9	2.4	2.1	---	---	---
26	1.9	1.8	1.5	1.5	e1.6	1.9	1.9	2.3	2.1	---	---	---
27	1.8	1.9	1.6	1.5	e1.6	1.9	1.9	2.4	2.2	---	---	---
28	1.7	1.8	1.6	1.5	e1.6	1.9	2.1	2.4	2.1	---	---	---
29	1.8	1.9	1.4	1.5	---	2.1	2.0	2.4	2.0	---	---	---
30	1.8	1.9	1.4	1.4	---	1.9	2.0	2.3	2.0	---	---	---
31	1.9	---	1.4	1.5	---	2.0	---	2.4	---	---	---	---
MEAN	1.916	1.877	1.658	1.432	1.500	1.758	1.933	2.187	2.210	---	---	---
MAX	2.1	1.9	1.9	1.6	1.6	2.1	2.1	2.4	2.4	---	---	---
MIN	1.7	1.8	1.3	1.3	1.4	1.5	1.8	1.9	2.0	---	---	---

e Estimated.

PROJECT DATA

Monitoring of Truetown Mine Outflow

392652082062200 MINE DRAIN AT TRUETOWN, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; --, no data]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	ALKA- LITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)
OCT									
17...	1220	1.9	--	4.7	3130	11.5	13.0	765	--
NOV									
15...	1130	1.8	.3	4.8	3400	16.0	13.0	767	--
DEC									
04...	1215	1.7	.1	4.8	3550	15.0	13.0	766	--
JAN									
16...	1145	1.3	.1	4.7	3510	3.0	13.0	758	--
FEB									
07...	1150	1.6	.2	4.9	3610	5.0	13.5	772	--
MAR									
25...	1220	1.9	.1	4.9	3510	6.0	13.0	772	--
APR									
18...	1245	2.0	.2	4.8	3560	24.0	13.0	784	--
MAY									
24...	1145	2.5	.3	4.8	3500	25.0	13.5	763	--
JUN									
13...	1150	2.3	.3	4.8	3450	32.5	13.5	752	--

DATE	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)
OCT								
17...	--	2250	6460	6690	412000	399000	7580	7360
NOV								
15...	--	2250	5950	7520	411000	419000	--	7420
DEC								
04...	--	2350	6070	6520	400000	400000	7530	7650
JAN								
16...	--	2310	5930	6050	404000	401000	7810	7270
FEB								
07...	--	2330	6280	7140	417000	423000	8080	8140
MAR								
25...	--	2330	6130	5330	421000	410000	7970	7980
APR								
18...	--	2340	5340	4860	400000	411000	7690	8050
MAY								
24...	--	2300	6050	6060	433000	422000	8010	8060
JUN								
13...	--	2280	5710	6050	397000	449000	7530	7740

PROJECT DATA
Monitoring of Truetown Mine Outflow

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392705082061400 SUNDAY CREEK ABOVE MINE DRAIN

LOCATION.—Latitude 39°27'05", longitude 82°06'14", Athens County, Hydrologic Unit 05030204, 0.4 mi upstream from mine drain outlet at Truetown, Ohio.

DRAINAGE AREA.—Not determined.

PERIOD OF RECORD.—Monthly water-quality samples and discharge measurement collected beginning May 1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated.]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	ALKA- LILITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)
OCT									
17...	1100	6.7	--	6.9	871	10.0	12.0	--	48
NOV									
15...	1040	5.0	8.4	6.9	1000	16.0	6.0	--	46
DEC									
04...	1110	27	10.0	7.1	556	15.0	7.0	--	62
JAN									
16...	1055	39	11.6	7.3	359	3.0	2.0	--	59
FEB									
07...	1100	65	13.0	7.3	443	5.0	2.0	--	54
MAR									
25...	1120	164	11.0	7.5	358	6.0	6.5	--	48
APR									
18...	1125	230	9.5	7.5	280	24.0	15.0	--	50
MAY									
24...	1050	96	9.2	7.3	447	22.0	14.5	--	53
JUN									
13...	1055	92	7.0	7.3	493	26.5	21.0	--	53

DATE	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)
OCT								
17...	58	385	<20	40	57	1450	522	542
NOV								
15...	56	439	<20	40	300	1520	545	530
DEC								
04...	76	154	<20	110	109	1610	325	345
JAN								
16...	71	89.8	<20	60	304	1030	506	504
FEB								
07...	66	123	<20	70	393	1220	515	515
MAR								
25...	59	78.1	<20	160	82	1060	232	261
APR								
18...	61	62.5	<20	240	30	1170	131	176
MAY								
24...	65	134	<20	130	41	1200	440	432
JUN								
13...	65	153	<20	240	22	1360	347	394

PROJECT DATA

Monitoring of Truetown Mine Outflow

392637082062100 SUNDAY CREEK BELOW MINE DRAIN

LOCATION.—Latitude 39°26'37", longitude 82°06'21", Athens County, Hydrologic Unit 05030204, 0.2 mi downstream from mine drain outlet at Truetown, Ohio.

DRAINAGE AREA.—Not determined.

PERIOD OF RECORD.—Monthly water-quality samples and discharge measurement collected beginning May 1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated.]

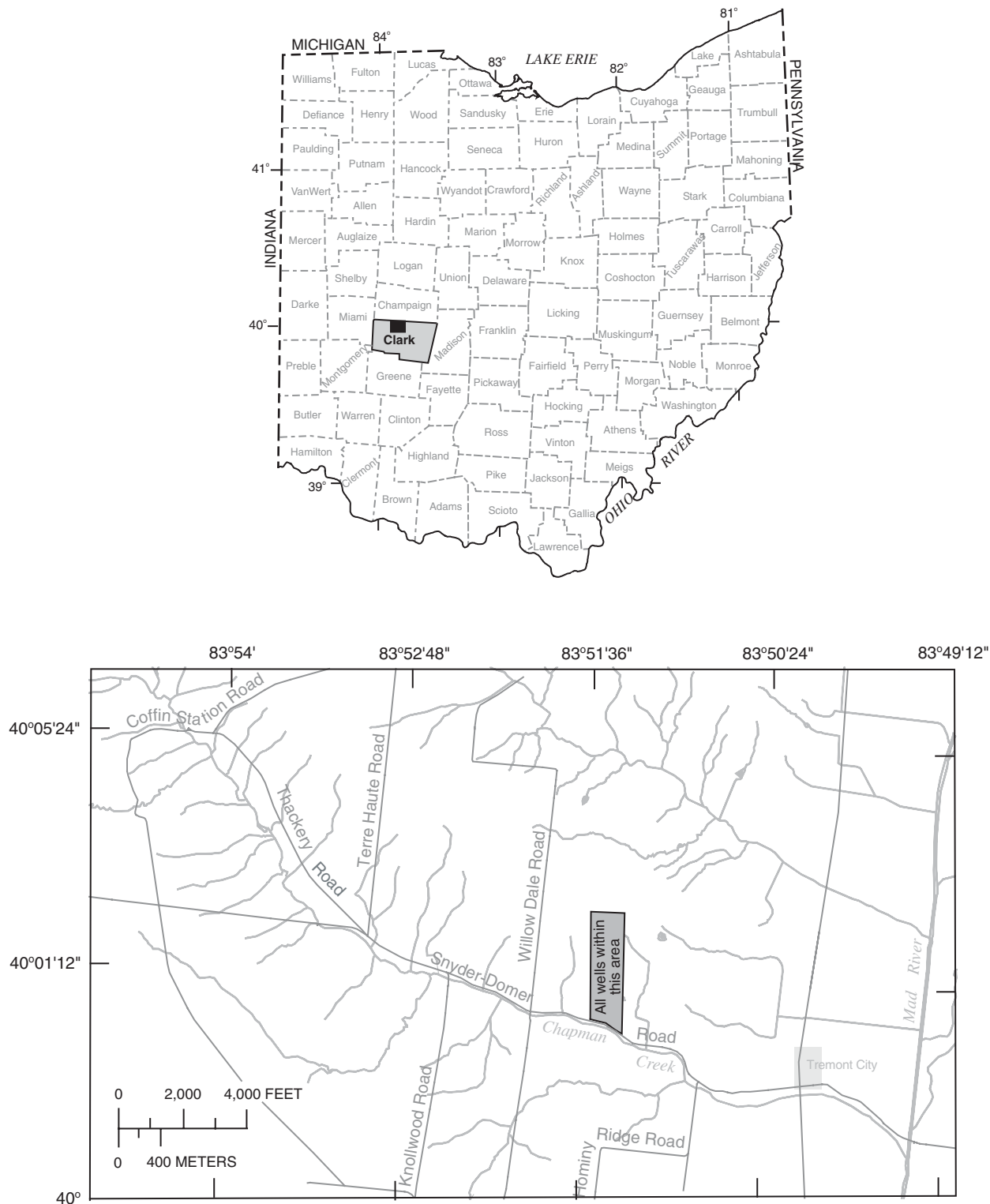
DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACIDITY TOTAL HEATED (MG/L AS CACO3) (70508)	ALKA- LITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)
OCT									
17...	1030	8.6	--	6.6	1240	10.0	11.5	--	32
NOV									
15...	1010	6.8	8.2	6.8	1520	16.0	7.0	--	28
DEC									
04...	1040	28	10.2	6.8	708	15.0	7.0	--	50
JAN									
16...	1030	40	12.0	6.9	447	2.5	2.5	--	54
FEB									
07...	1030	66	12.6	7.0	547	5.0	2.0	--	54
MAR									
25...	1045	166	11.2	7.0	372	4.0	6.5	--	45
APR									
18...	1050	232	9.2	7.0	317	24.0	15.0	--	44
MAY									
24...	1020	98	8.5	6.7	572	21.5	14.5	--	44
JUN									
13...	1030	94	7.0	6.7	506	25.5	21.0	--	40

DATE	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)
OCT								
17...	38	653	20	980	57400	59700	1630	1630
NOV								
15...	35	757	30	1310	69700	70300	1880	1820
DEC								
04...	60	239	<20	370	13900	18800	654	690
JAN								
16...	65	140	<20	230	9630	11100	687	687
FEB								
07...	65	172	<20	220	8660	10100	690	694
MAR								
25...	54	103	<20	220	2990	5260	335	344
APR								
18...	53	79.3	<20	290	411	4390	211	240
MAY								
24...	53	191	<20	280	6470	12400	653	636
JUN								
13...	49	209	<20	350	4820	12800	572	614

PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

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The USGS has had a long-standing relationship with the U.S. Environmental Protection Agency (USEPA) to provide hydrologic information at Ohio sites where remediation work is pending. The most recent investigation of this type was at the Tremont City landfill, in Clark County, where the USGS determined ground-water flow directions in the site area, as well as ground-water/surface-water interactions with Chapman Creek. The following tables contain stream-stage data collected at Chapman Creek and water-level data collected from observation wells near Tremont City Landfill from October 18, 2001 to April 16, 2002. These data were collected as part of a cooperative study with the USEPA.



PROJECT DATA **Hydrologic Assessment at Tremont City Landfill Site**

400117083512100. LOCAL NUMBER, CL-249 MW-7S

LOCATION.—Latitude 40°01'17", longitude 83°51'21", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 80.42 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

DATUM.—Elevation of land-surface datum is 1,098.4 ft above sea level. Measuring point: top of casing, 2.08 ft above land-surface datum.

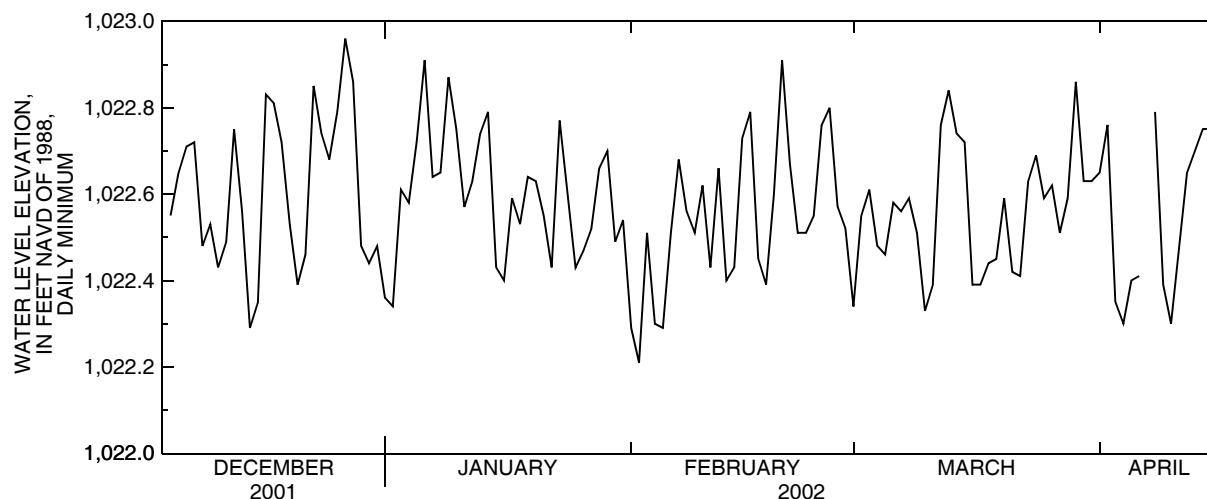
PERIOD OF RECORD.—Continuous water-level data from December 4, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 1022.96 ft above NAVD of 1988, Dec. 27, 2001; lowest water level measured, 1022.21 ft above NAVD of 1988, Feb. 2, 2002.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MINIMUM VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	1022.36	1022.29	1022.34	1022.65	---	---	---	---	---
2	---	---	---	1022.34	1022.21	1022.55	1022.76	---	---	---	---	---
3	---	---	---	1022.61	1022.51	1022.61	1022.35	---	---	---	---	---
4	---	---	---	1022.58	1022.30	1022.48	1022.30	---	---	---	---	---
5	---	---	1022.55	1022.72	1022.29	1022.46	1022.40	---	---	---	---	---
6	---	---	1022.65	1022.91	1022.51	1022.58	1022.41	---	---	---	---	---
7	---	---	1022.71	1022.64	1022.68	1022.56	---	---	---	---	---	---
8	---	---	1022.72	1022.65	1022.56	1022.59	1022.79	---	---	---	---	---
9	---	---	1022.48	1022.87	1022.51	1022.51	1022.39	---	---	---	---	---
10	---	---	1022.53	1022.75	1022.62	1022.33	1022.30	---	---	---	---	---
11	---	---	1022.43	1022.57	1022.43	1022.39	1022.46	---	---	---	---	---
12	---	---	1022.49	1022.63	1022.66	1022.76	1022.65	---	---	---	---	---
13	---	---	1022.75	1022.74	1022.40	1022.84	1022.70	---	---	---	---	---
14	---	---	1022.56	1022.79	1022.43	1022.74	1022.75	---	---	---	---	---
15	---	---	1022.29	1022.43	1022.73	1022.72	1022.75	---	---	---	---	---
16	---	---	1022.35	1022.40	1022.79	1022.39	---	---	---	---	---	---
17	---	---	1022.83	1022.59	1022.45	1022.39	---	---	---	---	---	---
18	---	---	1022.81	1022.53	1022.39	1022.44	---	---	---	---	---	---
19	---	---	1022.72	1022.64	1022.60	1022.45	---	---	---	---	---	---
20	---	---	1022.53	1022.63	1022.91	1022.59	---	---	---	---	---	---
21	---	---	1022.39	1022.55	1022.67	1022.42	---	---	---	---	---	---
22	---	---	1022.46	1022.43	1022.51	1022.41	---	---	---	---	---	---
23	---	---	1022.85	1022.77	1022.51	1022.63	---	---	---	---	---	---
24	---	---	1022.74	1022.61	1022.55	1022.69	---	---	---	---	---	---
25	---	---	1022.68	1022.43	1022.76	1022.59	---	---	---	---	---	---
26	---	---	1022.79	1022.47	1022.80	1022.62	---	---	---	---	---	---
27	---	---	1022.96	1022.52	1022.57	1022.51	---	---	---	---	---	---
28	---	---	1022.86	1022.66	1022.52	1022.59	---	---	---	---	---	---
29	---	---	1022.48	1022.70	---	1022.86	---	---	---	---	---	---
30	---	---	1022.44	1022.49	---	1022.63	---	---	---	---	---	---
31	---	---	1022.48	1022.54	---	1022.63	---	---	---	---	---	---
MIN	---	---	1022.29	1022.34	1022.21	1022.33	1022.30	---	---	---	---	---

WTR YR 2002 MIN 1022.21



PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

153

400117083512101. LOCAL NUMBER, CL-250 MW-7D

LOCATION.—Latitude 40°01'17", longitude 83°51'21", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 103.02 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

DATUM.—Elevation of land-surface datum is 1,098 ft above sea level. Measuring point: top of casing, 2.08 ft above land-surface datum.

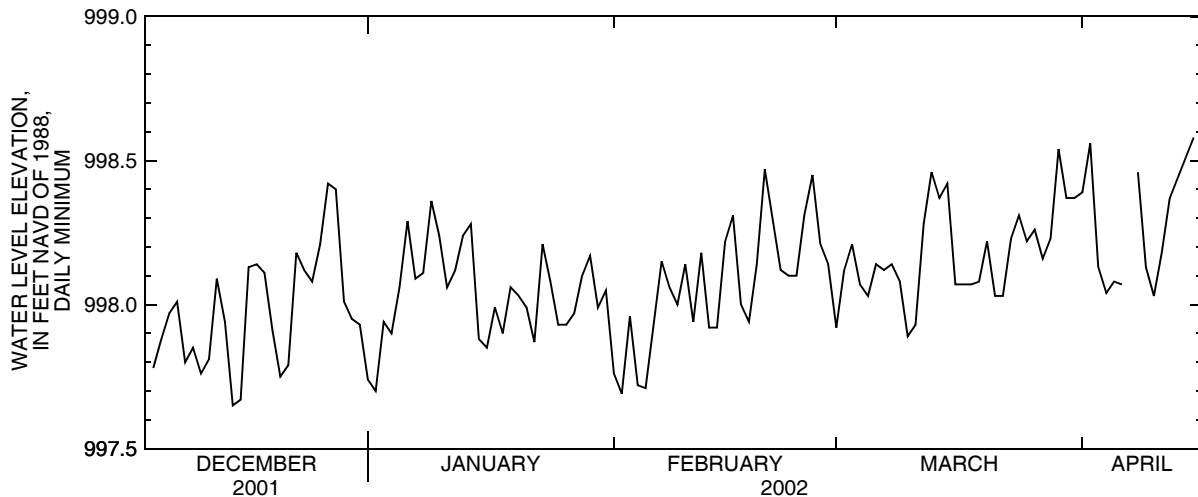
PERIOD OF RECORD.—Continuous water-level data from December 4, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 998.58 ft above NAVD of 1988, Apr. 15, 2002; lowest water level measured, 997.65 ft above NAVD of 1988, Dec. 15, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	997.74	997.76	997.92	998.39	---	---	---	---	---
2	---	---	---	997.70	997.69	998.12	998.56	---	---	---	---	---
3	---	---	---	997.94	997.96	998.21	998.13	---	---	---	---	---
4	---	---	---	997.90	997.72	998.07	998.04	---	---	---	---	---
5	---	---	997.78	998.06	997.71	998.03	998.08	---	---	---	---	---
6	---	---	997.88	998.29	997.92	998.14	998.07	---	---	---	---	---
7	---	---	997.97	998.09	998.15	998.12	---	---	---	---	---	---
8	---	---	998.01	998.11	998.06	998.14	998.46	---	---	---	---	---
9	---	---	997.80	998.36	998.00	998.08	998.13	---	---	---	---	---
10	---	---	997.85	998.24	998.14	997.89	998.03	---	---	---	---	---
11	---	---	997.76	998.06	997.94	997.93	998.18	---	---	---	---	---
12	---	---	997.81	998.12	998.18	998.28	998.37	---	---	---	---	---
13	---	---	998.09	998.24	997.92	998.46	998.44	---	---	---	---	---
14	---	---	997.94	998.28	997.92	998.37	998.51	---	---	---	---	---
15	---	---	997.65	997.88	998.22	998.42	998.58	---	---	---	---	---
16	---	---	997.67	997.85	998.31	998.07	---	---	---	---	---	---
17	---	---	998.13	997.99	998.00	998.07	---	---	---	---	---	---
18	---	---	998.14	997.90	997.94	998.07	---	---	---	---	---	---
19	---	---	998.11	998.06	998.14	998.08	---	---	---	---	---	---
20	---	---	997.91	998.03	998.47	998.22	---	---	---	---	---	---
21	---	---	997.75	997.99	998.30	998.03	---	---	---	---	---	---
22	---	---	997.79	997.87	998.12	998.03	---	---	---	---	---	---
23	---	---	998.18	998.21	998.10	998.23	---	---	---	---	---	---
24	---	---	998.12	998.08	998.10	998.31	---	---	---	---	---	---
25	---	---	998.08	997.93	998.31	998.22	---	---	---	---	---	---
26	---	---	998.21	997.93	998.45	998.26	---	---	---	---	---	---
27	---	---	998.42	997.97	998.21	998.16	---	---	---	---	---	---
28	---	---	998.40	998.10	998.14	998.23	---	---	---	---	---	---
29	---	---	998.01	998.17	---	998.54	---	---	---	---	---	---
30	---	---	997.95	997.99	---	998.37	---	---	---	---	---	---
31	---	---	997.93	998.05	---	998.37	---	---	---	---	---	---
MIN	---	---	997.65	997.70	997.69	997.89	998.03	---	---	---	---	---

WTR YR 2002 MIN 997.65



PROJECT DATA **Hydrologic Assessment at Tremont City Landfill Site**

400126083513000. LOCAL NUMBER, CL-251 BF-10S

LOCATION.—Latitude 40°01'26", longitude 83°51'30", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 9.85 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

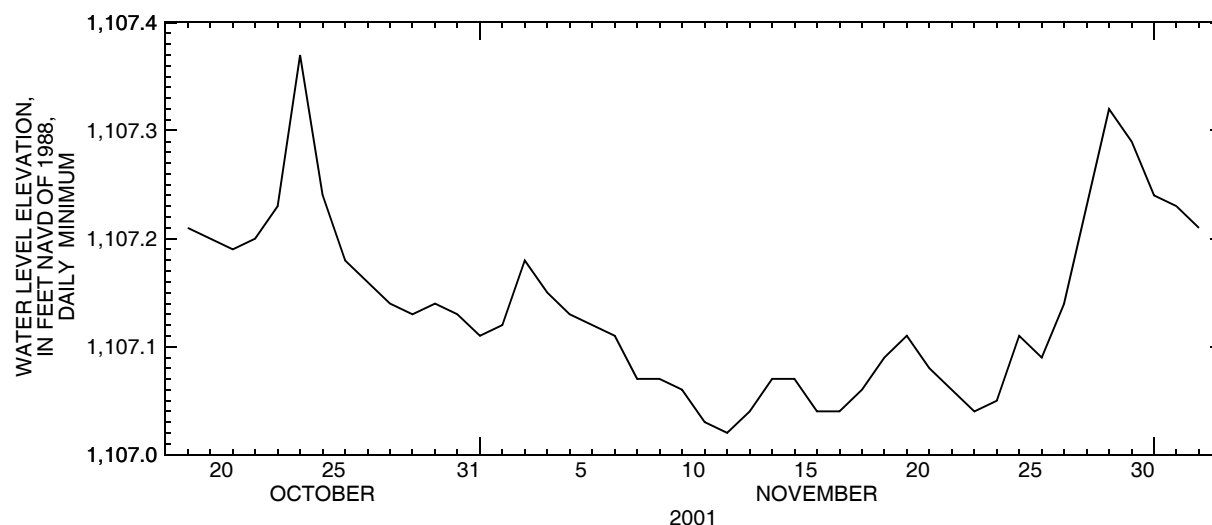
DATUM.—Elevation of land-surface datum is 1,106.9 ft above sea level. Measuring point: top of casing, 1.98 ft above land-surface datum.

PERIOD OF RECORD.—Continuous water-level data from October 18, 2001 to December 4, 2001.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: Highest water level measured, 1107.37 ft above NAVD of 1988, Oct. 24, 2001; lowest water level measured, 1107.02 ft above NAVD of 1988, Nov. 12, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 **DAILY MINIMUM VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1107.11	1107.24	---	---	---	---	---	---	---	---	---
2	---	1107.12	1107.23	---	---	---	---	---	---	---	---	---
3	---	1107.18	1107.21	---	---	---	---	---	---	---	---	---
4	---	1107.15	---	---	---	---	---	---	---	---	---	---
5	---	1107.13	---	---	---	---	---	---	---	---	---	---
6	---	1107.12	---	---	---	---	---	---	---	---	---	---
7	---	1107.11	---	---	---	---	---	---	---	---	---	---
8	---	1107.07	---	---	---	---	---	---	---	---	---	---
9	---	1107.07	---	---	---	---	---	---	---	---	---	---
10	---	1107.06	---	---	---	---	---	---	---	---	---	---
11	---	1107.03	---	---	---	---	---	---	---	---	---	---
12	---	1107.02	---	---	---	---	---	---	---	---	---	---
13	---	1107.04	---	---	---	---	---	---	---	---	---	---
14	---	1107.07	---	---	---	---	---	---	---	---	---	---
15	---	1107.07	---	---	---	---	---	---	---	---	---	---
16	---	1107.04	---	---	---	---	---	---	---	---	---	---
17	---	1107.04	---	---	---	---	---	---	---	---	---	---
18	---	1107.06	---	---	---	---	---	---	---	---	---	---
19	1107.21	1107.09	---	---	---	---	---	---	---	---	---	---
20	1107.20	1107.11	---	---	---	---	---	---	---	---	---	---
21	1107.19	1107.08	---	---	---	---	---	---	---	---	---	---
22	1107.20	1107.06	---	---	---	---	---	---	---	---	---	---
23	1107.23	1107.04	---	---	---	---	---	---	---	---	---	---
24	1107.37	1107.05	---	---	---	---	---	---	---	---	---	---
25	1107.24	1107.11	---	---	---	---	---	---	---	---	---	---
26	1107.18	1107.09	---	---	---	---	---	---	---	---	---	---
27	1107.16	1107.14	---	---	---	---	---	---	---	---	---	---
28	1107.14	1107.23	---	---	---	---	---	---	---	---	---	---
29	1107.13	1107.32	---	---	---	---	---	---	---	---	---	---
30	1107.14	1107.29	---	---	---	---	---	---	---	---	---	---
31	1107.13	---	---	---	---	---	---	---	---	---	---	---
MIN	1107.13	1107.02	1107.21	---	---	---	---	---	---	---	---	---
WTR YR 2002	MIN	1107.02										



PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

155

400126083513001. LOCAL NUMBER, CL-252 BF-10D

LOCATION.—Latitude 40°01'26", longitude 83°51'30", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 30.02 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

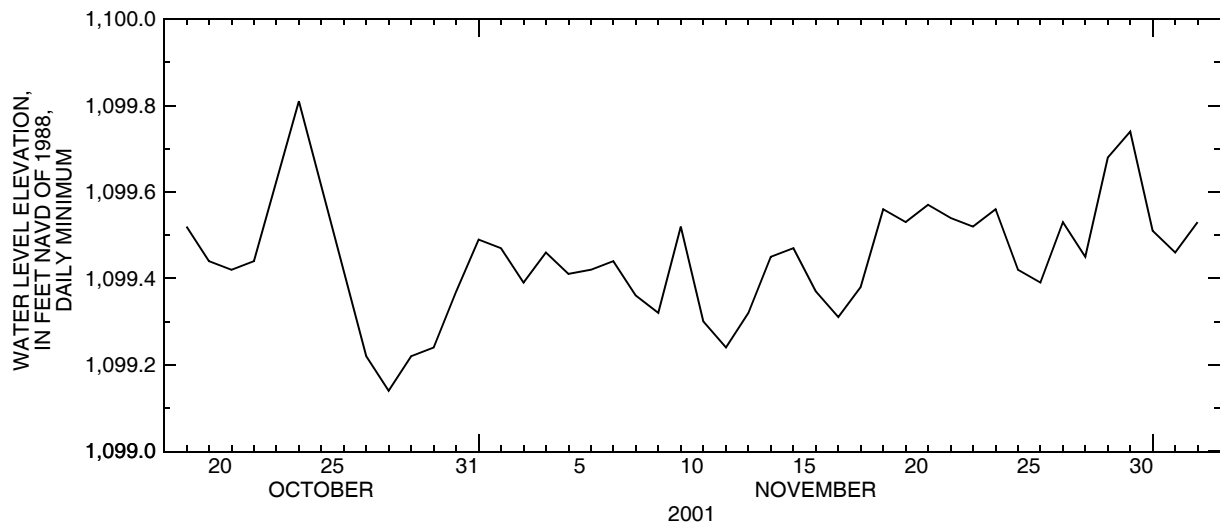
DATUM.—Elevation of land-surface datum is 1,106.9 ft above sea level. Measuring point: top of casing, 1.88 ft above land-surface datum.

PERIOD OF RECORD.—Continuous water-level data from October 18, 2001 to December 4, 2001.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 1099.81 ft above NAVD of 1988, Oct. 24, 2001; lowest water level measured, 1099.14 ft above NAVD of 1988, Oct. 28, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1099.49	1099.51	---	---	---	---	---	---	---	---	---
2	---	1099.47	1099.46	---	---	---	---	---	---	---	---	---
3	---	1099.39	1099.53	---	---	---	---	---	---	---	---	---
4	---	1099.46	---	---	---	---	---	---	---	---	---	---
5	---	1099.41	---	---	---	---	---	---	---	---	---	---
6	---	1099.42	---	---	---	---	---	---	---	---	---	---
7	---	1099.44	---	---	---	---	---	---	---	---	---	---
8	---	1099.36	---	---	---	---	---	---	---	---	---	---
9	---	1099.32	---	---	---	---	---	---	---	---	---	---
10	---	1099.52	---	---	---	---	---	---	---	---	---	---
11	---	1099.30	---	---	---	---	---	---	---	---	---	---
12	---	1099.24	---	---	---	---	---	---	---	---	---	---
13	---	1099.32	---	---	---	---	---	---	---	---	---	---
14	---	1099.45	---	---	---	---	---	---	---	---	---	---
15	---	1099.47	---	---	---	---	---	---	---	---	---	---
16	---	1099.37	---	---	---	---	---	---	---	---	---	---
17	---	1099.31	---	---	---	---	---	---	---	---	---	---
18	---	1099.38	---	---	---	---	---	---	---	---	---	---
19	1099.52	1099.56	---	---	---	---	---	---	---	---	---	---
20	1099.44	1099.53	---	---	---	---	---	---	---	---	---	---
21	1099.42	1099.57	---	---	---	---	---	---	---	---	---	---
22	1099.44	1099.54	---	---	---	---	---	---	---	---	---	---
23	1099.62	1099.52	---	---	---	---	---	---	---	---	---	---
24	1099.81	1099.56	---	---	---	---	---	---	---	---	---	---
25	1099.61	1099.42	---	---	---	---	---	---	---	---	---	---
26	1099.41	1099.39	---	---	---	---	---	---	---	---	---	---
27	1099.22	1099.53	---	---	---	---	---	---	---	---	---	---
28	1099.14	1099.45	---	---	---	---	---	---	---	---	---	---
29	1099.22	1099.68	---	---	---	---	---	---	---	---	---	---
30	1099.24	1099.74	---	---	---	---	---	---	---	---	---	---
31	1099.37	---	---	---	---	---	---	---	---	---	---	---
MIN	1099.14	1099.24	1099.46	---	---	---	---	---	---	---	---	---
WTR YR 2002	MIN 1099.14											



PROJECT DATA **Hydrologic Assessment at Tremont City Landfill Site**

400124083512800. LOCAL NUMBER, CL-253 BF-14

LOCATION.—Latitude 40°01'24", longitude 83°51'28", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 19.36 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

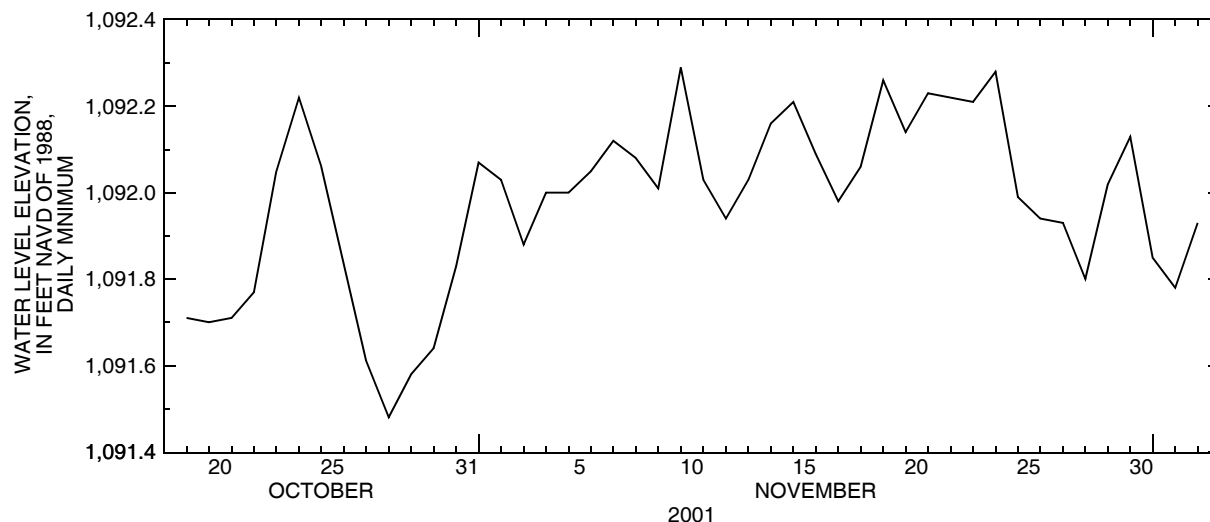
DATUM.—Elevation of land-surface datum is 1,103.6 ft above sea level. Measuring point: top of casing, 1.05 ft above land-surface datum.

PERIOD OF RECORD.—Continuous water-level data from October 18, 2001 to December 4, 2001.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 1092.29 ft above NAVD of 1988, Nov. 10, 2001; lowest water level measured, 1091.48 ft above NAVD of 1988, Oct. 28, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1092.07	1091.85	---	---	---	---	---	---	---	---	---
2	---	1092.03	1091.78	---	---	---	---	---	---	---	---	---
3	---	1091.88	1091.93	---	---	---	---	---	---	---	---	---
4	---	1092.00	---	---	---	---	---	---	---	---	---	---
5	---	1092.00	---	---	---	---	---	---	---	---	---	---
6	---	1092.05	---	---	---	---	---	---	---	---	---	---
7	---	1092.12	---	---	---	---	---	---	---	---	---	---
8	---	1092.08	---	---	---	---	---	---	---	---	---	---
9	---	1092.01	---	---	---	---	---	---	---	---	---	---
10	---	1092.29	---	---	---	---	---	---	---	---	---	---
11	---	1092.03	---	---	---	---	---	---	---	---	---	---
12	---	1091.94	---	---	---	---	---	---	---	---	---	---
13	---	1092.03	---	---	---	---	---	---	---	---	---	---
14	---	1092.16	---	---	---	---	---	---	---	---	---	---
15	---	1092.21	---	---	---	---	---	---	---	---	---	---
16	---	1092.09	---	---	---	---	---	---	---	---	---	---
17	---	1091.98	---	---	---	---	---	---	---	---	---	---
18	---	1092.06	---	---	---	---	---	---	---	---	---	---
19	1091.71	1092.26	---	---	---	---	---	---	---	---	---	---
20	1091.70	1092.14	---	---	---	---	---	---	---	---	---	---
21	1091.71	1092.23	---	---	---	---	---	---	---	---	---	---
22	1091.77	1092.22	---	---	---	---	---	---	---	---	---	---
23	1092.05	1092.21	---	---	---	---	---	---	---	---	---	---
24	1092.22	1092.28	---	---	---	---	---	---	---	---	---	---
25	1092.06	1091.99	---	---	---	---	---	---	---	---	---	---
26	1091.84	1091.94	---	---	---	---	---	---	---	---	---	---
27	1091.61	1091.93	---	---	---	---	---	---	---	---	---	---
28	1091.48	1091.80	---	---	---	---	---	---	---	---	---	---
29	1091.58	1092.02	---	---	---	---	---	---	---	---	---	---
30	1091.64	1092.13	---	---	---	---	---	---	---	---	---	---
31	1091.83	---	---	---	---	---	---	---	---	---	---	---
MIN	1091.48	1091.80	1091.78	---	---	---	---	---	---	---	---	---
WTR YR 2002	MIN 1091.48											



PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

157

400113083512200. LOCAL NUMBER, CL-254 MW-15D

LOCATION.—Latitude 40°01'13", longitude 83°51'22", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 125.5 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

DATUM.—Elevation of land-surface datum is 1,086.2 ft above sea level. Measuring point: top of casing, 2.50 ft above land-surface datum.

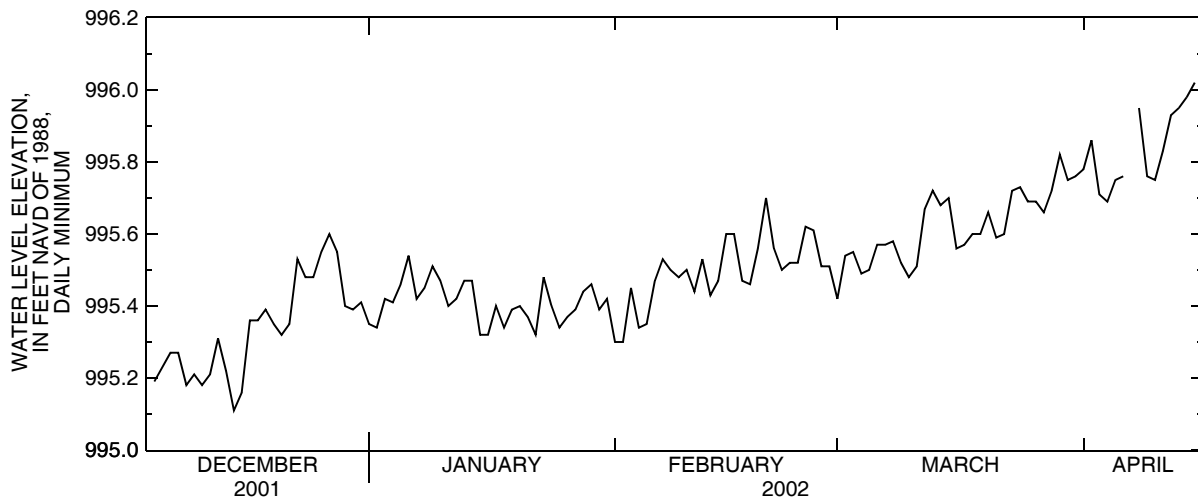
PERIOD OF RECORD.—Continuous water-level data from December 4, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 996.02 ft above NAVD of 1988, Apr. 15, 2002; lowest water level measured, 995.11 ft above NAVD of 1988, Dec. 15, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	995.35	995.30	995.42	995.78	---	---	---	---	---
2	---	---	---	995.34	995.30	995.54	995.86	---	---	---	---	---
3	---	---	---	995.42	995.45	995.55	995.71	---	---	---	---	---
4	---	---	---	995.41	995.34	995.49	995.69	---	---	---	---	---
5	---	---	995.19	995.46	995.35	995.50	995.75	---	---	---	---	---
6	---	---	995.23	995.54	995.47	995.57	995.76	---	---	---	---	---
7	---	---	995.27	995.42	995.53	995.57	---	---	---	---	---	---
8	---	---	995.27	995.45	995.50	995.58	995.95	---	---	---	---	---
9	---	---	995.18	995.51	995.48	995.52	995.76	---	---	---	---	---
10	---	---	995.21	995.47	995.50	995.48	995.75	---	---	---	---	---
11	---	---	995.18	995.40	995.44	995.51	995.83	---	---	---	---	---
12	---	---	995.21	995.42	995.53	995.67	995.93	---	---	---	---	---
13	---	---	995.31	995.47	995.43	995.72	995.95	---	---	---	---	---
14	---	---	995.22	995.47	995.47	995.68	995.98	---	---	---	---	---
15	---	---	995.11	995.32	995.60	995.70	996.02	---	---	---	---	---
16	---	---	995.16	995.32	995.60	995.56	---	---	---	---	---	---
17	---	---	995.36	995.40	995.47	995.57	---	---	---	---	---	---
18	---	---	995.36	995.34	995.46	995.60	---	---	---	---	---	---
19	---	---	995.39	995.39	995.56	995.60	---	---	---	---	---	---
20	---	---	995.35	995.40	995.70	995.66	---	---	---	---	---	---
21	---	---	995.32	995.37	995.56	995.59	---	---	---	---	---	---
22	---	---	995.35	995.32	995.50	995.60	---	---	---	---	---	---
23	---	---	995.53	995.48	995.52	995.72	---	---	---	---	---	---
24	---	---	995.48	995.40	995.52	995.73	---	---	---	---	---	---
25	---	---	995.48	995.34	995.62	995.69	---	---	---	---	---	---
26	---	---	995.55	995.37	995.61	995.69	---	---	---	---	---	---
27	---	---	995.60	995.39	995.51	995.66	---	---	---	---	---	---
28	---	---	995.55	995.44	995.51	995.72	---	---	---	---	---	---
29	---	---	995.40	995.46	---	995.82	---	---	---	---	---	---
30	---	---	995.39	995.39	---	995.75	---	---	---	---	---	---
31	---	---	995.41	995.42	---	995.76	---	---	---	---	---	---
MIN	---	---	995.11	995.32	995.30	995.42	995.69	---	---	---	---	---

WTR YR 2002 MIN 995.11



PROJECT DATA **Hydrologic Assessment at Tremont City Landfill Site**

400123083512800. LOCAL NUMBER, CL-255 BF-19S

LOCATION.—Latitude 40°01'23", longitude 83°51'28", Clark County, Tremont City Landfill.

WELL CHARACTERISTICS.—Observation well; diameter 2 in., depth 45.69 ft.

INSTRUMENTATION.—Pressure transducer and data logger (records hourly).

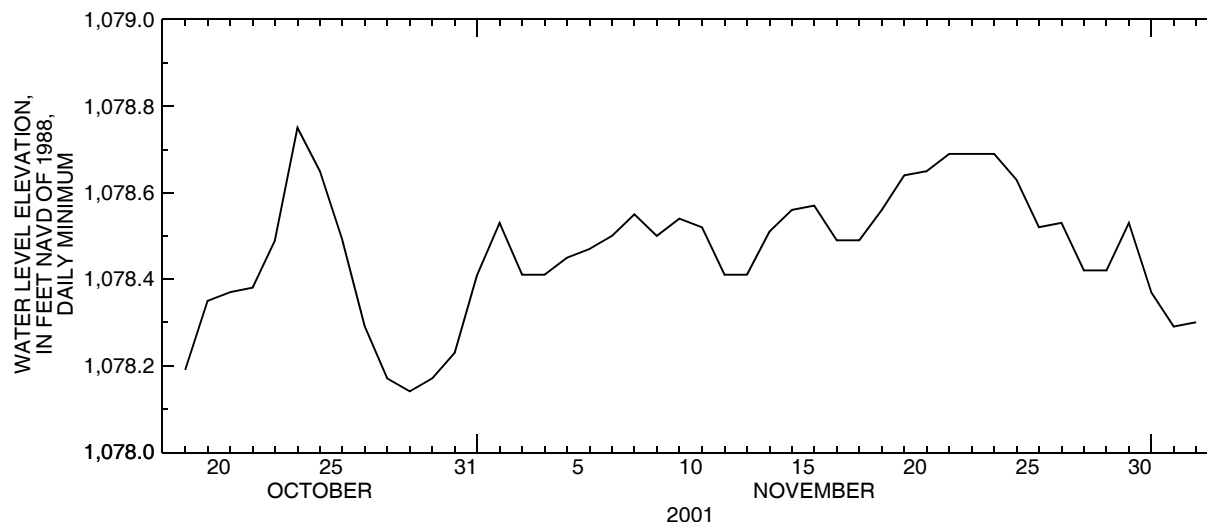
DATUM.—Elevation of land-surface datum is 1,103.8 ft above sea level. Measuring point: top of casing, 2.03 ft above land-surface datum.

PERIOD OF RECORD.—Continuous water-level data from October 18, 2001 to December 4, 2001.

EXTREMES FOR PERIOD OF RECORD.—Daily minimum values: highest water level measured, 1078.75 ft above NAVD of 1988, Oct. 24, 2001; lowest water level measured, 1078.14 ft above NAVD of 1988, Oct. 29, 2001.

WATER LEVEL ELEVATION (FEET NAVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
 DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1078.41	1078.37	---	---	---	---	---	---	---	---	---
2	---	1078.53	1078.29	---	---	---	---	---	---	---	---	---
3	---	1078.41	1078.30	---	---	---	---	---	---	---	---	---
4	---	1078.41	---	---	---	---	---	---	---	---	---	---
5	---	1078.45	---	---	---	---	---	---	---	---	---	---
6	---	1078.47	---	---	---	---	---	---	---	---	---	---
7	---	1078.50	---	---	---	---	---	---	---	---	---	---
8	---	1078.55	---	---	---	---	---	---	---	---	---	---
9	---	1078.50	---	---	---	---	---	---	---	---	---	---
10	---	1078.54	---	---	---	---	---	---	---	---	---	---
11	---	1078.52	---	---	---	---	---	---	---	---	---	---
12	---	1078.41	---	---	---	---	---	---	---	---	---	---
13	---	1078.41	---	---	---	---	---	---	---	---	---	---
14	---	1078.51	---	---	---	---	---	---	---	---	---	---
15	---	1078.56	---	---	---	---	---	---	---	---	---	---
16	---	1078.57	---	---	---	---	---	---	---	---	---	---
17	---	1078.49	---	---	---	---	---	---	---	---	---	---
18	---	1078.49	---	---	---	---	---	---	---	---	---	---
19	1078.19	1078.56	---	---	---	---	---	---	---	---	---	---
20	1078.35	1078.64	---	---	---	---	---	---	---	---	---	---
21	1078.37	1078.65	---	---	---	---	---	---	---	---	---	---
22	1078.38	1078.69	---	---	---	---	---	---	---	---	---	---
23	1078.49	1078.69	---	---	---	---	---	---	---	---	---	---
24	1078.75	1078.69	---	---	---	---	---	---	---	---	---	---
25	1078.65	1078.63	---	---	---	---	---	---	---	---	---	---
26	1078.49	1078.52	---	---	---	---	---	---	---	---	---	---
27	1078.29	1078.53	---	---	---	---	---	---	---	---	---	---
28	1078.17	1078.42	---	---	---	---	---	---	---	---	---	---
29	1078.14	1078.42	---	---	---	---	---	---	---	---	---	---
30	1078.17	1078.53	---	---	---	---	---	---	---	---	---	---
31	1078.23	---	---	---	---	---	---	---	---	---	---	---
MIN	1078.14	1078.41	1078.29	---	---	---	---	---	---	---	---	---
WTR YR 2002	MIN 1078.14											



PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

159

400056083512100. LOCAL NUMBER, CL-256 PZ-3S

LOCATION.—Latitude 40°00'56", longitude 83°51'21", Clark County, south of Tremont City Landfill, near Chapman Creek.

WELL CHARACTERISTICS.—Observation well/piezometer; diameter 0.5 in., depth 11.0 ft.

INSTRUMENTATION.—None. Periodic measurement with steel tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 985.12 ft above sea level. Measuring point: top of casing, 0.10 ft below land-surface datum.

PERIOD OF RECORD.—Intermittent water-level data from June 19, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 979.24 ft above NAVD of 1988, Dec. 18, 2001; lowest water level measured, 976.39 ft above NAVD of 1988, July 12, 2001.

WATER LEVEL,
IN FEET ABOVE NAVD OF 1988,
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
06/19/01	978.44
06/28/01	978.35
07/05/01	978.27
07/12/01	976.39
07/20/01	978.60
07/27/01	978.43
08/03/01	978.75
08/14/01	978.29
08/24/01	978.35
08/30/01	978.18
09/07/01	978.30
09/18/01	978.39
09/27/01	978.21
10/05/01	978.04
10/18/01	978.78
10/25/01	978.96
11/02/01	978.55
11/13/01	978.25
12/04/01	978.89
12/11/01	978.62
12/18/01	979.24
01/03/02	978.53
01/18/02	978.24
01/25/02	978.26
02/05/02	978.89
02/25/02	978.53
03/13/02	978.69
03/28/02	979.03
04/16/02	979.10

PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

400056083512101. LOCAL NUMBER, CL-257 PZ-3D

LOCATION.—Latitude 40°00'56", longitude 83°51'21", Clark County, south of Tremont City Landfill, near Chapman Creek.

WELL CHARACTERISTICS.—Observation well/piezometer; diameter 0.5 in., depth 28 ft.

INSTRUMENTATION.—None. Periodic measurement with steel tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 985.14 ft above sea level. Measuring point: top of casing, 0.12 ft below land-surface datum.

PERIOD OF RECORD.—Intermittent water-level data from June 19, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 979.64 ft above NAVD of 1988, June 28 and July 5, 2001; lowest water level measured, 976.43 ft above NAVD of 1988, July 12, 2001.

WATER LEVEL,
IN FEET ABOVE NAVD OF 1988,
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
06/19/01	978.54
06/28/01	979.64
07/05/01	979.64
07/12/01	976.43
07/20/01	979.27
07/27/01	979.15
08/03/01	979.05
08/14/01	978.92
08/24/01	979.48
08/30/01	979.29
09/07/01	979.18
09/18/01	979.19
09/27/01	979.48
10/05/01	979.20
10/18/01	979.19
10/25/01	979.06
11/02/01	979.02
11/13/01	979.01
12/04/01	978.95
12/11/01	978.94
12/18/01	979.07
01/03/02	978.63
01/18/02	978.52
01/25/02	978.48
02/05/02	978.57
02/25/02	978.48
03/13/02	979.51
03/28/02	979.43
04/16/02	979.59

PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

161

400100083513300. LOCAL NUMBER, CL-258 PZ-2S

LOCATION.—Latitude 40°01'00", longitude 83°51'33", Clark County, south of Tremont City Landfill, near Chapman Creek.

WELL CHARACTERISTICS.—Observation well/piezometer; diameter 0.5 in., depth 15 ft.

INSTRUMENTATION.—None. Periodic measurement with steel tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 992.12 ft above sea level. Measuring point: top of casing, 0.07 ft below land-surface datum.

PERIOD OF RECORD.—Intermittent water-level data from June 19, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 984.23 ft above NAVD of 1988, June 19, 2001; lowest water level measured, 981.71 ft above NAVD of 1988, Aug. 30 and Sept. 7, 2001.

WATER LEVEL,
IN FEET ABOVE NAVD OF 1988,
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
06/19/01	984.23
06/28/01	981.92
07/05/01	981.92
07/12/01	981.95
07/20/01	982.32
07/27/01	982.15
08/03/01	982.09
08/14/01	981.78
08/24/01	981.77
08/30/01	981.71
09/07/01	981.71
09/18/01	981.81
09/27/01	981.84
10/05/01	981.76
10/18/01	982.38
10/25/01	983.07
11/02/01	982.06
11/13/01	981.87
12/04/01	982.31
12/11/01	982.04
12/18/01	983.76
01/03/02	981.95
01/25/02	981.90
02/05/02	982.21
02/25/02	981.89
03/13/02	982.01
03/28/02	982.83
04/16/02	983.02

PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

400100083513400. LOCAL NUMBER, CL-259 PZ-2D

LOCATION.—Latitude 40°01'00", longitude 83°51'34", Clark County, south of Tremont City Landfill, near Chapman Creek.

WELL CHARACTERISTICS.—Observation well/piezometer; diameter 0.5 in., depth 24 ft.

INSTRUMENTATION.—None. Periodic measurement with steel tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 992.95 ft above sea level. Measuring point: top of casing, 0.07 ft below land-surface datum.

PERIOD OF RECORD.—Intermittent water-level data from June 19, 2001 to April 16, 2002.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 984.41 ft above NAVD of 1988, June 19, 2001; lowest water level measured, 981.68 ft above NAVD of 1988, Sept. 7, 2001.

WATER LEVEL,
IN FEET ABOVE NAVD OF 1988,
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
06/19/01	984.41
06/28/01	981.90
07/05/01	981.91
07/12/01	981.93
07/20/01	982.31
07/27/01	982.14
08/03/01	982.07
08/14/01	981.77
08/24/01	981.75
08/30/01	981.69
09/07/01	981.68
09/18/01	981.79
09/27/01	981.83
10/05/01	981.73
10/18/01	982.37
10/25/01	983.04
11/02/01	982.04
11/13/01	981.85
12/04/01	982.31
12/11/01	982.04
12/18/01	983.77
01/03/02	981.87
01/18/02	981.78
01/25/02	981.81
02/05/02	982.12
02/25/02	981.81
03/13/02	981.91
03/28/02	982.75
04/16/02	982.87

PROJECT DATA
Hydrologic Assessment at Tremont City Landfill Site

163

400058083512600. CHAPMAN CREEK NEAR TREMONT CITY LANDFILL

LOCATION.—Latitude 40°00'58", longitude 83°51'26", Clark County, Hydrologic Unit 05080001, south of Tremont City Landfill.
INSTRUMENTATION.—None. Periodic measurement from reference point to water surface with steel tape by USGS personnel.
DATUM.—Datum of reference point is 978.76 ft above NAVD of 1988.
REMARK.—This station is a surveyed reference point used to measure stream stage for comparison to ground water level elevation.
PERIOD OF RECORD.—Intermittent stage elevation data from June 19, 2001 to April 16, 2002.
EXTREMES FOR PERIOD OF RECORD.—Highest stage measured, 979.04 ft above NAVD of 1988, Dec. 18, 2001; lowest stage measured, 977.22 ft above NAVD of 1988, Aug. 30, 2001.

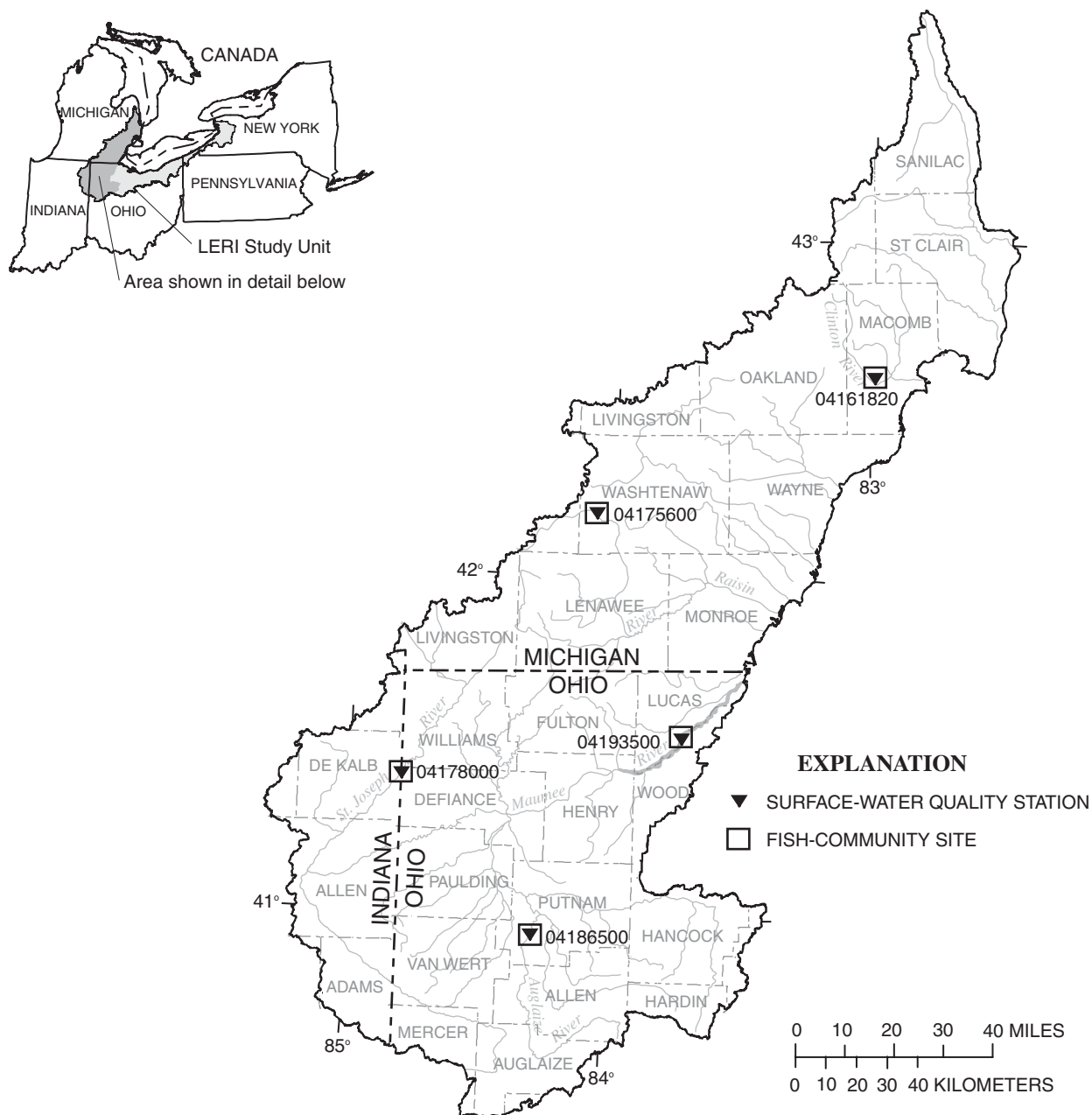
STAGE,
IN FEET ABOVE NAVD OF 1988,
INSTANTANEOUS OBSERVATION

DATE	STAGE
06/19/01	977.59
06/28/01	977.48
07/05/01	977.56
07/12/01	977.48
07/20/01	977.78
07/27/01	977.69
08/03/01	977.53
08/14/01	977.24
08/24/01	977.29
08/30/01	977.22
09/07/01	977.23
09/18/01	977.29
09/27/01	977.39
10/05/01	977.30
10/18/01	977.86
10/25/01	978.51
11/02/01	977.63
11/13/01	977.36
12/04/01	977.69
12/11/01	977.48
12/18/01	979.04
01/03/02	977.42
01/18/02	977.41
01/25/02	977.46
02/05/02	977.63
02/25/02	977.38
03/13/02	977.49
03/28/02	978.40
04/16/02	978.20

PROJECT DATA

Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages (National Water-Quality Assessment Program)

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 2002: 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). Ground-water quality data for LERI monitoring wells sampled as part of the NAWQA National Ground-Water Travel-Network can be found in the Michigan Water Resources Data Report for water year 2002.



PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS

04161820 CLINTON RIVER NEAR 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 mi².

REMARKS.—Discharge is measured at this site and is published in the Michigan Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; --, no data; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)
OCT										
02...	0945	175	790	7.9	16.5	15.0	750	8.3	82	160
NOV										
08...	1230	377	733	8.1	16.0	10.0	741	--	--	--
DEC										
12...	1030	314	791	8.0	5.8	4.9	752	10.9	86	--
JAN										
28...	1045	51	906	8.1	--	3.9	742	12.5	98	--
FEB										
26...	1030	474	1120	8.0	2.5	4.6	737	11.3	91	--
APR										
10...	1045	476	910	8.0	--	6.8	758	10.7	88	--
MAY										
29...	0945	170	836	7.9	18.0	17.6	745	8.5	91	--
JUN										
26...	0915	93	937	7.7	25.0	23.6	744	7.3	89	--
JUL										
24...	1100	51	874	7.7	20.0	20.8	751	7.1	81	--

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)
OCT										
02...	204	170	32.0	123	.012	1.17	.05	.66	.077	.03
NOV										
08...	177	180	33.0	109	.009	.86	.08	.56	.034	E.01
DEC										
12...	205	205	36.7	104	.011	1.07	.08	.54	.034	E.01
JAN										
28...	263	218	40.5	132	<.008	.93	.08	.55	.019	<.02
FEB										
26...	193	193	38.3	197	.012	.83	.23	1.0	.039	<.02
APR										
10...	195	195	37.8	147	.011	.80	.07	.78	.057	<.02
MAY										
29...	203	203	35.0	121	.030	1.17	.06	.71	.052	<.02
JUN										
26...	194	194	38.6	142	.061	2.15	<.04	.64	.090	E.01
JUL										
24...	212	174	38.0	138	.053	1.96	.08	.79	.122	.05

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04161820 CLINTON RIVER NEAR STERLING HEIGHTS, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(80154), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	SEDI- MENT, SUS- PENDE (MG/L) (80154)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)
OCT										
02...	18	<.004	<.002	.041	E.011	<.050	<.010	<.002	<.041	<.020
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	65	<.004	<.002	.020	E.006	<.050	<.010	<.002	<.041	<.020
JAN										
28...	26	--	--	--	--	--	--	--	--	--
FEB										
26...	20	<.006	<.004	.014	E.007	<.050	<.010	<.002	E.222	<.020
APR										
10...	43	<.006	<.004	.011	E.003	<.050	<.010	<.002	E.006	<.020
MAY										
29...	22	<.007	<.004	.023	E.008	<.050	<.010	<.002	<.041	<.020
JUN										
26...	41	<.006	<.004	.078	E.020	<.050	<.010	<.002	<.041	<.020
JUL										
24...	18	<.006	<.004	.063	E.020	<.050	<.010	<.002	E.009	<.020
DATE	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)
OCT										
02...	<.005	<.018	<.003	<.003	.019	<.005	<.002	<.02	<.002	<.009
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	<.005	<.018	<.003	<.003	E.005	<.005	<.002	<.02	<.002	<.009
JAN										
28...	--	--	--	--	--	--	--	--	--	--
FEB										
26...	<.005	<.018	<.003	<.003	.005	<.005	<.006	<.02	<.002	<.009
APR										
10...	<.005	<.018	<.003	<.003	.011	<.005	<.006	<.02	<.002	<.009
MAY										
29...	<.005	<.018	<.003	<.003	.007	<.005	<.006	<.02	<.002	<.009
JUN										
26...	<.005	<.018	<.003	<.003	.006	<.005	<.006	<.02	<.002	<.009
JUL										
24...	<.005	<.018	<.003	<.003	.012	<.005	<.006	<.02	<.002	<.009

PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

04161820 CLINTON RIVER NEAR STERLING HEIGHTS, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82672), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (82684)
OCT										
02...	<.005	<.003	<.005	<.004	<.035	<.027	E.012	<.006	<.002	<.007
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	<.005	<.003	<.005	<.004	<.035	<.027	E.004	<.006	<.002	<.007
JAN										
28...	--	--	--	--	--	--	--	--	--	--
FEB										
26...	<.005	<.003	<.005	<.004	<.035	<.027	E.004	<.006	<.002	<.007
APR										
10...	<.005	<.003	<.005	<.004	<.035	<.027	<.013	<.006	<.002	<.007
MAY										
29...	<.005	<.003	<.005	<.004	<.035	<.027	E.010	<.006	<.002	<.007
JUN										
26...	<.005	<.003	<.005	<.004	<.035	<.027	.022	<.006	<.002	<.007
JUL										
24...	<.005	<.003	<.005	<.004	<.035	<.027	.021	<.006	<.002	<.007
DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (82679)
OCT										
02...	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010	<.011
NOV										
08...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010	<.011
JAN										
28...	--	--	--	--	--	--	--	--	--	--
FEB										
26...	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
APR										
10...	<.010	<.006	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
MAY										
29...	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
JUN										
26...	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
JUL										
24...	<.010	<.006	<.004	<.022	<.006	<.011	.02	<.004	<.010	<.011

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04161820 CLINTON RIVER NEAR STERLING HEIGHTS, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82685), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT								
02...	<.02	.011	<.02	<.034	<.02	<.005	<.002	<.009
NOV								
08...	--	--	--	--	--	--	--	--
DEC								
12...	<.02	E.006	<.02	<.034	<.02	<.005	<.002	<.009
JAN								
28...	--	--	--	--	--	--	--	--
FEB								
26...	<.02	E.004	<.02	<.034	<.02	<.005	<.002	<.009
APR								
10...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
MAY								
29...	<.02	<.007	<.02	<.034	<.02	<.005	<.002	<.009
JUN								
26...	<.02	.009	<.02	<.034	<.02	<.005	<.002	<.009
JUL								
24...	<.02	<.007	<.02	<.034	<.02	<.005	<.002	<.009

PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

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 mi².

REMARKS.—Discharge is measured at this site and is published in the Michigan Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT ATION) (00301)	E COLI, MTEC MF WATER (COL/100 ML) (31633)
OCT 02...	1345	33	507	8.0	20.5	14.8	750	9.3	92	140
DEC 12...	1345	104	495	8.2	7.0	4.2	753	12.4	96	--
FEB 26...	1400	207	459	8.0	4.5	3.6	737	12.0	94	--
APR 10...	1430	264	463	8.0	--	9.3	749	10.2	91	--
MAY 29...	1345	135	482	7.9	21.0	19.5	745	7.8	87	--
JUN 26...	1345	39	507	7.7	27.5	25.4	744	7.0	88	--
JUL 24...	1430	18	504	7.8	22.0	24.1	751	7.9	96	--
DATE	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)
OCT 02...	245	203	29.5	26.3	<.008	.34	<.04	.43	.015	<.02
DEC 12...	194	195	26.9	25.5	E.006	.42	<.04	.49	.012	<.02
FEB 26...	176	176	25.3	21.8	<.008	.41	<.04	.49	.013	<.02
APR 10...	184	184	25.4	22.2	<.008	.39	<.04	.51	.016	<.02
MAY 29...	191	191	23.2	23.9	E.004	.17	<.04	.59	.024	<.02
JUN 26...	188	188	24.3	25.1	.018	.42	<.04	.51	.023	<.02
JUL 24...	237	194	24.6	23.5	.016	.50	<.04	.53	.025	<.02

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04175600 RIVER RAISIN NEAR MANCHESTER, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(80154), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	SEDI- MENT, SUS- PENDED (MG/L) (80154)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)
OCT										
02...	20	<.004	<.002	.027	E.009	<.050	<.010	<.002	<.041	<.020
DEC										
12...	109	<.004	<.002	.044	E.010	<.050	<.010	<.002	<.041	<.020
FEB										
26...	3.1	<.006	<.004	.032	E.010	<.050	<.010	<.002	<.041	<.020
APR										
10...	7.7	<.006	<.004	.028	E.004	<.050	<.010	<.002	<.041	<.020
MAY										
29...	10	.018	<.004	.070	E.012	<.050	<.010	<.002	<.041	<.020
JUN										
26...	43	.010	<.004	.051	E.017	<.050	<.010	<.002	<.041	<.020
JUL										
24...	25	<.006	<.004	.020	E.008	<.050	<.010	<.002	<.041	<.020
DATE	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)
OCT										
02...	<.005	<.018	<.003	<.003	<.005	<.005	<.002	<.02	<.002	<.009
DEC										
12...	<.005	<.018	<.003	<.003	<.005	<.005	<.002	<.02	<.002	<.009
FEB										
26...	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002	<.009
APR										
10...	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002	<.009
MAY										
29...	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002	<.009
JUN										
26...	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002	<.009
JUL										
24...	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002	<.009

PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

04175600 RIVER RAISIN NEAR MANCHESTER, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82672), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value; M, presence verified but not quantified]

DATE	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)
OCT										
02...	<.005	<.003	<.005	<.004	<.035	<.027	E.005	<.006	<.002	<.007
DEC										
12...	<.005	<.003	<.005	<.004	<.035	<.027	<.013	<.006	<.002	<.007
FEB										
26...	<.005	<.003	<.005	<.004	<.035	<.027	E.004	<.006	<.002	<.007
APR										
10...	<.005	<.003	<.005	<.004	<.035	<.027	<.013	<.006	<.002	<.007
MAY										
29...	<.005	<.003	<.005	<.004	<.035	<.027	E.012	<.006	<.002	<.007
JUN										
26...	<.005	<.003	<.005	<.004	<.035	<.027	E.007	<.006	<.002	<.007
JUL										
24...	<.005	<.003	<.005	<.004	<.035	<.027	E.004	<.006	<.002	<.007
DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
OCT										
02...	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010	<.011
DEC										
12...	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010	<.011
FEB										
26...	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011
APR										
10...	<.010	<.006	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
MAY										
29...	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011
JUN										
26...	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011
JUL										
24...	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04175600 RIVER RAISIN NEAR MANCHESTER, MICHIGAN—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82685), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT								
02...	<.02	.083	<.02	<.034	<.02	<.005	<.002	<.009
DEC								
12...	<.02	.069	<.02	<.034	<.02	<.005	<.002	<.009
FEB								
26...	<.02	.057	<.02	<.034	<.02	<.005	<.002	<.009
APR								
10...	<.02	.033	<.02	<.034	<.02	<.005	<.002	<.009
MAY								
29...	<.02	.034	<.02	<.034	<.02	<.005	<.002	<.009
JUN								
26...	<.02	.056	<.02	<.034	<.02	<.005	<.002	<.009
JUL								
24...	<.02	.029	<.02	<.034	<.02	<.005	<.002	<.009

**Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

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 mi².

REMARKS.—Discharge is measured at this site and is published in the Indiana Annual Report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER) SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT ATION) (00301)	E COLI, MTEC MF WATER (COL/100 ML) (31633)
OCT 01...	1130	113	652	8.2	--	13.2	747	9.8	93	160
DEC 11...	1400	528	597	8.0	10.0	5.1	755	10.2	81	--
FEB 27...	1015	689	547	7.8	1.5	3.2	737	12.0	93	--
APR 09...	1415	2260	326	7.6	--	8.2	744	10.0	87	--
MAY 28...	1415	705	494	7.9	18.0	15.8	745	8.9	92	--
JUN 25...	1330	277	538	7.7	31.0	23.8	745	6.4	78	--
JUL 23...	1400	83	721	7.8	21.0	25.3	744	6.7	84	--
DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 01...	3	273	229	49.8	46.3	<.008	.50	<.04	.66	.102
DEC 11...	1	263	217	49.4	28.8	.014	1.32	E.02	.71	.069
FEB 27...	--	201	201	44.1	24.6	E.005	1.22	<.04	.57	.052
APR 09...	--	113	113	23.3	15.6	.018	2.15	E.02	1.5	.45
MAY 28...	--	193	194	30.9	19.4	.011	.86	<.04	.81	.117
JUN 25...	--	190	190	33.8	23.1	.045	1.99	<.04	.92	.20
JUL 23...	--	301	247	51.0	45.4	E.005	.48	<.04	.61	.127

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, INDIANA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00671), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT										
01...	.02	33	.012	<.002	.200	E.032	<.050	<.010	<.002	<.041
DEC										
11...	.02	140	.004	<.002	.111	E.023	<.050	<.010	<.002	<.041
FEB										
27...	<.02	11	<.006	<.004	.062	E.024	<.050	<.010	<.002	<.041
APR										
09...	.07	227	.020	.008	.131	E.014	<.050	<.010	<.002	E.004
MAY										
28...	E.02	42	.349	.011	2.20	E.053	<.050	<.010	<.002	<.041
JUN										
25...	.05	76	.644	.005	7.22	E.321	<.050	<.010	<.002	<.041
JUL										
23...	.04	123	.011	<.004	.419	E.042	<.050	<.010	<.002	<.041
DATE	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)
OCT										
01...	<.020	<.005	E.006	<.003	<.003	<.005	<.005	<.002	<.02	<.002
DEC										
11...	<.020	<.005	<.018	<.003	<.003	<.005	<.005	<.002	<.02	<.002
FEB										
27...	<.020	<.005	<.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002
APR										
09...	<.020	<.005	.041	<.003	<.003	<.005	<.005	<.006	<.02	<.002
MAY										
28...	<.020	<.005	.044	<.003	<.003	E.003	<.005	<.006	<.02	<.002
JUN										
25...	<.020	<.005	E.012	<.003	<.003	<.005	<.005	<.006	<.02	<.002
JUL										
23...	<.020	<.005	E.008	<.003	<.003	<.005	<.005	<.006	<.02	<.002

**Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, INDIANA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82663), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value; M, presence verified but not quantified]

DATE	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)
OCT										
01...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.042	<.006	<.002
DEC										
11...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.032	.012	<.002
FEB										
27...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.026	<.006	<.002
APR										
09...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.079	.012	<.002
MAY										
28...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.417	.032	<.002
JUN										
25...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.534	.048	<.002
JUL										
23...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.079	<.006	<.002
DATE	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)
OCT										
02...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	.02	<.004	<.010
DEC										
12...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	M	<.004	<.010
FEB										
26...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	<.01	<.004	<.010
APR										
10...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010
MAY										
29...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010
JUN										
26...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010
JUL										
24...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, INDIANA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82679), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT									
02...	<.011	<.02	.053	E.01	<.034	<.02	<.005	<.002	<.009
DEC									
12...	<.011	<.02	.046	E.01	<.034	<.02	<.005	<.002	<.009
FEB									
26...	<.011	<.02	.049	E.01	<.034	<.02	<.005	<.002	<.009
APR									
10...	<.011	<.02	.038	E.01	<.034	<.02	<.005	<.002	<.009
MAY									
29...	<.011	<.02	.628	E.01	<.034	<.02	<.005	<.002	<.009
JUN									
26...	<.011	<.02	.695	<.02	<.034	<.02	<.005	<.002	<.009
JUL									
24...	<.011	<.02	.104	<.02	<.034	<.02	<.005	<.002	<.009

PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

04186500 AUGLAIZE RIVER AT 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 mi².

REMARKS.—Discharge is measured at this site and is published in surface-water records.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT ATION) (00301)	E COLI, MTEC MF WATER (COL/100 ML) (31633)
OCT 01...	1130	4.3	963	8.0	--	14.1	747	8.1	80	140
DEC 11...	1130	52	891	8.1	8.0	4.4	755	11.7	91	--
FEB 27...	1200	111	749	8.2	2.0	2.3	737	13.2	100	--
APR 09...	1130	1120	541	7.5	--	9.4	744	9.6	86	--
MAY 28...	1115	105	771	8.1	18.0	19.3	745	8.5	95	--
JUN 25...	0945	38	795	8.0	26.5	26.6	745	9.0	115	--
JUL 23...	1100	6.2	1040	7.5	21.0	26.5	744	5.1	66	--
DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 01...	2	225	187	147	108	.010	1.27	<.04	.68	.138
DEC 11...	--	240	240	111	64.0	.028	5.84	E.03	.53	.066
FEB 27...	--	191	191	90.1	58.4	.023	5.78	<.04	.56	.037
APR 09...	--	138	138	54.0	29.9	.031	8.15	.09	1.3	.41
MAY 28...	--	245	205	96.8	57.4	.026	4.04	<.04	.51	.069
JUN 25...	--	162	162	110	75.0	E.006	.05	<.04	1.2	.19
JUL 23...	--	210	172	155	120	E.007	.10	<.04	1.2	.25

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04186500 AUGLAIZE RIVER AT FT. JENNINGS, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00671), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT										
01...	.06	18	.072	.008	.538	E.049	<.050	<.010	<.002	<.041
DEC										
11...	.05	114	.010	<.002	.094	E.030	<.050	<.010	<.002	<.041
FEB										
27...	<.02	8.0	.014	<.004	.065	E.030	<.050	<.010	<.002	<.041
APR										
09...	.05	237	.014	.005	.084	E.019	<.050	<.010	<.002	<.041
MAY										
28...	.02	12	.24	<.05	1.53	.16	<.050	<.010	<.002	<.041
JUN										
25...	.02	36	.059	<.004	1.81	E.146	<.050	<.010	<.002	<.041
JUL										
23...	.12	25	.05	<.05	2.58	1.14	<.050	<.010	<.002	<.041
DATE	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)
OCT										
01...	<.020	<.005	.032	<.003	<.003	.008	<.005	<.002	<.02	<.002
DEC										
11...	<.020	<.005	<.05	<.003	<.003	<.005	<.005	<.002	<.02	<.002
FEB										
27...	<.020	<.005	<.05	<.003	<.003	<.005	<.005	<.006	<.02	<.002
APR										
09...	<.020	<.005	<.05	<.003	<.003	<.005	<.005	<.006	<.02	<.002
MAY										
28...	<.020	<.005	<.05	<.003	<.003	<.005	<.005	<.006	<.02	<.002
JUN										
25...	<.020	<.005	E.015	<.003	<.003	<.005	<.005	<.006	<.02	<.002
JUL										
23...	<.020	<.005	<.05	<.003	<.003	<.005	<.130	<.006	<.02	<.002

**Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

04186500 AUGLAIZE RIVER AT FT. JENNINGS, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82663), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated value; M, presence verified but not quantified]

DATE	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)
OCT										
01...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.296	.016	<.002
DEC										
11...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.052	.007	<.002
FEB										
27...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.104	<.006	<.002
APR										
09...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.085	.006	<.002
MAY										
28...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.75	.05	<.002
JUN										
25...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.382	.007	<.002
JUL										
23...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.17	.05	<.002
DATE	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)
OCT										
02...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	.09	<.004	<.010
DEC										
12...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010
FEB										
26...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010
APR										
10...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	M	<.004	<.010
MAY										
29...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.05	<.004	<.010
JUN										
26...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.23	<.004	<.010
JUL										
24...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.16	<.004	<.010

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04186500 AUGLAIZE RIVER AT FT. JENNINGS, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82679), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT									
02...	<.011	<.02	.025	<.02	<.034	<.02	<.005	<.002	<.009
DEC									
12...	<.011	<.02	.013	<.02	<.034	<.02	<.005	<.002	<.009
FEB									
26...	<.011	<.02	.043	<.02	<.034	<.02	<.005	<.002	<.009
APR									
10...	<.011	<.02	.040	<.02	<.034	<.02	<.005	<.002	<.009
MAY									
29...	<.011	<.02	.20	<.02	<.034	<.02	<.005	<.002	<.009
JUN									
26...	<.011	<.02	.168	<.02	<.034	<.02	<.005	<.002	<.009
JUL									
24...	<.011	<.02	.17	<.02	<.034	<.02	<.005	<.002	<.009

PROJECT DATA

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

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 mi².

REMARKS.—Discharge is measured at this site and is published in surface-water records.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT ATION) (00300) (00301)	OXYGEN, DIS- SOLVED (PER- CENT ATION) (00301)	E COLI, MTEC MF WATER (COL/100 ML) (31633)
OCT										
03...	0830	357	728	8.2	--	16.6	747	8.5	87	E300
NOV										
13...	0815	1860	637	7.9	8.0	7.5	742	11.0	94	--
20...	1145	30600	365	8.2	3.5	5.9	747	11.6	95	--
FEB										
25...	1500	4710	600	8.0	15.0	6.2	741	11.5	96	--
APR										
11...	0900	27900	405	7.6	--	8.9	752	10.8	95	--
MAY										
30...	0945	3170	543	8.4	23.0	19.6	743	10.1	113	--
JUN										
27...	0815	3120	571	8.2	26.4	23.5	744	7.2	87	--
JUL										
25...	0900	357	451	8.2	22.0	22.9	748	8.0	95	--
AUG										
22...	0800	419	560	7.9	26.0	23.9	745	7.3	89	--

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT										
03...	3	168	142	102	80.5	.021	1.39	<.04	1.1	.103
NOV										
13...	--	178	178	57.0	34.3	.020	5.09	<.04	.86	.148
20...	--	96	97	31.6	20.7	.022	5.91	.05	2.0	.49
FEB										
25...	--	--	--	68.2	36.6	.020	5.22	<.04	.97	.118
APR										
11...	--	110	110	37.1	21.8	.136	5.13	<.04	2.4	.57
MAY										
30...	4	180	180	51.7	28.6	.020	3.15	<.04	1.1	.117
JUN										
27...	--	146	146	63.3	42.1	.032	2.03	<.04	1.2	.119
JUL										
25...	8	82	81	53.9	39.4	<.008	<.05	<.04	1.4	.153
AUG										
22...	--	144	118	67.4	59.2	<.008	<.05	<.04	1.1	.123

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00671), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT										
03...	<.02	16	.023	.007	.290	E.043	<.050	<.010	<.002	<.041
NOV										
13...	.07	109	--	--	--	--	--	--	--	--
20...	.09	250	.026	<.002	.093	E.043	<.050	<.010	<.002	<.041
FEB										
25...	.03	30	.013	E.003	.060	E.027	<.050	<.010	<.002	<.041
APR										
11...	.02	388	.016	.012	.088	E.016	<.050	<.010	<.002	E.006
MAY										
30...	<.02	29	1.02	.055	3.80	E.122	<.050	<.010	<.002	<.041
JUN										
27...	<.02	26	.676	.040	6.80	E.509	<.050	<.010	<.002	<.041
JUL										
25...	<.02	22	.116	.010	4.24	E.496	<.050	<.010	<.002	<.041
AUG										
22...	<.02	--	.027	<.004	1.61	E.272	<.050	<.010	<.002	<.041
DATE	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)
OCT										
03...	<.020	<.005	E.017	<.003	<.003	.011	<.005	<.002	<.02	<.002
NOV										
13...	--	--	--	--	--	--	--	--	--	--
20...	<.020	<.005	<.018	<.003	<.003	<.005	<.005	<.002	<.02	<.002
FEB										
25...	<.020	<.005	E.006	<.003	<.003	<.005	<.005	<.006	<.02	<.002
APR										
11...	<.020	<.005	<.018	<.003	<.003	.009	<.005	<.006	<.02	<.002
MAY										
30...	<.020	E.003	.026	<.003	<.003	.005	<.005	<.006	<.02	<.002
JUN										
27...	<.020	<.005	.028	<.003	<.003	E.005	<.005	<.006	<.02	<.002
JUL										
25...	<.020	<.005	.025	<.003	<.003	<.005	<.005	<.006	<.02	<.002
AUG										
22...	<.020	<.005	.018	<.003	<.003	<.005	<.005	<.006	<.02	<.002

**Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82663), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)
OCT										
03...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.176	<.006	<.002
NOV										
13...	--	--	--	--	--	--	--	--	--	--
20...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.119	.095	<.002
FEB										
25...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.084	.012	<.002
APR										
11...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.083	.018	<.002
MAY										
30...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.987	.137	<.002
JUN										
27...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	2.11	.144	<.002
JUL										
25...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.794	.013	<.002
AUG										
22...	<.009	<.005	<.003	<.005	<.004	<.035	<.027	.296	.013	<.002
DATE	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)
OCT										
03...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	.09	<.004	<.010
NOV										
13...	--	--	--	--	--	--	--	--	--	--
20...	<.007	<.007	<.006	<.002	<.010	<.006	<.011	E.01	<.004	<.010
FEB										
25...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010
APR										
11...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	E.01	<.004	<.010
MAY										
30...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.02	<.004	<.010
JUN										
27...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.05	<.004	<.010
JUL										
25...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.09	<.004	<.010
AUG										
22...	<.007	<.010	<.006	<.004	<.022	<.006	<.011	.08	<.004	<.010

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

04193500 MAUMEE RIVER AT WATERVILLE, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82679), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

DATE	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT									
03...	<.011	<.02	.044	E.03	<.034	<.02	<.005	<.002	<.009
NOV									
13...	--	--	--	--	--	--	--	--	--
20...	<.011	<.02	.112	<.02	<.034	<.02	<.005	<.002	<.009
FEB									
25...	<.011	<.02	.028	<.02	<.034	<.02	<.005	<.002	<.009
APR									
11...	<.011	<.02	.032	<.02	<.034	<.02	<.005	<.002	<.009
MAY									
30...	<.011	<.02	.664	E.01	<.034	<.02	<.005	<.002	<.009
JUN									
27...	<.011	<.02	.850	E.01	<.034	<.02	<.005	<.002	<.009
JUL									
25...	<.011	<.02	.258	E.02	<.034	<.02	<.005	<.002	<.009
AUG									
22...	<.011	<.02	.215	.03	<.034	<.02	<.005	<.002	<.009

**Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)**

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 were done 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 ichthyologist Dr. Terry Keiser of Ohio Northern University. More details regarding collection methods can be found in Meador and others (1993). Taxonomy is based on Robins and others (1991).

CALENDER YEAR 2002

STATION NUMBER	STATION NAME	DATE SAMPLED	DRAINAGE AREA (SQUARE MILES)	REACH LENGTH (METERS)
04161820	Clinton River at Sterling Heights, Michigan	09/12/02	309	286
04193500	Maumee River at Waterville, Ohio	09/11/02	6330	545
04175600	River Raisin near Manchester, Michigan	09/13/02	132	247
04178000	St. Joseph River near Newville, Indiana	09/09/02	610	300
04186500	Auglaize River near Fort Jennings, Ohio	09/10/02	322	241

PROJECT DATA
Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)

FISH-COMMUNITY RESULTS—CONTINUED

[--, not present at indicated site]

FAMILY	SCIENTIFIC NAME	COMMON NAME	CLINTON RIVER AT STERLING HEIGHTS, MICHIGAN		RIVER RAISIN NEAR MANCHESTER, MICHIGAN		ST. JOSEPH RIVER NEAR NEWVILLE, INDIANA	
			ABUN- DANCE	BATCH WEIGHT (GRAM)	ABUN- DANCE	BATCH WEIGHT (GRAM)	ABUN- DANCE	BATCH WEIGHT (GRAM)
Petromyzontidae	<i>Ichthyomyzon unicuspis</i>	silver lamprey	--	--	2	15	--	--
	<i>Lampetra appendix</i>	American brook lamprey	--	--	1	13	--	--
Clupeidae	<i>Dorosoma cepedianum</i>	gizzard shad	1	23.3	--	--	33	2740
Cyprinidae	<i>Campostoma anomalum</i>	central stoneroller	--	--	9	120	--	--
	<i>Cyprinella spiloptera</i>	spotfin shiner	8	32	26	61	2	5.4
	<i>Cyprinus carpio</i>	common carp	1	2550	--	--	22	30300
	<i>Luxilus chrysocephalus</i>	striped shiner	3	2.7	474	2050	--	--
	<i>Nocomis biguttatus</i>	hornyhead chub	--	--	36	237	--	--
	<i>Nocomis micropogon</i>	river chub	3	119	33	428	--	--
	<i>Notropis atherinoides</i>	emerald shiner	--	--	--	--	--	--
	<i>Notropis photogenis</i>	silver shiner	--	--	77	92	--	--
	<i>Phenacobius mirabilis</i>	suckermouth minnow	--	--	--	--	--	--
	<i>Pimephales notatus</i>	bluntnose minnow	55	110	586	1450	8	4.6
	<i>Semotilus atromaculatus</i>	creek chub	16	215	26	251	--	--
Catostomidae	<i>Carpiodes cyprinus</i>	quillback	--	--	--	--	1	582
	<i>Catostomus commersoni</i>	white sucker	17	636	29	143	--	--
	<i>Hypentelium nigricans</i>	northern hog sucker	33	2810	184	4500	--	--
	<i>Minytrema melanops</i>	spotted sucker	--	--	--	--	4	169
	<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	8	1220
	<i>Moxostoma duquesnei</i>	black redhorse	4	1430	22	5240	--	--
	<i>Moxostoma erythrurum</i>	golden redhorse	--	--	1	440	16	3830
	<i>Moxostoma valenciennesi</i>	greater redhorse	--	--	--	--	--	--
Ictaluridae	<i>Ameiurus natalis</i>	yellow bullhead	--	--	--	--	1	108
	<i>Ictalurus punctatus</i>	channel catfish	--	--	--	--	3	922
	<i>Noturus flavus</i>	stonecat	--	--	2	23.1	--	--
	<i>Noturus miurus</i>	brindled madtom	--	--	5	28.5	--	--
	<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Esocidae	<i>Esox americanus vermiculatus</i>	grass pickerel	--	--	2	134	--	--
	<i>Esox lucius</i>	northern pike	1	913	4	2310	--	--
Salmonidae	<i>Oncorhynchus mykiss</i>	rainbow trout	1	565	--	--	--	--
Atherinidae	<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
Percichthyidae	<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
Centrarchidae	<i>Ambloplites rupestris</i>	rock bass	12	1120	18	1180	19	2850
	<i>Lepomis cyanellus</i>	green sunfish	2	8.6	1	20.4	72	575
	<i>Lepomis gulosus</i>	warmouth	--	--	--	--	1	32
	<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
	<i>Lepomis macrochirus</i>	bluegill	5	57.9	--	--	8	142
	<i>Lepomis megalotis</i>	longear sunfish	--	--	--	--	--	--
	<i>Micropterus dolomieu</i>	smallmouth bass	--	--	33	1350	--	--
	<i>Micropterus salmoides</i>	largemouth bass	1	6.4	1	15.2	3	519
	<i>Pomoxis annularis</i>	white crappie	--	--	--	--	1	0.1
	<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--
Percidae	<i>Etheostoma blennioides</i>	greenside darter	3	9.7	57	111	--	--
	<i>Etheostoma caeruleum</i>	rainbow darter	--	--	2	1.6	--	--
	<i>Etheostoma nigrum</i>	johnny darter	13	25.5	16	19.6	--	--
	<i>Perca flavescens</i>	yellow perch	2	54	--	--	--	--
	<i>Percina caprodes</i>	logperch	1	13.5	--	--	1	11.9
	<i>Percina maculata</i>	blackside darter	--	--	--	--	1	3.3
	<i>Percina sciera</i>	dusky darter	--	--	--	--	1	2.8
Sciaenidae	<i>Aplodinotus grunniens</i>	freshwater drum	--	--	--	--	--	--
Gobiidae	<i>Neogobius melanostomus</i>	round goby	9	58.8	--	--	--	--
NUMBER OF SPECIES			21		25		19	
HYBRIDS			0		1		0	
TOTAL NUMBER OF FISH			191	10800	1647	20200	205	44000

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Results from Selected Sites in the Lake Erie-Lake St. Clair Drainages
(National Water-Quality Assessment Program)FISH-COMMUNITY RESULTS—CONTINUED

[--, not present at indicated site]

FAMILY	SCIENTIFIC NAME	COMMON NAME	AUGLAIZE RIVER NEAR FORT JENNINGS, OHIO		MAUMEE RIVER AT WATERTVILLE, OHIO	
			ABUNDANCE	BATCH WEIGHT (GRAM)	ABUNDANCE	BATCH WEIGHT (GRAM)
Petromyzontidae	<i>Ichthyomyzon unicuspis</i>	silver lamprey	--	--	--	--
	<i>Lampetra appendix</i>	American brook lamprey	--	--	--	--
Clupeidae	<i>Dorosoma cepedianum</i>	gizzard shad	27	334	31	208
Cyprinidae	<i>Campostoma anomalum</i>	central stoneroller	11	26.7	3	36
	<i>Cyprinella spiloptera</i>	spotfin shiner	78	106	238	1010
	<i>Cyprinus carpio</i>	common carp	6	11900	4	9490
	<i>Luxilus chrysocephalus</i>	striped shiner	11	21	14	17
	<i>Nocomis biguttatus</i>	hornyhead chub	--	--	--	--
	<i>Nocomis micropogon</i>	river chub	--	--	--	--
	<i>Notropis atherinoides</i>	emerald shiner	--	--	116	227
	<i>Notropis photogenis</i>	silver shiner	--	--	--	--
	<i>Phenacobius mirabilis</i>	suckermouth minnow	6	15.8	--	--
	<i>Pimephales notatus</i>	bluntnose minnow	41	92.5	386	579
	<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--
Catostomidae	<i>Carpiodes cyprinus</i>	quillback	4	1940	10	4150
	<i>Catostomus commersoni</i>	white sucker	4	311	--	--
	<i>Hypentelium nigricans</i>	northern hog sucker	9	1940	84	31400
	<i>Minytrema melanops</i>	spotted sucker	15	1460	--	--
	<i>Moxostoma anisurum</i>	silver redhorse	9	9330	--	--
	<i>Moxostoma duquesnei</i>	black redhorse	7	2090	18	7810
	<i>Moxostoma erythrurum</i>	golden redhorse	63	12500	15	7340
	<i>Moxostoma valenciennesi</i>	greater redhorse	4	1330	--	--
Ictaluridae	<i>Ameiurus natalis</i>	yellow bullhead	1	180	--	--
	<i>Ictalurus punctatus</i>	channel catfish	3	1610	14	3191
	<i>Noturus flavus</i>	stonecat	--	--	8	136
	<i>Noturus miurus</i>	brindled madtom	--	--	--	--
	<i>Pylodictis olivaris</i>	flathead catfish	--	--	2	1213
Esocidae	<i>Esox americanus vermiculatus</i>	grass pickerel	--	--	--	--
	<i>Esox lucius</i>	northern pike	--	--	--	--
Salmonidae	<i>Oncorhynchus mykiss</i>	rainbow trout	--	--	--	--
Atherinidae	<i>Labidesthes sicculus</i>	brook silverside	1	0.5	--	--
Percichthyidae	<i>Morone chrysops</i>	white bass	--	--	1	30.9
Centrarchidae	<i>Ambloplites rupestris</i>	rock bass	33	173	16	592
	<i>Lepomis cyanellus</i>	green sunfish	9	182	17	365
	<i>Lepomis gulosus</i>	warmouth	--	--	--	--
	<i>Lepomis humilis</i>	orangespotted sunfish	14	91.2	--	--
	<i>Lepomis macrochirus</i>	bluegill	5	120	5	19.7
	<i>Lepomis megalotis</i>	longear sunfish	155	1920	--	--
	<i>Micropterus dolomieu</i>	smallmouth bass	14	866	504	55100
	<i>Micropterus salmoides</i>	largemouth bass	--	--	--	--
	<i>Pomoxis annularis</i>	white crappie	--	--	--	--
	<i>Pomoxis nigromaculatus</i>	black crappie	--	--	1	131
Percidae	<i>Etheostoma blennioides</i>	greenside darter	13	39.5	21	69.8
	<i>Etheostoma caeruleum</i>	rainbow darter	--	--	--	--
	<i>Etheostoma nigrum</i>	johnny darter	1	0.8	1	0.9
	<i>Perca flavescens</i>	yellow perch	--	--	--	--
	<i>Percina caprodes</i>	logperch	5	104	94	1440
	<i>Percina maculata</i>	blackside darter	4	19.9	--	--
	<i>Percina sciera</i>	dusky darter	--	--	--	--
Sciaenidae	<i>Aplodinotus grunniens</i>	freshwater drum	7	2220	--	--
Gobiidae	<i>Neogobius melanostomus</i>	round goby	--	--	--	--
NUMBER OF SPECIES			29		23	
HYBRIDS			0		1	
TOTAL NUMBER OF FISH			560	50900	1603	125000

References cited:

- Robin, 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, MD, 183 p.
- 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.

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

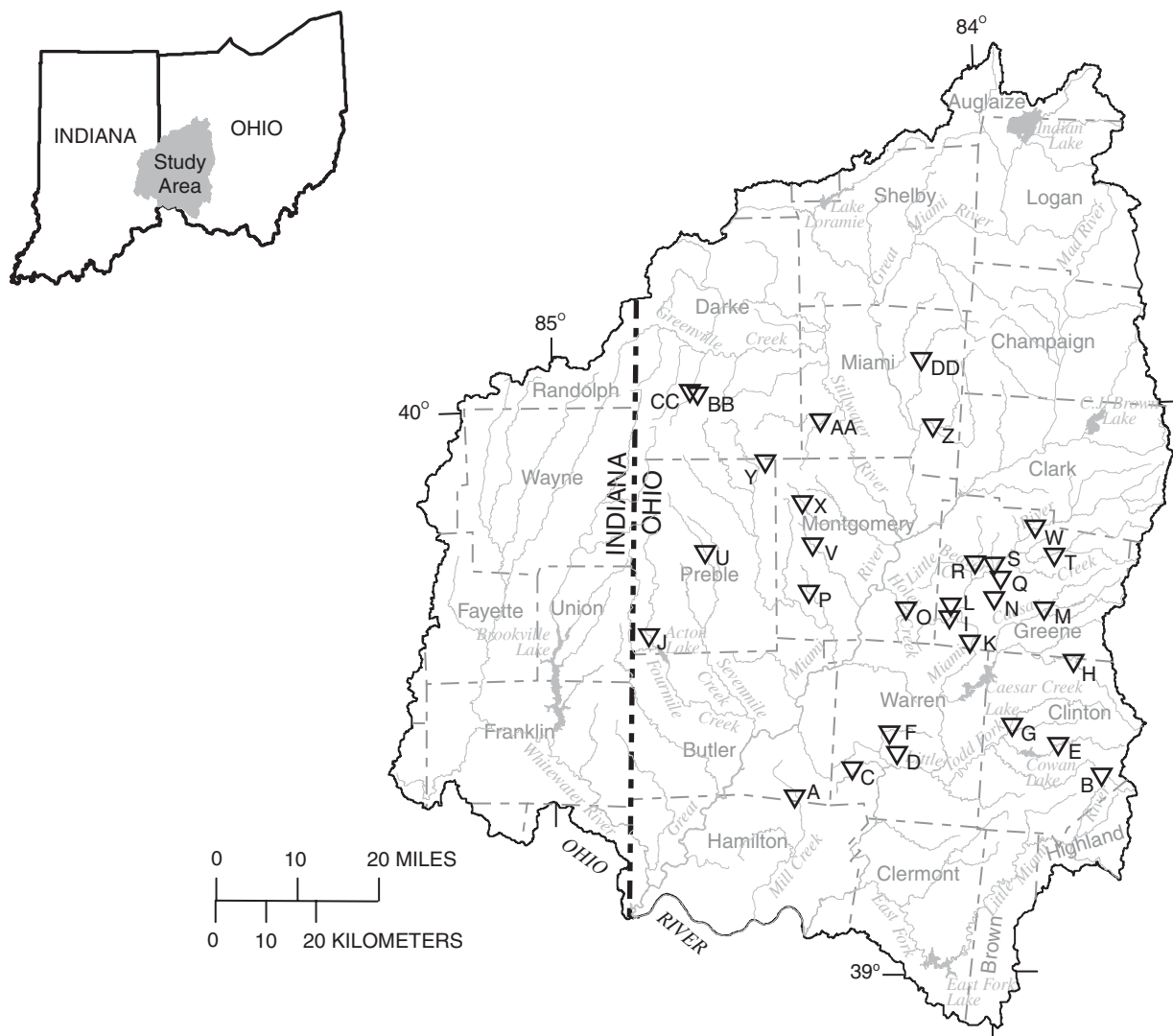
RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001

Water-quality and streambed-sediment samples were collected at 30 sites in the Great and Little Miami River Basins as part of the National Water-Quality Assessment Program (NAWQA). The sites were sampled as part of an Urban-Gradient Study designed to assess patterns of biological response and identify physical and chemical factors that control water quality locally and regionally along a gradient of urban land use. Watersheds associated with the streams sampled represent a range of land-use settings from predominately row-crop agriculture to highly urbanized residential and commercial areas. All samples were collected during low streamflow conditions in July 2001.

Data regarding selected physical, biological, and chemical characteristics including major ions, nutrients, and selected pesticides were published in Water Data Report OH-01-2 (Shindel and others, 2001). However, analytical results for streambed-sediment samples and selected wastewater compounds in filtered water samples were not received from the U.S. Geological Survey National Water Quality Laboratory (NWQL) in time to be incorporated into last year's report. These data are presented in the following section.

All streambed-sediment and water-quality samples were collected during low streamflow conditions in July 2001. Water-quality data are reported for 62 compounds commonly found in domestic or industrial wastewater. Water-quality samples were analyzed for these compounds at the USGS National Water Quality Laboratory in Denver, Colorado by use of the method described by Zaugg and others (2002). NAWQA guidelines for collection and processing of water-quality samples are described in Shelton (1994). Bed-sediment samples were collected from the top 1 to 2 centimeters of material taken from at least five depositional areas within the stream reach. Subsamples from the composite were (1) processed using a 2-millimeter stainless-steel-mesh wet sieve (<2 mm WS) for preparation of material for organic and particle-size analysis and (2) processed using a 63-micrometer nylon-cloth wet sieve (<63 U WS) for preparation of material for trace-element analysis. Details concerning procedures used to collect and process streambed-sediment samples are given in Shelton and Capel (1994). Bed-sediment constituent concentrations are provided on a dry-weight basis. Samples were analyzed for a variety of trace elements and organic compounds using methods described by Briggs and Meier (1999), Foreman and others, (1995), and Furlong and others (1996).

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Results from Selected Sites in the Great and Little Miami River Basins (National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

[MI², square mile]

STATION NUMBER	MAP INDEX	STATION NAME	LATITUDE	LONGITUDE	DRAINAGE AREA (MI ²)
391852084253100	A	East Fork Mill Creek at Allen Road	39°18'52"	84°25'31"	8.4
392027083430100	B	East Fork Little Miami River at Thornburg Road	39°20'27"	83°43'01"	5.8
392219084172100	C	Muddy Creek at State Route 741	39°22'19"	84°17'21"	10.0
392306084121300	D	Dry Run at Dry Run Road near Lebanon	39°23'06"	84°12'13"	5.5
392400083494000	E	Cowan Creek at Ireland Road	39°24'00"	83°49'40"	32.4
392553084133100	F	Turtle Creek at Glossar Road	39°25'53"	84°13'31"	22.3
392614083564000	G	Todd Fork at US 22 and US 3 near Sligo	39°26'14"	84°56'40"	56.6
393317083474000	H	Anderson Fork at Port William Road	39°33'17"	84°47'40"	42.6
393450084020300	I	Unnamed tributary at US 42 near Mount Holly	39°34'50"	84°02'03"	4.5
393619084461200	J	Fourmile Creek at Camden College Road	39°36'19"	84°46'12"	50.1
393748084042300	K	Sugar Creek at Waynesville Road	39°37'48"	84°04'23"	19.0
393814084043500	L	Little Sugar Creek at Little Sugar Creek Road	39°38'14"	84°04'35"	2.8
393848083521200	M	Caesar Creek at Gultice Road	39°38'48"	84°52'12"	64.8
393903083582900	N	Glady Run at Hedges Road	39°39'03"	84°58'29"	6.5
393903084110500	O	Holes Creek at McEwen Road	39°39'03"	84°11'05"	14.8
394111084234200	P	Little Twin Creek at Farmersville-W. Carrollton Pike	39°41'11"	84°23'42"	12.5
394212083575200	Q	Shawnee Creek at Hawkins Road	39°42'12"	84°57'52"	11.4
394252084010900	R	Beaver Creek at Dayton-Xenia Road	39°42'52"	84°01'09"	20.8
394253083583300	S	Ludlow Creek at Hilltop Road	39°42'53"	84°58'33"	7.0
394414083501800	T	Massies Creek at Tarbox-Cemetery Road	39°44'14"	84°50'18"	55.6
394510084384100	U	Sevenmile Creek at Eaton Waterworks Park	39°45'10"	84°38'41"	25.2
394549084234400	V	Bear Creek at Clayton Road	39°45'49"	84°23'44"	6.1
394727083523000	W	Yellow Springs Creek at E. Hyde Road	39°47'27"	84°52'30"	10.9
394953084244100	X	Wolf Creek at Westbrook Road	39°49'53"	84°24'41"	7.8
395452084293400	Y	Swamp Creek at Verona Road	39°54'52"	84°29'34"	13.3
395810084063600	Z	Honey Creek at Rudy Road	39°58'10"	84°06'36"	72.9
395912084214000	AA	Brush Creek at Elleman Road	39°59'12"	84°21'40"	22.9
400130084392900	BB	Prairie Outlet at Weavers-Ft. Jefferson Road	40°01'30"	84°39'29"	3.6
400134084400300	CC	Mud Creek near Ft. Jefferson	40°01'34"	84°40'03"	6.7
400439084080000	DD	Lost Creek at Troy-Urbana Road	40°04'39"	84°08'00"	30.4

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data]

STATION NUMBER	DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	1,4- DICHLORO- BENZENE, FILTERED (UG/L) (34572)	1-METHYL- NAPHTHA- LENE, FILTERED (UG/L) (62054)	2,6- DIMETHYL- NAPHTHA- LENE, FILTERED (UG/L) (62055)	2-METHYL- NAPHTHA- LENE, FILTERED (UG/L) (62056)	3-BETA- COPRO- STANOL, FILTERED (UG/L) (62057)	3-METHYL- 1 (H) - INDOLE FILTERED (UG/L) (62058)	3-TERT- BUTYL-4- HYDROXY ANISOLE FILTERED (UG/L) (62059)
391852084253100	7/30/01	1400	2.4	<.50	<.50	<.50	<.50	E.45	<1.0	<5.0
392027083430100	7/26/01	1400	4.8	<.50	<.50	<.50	<.50	E.35	<1.0	<5.0
392219084172100	7/30/01	1010	2.6	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
392306084121300	7/23/01	0940	1.5	<.50	<.50	<.50	<.50	E.15	<1.0	<5.0
392400083494000	7/24/01	1430	1.1	<.50	<.50	<.50	<.50	E.25	<1.0	<5.0
392553084133100	7/31/01	0850	9.2	E.03	E.05	E.02	E.03	E.34	<1.0	<5.0
392614083564000	7/24/01	0920	4.1	<.50	<.50	<.50	<.50	E.21	<1.0	<5.0
393317083474000	7/31/01	1150	1.4	E.04	<.50	<.50	<.50	<2.0	<1.0	<5.0
393450084020300	7/26/01	0900	1.0	<.50	<.50	<.50	<.50	E.41	<1.0	<5.0
393619084461200	7/16/01	1530	13	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
393748084042300	7/09/01	0940	3.0	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
393814084043500	7/10/01	1330	2.1	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
393848083521200	7/25/01	1340	2.1	E.04	<.50	<.50	<.50	<2.0	<1.0	<5.0
393903083582900	7/25/01	1000	4.7	E.07	<.50	<.50	<.50	E.65	<1.0	<5.0
393903084110500	7/10/01	0840	1.4	<.50	E.04	<.50	<.50	<2.0	<1.0	<5.0
394111084234200	7/17/01	0900	0.30	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
394212083575200	7/11/01	0820	2.9	<.50	<.50	<.50	<.50	E.48	<1.0	<5.0
394252084010900	7/09/01	1330	14	<.50	<.50	<.50	<.50	<2.0	E.01	<5.0
394253083583300	7/13/01	0830	3.4	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
394414083501800	7/13/01	1300	14	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
394510084384100	7/16/01	1030	5.7	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
394549084234400	7/20/01	0830	0.41	<.50	<.50	<.50	<.50	E.26	<1.0	<5.0
394727083523000	7/11/01	1430	5.6	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
394953084244100	7/17/01	1240	1.1	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
395452084293400	7/19/01	1420	1.5	--	--	--	--	--	--	--
395810084063600	7/12/01	0930	26	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
395912084214000	7/19/01	1000	3.0	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0
400130084392900	7/18/01	1230	2.0	<.50	<.50	<.50	<.50	<2.0	E.02	<5.0
400134084400300	7/18/01	1020	5.8	<.50	<.50	<.50	<.50	<2.0	E.03	<5.0
400439084080000	7/12/01	1430	5.8	<.50	<.50	<.50	<.50	<2.0	<1.0	<5.0

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**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 200

[(62060), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data; M, presence of compound verified but concentration not quantified]

STATION NUMBER	4-CUMYL- PHENOL FILTERED (UG/L) (62060)	4-N- OCTYL- PHENOL FILTERED (UG/L) (62061)	4-TERT- OCTYL- PHENOL FILTERED (UG/L) (62062)	5-METHYL- 1H-BENZO- TRIAZOLE, FILTERED (UG/L) (62063)	ACETO- PHENONE, FILTERED, (UG/L) (62064)	ACETYL HEXA- METHYL TETRA- HYDRO- NAPH- THALENE FILTERED (UG/L) (62065)	ANTHRA- CENE, FILTERED (UG/L) (34221)	ANTHRA- QUINONE, FILTERED (UG/L) (62066)	BENZO-A- PYRENE, FILTERED (UG/L) (34248)
391852084253100	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	<.50	<.50
392027083430100	<1.0	<1.0	E.14	<2.0	<.50	E.01	<.50	E.05	<.50
392219084172100	<1.0	<1.0	E.02	<2.0	<.50	E.01	E.01	E.08	<.50
392306084121300	<1.0	<1.0	E.02	<2.0	<.50	<.50	M	<.50	<.50
392400083494000	<1.0	<1.0	E.01	<2.0	<.50	<.50	<.50	<.50	<.50
392553084133100	<1.0	<1.0	E.04	<2.0	<.50	E.04	M	E.02	<.50
392614083564000	<1.0	<1.0	E.01	<2.0	<.50	<.50	<.50	<.50	<.50
393317083474000	<1.0	<1.0	E.03	<2.0	<.50	E.04	<.50	E.01	<.50
393450084020300	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	<.50	<.50
393619084461200	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	<.50	<.50
393748084042300	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	E.03	<.50
393814084043500	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	E.01	<.50
393848083521200	<1.0	<1.0	E.01	<2.0	<.50	<.50	<.50	<.50	<.50
393903083582900	<1.0	<1.0	E.02	<2.0	<.50	.90	<.50	E.07	<.50
393903084110500	<1.0	<1.0	E.02	<2.0	E.10	<.50	<.50	<.50	<.50
394111084234200	<1.0	<1.0	<1.0	<2.0	<.50	E.03	<.50	<.50	<.50
394212083575200	<1.0	<1.0	<1.0	<2.0	E.17	E.08	E.02	.67	<.50
394252084010900	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	E.02	<.50
394253083583300	<1.0	<1.0	<1.0	<2.0	<.50	E.02	<.50	<.50	<.50
394414083501800	<1.0	<1.0	<1.0	<2.0	<.50	E.06	<.50	<.50	<.50
394510084384100	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	<.50	<.50
394549084234400	<1.0	<1.0	E.01	<2.0	<.50	<.50	<.50	E.01	<.50
394727083523000	<1.0	<1.0	<1.0	<2.0	<.50	E.03	<.50	<.50	<.50
394953084244100	<1.0	<1.0	E.17	<2.0	E.22	E.06	<.50	E.21	<.50
395452084293400	--	--	--	--	--	--	--	--	--
395810084063600	<1.0	<1.0	E.02	<2.0	<.50	E.04	<.5	<.50	<.50
395912084214000	<1.0	<1.0	E.02	<2.0	<.50	<.50	M	E.02	<.50
400130084392900	<1.0	<1.0	E.02	<2.0	<.50	<.50	<.50	<.50	<.50
400134084400300	<1.0	<1.0	<1.0	<2.0	<.50	<.50	<.50	<.50	<.50
400439084080000	<1.0	<1.0	E.02	<2.0	<.50	<.50	<.50	<.5	<.50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(62067), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data]

STATION NUMBER	BENZO- PHENONE, FILTERED (UG/L) (62067)	BETA- SITO- STEROL, FILTERED (UG/L) (62068)	BIS- PHENOL A, FILTERED (UG/L) (62069)	BROMA- CIL, FILTERED (UG/L) (04029)	BROMO- FORM, FILTERED (UG/L) (34288)	CAFFEINE, FILTERED (UG/L) (50305)	CAMPHOR, FILTERED (UG/L) (62070)	CARBA- ZOLE, FILTERED (UG/L) (62071)	CHOLES- TEROL, FILTERED (UG/L) (62072)
391852084253100	<.50	E1.20	E.09	<.50	<.50	<.50	<.50	E.01	E.91
392027083430100	E.02	E.96	<1.0	<.50	<.50	E.08	<.50	E.01	E.88
392219084172100	<.50	<2.0	<1.0	E.12	<.50	E.11	<.50	E.02	<2.0
392306084121300	<.50	E.34	<1.0	<.50	<.50	<.50	<.50	<.50	E.45
392400083494000	E.01	E.60	<1.0	E.26	<.50	E.06	<.50	<.50	E.69
392553084133100	E.02	E.90	E.07	<.50	<.50	E.03	<.50	E.01	E.84
392614083564000	<.50	E.55	<1.0	<.50	<.50	E.03	<.50	<.50	E.76
393317083474000	E.01	E.82	E.07	<.50	<.50	E.11	<.50	E.01	E.91
393450084020300	<.50	E1.10	<1.0	<.50	<.50	E.02	<.50	<.50	E1.0
393619084461200	E.04	E.99	<1.0	<.50	<.50	E.03	<.50	E.01	E1.2
393748084042300	<.50	E.37	<1.0	E.10	<.50	E.05	<.50	<.50	E.82
393814084043500	<.50	E.34	<1.0	<.50	E.01	<.50	<.50	<.50	<2.0
393848083521200	E.01	E.80	<1.0	<.50	<.50	<.50	<.50	<.50	E.88
393903083582900	E.06	E1.40	E.10	<.50	<.50	E.05	<.50	E.02	E1.1
393903084110500	<.50	<2.0	<1.0	<.50	<.50	<.50	<.50	<.50	E.82
394111084234200	E.02	<2.0	<1.0	<.50	<.50	E.15	<.50	E.01	E1.1
394212083575200	<.50	E1.00	E.13	E.20	<.50	E1.1	<.50	E.19	E1.0
394252084010900	<.50	<2.0	<1.0	<.50	<.50	E.04	<.50	<.50	<2.0
394253083583300	<.50	<2.0	<1.0	<.50	<.50	<.50	<.50	<.50	<2.0
394414083501800	E.01	<2.0	<1.0	E.05	<.50	<.50	<.50	<.50	<2.0
394510084384100	<.50	E.39	<1.0	<.50	E.01	E.02	<.50	<.50	<2.0
394549084234400	<.50	E.66	E.15	E.06	<.50	E.03	<.50	<.50	E.74
394727083523000	<.50	<2.0	<1.0	<.50	<.50	<.50	<.50	<.50	<2.0
394953084244100	<.50	E.81	E.08	E.20	E.04	.71	<.50	E.04	E.82
395452084293400	--	--	--	--	--	--	--	--	--
395810084063600	<.50	E.37	<1.0	<.50	<.50	<.50	<.50	<.50	<2.0
395912084214000	<.50	<2.0	E.05	<.50	<.50	E.06	<.50	E.01	<2.0
400130084392900	<.50	<2.0	<1.0	<.50	<.50	E.03	<.50	<.50	<2.0
400134084400300	<.50	<2.0	<1.0	<.50	<.50	<.50	<.50	<.50	<2.0
400439084080000	<.50	E.50	<1.0	<.50	E.01	<.50	<.50	<.50	E.74

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(62005), USGS National Water Information System parameter code; UG/L, micrograms per liter; HHCB, hexahydrohexamethyl-cyclopenta benzopyran; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data; M, presence of compound verified but concentration not quantified]

STATION NUMBER	COTININE, FILTERED (UG/L) (62005)	D- LIMONENE, FILTERED (UG/L) (62073)	FLUOR- ANTHENE, FILTERED (UG/L) (34377)	HHCB, FILTERED (UG/L) (62075)	INDOLE, FILTERED (UG/L) (62076)	ISO- BORNEOL, FILTERED (UG/L) (62077)	ISO- PHORONE, FILTERED (UG/L) (34409)	ISO- PROPYL BENZENE, FILTERED (UG/L) (62078)
391852084253100	<1.0	<.50	<.50	<.50	<.50	<.50	E.09	<.50
392027083430100	<1.0	<.50	E.01	E.01	<.50	<.50	<.50	<.50
392219084172100	E.1	<.50	E.02	M	<.50	<.50	<.50	<.50
392306084121300	<1.0	<.50	<.50	<.50	<.50	<.50	<.50	<.50
392400083494000	<1.0	<.50	<.50	<.50	<.50	<.50	E.26	<.50
392553084133100	<1.0	<.50	E.01	E.01	<.50	<.50	<.50	<.50
392614083564000	<1.0	<.50	<.50	<.50	<.50	<.50	<.50	<.50
393317083474000	E.2	<.50	<.50	E.01	<.50	<.50	E.10	<.50
393450084020300	<1.0	<.50	<.50	<.50	<.50	<.50	<.50	<.50
393619084461200	<1.0	E1.2	<.50	<.50	<.50	<.50	2.7	<.50
393748084042300	<1.0	E.31	E.01	<.50	<.50	<.50	.77	<.50
393814084043500	<1.0	<.50	E.01	<.50	M	<.50	<.50	<.50
393848083521200	<1.0	<.50	<.50	<.50	<.50	<.50	E.15	<.50
393903083582900	E.1	<.50	E.01	E.26	<.50	<.50	<.50	<.50
393903084110500	<1.0	E.49	<.50	<.50	<.50	<.50	3.9	<.50
394111084234200	E.1	E.30	<.50	E.01	<.50	<.50	<.50	<.50
394212083575200	E.2	<.50	E.07	E.02	<.50	<.50	<.50	<.50
394252084010900	<1.0	<.50	E.01	<.50	<.50	<.50	<.50	<.50
394253083583300	<1.0	<.50	<.50	E.01	<.50	<.50	<.50	<.50
394414083501800	<1.0	<.50	<.50	E.01	E.01	<.50	<.50	<.50
394510084384100	<1.0	<.50	<.50	<.50	M	<.50	<.50	<.50
394549084234400	<1.0	<.50	<.50	<.50	<.50	<.50	<.50	<.50
394727083523000	<1.0	<.50	<.50	E.01	<.50	<.50	<.50	<.50
394953084244100	E.2	E.12	E.05	E.02	<.50	<.50	<.50	<.50
395452084293400	--	--	--	--	--	--	--	--
395810084063600	<1.0	<.50	E.01	E.01	M	<.50	<.50	<.50
395912084214000	E.1	E.09	<.50	<.50	<.50	<.50	<.50	<.50
400130084392900	<1.0	E.08	<.50	<.50	<.50	<.50	<.50	<.50
400134084400300	<1.0	E.18	<.50	<.50	<.50	<.50	<.50	<.50
400439084080000	<1.0	<.50	<.50	<.50	M	<.50	<.50	<.50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(62079), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data]

STATION NUMBER	ISO- QUINO- LINE, FILTERED (UG/L) (62079)	MENTHOL, FILTERED (UG/L) (62080)	METAL- AXYL, FILTERED (UG/L) (50359)	METHYL SALICYL- ATE, FILTERED (UG/L) (62081)	NAPHTHA- LENE, FILTERED (UG/L) (34443)	DIETHOXY- NONYL- PHENOL, FILTERED (UG/L) (62083)	DI- ETHOXY- OCTYL- PHENOL, FILTERED (UG/L) (61705)	MONO- ETHOXY- OCTYL- PHENOL, FILTERED (UG/L) (61706)
391852084253100	<.50	<.50	<.50	<.50	<.50	E2.8	<1.0	<1.0
392027083430100	<.50	<.50	<.50	<.50	<.50	E3.4	<1.0	<1.0
392219084172100	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0
392306084121300	<.50	<.50	<.50	<.50	<.50	E.77	<1.0	<1.0
392400083494000	<.50	<.50	<.50	<.50	<.50	E2.8	<1.0	<1.0
392553084133100	<.50	E.04	<.50	<.50	E.07	E4.8	E.62	<1.0
392614083564000	<.50	<.50	<.50	<.50	<.50	E2.2	<1.0	<1.0
393317083474000	<.50	E.03	<.50	<.50	<.50	E2.8	<1.0	<1.0
393450084020300	<.50	<.50	<.50	<.50	<.50	E2.0	<1.0	<1.0
393619084461200	<.50	<.50	<.50	<.50	<.50	E2.1	<1.0	<1.0
393748084042300	<.50	<.50	<.50	<.50	<.50	E1.3	<1.0	<1.0
393814084043500	<.50	<.50	<.50	<.50	<.50	E1.3	<1.0	<1.0
393848083521200	<.50	<.50	<.50	<.50	<.50	E1.5	<1.0	<1.0
393903083582900	<.50	<.50	<.50	<.50	<.50	E4.4	<1.0	<1.0
393903084110500	<.50	<.50	<.50	<.50	<.50	E4.8	<1.0	<1.0
394111084234200	<.50	<.50	<.50	<.50	<.50	E1.4	<1.0	<1.0
394212083575200	<.50	<.50	<.50	<.50	<.50	E2.2	<1.0	<1.0
394252084010900	<.50	<.50	E.05	<.50	<.50	<5.0	<1.0	<1.0
394253083583300	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0
394414083501800	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0
394510084384100	<.50	<.50	<.50	<.50	<.50	E3.2	<1.0	<1.0
394549084234400	<.50	<.50	<.50	<.50	<.50	E1.4	<1.0	<1.0
394727083523000	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0
394953084244100	<.50	E.16	<.50	E.10	<.50	E2.5	<1.0	<1.0
395452084293400	--	--	--	--	--	--	--	--
395810084063600	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0
395912084214000	<.50	<.50	<.50	<.50	<.50	E.78	<1.0	<1.0
400130084392900	<.50	<.50	<.50	<.50	<.50	E.78	<1.0	<1.0
400134084400300	<.50	<.50	<.50	<.50	<.50	E1.3	<1.0	<1.0
400439084080000	<.50	<.50	<.50	<.50	<.50	<5.0	<1.0	<1.0

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(62084), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data; M, presence of compound verified but concentration not quantified]

STATION NUMBER	PARA- CRESOL, FILTERED (UG/L) (62084)	PARA- NONYL- PHENOL, FILTERED (UG/L) (62085)	PENTA- CHLORO- PHENOL, FILTERED (UG/L) (34459)	PHENAN- THRENE, FILTERED (UG/L) (34462)	PHENOL, FILTERED (UG/L) (34466)	PYRENE, FILTERED (UG/L) (34470)	BETA- STIGMA- STANOL, FILTERED (UG/L) (62086)	TETRA- CHLORO- ETHYLENE, FILTERED (UG/L) (34476)
391852084253100	<1.0	E.84	<2.0	<.50	E.20	<.50	E1.1	<.50
392027083430100	E.03	E6.0	E.07	<.50	.56	E.01	E.51	<.50
3922219084172100	<1.0	E.96	E.12	E.01	E.12	E.02	<2.0	<.50
392306084121300	E.02	<5.0	<2.0	<.50	E.40	<.50	E.25	<.50
392400083494000	<1.0	E1.0	<2.0	<.50	E.43	<.50	E.40	<.50
392553084133100	E.03	E3.4	E.03	E.02	1.9	E.01	E.56	<.50
392614083564000	<1.0	<5.0	<2.0	<.50	E.10	<.50	E.31	<.50
393317083474000	<1.0	E8.9	<2.0	<.50	.52	<.50	<2.0	<.50
393450084020300	<1.0	<5.0	E.08	<.50	.52	<.50	E1.0	<.50
393619084461200	<1.0	E1.8	<2.0	<.50	.60	<.50	E.74	<.50
393748084042300	<1.0	<5.0	E.02	<.50	<.50	E.01	<2.0	<.50
393814084043500	E.04	<5.0	<2.0	<.50	1.7	E.01	<2.0	<.50
393848083521200	<1.0	E.77	<2.0	<.50	E.13	<.50	E.58	<.50
393903083582900	<1.0	E5.5	E.07	E.01	E.13	E.01	E1.2	<.50
393903084110500	<1.0	E1.6	<2.0	<.50	E.36	<.50	<2.0	<.50
394111084234200	<1.0	E.91	<2.0	<.50	E.11	<.50	<2.0	<.50
394212083575200	E.04	<5.0	E.10	E.06	2.3	E.04	E.72	<.50
394252084010900	<1.0	<5.0	<2.0	E.01	E.44	E.01	<2.0	<.50
394253083583300	<1.0	<5.0	<2.0	<.50	.64	<.50	<2.0	<.50
394414083501800	<1.0	<5.0	<2.0	<.50	E.29	<.50	<2.0	<.50
394510084384100	<1.0	<5.0	<2.0	<.50	E.33	<.50	<2.0	<.50
394549084234400	<1.0	<5.0	<2.0	<.50	E.10	<.50	E.45	<.50
394727083523000	<1.0	<5.0	<2.0	<.50	E.40	<.50	<2.0	<.50
394953084244100	E.06	E1.5	E.06	E.04	.52	E.03	<2.0	<.50
395452084293400	--	--	--	--	--	--	--	--
395810084063600	<1.0	<5.0	<2.0	<.50	<.50	M	<2.0	<.50
395912084214000	<1.0	<5.0	<2.0	E.03	E.25	<.50	<2.0	<.50
400130084392900	<1.0	E.96	<2.0	<.50	E.26	<.50	<2.0	<.50
400134084400300	E.03	E.96	<2.0	<.50	E.23	<.50	<2.0	<.50
400439084080000	E.03	<5.0	<2.0	<.50	E.22	<.50	<2.0	<.50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

WASTEWATER COMPOUNDS IN STREAMWATER—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(62087), USGS National Water Information System parameter code; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated; E, estimated concentration or value; --, no data]

STATION NUMBER	TRI (2- CHLORO- ETHYL) PHOS- PHATE, FILTERED (UG/L) (62087)	TRIS (DICHLOR- ISO- PROPYL) PHOS- PHATE, FILTERED (UG/L) (62088)	TRIBUTYL PHOS- PHATE, FILTERED (UG/L) (62089)	TRI- CLOSAN, FILTERED (UG/L) (62090)	TRI- ETHYL CITR- ATE, FILTERED (UG/L) (62091)	TRI- PHENYL PHOS- PHATE, FILTERED (UG/L) (62092)	TRI (2- BUTOXY- ETHYL) PHOS- PHATE, FILTERED (UG/L) (62093)	DI- CHLORVOS, FILTERED (UG/L) (38775)
391852084253100	E.03	<.50	<.50	<1.0	<.50	E.04	<.50	<1.0
392027083430100	E.02	E.06	<.50	E.04	<.50	E.07	<.50	<1.0
392219084172100	E.10	E.07	E.03	<1.0	<.50	E.04	E.35	<1.0
392306084121300	E.01	<.50	<.50	<1.0	<.50	E.04	<.50	<1.0
392400083494000	E.01	E.06	E.05	E.03	<.50	E.04	<.50	<1.0
392553084133100	E.02	E.06	E.02	E.04	<.50	E.04	<.50	<1.0
392614083564000	E.01	<.50	<.50	<1.0	<.50	E.04	<.50	<1.0
393317083474000	E.01	<.50	<.50	E.04	<.50	E.04	<.50	<1.0
393450084020300	<.50	<.50	<.50	<1.0	<.50	<.50	<.50	<1.0
393619084461200	<.50	<.50	E.05	<1.0	<.50	<.50	<.50	<1.0
393748084042300	E.02	E.06	<.50	E.03	<.50	<.50	<.50	<1.0
393814084043500	<.50	E.06	<.50	<1.0	<.50	<.50	E.09	<1.0
393848083521200	E.01	<.50	<.50	<1.0	<.50	<.50	<.50	<1.0
393903083582900	E.16	E.16	E.09	E.08	E.10	E.04	1.1	<1.0
393903084110500	<.50	E.05	<.50	E.05	E.03	<.50	<.50	<1.0
394111084234200	E.08	E.08	<.50	<1.0	<.50	<.50	E.14	<1.0
394212083575200	E.07	E.08	<.50	E.04	<.50	<.50	.56	<1.0
394252084010900	E.01	<.50	<.50	<1.0	<.50	<.50	<.50	<1.0
394253083583300	<.50	<.50	<.50	E.03	<.50	<.50	<.50	<1.0
394414083501800	E.01	E.06	<.50	E.03	<.50	<.50	E.07	<1.0
394510084384100	<.50	<.50	<.50	E.02	<.50	<.50	<.50	<1.0
394549084234400	<.50	<.50	<.50	E.03	<.50	<.50	<.50	<1.0
394727083523000	<.50	<.50	<.50	E.03	<.50	<.50	<.50	<1.0
394953084244100	E.05	E.07	<.50	E.06	<.50	E.05	1.4	<1.0
395452084293400	--	--	--	--	--	--	--	--
395810084063600	E.02	E.06	<.50	E.03	<.50	<.50	<.50	<1.0
395912084214000	E.01	<.50	<.50	E.04	<.50	E.03	<.50	<1.0
400130084392900	<.50	<.50	<.50	E.04	<.50	<.50	<.50	<1.0
400134084400300	<.50	<.50	<.50	E.03	<.50	<.50	E.07	<1.0
400439084080000	E.01	<.50	<.50	<1.0	<.50	<.50	<.50	<1.0

Shelton, L.R., 1994, Field guide for processing stream-water samples for the National Water-Quality Assessment Program: U.S. Geological Survey Open-File Report 93-409, 39 p.

Zaugg, S. D., Smith, S.G., Schroeder, M.P., Barber, L.B., and Burkhardt, M.R., 2002, Methods of analysis of the U.S. Geological Survey National Water Quality Laboratory Determination of wastewater compounds by polystyrene-divinylbenzene solid-phase extraction and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Water-Resources Investigations Report 01-4186, 37 p.

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Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUEDBED-SEDIMENT QUALITY DATA

[(34830), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; WS, wet sieved; DW, dry weight; REC, recoverable; PERCENT, weight percent]

STATION NUMBER	DATE	TIME	CALCIUM, BED SED <63U WS PERCENT (34830)	MAGNE- SIUM, BED SED <63U WS PERCENT (34900)	POTAS- SIUM, BED SED <63U WS PERCENT (34940)	SODIUM, BED SED <63U WS PERCENT (34960)	SULFUR, BED SED <63U WS PERCENT (34970)	PHOS- PHORUS, BED SED <63U WS PERCENT (34935)	CARBON INORG, BED SED WS, <63U DW, REC PERCENT (49269)	CARBON ORG + INORG, BED SED WS, <63U DW, REC PERCENT (49267)
391852084253100	7/30/01	1400	6.0	1.8	2.0	0.48	0.06	0.18	2.1	3.6
392027083430100	7/26/01	1400	1.1	0.66	1.7	0.56	0.07	0.09	0.3	2.3
392219084172100	7/30/01	1100	4.9	1.7	2.1	0.47	0.08	0.14	1.7	2.9
392306084121300	7/23/01	1000	3.0	1.0	2.2	0.49	0.06	0.13	0.4	2.0
392400083494000	7/24/01	1500	3.5	1.6	1.6	0.54	0.07	0.07	1.4	3.5
392553084133100	7/31/01	1000	6.6	2.2	1.9	0.46	0.10	0.10	2.6	4.2
392614083564000	7/24/01	1000	5.6	1.6	1.7	0.46	0.11	0.08	2.0	4.2
393317083474000	7/31/01	1230	3.7	1.2	1.8	0.44	0.12	0.10	1.2	3.9
393450084020300	7/26/01	1000	9.5	2.7	1.6	0.5	0.14	0.07	3.6	5.2
393619084461200	7/16/01	1600	6.7	2.2	1.6	0.63	0.07	0.08	2.5	4.2
393748084042300	7/09/01	1000	4.7	2.0	1.7	0.58	0.05	0.09	1.9	3.8
393814084043500	7/10/01	1400	6.7	2.1	2.2	0.42	0.09	0.10	2.4	4.2
393848083521200	7/25/01	1500	5.4	1.5	1.6	0.52	0.08	0.08	1.9	4.1
393903083582900	7/25/01	1100	3.5	1.7	1.7	0.60	0.06	0.09	1.1	3.5
393903084110500	7/10/01	0900	7.1	2.7	2.0	0.47	0.15	0.08	2.7	5.3
394111084234200	7/17/01	0900	8.2	3.1	1.6	0.47	0.10	0.11	3.3	5.8
394212083575200	7/11/01	1000	5.6	2.1	1.6	0.57	0.10	0.08	2.1	4.5
394252084010900	7/09/01	1500	5.2	1.9	1.6	0.52	0.08	0.08	2.0	5.0
394253083583300	7/13/01	0900	3.4	1.1	1.8	0.60	0.08	0.08	1.0	3.6
394414083501800	7/13/01	1300	4.2	1.4	1.6	0.54	0.13	0.10	1.4	4.0
394510084384100	7/16/01	1100	7.1	3.1	1.6	0.50	0.09	0.08	3.0	5.1
394549084234400	7/20/01	0900	7.4	2.8	1.5	0.51	0.08	0.10	0.8	5.5
394727083523000	7/11/01	1530	8.7	3.0	1.5	0.43	0.14	0.09	3.5	6.0
394953084244100	7/17/01	1330	8.6	2.4	1.5	0.45	0.09	0.12	2.9	6.8
395452084293400	7/19/01	1500	5.5	2.3	1.8	0.49	0.08	0.12	2.0	4.7
395810084063600	7/12/01	1100	6.8	3.0	1.5	0.50	0.12	0.10	2.8	5.4
395912084214000	7/19/01	1030	10	4.4	1.6	0.45	0.18	0.08	4.4	6.7
400130084392900	7/18/01	1430	6.1	1.9	1.6	0.50	0.17	0.16	2.0	6.1
400134084400300	7/18/01	1230	8.3	3.4	1.5	0.51	0.20	0.10	3.4	6.7
400439084080000	7/12/01	1530	6.7	1.6	1.6	0.45	0.07	0.10	2.3	5.4

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49266), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; WS, wet sieved; DW, dry weight; REC, recoverable; PERCENT, weight percent; UG/G, micrograms per gram;<, concentration or value reported is less than that indicated]

STATION NUMBER	CARBON ORGANIC, BED SED WS, <63U DW, REC PERCENT (49266)	ALUM- INUM, BED SED <63U WS PERCENT (34790)	ANTI- MONY, BED SED <63U WS (UG/G) (34795)	ARSENIC, BED SED <63U WS (UG/G) (34800)	BARIUM, BED SED <63U WS (UG/G) (34805)	BERYL- LIUM, BED SED <63U WS (UG/G) (34810)	BISMUTH, BED SED <63U WS (UG/G) (34816)	CADMIUM, BED SED <63U WS (UG/G) (34825)	CERIUM, BED SED <63U WS (UG/G) (34835)
391852084253100	1.5	4.8	0.5	8.6	400	1.4	<1	0.3	60
392027083430100	2.0	5.0	0.6	9.6	490	1.3	<1	0.2	62
392219084172100	1.1	5.4	0.5	10	420	1.6	<1	0.2	59
392306084121300	1.6	5.6	0.6	8.7	450	1.4	<1	0.2	65
392400083494000	2.1	5.0	0.7	11	450	1.5	<1	0.3	57
392553084133100	1.6	4.8	0.5	7.9	400	1.6	<1	0.3	55
392614083564000	2.2	5.1	0.6	12	430	1.4	<1	0.3	56
393317083474000	2.7	5.6	0.6	12	470	1.6	<1	0.4	59
393450084020300	1.5	4.0	0.4	7.4	360	1.2	<1	0.2	45
393619084461200	1.7	4.5	0.5	8.6	430	0.9	<1	0.3	54
393748084042300	1.8	4.8	0.4	6.2	450	1.4	<1	0.3	58
393814084043500	1.8	5.3	0.5	7.6	460	1.6	<1	0.3	57
393848083521200	2.2	4.5	0.5	11	440	1.2	<1	0.3	55
393903083582900	2.1	4.8	0.6	8.6	450	1.4	<1	0.3	57
393903084110500	2.5	5.5	0.8	13	410	1.6	<1	0.4	57
394111084234200	2.5	4.6	0.8	14	420	1.4	<1	0.5	52
394212083575200	2.3	4.5	0.8	9.6	420	1.3	<1	0.5	56
394252084010900	2.9	4.5	0.5	12	450	1.5	<1	0.4	51
394253083583300	2.5	4.9	0.6	8.5	500	1.4	<1	0.3	62
394414083501800	2.6	5.0	0.6	9.7	490	1.1	<1	0.4	59
394510084384100	2.2	4.8	0.6	13	410	1.1	<1	0.5	52
394549084234400	4.7	4.7	0.6	9.5	440	1.1	<1	0.5	54
394727083523000	2.6	4.4	0.6	12	390	1.5	<1	0.6	47
394953084244100	3.9	4.8	0.9	7.6	410	0.9	<1	0.6	51
395452084293400	2.6	5.5	0.7	13	460	1.3	<1	0.7	61
395810084063600	2.7	4.8	0.6	10	470	1.2	<1	0.6	56
395912084214000	2.3	4.6	0.9	9.4	360	1.3	<1	0.8	46
400130084392900	4.1	5.0	0.6	15	560	1.0	<1	0.8	54
400134084400300	3.3	4.3	0.7	13	420	1.1	<1	0.7	50
400439084080000	3.1	4.6	0.6	12	460	1.1	<1	0.4	53

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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(34840), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; WS, wet sieved; UG/G, micrograms per gram; PERCENT, weight percent; <, concentration or value reported is less than that indicated]

STATION NUMBER	CHRO- MIUM, BED SED <63U WS (UG/G) (34840)	COBALT, BED SED <63U WS (UG/G) (34845)	COPPER, BED SED <63U WS (UG/G) (34850)	EURO- PIUM, BED SED <63U WS (UG/G) (34855)	GALLIUM, BED SED <63U WS (UG/G) (34860)	GOLD, BED SED <63U WS (UG/G) (34870)	HOLMIUM, BED SED <63U WS (UG/G) (34875)	IRON, BED SED <63U WS PERCENT (34880)	LANTHA- NUM, BED SED <63U WS (UG/G) (34885)
391852084253100	59	13	24	1	12	<1	<1	3.0	30
392027083430100	63	10	23	1	12	<1	<1	2.6	32
392219084172100	66	12	26	1	13	<1	<1	3.2	30
392306084121300	53	13	23	1	13	<1	<1	3.0	32
392400083494000	72	11	24	1	12	<1	<1	2.8	29
392553084133100	56	11	23	<1	12	<1	<1	2.7	28
392614083564000	60	12	26	1	12	<1	<1	2.9	31
393317083474000	71	11	27	1	14	<1	<1	3.2	31
393450084020300	43	8	18	<1	9	<1	<1	2.2	23
393619084461200	43	8	18	<1	10	<1	<1	2.2	27
393748084042300	52	10	24	1	10	<1	<1	2.5	30
393814084043500	59	12	25	1	13	<1	<1	3.1	29
393848083521200	54	9	20	<1	11	<1	<1	2.5	28
393903083582900	59	10	28	1	11	<1	<1	2.5	30
393903084110500	63	13	30	1	13	<1	<1	3.2	29
394111084234200	49	10	28	<1	11	<1	<1	2.8	26
394212083575200	54	9	33	<1	10	<1	<1	2.6	28
394252084010900	52	10	23	<1	10	<1	<1	2.5	27
394253083583300	51	9	21	1	11	<1	<1	2.3	32
394414083501800	51	9	26	1	11	<1	<1	2.7	31
394510084384100	50	10	23	<1	11	<1	<1	2.6	26
394549084234400	47	8	21	<1	11	<1	<1	2.5	28
394727083523000	49	9	23	<1	10	<1	<1	2.6	24
394953084244100	52	8	39	<1	11	<1	<1	2.4	27
395452084293400	61	10	30	1	13	<1	<1	3.0	32
395810084063600	50	8	24	1	11	<1	<1	2.6	29
395912084214000	51	9	31	<1	10	<1	<1	2.4	24
400130084392900	51	10	86	1	11	<1	<1	3.2	28
400134084400300	44	9	27	<1	10	<1	<1	2.6	26
400439084080000	58	8	25	<1	10	<1	<1	2.4	28

PROJECT DATA
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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(34890), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; WS, wet sieved; UG/G, micrograms per gram]

STATION NUMBER	LEAD, BED SED <63U WS (UG/G) (34890)	LITHIUM, BED SED <63U WS (UG/G) (34895)	MANGA- NESE, BED SED <63U WS (UG/G) (34905)	MERCURY, BED SED <63U WS (UG/G) (34910)	MOLYB- DENUM, BED SED <63U WS (UG/G) (34915)	NEODYM- IUM, BED SED <63U WS (UG/G) (34920)	NICKEL, BED SED <63U WS (UG/G) (34925)	NIOBIUM, BED SED <63U WS (UG/G) (34930)	SCAN- DIUM, BED SED <63U WS (UG/G) (34945)
391852084253100	30	30	1100	0.04	1.2	28	26	10	10
392027083430100	23	30	980	0.05	2.0	29	23	14	9
392219084172100	23	36	890	0.06	1.5	28	27	11	11
392306084121300	25	35	990	0.04	1.1	30	27	7	10
392400083494000	20	32	840	0.05	2.5	28	26	12	10
392553084133100	28	30	910	0.06	1.2	26	24	11	10
392614083564000	20	34	1100	0.05	2.9	27	28	10	10
393317083474000	22	36	690	0.05	2.5	30	29	12	11
393450084020300	15	23	730	0.04	1.6	22	20	7	8
393619084461200	18	25	580	0.04	1.9	26	22	8	8
393748084042300	19	28	680	0.04	1.0	31	24	10	9
393814084043500	21	34	920	0.06	1.2	27	29	8	9
393848083521200	18	28	1100	0.04	2.2	26	23	8	9
393903083582900	28	27	910	0.05	1.7	28	23	9	9
393903084110500	27	36	1200	0.05	2.7	28	34	9	10
394111084234200	23	30	640	0.05	3.6	25	29	6	9
394212083575200	59	26	590	0.10	2.2	26	25	9	7
394252084010900	21	27	710	0.05	2.3	27	24	10	8
394253083583300	21	30	590	0.05	1.5	29	22	10	8
394414083501800	28	31	780	0.07	2.2	29	26	10	9
394510084384100	22	31	550	0.05	3.8	25	28	6	9
394549084234400	20	29	630	0.06	2.5	26	24	9	9
394727083523000	18	28	700	0.05	3.5	23	29	7	8
394953084244100	23	29	540	0.06	2.6	26	28	8	9
395452084293400	30	35	440	0.07	4.3	30	31	10	10
395810084063600	22	30	580	0.05	3.2	28	26	9	9
395912084214000	49	30	430	0.08	5.2	23	29	7	9
400130084392900	24	30	810	0.06	2.4	27	71	9	9
400134084400300	21	27	1200	0.05	2.9	25	26	8	8
400439084080000	35	28	660	0.10	1.5	25	24	9	7

PROJECT DATA

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Results from Selected Sites in the Great and Little Miami River Basins
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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(34950), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; WS, wet sieved; UG/G, micrograms per gram; PERCENT, weight percent; <, concentration or value reported is less than that indicated]

STATION NUMBER	SELE- NIUM, BED SED <63U WS (UG/G) (34950)	SILVER, BED SED <63U WS (UG/G) (34955)	STRON- TIUM, BED SED <63U WS (UG/G) (34965)	TANTA- LUM, BED SED <63U WS (UG/G) (34975)	THALLIUM, BED SED <63U WS (UG/G) (04064)	THORIUM, BED SED <63U WS (UG/G) (34980)	TIN, BED SED <63U WS (UG/G) (34985)	TITA- NIUM, BED SED <63U WS PERCENT (49274)	URANIUM, BED SED <63U WS (UG/G) (35000)
391852084253100	0.4	0.1	150	<1	<1	9	2	0.34	2.8
392027083430100	0.5	0.2	110	<1	<1	9	2	0.35	3.0
392219084172100	0.2	0.1	140	<1	<1	9	2	0.33	3.0
392306084121300	0.3	0.1	120	<1	<1	9	2	0.36	2.9
392400083494000	0.6	0.2	140	<1	<1	9	2	0.30	3.1
392553084133100	0.3	0.1	140	<1	<1	8	2	0.28	2.6
392614083564000	0.5	0.1	150	<1	<1	8	2	0.28	3.0
393317083474000	0.6	0.2	310	<1	<1	10	2	0.31	3.2
393450084020300	0.3	<.1	140	<1	<1	7	2	0.23	2.5
393619084461200	0.4	0.2	180	<1	<1	8	2	0.26	2.6
393748084042300	0.4	0.2	110	<1	<1	8	2	0.28	2.6
393814084043500	0.4	0.1	110	<1	<1	8	2	0.26	2.6
393848083521200	0.5	0.1	210	<1	<1	8	2	0.28	2.8
393903083582900	0.5	0.2	110	<1	<1	8	3	0.29	2.8
393903084110500	0.5	0.2	140	<1	<1	8	2	0.25	3.0
394111084234200	0.8	0.1	250	<1	<1	8	2	0.25	3.4
394212083575200	0.7	0.2	130	<1	<1	8	7	0.25	2.8
394252084010900	0.8	0.2	120	<1	<1	8	2	0.28	2.8
394253083583300	0.7	0.2	110	<1	<1	9	2	0.30	3.0
394414083501800	0.8	0.2	210	<1	<1	9	4	0.30	3.1
394510084384100	0.7	0.1	400	<1	<1	8	3	0.24	3.3
394549084234400	0.9	0.2	280	<1	<1	8	2	0.28	2.9
394727083523000	0.9	0.1	540	<1	<1	7	2	0.22	3.2
394953084244100	1.7	0.2	170	<1	<1	7	5	0.25	3.2
395452084293400	1.0	0.2	380	<1	1	9	3	0.28	3.7
395810084063600	0.8	0.2	220	<1	<1	8	2	0.26	3.5
395912084214000	0.8	0.2	310	<1	<1	7	4	0.22	3.8
400130084392900	1.7	0.2	170	<1	<1	8	4	0.25	3.2
400134084400300	1.1	0.2	180	<1	<1	7	2	0.24	3.4
400439084080000	0.9	0.2	100	<1	<1	8	3	0.25	2.7

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(34980), USGS National Water Information System parameter code; BED SED, bottom sediment; U, micrometer; MM, millimeter; WS, wet sieved; DW, dry weight; REC, recoverable; UG/G, micrograms per gram; UG/KG, micrograms per kilogram; E, estimated]

STATION NUMBER	VANA- DIUM, BED SED <63U WS (UG/G) (35005)	YTTER- BIUM, BED SED <63U WS (UG/G) (35015)	YTTER- IUM, BED SED <63U WS (UG/G) (35010)	ZINC, BED SED <63U WS (UG/G) (35020)	2, 2'- BIQUINO- LINE, BED SED, WS <2MM DW, REC (UG/KG) (49391)	3, 5- XYLENOL, BED SED, WS <2MM DW, REC (UG/KG) (49421)	4-BROMO PHENYL ETHER, BED SED, WS <2MM DW, REC (UG/KG) (49454)	4-CHLORO- PHENYL ETHER, BED SED, WS <2MM DW, REC (UG/KG) (49455)	4, 5- METHYLENE PHEN- ANTHRENE, BED SED, WS <2MM DW, REC (UG/KG) (49411)
391852084253100	70	2	19	99	<50	<50	<50	<50	<50
392027083430100	70	2	15	110	<50	<50	<50	<50	<50
392219084172100	78	2	21	98	<50	<50	<50	<50	100
392306084121300	72	2	21	80	<50	<50	<50	<50	<50
392400083494000	74	2	17	99	E20	<50	<50	<50	<50
392553084133100	65	2	16	97	<50	<50	<50	<50	80
392614083564000	77	2	16	100	<50	<50	<50	<50	<50
393317083474000	88	2	18	120	<50	<50	<50	<50	<50
393450084020300	53	2	14	68	<50	<50	<50	<50	<50
393619084461200	60	2	18	71	<50	<50	<50	<50	<50
393748084042300	67	2	21	87	<50	<50	<50	<50	<50
393814084043500	75	2	19	100	<50	<50	<50	<50	E30
393848083521200	67	2	15	84	<50	<50	<50	<50	<50
393903083582900	65	2	17	120	<50	<50	<50	<50	50
393903084110500	85	2	20	130	<50	<50	<50	<50	90
394111084234200	76	2	18	98	<50	<50	<50	<50	<50
394212083575200	66	2	17	140	<50	<50	<50	<50	300
394252084010900	67	3	19	84	<50	<50	<50	<50	<50
394253083583300	65	2	19	75	<50	<50	<50	<50	<50
394414083501800	68	2	20	110	<50	<50	<50	<50	E30
394510084384100	75	2	19	95	<50	<50	<50	<50	<50
394549084234400	67	2	18	93	<50	<50	<50	<50	<50
394727083523000	76	2	17	96	<50	<50	<50	<50	E30
394953084244100	74	2	18	110	<50	<50	<50	<50	290
395452084293400	89	2	20	130	<50	<50	<50	<50	<50
395810084063600	74	2	19	96	<50	<50	<50	<50	<50
395912084214000	74	2	16	140	<50	<50	<50	<50	<50
400130084392900	78	2	18	130	<50	<50	<50	<50	<50
400134084400300	67	2	18	97	<50	<50	<50	<50	E40
400439084080000	68	2	16	110	<50	<50	<50	<50	<50

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49437), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified; HCH, hexachlorocyclohexane]

STATION NUMBER	9,10 ANTHRA- QUINONE, BED SED, WS <2MM DW, REC (UG/KG) (49437)	1-METHYL- 9H- FLUORENE, BED SED, WS <2MM DW, REC (UG/KG) (49398)	9H- FLUORENE, BED SED, WS <2MM DW, REC (UG/KG) (49399)	ACENAPH- THENE, BED SED, WS <2MM DW, REC (UG/KG) (49429)	ACENAPH- THYLENE, BED SED, WS <2MM DW, REC (UG/KG) (49428)	ACRIDINE, BED SED, WS <2MM DW, REC (UG/KG) (49430)	ALDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49319)	ALPHA- HCH, BED SED, WS <2MM DW, REC (UG/KG) (49338)	2-METHYL- ANTHRA- CENE, BED SED, WS <2MM DW, REC (UG/KG) (49435)
391852084253100	E30	<50	<50	<50	<50	<50	<1	<1	<50
392027083430100	E20	<50	<50	<50	M	<50	<1	<1	<50
392219084172100	130	<50	50	<50	130	<50	<1	<1	E40
392306084121300	<50	<50	<50	<50	<50	<50	<1	<1	<50
392400083494000	<50	<50	<50	<50	<50	<50	<1	<1	<50
392553084133100	120	<50	E40	<50	90	<50	<1	<1	<50
392614083564000	<50	<50	<50	<50	<50	<50	<1	<1	<50
393317083474000	<50	<50	<50	<50	<50	<50	6	<1	<50
393450084020300	<50	<50	<50	<50	<50	<50	<1	<1	<50
393619084461200	<50	<50	<50	<50	<50	<50	<1	<1	<50
393748084042300	E20	<50	<50	<50	<50	<50	<1	<1	<50
393814084043500	120	<50	<50	M	M	E20	<1	<1	M
393848083521200	<50	<50	<50	<50	<50	<50	<1	<1	<50
393903083582900	160	<50	E30	E10	E20	E30	<1	<1	E10
393903084110500	230	<50	E40	E20	E30	E40	<1	<1	E10
394111084234200	E30	<50	<50	<50	<50	<50	<1	<1	<50
394212083575200	570	E10	130	70	280	120	<1	<1	100
394252084010900	E20	<50	<50	<50	<50	<50	<1	<1	<50
394253083583300	<50	M	M	<50	<50	<50	<1	<1	E20
394414083501800	E50	<50	E20	<50	E40	<50	<1	<1	E10
394510084384100	<50	<50	<50	<50	<50	<50	<1	<1	<50
394549084234400	<50	<50	<50	<50	<50	<50	<1	<1	<50
394727083523000	110	<50	M	M	70	<50	<1	<1	M
394953084244100	560	<50	150	100	140	150	<1	<1	70
395452084293400	<50	<50	<50	<50	<50	<50	<1	<1	<50
395810084063600	E30	<50	<50	<50	M	<50	<1	<1	<50
395912084214000	<50	<50	<50	<50	<50	<50	<1	<1	<50
400130084392900	<50	<50	<50	<50	E40	<50	<1	<1	<50
400134084400300	E50	<50	E30	<50	110	<50	<1	<1	E40
400439084080000	<50	<50	<50	<50	<50	<50	<1	<1	<50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49434), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

STATION NUMBER	ANTHRA- CENE, BED SED, WS <2MM DW, REC (UG/KG) (49434)	AZO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49443)	BENZ (A) ANTHRA- CENE, BED SED, WS <2MM DW, REC (UG/KG) (49436)	BENZENE, 1,2,4- TRI- CHLORO- BED SED, WS <2MM DW, REC (UG/KG) (49438)	BENZENE, HEXA- CHLORO- BED SED, WS <2MM DW, REC (UG/KG) (49343)	1,3- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49441)	NITRO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49444)	1,2- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49439)	1,4- DICHLORO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49442)
391852084253100	E40	<50	100	<50	<1	<50	<50	<50	<50
392027083430100	E20	<50	E30	<50	<1	<50	<50	<50	<50
392219084172100	210	<50	510	<50	<1	<50	<50	<50	<50
392306084121300	<50	<50	<50	<50	<1	<50	<50	<50	<50
392400083494000	<50	<50	<50	<50	<1	<50	<50	<50	<50
392553084133100	150	<50	430	<50	<1	<50	<50	<50	<50
392614083564000	<50	<50	<50	<50	<1	<50	<50	<50	<50
393317083474000	<50	<50	E30	<50	<1	<50	<50	<50	<50
393450084020300	E10	<50	E20	<50	<1	<50	<50	<50	<50
393619084461200	<50	<50	<50	<50	<1	<50	<50	<50	<50
393748084042300	<50	<50	E20	<50	<1	<50	<50	<50	<50
393814084043500	E50	<50	220	<50	<1	<50	<50	<50	<50
393848083521200	<50	<50	<50	<50	<1	<50	<50	<50	<50
393903083582900	70	<50	310	<50	<1	<50	<50	<50	<50
393903084110500	110	<50	440	<50	M	<50	<50	<50	<50
394111084234200	<50	<50	70	<50	<1	<50	<50	<50	<50
394212083575200	530	<50	1700	<50	<1	<50	<50	<50	<50
394252084010900	<50	<50	M	<50	<1	<50	<50	<50	<50
394253083583300	M	<50	E40	<50	<1	<50	<50	<50	<50
394414083501800	60	<50	160	<50	<1	<50	<50	<50	<50
394510084384100	<50	<50	<50	<50	<1	<50	<50	<50	<50
394549084234400	<50	<50	<50	<50	<1	<50	<50	<50	<50
394727083523000	90	<50	270	<50	<1	<50	<50	<50	<50
394953084244100	410	<50	1400	<50	M	<50	<50	<50	<50
395452084293400	<50	<50	E40	<50	<1	<50	<50	<50	<50
395810084063600	E20	<50	E50	<50	<1	<50	<50	<50	<50
395912084214000	<50	<50	50	<50	<1	<50	<50	<50	<50
400130084392900	E40	<50	80	<50	<1	<50	<50	<50	<50
400134084400300	180	<50	270	<50	<1	<50	<50	<50	<50
400439084080000	<50	<50	<50	<50	<1	<50	<50	<50	<50

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49446), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified; HCH, hexachlorocyclohexane]

STATION NUMBER	PENTA- CHLORO- NITRO- BENZENE, BED SED, WS <2MM DW, REC (UG/KG) (49446)	BENZO (A) PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49389)	BENZO (B) FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49458)	BENZO (G, H, I) PERYLENE, BED SED, WS <2MM DW, REC (UG/KG) (49408)	BENZO (K) FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49397)	BENZO- CINNOLINE BED SED, WS <2MM DW, REC (UG/KG) (49468)	BETA- HCH, BED SED, WS <2MM DW, REC (UG/KG) (49339)	BIS-2- CHLORO- ETHYL ETHER, BED SED, WS <2MM DW, REC (UG/KG) (49456)	CARBA- ZOLE, BED SED, WS <2MM DW, REC (UG/KG) (49449)
391852084253100	<50	100	90	80	90	<50	<1	<50	<50
392027083430100	<50	E30	E20	E30	E20	<50	<1	<50	<50
392219084172100	<50	540	540	320	420	<50	<1	<50	70
392306084121300	<50	<50	<50	E30	<50	<50	<1	<50	<50
392400083494000	<50	<50	<50	<50	<50	<50	<1	<50	<50
392553084133100	<50	490	490	330	420	<50	<1	<50	60
392614083564000	<50	<50	<50	<50	<50	<50	<1	<50	<50
393317083474000	<50	<50	<50	<50	<50	<50	<1	<50	<50
393450084020300	<50	E20	<50	E20	<50	<50	<1	<50	<50
393619084461200	<50	<50	<50	<50	<50	<50	<1	<50	<50
393748084042300	<50	E30	E40	E10	E30	<50	<1	<50	<50
393814084043500	<50	290	340	190	280	<50	<1	<50	E40
393848083521200	<50	<50	<50	<50	<50	<50	<1	<50	<50
393903083582900	<50	350	380	240	300	<50	<1	<50	70
393903084110500	<50	570	680	350	570	<50	<1	<50	90
394111084234200	<50	70	60	60	50	<50	<1	<50	<50
394212083575200	<50	1800	1600	990	1600	<50	<1	<50	260
394252084010900	<50	E10	E30	M	E20	<50	<1	<50	<50
394253083583300	<50	E40	E30	E40	M	<50	<1	<50	M
394414083501800	<50	160	140	120	140	<50	<1	<50	E20
394510084384100	<50	E30	<50	E20	<50	<50	<1	<50	<50
394549084234400	<50	<50	<50	<50	<50	<50	<1	<50	<50
394727083523000	<50	360	360	200	360	<50	<1	<50	E30
394953084244100	<50	1400	1800	980	1200	<50	<1	<50	290
395452084293400	<50	50	E40	E40	E30	<50	<1	<50	<50
395810084063600	<50	70	70	E20	60	<50	<1	<50	<50
395912084214000	<50	50	E40	E40	E40	<50	<1	<50	<50
400130084392900	<50	90	60	50	70	<50	<1	<50	<50
400134084400300	<50	290	270	170	270	<50	<1	<50	<50
400439084080000	<50	<50	M	<50	<50	<50	<1	<50	<50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49322), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified; DCPA, dimethyl tetrachloroterephthalate]

STATION NUMBER	CHLORO- NEB, BED SED, WS <2MM DW, REC (UG/KG) (49322)	CHRYSENE, BED SED, WS <2MM DW, REC (UG/KG) (49450)	CIS- CHLOR- DANE, BED SED, WS <2MM DW, REC (UG/KG) (49320)	CIS- NONA- CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49316)	CIS- PER- METHRIN, BED SED, WS <2MM DW, REC (UG/KG) (49349)	DCPA, BED SED, WS <2MM DW, REC (UG/KG) (49324)	DIBENZ (A, H) ANTHRA- CENE, BED SED, WS <2MM DW, REC (UG/KG) (49461)	DIELDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49331)
391852084253100	<5	120	<1	<1	<5	<5	<50	<1
392027083430100	<5	E40	<1	<1	<5	<5	<50	<1
392219084172100	<5	570	M	<1	<5	<5	90	M
392306084121300	<5	E30	<1	<1	<5	<5	<50	<1
392400083494000	<5	<50	<1	<1	<5	<5	<50	3
392553084133100	<5	530	M	<1	<5	<5	80	<1
392614083564000	<5	<50	<1	<1	<5	<5	<50	3
393317083474000	<5	E30	<1	<1	<5	<5	<50	3
393450084020300	<5	E30	<1	<1	<5	<5	<50	1
393619084461200	<5	E30	<1	<1	<5	<5	<50	3
393748084042300	<5	E30	<1	<1	<5	<5	<50	<1
393814084043500	<5	360	1	<1	<5	<5	E50	M
393848083521200	<5	<50	<1	<1	<5	<5	<50	<1
393903083582900	<5	430	<1	<1	<5	<5	70	<1
393903084110500	<5	730	2	<1	<5	<5	90	M
394111084234200	<5	80	<1	<1	<5	<5	<50	1
394212083575200	<5	1900	2	<1	<5	<5	310	2
394252084010900	<5	E20	1	M	<5	<5	<50	M
394253083583300	<5	E30	<1	<1	<5	<5	<50	<1
394414083501800	<5	180	<1	<1	<5	<5	E30	2
394510084384100	<5	E40	<1	<1	<5	<5	<50	3
394549084234400	<5	<50	<1	<1	<5	<5	<50	<1
394727083523000	<5	380	2	M	<5	<5	50	3
394953084244100	<5	1900	5	M	<5	<5	300	3
395452084293400	<5	60	2	M	<5	<5	<50	3
395810084063600	<5	70	<1	<1	<5	<5	M	2
395912084214000	<5	60	M	<1	<5	<5	<50	1
400130084392900	<5	90	2	M	<5	<5	<50	M
400134084400300	<5	350	<1	<1	<5	<5	E40	<1
400439084080000	<5	<50	<1	<1	<5	<5	<50	M

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49433), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

STATION NUMBER	N- NITROSO- DIPHENYL- AMINE, BED SED, WS <2MM DW, REC (UG/KG) (49433)	N- NITROSO- DI-N- PROPYL- AMINE, BED SED, WS <2MM DW, REC (UG/KG) (49431)	ALPHA- ENDO- SULFAN, BED SED, WS <2MM DW, REC (UG/KG) (49332)	ENDRIN, BED SED, WS <2MM DW, REC (UG/KG) (49335)	FLUOR- ANTHENE, BED SED, WS <2MM DW, REC (UG/KG) (49466)	HEPTA- CHLOR EPOXIDE, BED SED, WS <2MM DW, REC (UG/KG) (49342)	HEPT- CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49341)	INDENO (1,2,3- CD) PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49390)
391852084253100	<50	<50	<1	<2	230	<1	<1	80
392027083430100	<50	<50	<1	<2	60	<1	<1	<50
392219084172100	<50	<50	<1	<2	1200	<1	<1	360
392306084121300	<50	<50	<1	<2	E40	<1	<1	<50
392400083494000	<50	<50	<1	<2	E20	<1	<1	<50
392553084133100	<50	<50	<1	<2	1100	<1	<1	370
392614083564000	<50	<50	<1	<2	E10	<1	<1	<50
393317083474000	<50	<50	<1	<2	E50	<1	<1	<50
393450084020300	<50	<50	<1	<2	E40	<1	<1	<50
393619084461200	<50	<50	<1	<2	50	<1	<1	<50
393748084042300	<50	<50	<1	<2	70	<1	<1	E30
393814084043500	<50	<50	<1	<2	720	<1	<1	260
393848083521200	<50	<50	<1	<2	<50	<1	<1	<50
393903083582900	<50	<50	<1	<2	930	<1	<1	300
393903084110500	<50	<50	<1	<2	1400	<1	<1	480
394111084234200	<50	<50	<1	<2	150	<1	<1	<50
394212083575200	<50	<50	<1	<2	4000	<1	<1	1400
394252084010900	<50	<50	<1	<2	50	<1	<1	E20
394253083583300	<50	<50	<1	<2	E40	<1	<1	E50
394414083501800	<50	<50	<1	<2	430	<1	<1	120
394510084384100	<50	<50	<1	<2	60	<1	<1	<50
394549084234400	<50	<50	<1	<2	<50	<1	<1	<50
394727083523000	<50	<50	<1	<2	730	<1	<1	270
394953084244100	<50	<50	<1	<2	3800	<1	<1	1200
395452084293400	<50	<50	<1	<2	100	<1	<1	E30
395810084063600	<50	<50	<1	<2	120	<1	<1	60
395912084214000	<50	<50	<1	<2	120	<1	<1	E40
400130084392900	<50	<50	<1	<2	150	<1	M	60
400134084400300	<50	<50	<1	<2	530	<1	<1	190
400439084080000	<50	<50	<1	<2	M	<1	<1	M

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49344), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated]

STATION NUMBER	ISODRIN, BED SED, WS <2MM DW, REC (UG/KG) (49344)	ISO- PHORONE, BED SED, WS <2MM DW, REC (UG/KG) (49400)	ISOQUINO- LINE, BED SED, WS <2MM DW, REC (UG/KG) (49394)	LINDANE, BED SED, WS <2MM DW, REC (UG/KG) (49345)	4-CHLORO 3-METHYL- PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49422)	BIS 2-CHLORO- ETHOXY METHANE, BED SED, WS <2MM DW, REC (UG/KG) (49401)	O, P' - METHOXY- CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49347)	P, P' - METHOXY CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49346)
391852084253100	<1	<50	<50	<1	<50	<50	<5	<5
392027083430100	<1	<50	<50	<1	<50	<50	<5	<5
392219084172100	<1	<50	<50	<1	<50	<50	<5	<5
392306084121300	<1	<50	<50	<1	<50	<50	<5	<5
392400083494000	<1	<50	<50	<1	<50	<50	<5	<5
392553084133100	<1	<50	<50	<1	<50	<50	<5	<5
392614083564000	<1	<50	<50	<1	<50	<50	<5	<5
393317083474000	<1	<50	<50	<1	<50	<50	<5	<5
393450084020300	<1	<50	<50	<1	<50	<50	<5	<5
393619084461200	<1	<50	<50	<1	<50	<50	<5	<5
393748084042300	<1	<50	<50	<1	<50	<50	<5	<5
393814084043500	<1	<50	<50	<1	<50	<50	<5	<5
393848083521200	<1	<50	<50	<1	<50	<50	<5	<5
393903083582900	<1	<50	<50	<1	<50	<50	<5	<5
393903084110500	<1	<50	<50	<1	<50	<50	<5	<5
394111084234200	<1	<50	<50	<1	<50	<50	<5	<5
394212083575200	<1	<50	<50	<1	<50	<50	<5	<5
394252084010900	<1	<50	<50	<1	<50	<50	<5	<5
394253083583300	<1	<50	<50	<1	<50	<50	<5	<5
394414083501800	<1	<50	<50	<1	<50	<50	<5	<5
394510084384100	<1	<50	<50	<1	<50	<50	<5	<5
394549084234400	<1	<50	<50	<1	<50	<50	<5	<5
394727083523000	<1	<50	<50	<1	<50	<50	<5	<5
394953084244100	<1	<50	<50	<1	<50	<50	<5	<5
395452084293400	<1	<50	<50	<1	<50	<50	<5	<5
395810084063600	<1	<50	<50	<1	<50	<50	<5	<5
395912084214000	<1	<50	<50	<1	<50	<50	<5	<5
400130084392900	<1	<50	<50	<1	<50	<50	<5	<5
400134084400300	<1	<50	<50	<1	<50	<50	<5	<5
400439084080000	<1	<50	<50	<1	<50	<50	<5	<5

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49348), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

STATION NUMBER	MIREX, BED SED, WS <2MM DW, REC (UG/KG) (49348)	1,2- DIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49403)	1,6- DIMETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49404)	2,3,6 TRI- METHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49405)	2,6-DI- METHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49406)	2-CHLORO- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49407)	2-ETHYL- NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49948)	NAPH- THALENE, BED SED, WS <2MM DW, REC (UG/KG) (49402)
391852084253100	<1	<50	<50	<50	<50	<50	<50	<50
392027083430100	<1	<50	E20	<50	E30	<50	<50	<50
392219084172100	<1	<50	<50	<50	<50	<50	<50	<50
392306084121300	<1	<50	<50	<50	<50	<50	<50	<50
392400083494000	<1	<50	<50	<50	E20	<50	<50	<50
392553084133100	<1	<50	<50	<50	<50	<50	<50	<50
392614083564000	<1	<50	E10	<50	E30	<50	<50	<50
393317083474000	<1	<50	<50	<50	E30	<50	<50	<50
393450084020300	<1	<50	E20	<50	E40	<50	<50	<50
393619084461200	<1	<50	<50	<50	E30	<50	<50	<50
393748084042300	<1	<50	<50	<50	E10	<50	<50	<50
393814084043500	<1	<50	<50	<50	E10	<50	<50	M
393848083521200	<1	<50	<50	<50	E30	<50	<50	<50
393903083582900	<1	<50	E20	E20	E20	<50	<50	E20
393903084110500	<1	<50	<50	<50	E10	<50	<50	M
394111084234200	<1	<50	<50	<50	<50	<50	<50	<50
394212083575200	<1	<50	E20	M	E20	<50	<50	E50
394252084010900	<1	<50	<50	<50	<50	<50	<50	<50
394253083583300	<1	<50	E30	M	E50	<50	M	E30
394414083501800	<1	<50	E20	<50	E40	<50	<50	<50
394510084384100	<1	<50	<50	<50	<50	<50	<50	<50
394549084234400	<1	<50	<50	<50	<50	<50	<50	<50
394727083523000	<1	<50	M	<50	E30	<50	<50	E20
394953084244100	<1	<50	<50	E40	<50	<50	<50	E50
395452084293400	<1	<50	<50	<50	<50	<50	<50	<50
395810084063600	<1	<50	<50	<50	E40	<50	<50	<50
395912084214000	<1	<50	<50	<50	<50	<50	<50	<50
400130084392900	<1	<50	<50	<50	E30	<50	<50	<50
400134084400300	<1	<50	50	E30	70	<50	<50	60
400439084080000	<1	<50	<50	<50	E20	<50	<50	<50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49325), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified. Constituent names are abbreviated as: DDD, dichlorodiphenyldichloroethane; DDE, dichlorodiphenyldichloroethene; DDT, dichlorodiphenyltrichloroethane; PCB, polychlorinated biphenyls]

STATION NUMBER	O, P' -DDD, BED SED, WS <2MM DW, REC (UG/KG) (49325)	O, P' -DDE, BED SED, WS <2MM DW, REC (UG/KG) (49327)	O, P' -DDT, BED SED, WS <2MM DW, REC (UG/KG) (49329)	OXY- CHLOR- DANE, BED SED, WS <2MM DW, REC (UG/KG) (49318)	P, P' -DDD, BED SED, WS <2MM DW, REC (UG/KG) (49326)	P, P' -DDE, BED SED, WS <2MM DW, REC (UG/KG) (49328)	P, P' -DDT, BED SED, WS <2MM DW, REC (UG/KG) (49330)	PCB, BED SED, WS, <2MM DW, REC (UG/KG) (49459)
391852084253100	<1	<1	<2	<1	<1	<1	<2	<50
392027083430100	<1	<1	<2	<1	<1	<1	<2	<50
392219084172100	<1	<1	<2	<1	<1	<1	<2	<50
392306084121300	<1	<1	<2	<1	<1	<1	<2	<50
392400083494000	<1	<1	<2	<1	<1	<1	<2	<50
392553084133100	<1	<1	<2	<1	<1	2	<2	<50
392614083564000	<1	<1	<2	<1	<1	<1	<2	<50
393317083474000	<1	<1	<2	<1	<1	<1	<2	<50
393450084020300	<1	<1	<2	<1	<1	<1	<2	<50
393619084461200	<1	<1	<2	<1	<1	<1	<2	<50
393748084042300	<1	<1	<2	<1	<1	<1	M	<50
393814084043500	<1	<1	<2	<1	<1	<1	<2	<50
393848083521200	<1	<1	<2	<1	<1	<1	<2	<50
393903083582900	<1	<1	<2	<1	<1	<1	<2	<50
393903084110500	<1	<1	<2	<1	<1	<1	<2	<50
394111084234200	<1	<1	<2	<1	<1	<1	<2	<50
394212083575200	<1	<1	<2	<1	<1	<1	<2	E30
394252084010900	<1	<1	<2	<1	<1	<1	<2	<50
394253083583300	<1	<1	<2	<1	<1	<1	<2	<50
394414083501800	<1	<1	<2	<1	<1	M	<2	<50
394510084384100	<1	<1	<2	<1	<1	<1	<2	<50
394549084234400	<1	<1	<2	<1	<1	<1	<2	<50
394727083523000	<1	<1	<2	<1	<1	<1	<2	<50
394953084244100	<1	<1	<2	<1	<1	2	<2	<50
395452084293400	<1	<1	<2	<1	<1	2	<2	<50
395810084063600	<1	<1	<2	<1	<1	2	E1	<50
395912084214000	<1	<1	<2	<1	<1	M	<2	<50
400130084392900	<1	<1	<2	<1	<1	M	<2	<50
400134084400300	<1	<1	<2	<1	<1	<1	<2	<50
400439084080000	<1	<1	<2	<1	<1	M	<2	<50

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49451), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

STATION NUMBER	P-CRESOL, BED SED, WS <2MM DW, REC (UG/KG) (49451)	PENTA- CHLORO- ANISOLE, BED SED, WS <2MM DW, REC (UG/KG) (49460)	1-METHYL- PHEN- ANTHRENE, BED SED, WS <2MM DW, REC (UG/KG) (49410)	PHEN- ANTHRENE, BED SED, WS <2MM DW, REC (UG/KG) (49409)	PHEN- AN- THRIDINE, BED SED, WS <2MM DW, REC (UG/KG) (49393)	PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49413)	C8-ALKYL PHENOL, BED SED, WS <2MM DW, REC (UG/KG) (49424)	2-CHLORO- PHENOL, BED SED, WS <2MM DW REC (UG/KG) (49467)
391852084253100	E30	<1	<50	120	<50	<50	<50	<50
392027083430100	260	<1	<50	E20	<50	<50	<50	<50
392219084172100	<50	M	E40	650	<50	<50	<50	<50
392306084121300	<50	<1	<50	<50	<50	<50	<50	<50
392400083494000	E50	<1	<50	M	<50	<50	<50	<50
392553084133100	<50	<1	E30	530	<50	<50	<50	<50
392614083564000	120	<1	<50	M	<50	E10	<50	<50
393317083474000	E30	<1	<50	<50	<50	<50	<50	<50
393450084020300	120	<1	M	E10	<50	<50	<50	<50
393619084461200	60	<1	<50	E30	<50	<50	<50	<50
393748084042300	E40	<1	<50	E20	<50	E10	<50	<50
393814084043500	140	<1	M	320	E10	E20	<50	<50
393848083521200	<50	<1	<50	<50	<50	<50	<50	<50
393903083582900	60	<1	E20	500	E10	<50	<50	<50
393903084110500	150	<1	E30	720	E20	E20	<50	<50
394111084234200	100	<1	<50	60	<50	<50	<50	<50
394212083575200	670	M	130	1800	60	50	<50	<50
394252084010900	E30	<1	<50	E10	<50	E10	<50	<50
394253083583300	1000	<1	M	E40	<50	80	E10	<50
394414083501800	190	<1	<50	250	<50	80	<50	<50
394510084384100	60	<1	<50	<50	<50	<50	<50	<50
394549084234400	<50	<1	<50	<50	<50	<50	<50	<50
394727083523000	880	<1	M	290	<50	E50	<50	<50
394953084244100	70	<1	110	2000	<50	<50	<50	<50
395452084293400	<50	<1	<50	E50	<50	<50	<50	<50
395810084063600	1200	<1	<50	E30	<50	E50	<50	<50
395912084214000	<50	<1	<50	60	<50	<50	<50	<50
400130084392900	440	<1	<50	E40	<50	<50	<50	<50
400134084400300	350	<1	E50	240	<50	E30	<50	<50
400439084080000	470	<1	<50	<50	<50	E40	<50	<50

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49426), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified; UG/G, micrograms per gram]

STATION NUMBER	BIS 2- ETHYL- HEXYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49426)	BUTYL- BENZYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49427)	DI- BUTYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49381)	DI- ETHYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49383)	DI- METHYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49384)	DI- OCTYL- PHTHALATE, BED SED, WS <2MM DW, REC (UG/KG) (49382)	1-METHYL- PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49388)	PYRENE, BED SED, WS <2MM DW, REC (UG/KG) (49387)
391852084253100	E30	E30	<50	<50	<50	<50	<50	180
392027083430100	120	E30	<50	<50	<50	<50	E10	E50
392219084172100	70	<50	<50	<50	<50	<50	E30	950
392306084121300	<50	E30	<50	<50	<50	140	<50	E30
392400083494000	E30	E30	<50	<50	<50	<50	<50	M
392553084133100	90	E30	<50	<50	<50	<50	E30	850
392614083564000	E20	E30	<50	<50	<50	<50	<50	M
393317083474000	E30	<50	<50	<50	<50	<50	<50	E30
393450084020300	E30	E30	E10	<50	<50	<50	E10	E40
393619084461200	E30	<50	<50	<50	<50	<50	<50	E40
393748084042300	160	E20	<50	<50	<50	<50	<50	E50
393814084043500	140	E20	<50	<50	<50	E10	M	520
393848083521200	190	E30	<50	<50	<50	<50	<50	<50
393903083582900	180	E40	E30	<50	<50	<50	E20	670
393903084110500	120	E20	<50	<50	<50	<50	E20	1100
394111084234200	E40	<50	<50	<50	<50	<50	<50	110
394212083575200	310	70	M	<50	<50	E20	100	2900
394252084010900	E30	E20	<50	<50	<50	M	<50	E30
394253083583300	1800	<50	<50	<50	<50	<50	E10	E40
394414083501800	100	E30	<50	<50	<50	<50	<50	310
394510084384100	E20	<50	<50	<50	<50	<50	<50	E40
394549084234400	<50	<50	<50	<50	<50	<50	<50	<50
394727083523000	90	E20	<50	<50	<50	<50	E10	550
394953084244100	180	E50	<50	<50	<50	<50	80	2700
395452084293400	70	E30	<50	<50	<50	<50	<50	80
395810084063600	E40	E20	<50	<50	<50	<50	<50	90
395912084214000	<50	E30	<50	<50	<50	<50	<50	80
400130084392900	60	E30	<50	<50	<50	<50	<50	110
400134084400300	50	E40	<50	<50	<50	<50	E40	430
400439084080000	E10	E10	<50	<50	<50	<50	<50	M

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

[(49392), USGS National Water Information System parameter code; BED SED, bottom sediment; WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

STATION NUMBER	QUINO- LINE, BED SED, WS <2MM DW, REC (UG/KG) (49392)	DIBENZO- THIO- PHENE, BED SED, WS <2MM DW, REC (UG/KG) (49452)	2,4- DINITRO- TOLUENE, BED SED, WS <2MM DW, REC (UG/KG) (49395)	2,6- DINITRO- TOLUENE, BED SED, WS <2MM DW, REC (UG/KG) (49396)	TOXA- PHENE, BED SED, WS <2MM DW, REC (UG/KG) (49351)	TRANS- CHLOR- DANE, BED SED, WS <2MM DW, REC (UG/KG) (49321)	TRANS- NONA- CHLOR, BED SED, WS <2MM DW, REC (UG/KG) (49317)	TRANS- PERMETHRIN, BED SED, WS <2MM DW, REC (UG/KG) (49350)
391852084253100	<50	<50	<50	<50	<200	<1	<1	<5
392027083430100	<50	<50	<50	<50	<200	<1	<1	<5
392219084172100	<50	E30	<50	<50	<200	M	<1	<5
392306084121300	<50	<50	<50	<50	<200	<1	<1	<5
392400083494000	<50	<50	<50	<50	<200	<1	<1	<5
392553084133100	<50	<50	<50	<50	<200	<1	<1	<5
392614083564000	<50	<50	<50	<50	<200	<1	<1	<5
393317083474000	<50	<50	<50	<50	<200	<1	<1	<5
393450084020300	<50	<50	<50	<50	<200	<1	<1	<5
393619084461200	<50	<50	<50	<50	<200	<1	<1	<5
393748084042300	<50	<50	<50	<50	<200	<1	<1	<5
393814084043500	<50	M	<50	<50	<200	M	M	<5
393848083521200	<50	<50	<50	<50	<200	<1	<1	<5
393903083582900	<50	E20	<50	<50	<200	<1	<1	<5
393903084110500	<50	E30	<50	<50	<200	2	M	<5
394111084234200	<50	<50	<50	<50	<200	<1	<1	<5
394212083575200	<50	90	<50	<50	<200	<2	M	<5
394252084010900	<50	<50	<50	<50	<200	2	1	<5
394253083583300	<50	<50	<50	<50	<200	<1	<1	<5
394414083501800	<50	<50	<50	<50	<200	<1	<1	<5
394510084384100	<50	<50	<50	<50	<200	<1	<1	<5
394549084234400	<50	<50	<50	<50	<200	<1	<1	<5
394727083523000	<50	<50	<50	<50	<200	2	1	<5
394953084244100	<50	100	<50	<50	<200	4	3	<5
395452084293400	<50	<50	<50	<50	<200	1	<1	<5
395810084063600	<50	<50	<50	<50	<200	<1	<1	<5
395912084214000	<50	<50	<50	<50	<200	M	<1	<5
400130084392900	<50	<50	<50	<50	<200	3	M	<5
400134084400300	<50	<50	<50	<50	<200	<1	<1	<5
400439084080000	<50	<50	<50	<50	<200	<1	<1	<5

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PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
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RESULTS FROM THE URBAN-GRADIENT STUDY-JULY 2001—CONTINUED

BED-SEDIMENT QUALITY DATA—Continued

PARTICLE-SIZE SIEVE ANALYSIS OF STREAMBED SEDIMENT SAMPLES

[PERCENT, weight percent; BED MATERIAL, bottom sediment; MM, millimeter]

STATION NUMBER	PERCENT SAND BED MATERIAL <2 MM AND >.062 MM	PERCENT SILT BED MATERIAL <.062 MM AND >.004 MM	PERCENT CLAY BED MATERIAL <.004 MM (80157)
391852084253100	83.4	10.8	5.8
392027083430100	55.5	29.1	15.4
392219084172100	82.3	11.2	6.5
392306084121300	79.0	12.7	8.3
392400083494000	84.3	10.9	4.8
392553084133100	78.1	14.7	7.2
392614083564000	86.0	11.2	2.8
393317083474000	83.2	10.0	6.8
393450084020300	65.0	26.0	9.0
393619084461200	71.4	21.6	7.0
393748084042300	79.7	14.3	6.0
393814084043500	81.8	11.3	6.9
393848083521200	76.3	14.8	8.9
393903083582900	75.8	16.7	7.5
393903084110500	82.6	10.5	6.9
394111084234200	85.1	9.3	5.6
394212083575200	78.1	14.9	7.0
394252084010900	79.1	13.3	7.6
394253083583300	29.8	42.8	27.4
394414083501800	72.6	16.6	10.8
394510084384100	83.2	11.2	5.6
394549084234400	86.5	8.9	4.6
394727083523000	46.2	50.7	3.1
394953084244100	84.4	9.9	5.7
395452084293400	73.7	14.5	11.8
395810084063600	70.3	18.2	11.5
395912084214000	95.0	3.6	1.4
400130084392900	42.8	34.5	22.7
400134084400300	64.1	26.1	9.8
400439084080000	77.9	13.8	8.3

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY AND REFERENCE WELL SOIL AND GROUND-WATER ANALYSES—Continued

STATION NUMBER	MAP INDEX	ABBREVIATED WELL NUMBER	INFORMAL WELL NAME	LATITUDE	LONGITUDE	REMARKS
BUTLER COUNTY						
391849084381901	A	BU-1161	URB-01	39°18'49"	84°38'19"	Well plugged and abandoned
392939084250301	B	BU-1169	URB-05	39°29'40"	84°25'03"	
392008084335501	C	BU-1162	URB-06	39°20'09"	84°33'56"	
392008084343801	D	BU-1163	URB-07	39°20'09"	84°34'38"	
392049084340301	E	BU-1165	URB-08	39°20'49"	84°34'04"	
392157084293901	F	BU-1167	URB-10	39°21'58"	84°29'40"	
392917084205601	G	BU-1168	URB-11	39°29'17"	84°20'57"	
392047084325101	H	BU-1164	URB-15	39°20'47"	84°32'51"	
392121084332101	I	BU-1166	URB-29	39°21'22"	84°33'22"	
CHAMPAIGN COUNTY						
400642083441601	J	CH-137	URB-21	40°06'42"	83°44'16"	
CLARK COUNTY						
395210083565001	K	CL-285	URB-22	39°52'10"	83°56'51"	
395614084020301	L	CL-288	URB-24	39°56'15"	84°02'04"	
395247084015801	M	CL-287	URB-25	39°52'48"	84°01'56"	
395244084011901	N	CL-286	URB-26	39°52'45"	84°01'20"	
GREENE COUNTY						
394234084024301	O	GR-658	URB-16	39°42'34"	84°02'43"	
394256084040701	P	GR-659	URB-19	39°42'57"	84°04'08"	
394320084044301	Q	GR-660	URB-20	39°43'21"	84°04'44"	
393956083575601	R	GR-657	URB-23	39°39'56"	83°57'56"	
HAMILTON COUNTY						
390744084212501	S	H-154	URB-02	39°07'45"	84°21'26"	Well plugged and abandoned
391518084485201	T	H-158	URB-03	39°15'18"	84°48'53"	
391434084474601	U	H-157	URB-04	39°14'35"	84°47'46"	
391741084265401	V	H-159	URB-09	39°17'42"	84°26'54"	
391226084272501	W	H-156	URB-31	39°12'27"	84°27'26"	
MIAMI COUNTY						
400246084110301	X	MI-206	URB-28	40°02'47"	84°11'03"	Well plugged and abandoned
MONTGOMERY COUNTY						
394025084132501	Y	MT-1258	URB-14	39°40'25"	84°13'25"	
393954084132001	Z	MT-1257	URB-17	39°39'55"	84°13'20"	
394103084124901	AA	MT-1259	URB-18	39°41'03"	84°12'49"	
395218084100801	BB	MT-1260	REF-01	39°52'18"	84°10'09"	
39381208424001	CC	MT-1256	REF-02	39°38'13"	84°24'01"	
WARREN COUNTY						
393405084203701	DD	W-54	URB-12	39°34'06"	84°20'38"	
393453084131801	EE	W-55	URB-13	39°34'53"	84°19'18"	

PROJECT DATA

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**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUEDURBAN LAND-USE STUDY SOIL SAMPLES

[(72015), USGS National Water Information System parameter code; MM, millimeter; G/KG, grams per kilogram; <, concentration or value reported is less than that indicated; --, no data]

ABBREVIATED STATION NAME	DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FEET) (72015)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FEET) (72016)	PH ONE TO ONE RATIO SOIL TO WATER MIXTURE (STANDARD UNITS) (46253)	INOR- GANIC CARBON SEDIMENT <2 MM (G/KG) (49270)	ORGANIC AND INORGANIC CARBON SEDIMENT <2 MM (G/KG) (49272)	ORGANIC CARBON SEDIMENT <2 MM (G/KG) (49271)	PERCENT CLAY FINER THAN 0.004 MM (80157)	PERCENT SILT COARSER THAN 0.004 MM AND FINER THAN 0.062 MM	PERCENT SAND OR GRAVEL COARSER THAN 0.062 MM
<u>BUTLER COUNTY</u>											
BU-1161	06/26/01	1630	24	26	8.6	50	53	3.4	1	2	97
	06/26/01	1830	40	45	8.7	57	55	<.2	3	9	88
BU-1169	07/01/01	1100	8	10	8.7	66	71	5.9	--	--	--
BU-1162	07/02/01	1500	11	13	8.8	45	47	1.7	2	5	93
	07/02/01	1600	50	52	8.7	72	64	<.2	2	9	89
BU-1163	07/03/01	1330	33	35	8.8	76	78	1.9	2	6	92
	07/03/01	1500	48	50	8.8	57	57	<.2	2	5	93
BU-1165	07/31/01	1030	18	20	8.7	46	54	7.7	1	5	94
	07/31/01	1130	48	50	8.5	73	67	<.2	3	6	91
BU-1167	08/02/01	1430	28	30	8.3	46	46	.3	--	--	--
	08/02/01	1530	43	45	8.1	--	--	--	--	--	--
BU-1168	08/04/01	1030	28	30	8.3	.9	1.6	.7	57	32	11
BU-1164	08/10/01	1030	33	35	8.8	71	68	<.2	2	5	93
	08/10/01	1200	53	55	8.8	49	50	.8	4	8	88
BU-1166	09/09/01	1230	43	45	8.7	76	81	5.2	14	17	69
<u>CHAMPAIGN COUNTY</u>											
CH-137	08/16/01	1400	23	25	8.1	14	16	1.5	3	12	85
<u>CLARK COUNTY</u>											
CL-285	08/18/01	1500	43	45	8.9	76	75	<.2	1	4	95
CL-288	09/05/01	1100	53	55	8.8	78	84	5.9	4	11	85
CL-287	09/06/01	1130	43	45	8.6	80	84	4.1	3	6	91
CL-286	09/06/01	1630	33	35	8.7	64	69	4.5	1	5	94
<u>GREENE COUNTY</u>											
GR-658	08/11/01	1600	13	15	8.6	55	60	4.6	--	7	93
	08/11/01	1630	23	25	8.1	62	64	2.4	17	28	55
GR-659	08/14/01	1400	18	20	8.3	65	66	.5	22	31	47
	08/14/01	1500	28	30	8.3	72	74	2.3	2	7	91
GR-660	08/15/01	1130	38	40	8.9	70	69	<.2	2	7	91
	08/15/01	1030	18	20	8.4	--	--	--	--	--	--
GR-657	08/19/01	1200	33	35	8.6	11	12	.6	2	6	92
<u>HAMILTON COUNTY</u>											
H-154	06/28/01	1500	22	24	8.7	52	55	2.8	3	6	91
H-158	06/29/01	1230	12	14	8.8	73	72	<.2	4	12	84
	06/29/01	1330	33	35	8.6	34	38	4.5	1	7	92
H-157	06/30/01	1330	23	25	8.1	29	33	4.1	1	3	96
H-159	08/01/01	1045	18	20	7.9	46	46	<.2	--	--	--
	08/01/01	1130	28	30	8.2	47	49	1.9	--	--	--
H-156	09/13/01	1600	38	40	8.6	13	14	1.1	3	14	83
<u>MIAMI COUNTY</u>											
MI-206	09/08/01	0930	13	15	8.8	70	75	4.8	--	--	--
	09/08/01	1030	43	45	8.2	--	--	--	--	--	--
<u>MONTGOMERY COUNTY</u>											
MT-1258	08/07/01	1400	33	35	8.9	76	74	<.2	1	1	98
MT-1257	08/12/01	1300	18	20	8.0	36	39	3.4	47	31	22
MT-1259	08/13/01	1230	23	25	8.9	73	67	<.2	1	5	94
	08/13/01	1400	48	50	8.8	81	79	<.2	3	8	89
MT-1260	09/10/01	1200	23	25	8.8	65	72	6.5	2	5	93
MT-1256	09/12/01	1030	13	15	8.6	74	77	3.1	1	4	95
<u>WARREN COUNTY</u>											
W-54	08/05/01	1130	18	20	8.8	72	72	<.2	3	9	88
W-55	08/06/01	1430	31	32	8.8	65	66	.8	5	8	87

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES

[NGVD, National Geodetic Vertical Datum of 1929; (72000), USGS National Water Information System parameter code; NTU, Nephelometric Turbidity Units; MG/L, milligrams per per liter; US/CM, microseimens per centimeter; --, no data]

ABBREVIATED STATION NAME	DATE	TIME	ELEVATION OF LAND SURFACE DATUM (FEET ABOVE NGVD) (72000)	DEPTH OF WELL, TOTAL (FEET) (72008)	WATER LEVEL, DEPTH BELOW LAND SURFACE (FEET) (72019)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS (00400)	SPEC- IFIC CON- DUCT- ANCE (US/CM) (00095)	WATER TEMPER- ATURE (DEGREES CELSIUS) (00010)	HARD- NESS, TOTAL (MG/L AS CACO3) (00900)
<u>BUTLER COUNTY</u>											
BU-1161	11/27/01	1400	560	43.50	34.75	.74	8.5	7.3	603	14.6	320
BU-1162	11/14/01	1500	588	49.50	42.99	3.2	3.0	6.5	903	14.6	430
BU-1163	11/26/01	1500	576	47.50	36.26	2.0	5.9	7.0	1180	14.4	410
BU-1165	11/27/01	1000	572	44.50	31.19	5.1	1.0	7.1	1160	16.6	440
BU-1168	11/07/01	1500	668	47.00	14.38	1.0	.1	7.0	905	15.3	450
BU-1164	11/14/01	1100	598	52.50	38.30	2.2	2.4	6.6	902	14.6	420
BU-1166	11/13/01	1600	595	43.00	39.32	--	8.3	7.5	905	14.8	400
<u>CHAMPAIGN COUNTY</u>											
CH-137	10/03/01	1400	1076	23.50	9.51	13	.6	7.0	905	16.8	410
	11/08/01	1200	1076	23.50	7.97	--	.4	7.0	924	16.8	--
<u>CLARK COUNTY</u>											
CL-285	10/24/01	1200	890	42.50	32.29	.98	3.7	6.6	899	16.5	420
CL-288	10/17/01	1400	910	51.50	38.44	1.1	8.1	7.0	1040	16.0	360
		1500	910	51.50	38.44	1.1	--	--	--	--	--
CL-287	12/03/01	1100	853	43.00	18.48	8.5	.2	7.0	856	14.3	420
CL-286	12/03/01	1500	845	32.50	13.84	1.9	.3	6.9	752	13.2	370
<u>GREENE COUNTY</u>											
GR-658	10/22/01	1600	829	22.00	8.21	2.2	6.5	6.3	928	17.1	410
GR-659	10/23/01	1200	847	28.50	10.72	2.5	--	6.5	756	17.0	380
GR-660	10/04/01	1400	865	38.00	23.65	2.6	3.5	7.0	1180	14.3	380
	11/08/01	1000	865	38.00	23.77	--	4.6	7.1	1150	13.3	--
GR-657	10/25/01	1200	908	38.50	29.28	--	8.3	7.0	715	16.6	340
<u>HAMILTON COUNTY</u>											
H-154	11/29/01	1100	502	32.75	15.18	32	.4	7.3	955	17.0	330
H-158	11/15/01	1000	521	37.75	17.47	2.1	2.4	7.0	862	16.1	380
H-157	11/15/01	1400	499	22.00	2.87	10	4.8	7.0	798	14.8	390
H-156	11/28/01	1000	545	43.00	24.53	3.2	.1	6.9	1420	15.3	410
<u>MONTGOMERY COUNTY</u>											
MT-1258	10/31/01	1200	725	37.00	24.94	7.4	6.2	6.8	1010	16.5	410
MT-1257	11/01/01	1200	750	30.00	15.04	8.8	.1	7.0	918	17.8	350
MT-1259	10/31/01	1600	739	47.50	33.79	1.4	5.8	6.7	1010	15.4	430
MT-1260	10/18/01	1200	800	22.00	7.29	.64	3.8	6.8	803	16.7	390
		1300	800	22.00	--	--	--	--	--	--	--
MT-1256	11/07/01	1100	732	15.50	11.50	5.4	.2	6.7	901	11.2	520
<u>WARREN COUNTY</u>											
W-54	11/06/01	1100	675	33.00	12.09	6.3	3.9	7.3	1240	13.3	320
W-55	11/05/01	1400	696	29.00	20.07	3.5	1.4	7.1	793	14.6	350

PROJECT DATA

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Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUEDURBAN LAND-USE STUDY WATER SAMPLES—Continued

[(00915), USGS National Water Information System parameter code; MG/L, milligrams per per liter; --, no data]

ABBREVIATED STATION NAME	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD SORP- TION RATIO (00931)	ALKA- LINITY, DIS- SOLVED, FIELD (MG/L AS CACO3) (39086)	CAR- BONATE, DIS- SOLVED FIELD (MG/L AS CO3) (00452)	BICAR- BONATE, DIS- SOLVED FIELD (MG/L AS HCO3) (00453)	BROM- IDE, DIS- SOLVED, (MG/L AS BR) (71870)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
<u>BUTLER COUNTY</u>										
BU-1161	87.1	25.9	2.81	32.6	.8	223	0	272	.16	93.7
BU-1162	114	35.1	2.52	26.0	.5	351	0	428	.06	57.6
BU-1163	109	33.1	3.56	59.8	1	307	0	374	.09	152
BU-1165	119	34.6	4.80	137	3	305	0	371	.10	289
BU-1168	128	32.5	1.10	22.6	.5	357	0	435	.12	64.9
BU-1164	111	35.4	2.28	27.8	.6	357	0	435	.07	56.5
BU-1166	102	36.4	1.93	26.9	.6	332	0	405	.06	65.0
<u>CHAMPAIGN COUNTY</u>										
CH-137	101	37.0	.87	30.3	.7	342	1	414	.04	83.1
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<u>CLARK COUNTY</u>										
CL-285	104	38.4	1.82	28.6	.6	396	0	483	.07	43.8
CL-288	88.2	33.6	1.79	58.7	1	269	0	328	.05	118
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CL-287	101	39.7	2.16	16.1	.3	350	0	426	.06	45.5
CL-286	89.0	36.0	1.46	12.3	.3	359	0	438	.04	23.8
<u>GREENE COUNTY</u>										
GR-658	99.9	38.3	1.66	30.7	.7	380	0	463	.10	66.7
GR-659	109	26.7	.70	11.1	.2	362	0	441	.20	21.8
GR-660	97.4	34.0	2.03	91.9	2	360	0	438	.08	150
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GR-657	85.5	30.6	.98	21.2	.5	271	0	330	.03	58.9
<u>HAMILTON COUNTY</u>										
H-154	81.9	29.9	3.27	60.3	1	233	0	284	.11	114
H-158	106	28.4	7.41	27.7	.6	310	0	378	.06	66.6
H-157	101	34.3	1.23	14.9	.3	303	0	369	.04	45.7
H-156	122	25.6	4.41	49.4	1	349	0	425	.10	109
<u>MONTGOMERY COUNTY</u>										
MT-1258	105	35.6	2.52	46.6	1	358	0	436	.09	93.7
MT-1257	87.1	31.4	3.12	66.7	2	340	0	414	.12	103
MT-1259	108	37.7	1.97	39.0	.8	346	0	421	.08	92.2
MT-1260	96.9	35.0	2.18	17.1	.4	358	0	435	.08	14.6
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MT-1256	148	36.0	2.37	3.50	.1	427	0	521	.06	6.54
<u>WARREN COUNTY</u>										
W-54	77.2	30.4	2.58	19.2	.5	247	0	300	.04	46.7
W-55	86.5	31.2	3.61	17.8	.4	330	0	401	.06	41.1

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(00950), USGS National Water Information System parameter code; MG/L, milligrams per per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREV- IATED STATION NAME	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SULFATE, DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEGREES CELSIUS DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC DISSOLVED (MG/L AS N) (00623)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC, DIS- SOLVED (MG/L AS C) (00681)
<u>BUTLER COUNTY</u>										
BU-1161	.1	8.72	46.6	454	<.04	<.10	3.38	<.008	<.02	E.2
BU-1162	.2	11.7	60.8	540	<.04	<.10	3.13	<.008	.03	.6
BU-1163	.1	10.6	38.8	620	<.04	<.10	2.88	<.008	<.02	.4
BU-1165	.2	9.57	65.3	868	<.04	<.10	5.28	.016	<.02	<.3
BU-1168	.2	14.5	66.9	560	<.04	<.10	.16	E.005	<.02	.7
BU-1164	.2	13.2	55.6	520	<.04	E.10	3.31	<.008	<.02	.7
BU-1166	.2	13.7	32.3	508	<.04	.12	9.54	<.008	<.02	.7
<u>CHAMPAIGN COUNTY</u>										
CH-137	.3	11.9	39.0	510	<.04	E.06	.18	.010	.03	1.4
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<u>CLARK COUNTY</u>										
CL-285	.2	13.4	38.5	468	E.02	<.10	4.75	<.008	<.02	.5
CL-288	.2	10.5	38.8	496	<.04	<.10	4.57	<.008	<.02	1.1
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CL-287	.4	13.3	76.2	522	<.04	<.10	E.03	<.008	<.02	.5
CL-286	.2	11.6	56.7	452	<.04	<.10	.82	<.008	<.02	.5
<u>GREENE COUNTY</u>										
GR-658	.3	13.4	40.6	450	<.04	<.10	E.02	<.008	<.02	.7
GR-659	.2	8.99	27.5	386	E.04	.11	<.05	<.008	<.02	1.6
GR-660	.2	12.4	60.6	652	<.04	E.07	2.03	<.008	<.02	1.2
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GR-657	.2	14.4	34.7	398	<.04	<.10	3.35	<.008	E.01	E.2
<u>HAMILTON COUNTY</u>										
H-154	.2	7.23	107	574	<.04	E.08	E.03	<.008	.02	1.5
H-158	E.1	12.5	37.5	508	<.04	<.10	6.51	<.008	<.02	.5
H-157	.1	13.3	29.4	460	<.04	<.10	10.2	.008	<.02	.4
H-156	.1	11.0	69.1	604	<.04	<.10	.07	<.008	<.02	.9
<u>MONTGOMERY COUNTY</u>										
MT-1258	E.1	9.30	47.6	548	<.04	<.10	2.26	<.008	<.02	.7
MT-1257	.2	9.14	33.0	546	E.02	.11	.31	<.008	<.02	2.1
MT-1259	.2	13.4	50.6	536	<.04	<.10	2.81	<.008	<.02	.6
MT-1260	E.1	9.32	83.4	384	<.04	E.06	1.03	E.006	<.02	1.3
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MT-1256	.2	7.94	102	598	<.04	E.08	.26	<.008	<.02	1.2
<u>WARREN COUNTY</u>										
W-54	.2	6.79	44.2	374	<.04	<.10	4.27	<.008	<.02	.7
W-55	.3	11.8	32.1	460	.09	.12	2.35	.230	E.01	.6

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(01106), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC, DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM, DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
<u>BUTLER COUNTY</u>										
BU-1161	<1	<.05	E.1	56	<.06	40	<.04	<.8	.13	1.4
BU-1162	<1	E.04	.3	111	<.06	30	<.04	<1.6	.19	1.5
BU-1163	<1	<.05	E.2	80	<.06	37	<.04	E.5	.16	.9
BU-1165	<1	.10	<.2	103	<.06	32	<.04	E.5	.23	1.8
BU-1168	1	E.03	E.1	64	<.06	44	<.04	<.8	.83	.9
BU-1164	<1	E.04	.2	86	<.06	40	<.04	<1.6	.20	1.3
BU-1166	<1	<.05	.2	78	<.06	47	<.04	<1.6	.25	.9
<u>CHAMPAIGN COUNTY</u>										
CH-137	<1	.08	.3	167	<.06	29	E.02	<.8	.41	.7
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<u>CLARK COUNTY</u>										
CL-285	<1	E.03	E.2	183	<.06	38	<.04	<.8	.23	1.4
CL-288	<1	<.05	E.2	135	<.06	36	<.04	<.8	.24	2.3
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CL-287	<1	<.05	1.1	89	<.06	35	<.04	<.8	.30	.5
CL-286	<1	<.05	.2	243	<.06	34	<.04	<.8	.16	1.3
<u>GREENE COUNTY</u>										
GR-658	<1	.16	.5	320	<.06	45	E.02	<.8	1.28	.5
GR-659	<1	.07	.7	171	<.06	26	<.04	E.6	.28	.4
GR-660	<1	<.05	E.1	231	<.06	65	E.02	E.4	.81	.9
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GR-657	<1	.07	.4	51	<.06	10	<.04	E.6	.19	1.0
<u>HAMILTON COUNTY</u>										
H-154	<1	.07	.5	63	<.06	281	<.04	E.6	.14	1.0
H-158	<1	E.03	.3	60	<.06	73	<.04	<.8	.19	1.1
H-157	<1	.08	E.1	80	<.06	17	<.04	<.8	.20	.8
H-156	<1	E.03	.2	112	<.06	72	.04	E.7	.91	1.1
<u>MONTGOMERY COUNTY</u>										
MT-1258	<1	.05	.6	147	<.06	35	<.04	E.6	.15	.9
MT-1257	<1	.18	.8	121	<.06	66	<.04	<.8	.47	1.1
MT-1259	<10	<.50	<2.0	171	<.06	46	<.40	E.4	.19	E1.5
MT-1260	<1	E.03	.2	80	<.06	47	<.04	<.8	.32	.9
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MT-1256	<1	E.04	.3	127	<.06	52	<.04	E.4	.48	1.1
<u>WARREN COUNTY</u>										
W-54	<1	E.03	.2	92	<.06	33	<.04	<.8	.11	.7
W-55	1	.23	.6	122	<.06	38	E.03	<.8	1.12	.9

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(01046), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than indicated; E, estimated value]

ABBREVIATED STATION NAME	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)
<u>BUTLER COUNTY</u>										
BU-1161	<10	<.08	1.9	<.1	.9	<.06	.3	<1	166	<.04
BU-1162	<10	E.05	3.0	3.3	1.2	.52	.4	<1	153	<.04
BU-1163	<10	.22	3.0	.3	.2	<.06	.4	<1	239	<.04
BU-1165	<10	<.08	3.9	8.0	1.9	<.06	.5	<1	207	.04
BU-1168	<10	<.08	3.0	386	1.8	<.06	E.2	<1	236	<.04
BU-1164	11	<.08	3.8	2.2	1.7	.94	.8	<1	158	<.04
BU-1166	<10	<.08	2.2	4.2	.7	.94	1.0	<1	105	<.04
<u>CHAMPAIGN COUNTY</u>										
CH-137	23	<.08	2.9	81.6	1.7	2.59	<.3	<1	307	.06
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<u>CLARK COUNTY</u>										
CL-285	<10	<.08	3.1	.4	2.0	2.19	.4	<1	314	<.04
CL-288	<10	E.04	2.1	.4	2.0	1.25	1.3	<1	197	<.04
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CL-287	620	E.05	4.7	32.1	3.6	<.06	<.3	<1	287	.04
CL-286	<10	<.08	3.2	.9	2.8	<.06	.3	<1	411	<.04
<u>GREENE COUNTY</u>										
GR-658	95	<.08	4.4	39.8	7.8	3.11	<.3	<1	1980	.12
GR-659	2190	.09	2.6	153	.8	1.62	<.3	<1	186	.12
GR-660	<10	<.08	2.9	1.4	2.1	4.05	E.3	<1	286	E.02
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GR-657	<10	E.04	.8	.5	1.6	1.62	<.3	<1	97.3	<.04
<u>HAMILTON COUNTY</u>										
H-154	<10	<.08	2.9	4.6	1.5	<.06	<.3	<1	298	<.04
H-158	29	<.08	3.0	.1	.9	.92	2.2	<1	163	<.04
H-157	<10	<.08	1.9	2.5	1.9	.98	.5	<1	93.8	E.02
H-156	<10	.15	4.8	187	.8	<.06	<.3	<1	322	<.04
<u>MONTGOMERY COUNTY</u>										
MT-1258	<10	<.08	3.3	.4	.9	2.39	.6	<1	491	<.04
MT-1257	77	<.08	3.4	59.8	2.2	<.06	E.3	<1	318	<.04
MT-1259	<10	<.80	5.1	1.4	2.0	1.12	<3.0	<10	269	<.40
MT-1260	E8	<.08	1.8	39.8	.8	1.87	.8	<1	314	<.04
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MT-1256	49	<.08	4.7	58.5	1.2	2.25	E.3	<1	374	<.04
<u>WARREN COUNTY</u>										
W-54	<10	<.08	1.5	.6	3.3	<.06	.7	<1	952	<.04
W-55	<10	<.08	4.0	373	6.7	.85	.7	<1	800	.05

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(22703), USGS National Water Information System parameter code; UG/L, micrograms per liter; PCI/L, picocuries per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	URANIUM, NATURAL DIS- SOLVED (UG/L AS U) (22703)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	RADON- 222, TOTAL (PCI/L) (82303)	TRITIUM, TOTAL (PCI/L) (07000)	2,6-DI- ETHYL ANILINE, DIS- SOLVED (UG/L) (82660)	ACETO- CHLOR, DIS- SOLVED (UG/L) (49260)	ALA- CHLOR, DIS- SOLVED (UG/L) (46342)	ALPHA BHC, DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, DIS- SOLVED (UG/L) (39632)
<u>BUTLER COUNTY</u>										
BU-1161	.46	E.2	<1	430	23	<.002	<.004	<.002	<.005	<.007
BU-1162	.94	.3	<1	450	25	<.002	<.004	<.002	<.005	<.007
BU-1163	.39	E.2	<1	620	24	<.002	<.004	<.002	<.005	<.007
BU-1165	1.20	<.2	2	260	20	<.002	<.004	<.002	<.005	<.007
BU-1168	.92	<.2	<1	1010	49	<.002	<.004	<.002	<.005	<.007
BU-1164	1.05	.4	<1	390	24	<.002	<.004	<.002	<.005	<.007
BU-1166	.49	.3	<1	670	23	<.002	<.004	<.002	<.005	<.007
<u>CHAMPAIGN COUNTY</u>										
CH-137	1.44	<.2	<1	--	21	<.002	<.004	<.002	<.005	<.007
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<u>CLARK COUNTY</u>										
CL-285	.78	.4	<1	580	25	<.002	<.004	<.002	<.005	<.007
CL-288	.63	<.2	<1	--	--	<.002	<.004	<.002	<.005	<.007
	--	--	--	570	--	--	--	--	--	--
CL-287	1.13	E.1	<1	210	31	<.002	<.004	<.002	<.005	<.007
CL-286	1.14	1.7	<1	1010	36	<.002	<.004	<.002	<.005	<.007
<u>GREENE COUNTY</u>										
GR-658	1.10	<.2	<1	200	29	<.002	<.004	<.002	<.005	<.007
GR-659	.81	<.2	<1	210	25	<.002	<.004	<.002	<.005	<.007
GR-660	.60	<.2	<1	--	31	<.002	<.004	<.002	<.005	<.007
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GR-657	.57	.9	<1	350	27	<.002	<.004	<.002	<.005	<.007
<u>HAMILTON COUNTY</u>										
H-154	.23	.3	<1	430	245	<.002	<.004	<.002	<.005	<.007
H-158	.42	.5	<1	530	24	<.002	<.004	<.002	<.005	<.007
H-157	.50	E.1	<1	280	21	<.002	<.004	<.002	<.005	<.007
H-156	.55	<.2	<1	400	28	<.002	<.004	<.002	<.005	<.007
<u>MONTGOMERY COUNTY</u>										
MT-1258	.99	E.1	<1	600	40	<.002	<.004	<.002	<.005	E.006
MT-1257	1.04	.3	<1	430	48	<.002	<.004	<.002	<.005	.013
MT-1259	1.24	<2.1	<10	870	46	<.002	<.004	<.002	<.005	<.007
MT-1260	.63	<.2	<1	--	31	<.002	<.004	<.002	<.005	<.007
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MT-1256	1.75	<.2	<1	420	32	<.002	<.004	<.002	<.005	.031
<u>WARREN COUNTY</u>										
W-54	1.13	<.2	<1	730	27	<.002	<.004	<.002	<.005	<.007
W-55	1.82	E.2	<1	490	68	<.002	<.004	<.002	<.005	<.007

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(82673), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	BEN- FLUR- ALIN, DIS- SOLVED (UG/L) (82673)	BUTYL- ATE, DIS- SOLVED (UG/L) (04028)	CAR- BARYL, DIS- SOLVED (UG/L) (82680)	CARBO- FURAN, DIS- SOLVED (UG/L) (82674)	CHLOR- PYRIFOS, DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, DIS- SOLVED (UG/L) (04041)	DCPA, DIS- SOLVED (UG/L) (82682)	DEETHYL ATRA- ZINE, DIS- SOLVED (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN, DIS- SOLVED (UG/L) (39381)
<u>BUTLER COUNTY</u>										
BU-1161	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
BU-1162	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.005	<.005	<.005
BU-1163	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
BU-1165	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
BU-1168	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
BU-1164	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
BU-1166	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
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<u>CLARK COUNTY</u>										
CL-285	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
CL-288	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
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CL-287	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
CL-286	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
<u>GREENE COUNTY</u>										
GR-658	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
GR-659	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
GR-660	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.004	<.005	<.005
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GR-657	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
<u>HAMILTON COUNTY</u>										
H-154	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
H-158	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
H-157	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
H-156	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.005	<.005	<.005
MT-1257	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.004	<.005	<.005
MT-1259	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
MT-1260	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005
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MT-1256	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.007	<.005	<.005
<u>WARREN COUNTY</u>										
W-54	<.010	<.002	<.041	<.020	<.005	<.018	<.003	E.015	<.005	<.005
W-55	<.010	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(82677), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	DISUL- FOTON, DIS- SOLVED (UG/L) (82677)	EPTC, DIS- SOLVED (UG/L) (82668)	ETHAL- FLUR- ALIN, DIS- SOLVED (UG/L) (82663)	ETHO- PROP, DIS- SOLVED (UG/L) (82672)	FONOFOS, DIS- SOLVED (UG/L) (04095)	LINDANE, DIS- SOLVED (UG/L) (39341)	LIN- URON, DIS- SOLVED (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS, DIS- SOLVED (UG/L) (82686)	METHYL PARA- THION, DIS- SOLVED (UG/L) (82667)
<u>BUTLER COUNTY</u>										
BU-1161	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1162	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1163	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1165	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1168	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1164	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
BU-1166	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
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<u>CLARK COUNTY</u>										
CL-285	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
CL-288	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
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CL-287	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
CL-286	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
<u>GREENE COUNTY</u>										
GR-658	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
GR-659	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
GR-660	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
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GR-657	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
<u>HAMILTON COUNTY</u>										
H-154	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
H-158	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
H-157	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
H-156	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
MT-1257	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
MT-1259	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
MT-1260	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
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MT-1256	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
<u>WARREN COUNTY</u>										
W-54	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006
W-55	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.050	<.006

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(39415), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREV- IATED STATION NAME	METO- LACHLOR, DIS- SOLVED (UG/L) (39415)	METRI- BUZIN SENCOR, DIS- SOLVED (UG/L) (82630)	MOL- INATE, DIS- SOLVED (UG/L) (82671)	NAPROP- AMIDE, DIS- SOLVED (UG/L) (82684)	P, P' DDE, DIS- SOLVED (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE, DIS- SOLVED (UG/L) (82669)	PENDI- METH- ALIN, DIS- SOLVED (UG/L) (82683)	PER- METHRIN, DIS- SOLVED (UG/L) (82687)	CIS- PHORATE, DIS- SOLVED (UG/L) (82664)
<u>BUTLER COUNTY</u>										
BU-1161	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1162	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1163	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1165	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1168	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1164	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
BU-1166	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
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<u>CLARK COUNTY</u>										
CL-285	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
CL-288	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
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CL-287	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
CL-286	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
<u>GREENE COUNTY</u>										
GR-658	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
GR-659	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
GR-660	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
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GR-657	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
<u>HAMILTON COUNTY</u>										
H-154	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
H-158	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
H-157	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
H-156	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
MT-1257	E.001	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
MT-1259	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
MT-1260	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
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MT-1256	E.004	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
<u>WARREN COUNTY</u>										
W-54	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011
W-55	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006	<.011

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(82669), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREVIATED STATION NAME	PRO- METON, DIS- SOLVED (UG/L) (04037)	PRON- AMIDE, DIS- SOLVED (UG/L) (82676)	PROPA- CHLOR, DIS- SOLVED (UG/L) (04024)	PRO- PANIL, DIS- SOLVED (UG/L) (82679)	PRO- PARGITE, DIS- SOLVED (UG/L) (82685)	SI- MAZINE, DIS- SOLVED (UG/L) (04035)	TEBU- THIURON, DIS- SOLVED (UG/L) (82670)	TER- BACIL, DIS- SOLVED (UG/L) (82665)	TER- BUFOS, DIS- SOLVED (UG/L) (82675)	THIO- BENCARB, DIS- SOLVED (UG/L) (82681)
<u>BUTLER COUNTY</u>										
BU-1161	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1162	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1163	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1165	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1168	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1164	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
BU-1166	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
<u>CHAMPAIGN COUNTY</u>										
CH-137	M	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
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<u>CLARK COUNTY</u>										
CL-285	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
CL-288	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
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CL-287	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
CL-286	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
<u>GREENE COUNTY</u>										
GR-658	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
GR-659	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
GR-660	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
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GR-657	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
<u>HAMILTON COUNTY</u>										
H-154	<.01	<.004	<.010	<.011	<.02	<.011	.02	<.034	<.02	<.005
H-158	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
H-157	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
H-156	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
<u>MONTGOMERY COUNTY</u>										
MT-1258	M	<.004	<.010	<.011	<.02	E.009	<.02	<.034	<.02	<.005
MT-1257	E.01	<.004	<.010	<.011	<.02	E.003	<.02	<.034	<.02	<.005
MT-1259	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
MT-1260	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
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MT-1256	.02	<.004	<.010	<.011	<.02	E.003	.02	<.034	<.02	<.005
<u>WARREN COUNTY</u>										
W-54	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005
W-55	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(82678), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREV- IATED STATION NAME	TRI- ALLATE, DIS- SOLVED (UG/L) (82678)	TRI- FLUR- ALIN, DIS- SOLVED (UG/L) (82661)	1,1,1,2- TETRA- CHLORO- ETHANE, TOTAL (UG/L) (77562)	1,1,1- TRI- CHLORO- ETHANE, TOTAL (UG/L) (34506)	1,1,2,2- TETRA- CHLORO- ETHANE, TOTAL (UG/L) (34516)	1,1,2- TRI- CHLORO- ETHANE, TOTAL (UG/L) (34511)	1,1,2 TRI- CHLORO- TRI- FLUORO- ETHANE, (FREON 113), TOTAL (UG/L) (77652)	1,1-DI- CHLORO- ETHANE, TOTAL (UG/L) (34496)	1,1-DI- CHLORO- ETHYL- ENE, TOTAL (UG/L) (34501)	1,1-DI- CHLORO- PRO- PENE, TOTAL (UG/L) (77168)
<u>BUTLER COUNTY</u>										
BU-1161	<.002	<.009	<.03	.32	<.09	<.06	<.06	<.04	<.04	<.05
BU-1162	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
BU-1163	<.002	<.009	<.03	E.08	<.09	<.06	<.06	<.04	<.04	<.05
BU-1165	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
BU-1168	<.002	<.009	<.03	.31	<.09	<.06	<.06	E.06	<.04	<.05
BU-1164	<.002	<.009	<.03	.19	<.09	<.06	<.06	<.04	<.04	<.05
BU-1166	<.002	<.009	<.03	.39	<.09	<.06	<.06	<.04	<.04	<.05
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.03
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<u>CLARK COUNTY</u>										
CL-285	<.002	<.009	<.03	E.01	<.09	<.06	<.06	<.04	<.04	<.03
CL-288	<.002	<.009	<.03	E.04	<.09	<.06	<.06	<.04	<.04	<.05
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CL-287	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
CL-286	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
<u>GREENE COUNTY</u>										
GR-658	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
GR-659	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
GR-660	<.002	<.009	<.03	E.07	<.09	<.06	<.06	<.04	<.04	<.03
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GR-657	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
<u>HAMILTON COUNTY</u>										
H-154	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
H-158	<.002	<.009	<.03	.10	<.09	<.06	<.06	<.04	<.04	<.05
H-157	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
H-156	<.002	<.009	<.03	E.05	<.09	<.06	<.06	.11	<.04	<.05
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
MT-1257	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
MT-1259	<.002	<.009	<.03	E.02	<.09	<.06	<.06	<.04	<.04	<.05
MT-1260	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
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MT-1256	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
<u>WARREN COUNTY</u>										
W-54	<.002	<.009	<.03	<.03	<.09	<.06	<.06	<.04	<.04	<.05
W-55	<.002	<.009	<.03	E.02	<.09	<.06	<.06	<.04	<.04	<.05

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(49999), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

ABBREVIATED STATION NAME	1, 2, 3, 4- TETRA- METHYL- BENZENE, TOTAL (UG/L) (49999)	1, 2, 3, 5- TETRA- METHYL- BENZENE (ISO- DURENE) TOTAL (UG/L) (50000)	1, 2, 3- TRI- CHLORO- BENZENE, TOTAL (UG/L) (77613)	1, 2, 3- TRI- CHLORO- PROPANE, TOTAL (UG/L) (77443)	1, 2, 3- TRI- METHYL- BENZENE, TOTAL (UG/L) (77221)	1, 2, 4- TRI- CHLORO- BENZENE, TOTAL (UG/L) (34551)	1, 2, 4- TRI- METHYL- BENZENE, TOTAL (UG/L) (77222)	1, 2-DI- BROMO- 3- CHLORO- PROPANE, TOTAL (UG/L) (82625)	1, 2- DIBROMO- ETHANE, TOTAL (UG/L) (77651)	1, 2-DI- CHLORO- BENZENE, TOTAL (UG/L) (34536)
<u>BUTLER COUNTY</u>										
BU-1161	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1162	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1163	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1165	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1168	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1164	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
BU-1166	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.2	<.2	<.3	<.16	<.1	<.2	<.06	<.5	<.04	<.03
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<u>CLARK COUNTY</u>										
CL-285	<.2	<.2	<.3	<.16	<.1	<.2	<.06	<.5	<.04	<.03
CL-288	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
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CL-287	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
CL-286	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
<u>GREENE COUNTY</u>										
GR-658	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
GR-659	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
GR-660	<.2	<.2	<.3	<.16	<.1	<.2	<.06	<.5	<.04	<.03
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GR-657	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
<u>HAMILTON COUNTY</u>										
H-154	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
H-158	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
H-157	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
H-156	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
MT-1257	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
MT-1259	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
MT-1260	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
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MT-1256	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
<u>WARREN COUNTY</u>										
W-54	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03
W-55	<.2	<.2	<.3	<.16	<.1	<.1	<.06	<.5	<.04	<.03

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(32103), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

ABBREV- IATED STATION NAME	1,2-DI- CHLORO- ETHANE, TOTAL (UG/L) (32103)	1,2-DI- CHLORO- PROPANE, TOTAL (UG/L) (34541)	1,3,5- TRI- METHYL- BENZENE, TOTAL (UG/L) (77226)	1,3-DI- CHLORO- BENZENE, TOTAL (UG/L) (34566)	1,3-DI- CHLORO- PROPANE, TOTAL (UG/L) (77173)	1,4-DI- CHLORO- BENZENE, TOTAL (UG/L) (34571)	2,2-DI- CHLORO- PROPANE, TOTAL (UG/L) (77170)	2- BUTANONE (METHYL ETHYL KETON) , TOTAL (UG/L) (81595)	2- CHLORO- TOLUENE (ORTHO- CHLORO- TOLUENE) , TOTAL (UG/L) (77275)	2- HEX- ANONE, TOTAL (UG/L) (77103)
<u>BUTLER COUNTY</u>										
BU-1161	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1162	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1163	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1165	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1168	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1164	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
BU-1166	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<1.6	<.03	<.7
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<u>CLARK COUNTY</u>										
CL-285	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<1.6	<.03	<.7
CL-288	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
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CL-287	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
CL-286	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
<u>GREENE COUNTY</u>										
GR-658	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
GR-659	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
GR-660	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<1.6	<.03	<.7
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GR-657	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
<u>HAMILTON COUNTY</u>										
H-154	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
H-158	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
H-157	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
H-156	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
MT-1257	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
MT-1259	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
MT-1260	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
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MT-1256	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
<u>WARREN COUNTY</u>										
W-54	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7
W-55	<.1	<.03	<.04	<.03	<.1	<.05	<.05	<5.0	<.03	<.7

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(78109), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	3- CHLORO- PROPENE, TOTAL (UG/L) (78109)	4- CHLORO- TOLUENE (PARA- CHLORO- TOLUENE) TOTAL (UG/L) (77277)	4-ISO- PROPYL- 1-METHYL- BENZENE PARA-ISO- PROPYL- TOLUENE, TOTAL (UG/L) (77356)	4- METHYL- 2-PENT- ANONE, (METHYL- ISOBUTYL- KETON), TOTAL (UG/L) (78133)	ACETONE, TOTAL (UG/L) (81552)	ACRYLO- NITRILE, TOTAL (UG/L) (34215)	BENZENE, TOTAL (UG/L) (34030)	BROMO- BENZENE, TOTAL (UG/L) (81555)	BROMO- CHLORO- METHANE, TOTAL (UG/L) (77297)	BROMO- DI- CHLORO- METHANE, TOTAL (UG/L) (32101)
<u>BUTLER COUNTY</u>										
BU-1161	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
BU-1162	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	E.09
BU-1163	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
BU-1165	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
BU-1168	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
BU-1164	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
BU-1166	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.07	<.06	<.07	<.4	<7	<1	<.04	<.04	<.04	<.05
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<u>CLARK COUNTY</u>										
CL-285	<.07	<.06	<.07	<.4	<7	<1	<.04	<.04	<.04	<.05
CL-288	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	E.03
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CL-287	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
CL-286	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
<u>GREENE COUNTY</u>										
GR-658	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
GR-659	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
GR-660	<.07	<.06	<.07	<.4	<7	<1	<.04	<.04	<.04	<.05
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GR-657	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
<u>HAMILTON COUNTY</u>										
H-154	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
H-158	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
H-157	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
H-156	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
MT-1257	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
MT-1259	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	1.32
MT-1260	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
	--	--	--	--	--	--	--	--	--	--
MT-1256	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
<u>WARREN COUNTY</u>										
W-54	<.07	<.05	<.07	<.4	<7	<1	<.04	<.04	<.07	<.05
W-55	<.07	<.05	<.07	<.4	<7	<1	E.02	<.04	<.07	<.05

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(50002), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREV- IATED STATION NAME	BROMO- ETHENE, TOTAL (UG/L) (50002)	BROMO- FORM, TOTAL (UG/L) (32104)	BROMO- METHANE (METHYL- BROMIDE) TOTAL (UG/L) (34413)	BUTYL- BENZENE, (N-BUTYL BENZENE), TOTAL (UG/L) (77342)	CARBON DI- SULFIDE, TOTAL (UG/L) (77041)	CHLORO- BENZENE, TOTAL (UG/L) (34301)	CHLORO- ETHANE, TOTAL (UG/L) (34311)	CHLORO- FORM, TOTAL (UG/L) (32106)	CHLORO- METHANE, (METHYL- CHLO- RIDE), TOTAL (UG/L) (34418)	CIS- 1,2-DI CHLORO- ETHENE, TOTAL (UG/L) (77093)
<u>BUTLER COUNTY</u>										
BU-1161	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
BU-1162	<.1	<.06	<.3	<.2	<.07	<.03	<.1	E.03	<.2	<.04
BU-1163	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
BU-1165	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
BU-1168	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
BU-1164	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
BU-1166	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.1	<.06	<.3	<.2	<.07	<.03	<.1	E.03	<.2	<.04
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<u>CLARK COUNTY</u>										
CL-285	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
CL-288	<.1	<.06	<.3	<.2	<.07	<.03	<.1	.80	<.2	<.04
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CL-287	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
CL-286	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
<u>GREENE COUNTY</u>										
GR-658	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
GR-659	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
GR-660	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
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GR-657	<.1	<.06	<.3	<.2	<.07	<.03	<.1	E.01	<.2	<.04
<u>HAMILTON COUNTY</u>										
H-154	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
H-158	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
H-157	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
H-156	<.1	<.06	<.3	<.2	E.02	<.03	<.1	<.02	<.2	E.01
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.1	<.06	<.3	<.2	<.07	<.03	<.1	E.01	<.2	<.04
MT-1257	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
MT-1259	<.1	E.10	<.3	<.2	<.07	<.03	<.1	2.97	<.2	<.04
MT-1260	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
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MT-1256	<.1	<.06	<.3	<.2	<.07	<.03	<.1	<.02	<.2	<.04
<u>WARREN COUNTY</u>										
W-54	<.1	<.06	<.3	<.2	<.07	<.03	<.1	E.02	<.2	<.04
W-55	<.1	<.06	<.3	<.2	E.08	<.03	<.1	<.02	<.2	<.04

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(34704), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREVIATED STATION NAME	CIS- 1,3-DI- CHLORO- PROPENE, TOTAL (UG/L) (34704)	DIBROMO- CHLORO- METHANE, (CHLORO- DIBROMO- METHANE), TOTAL (UG/L) (32105)	DI- BROMO- METHANE, TOTAL (UG/L) (30217)	DI- CHLORO- DI- FLUORO- METHANE, TOTAL (UG/L) (34668)	METHYL- ENE CHLO- RIDE, TOTAL (UG/L) (34423)	DI- ETHYL ETHER, (ETHYL ETHER), TOTAL (UG/L) (81576)	DIISO- PROPYL ETHER, TOTAL (UG/L) (81577)	ETHYL- METHAC RYLATE, TOTAL (UG/L) (73570)	ETHYL TERT- BUTYL ETHER, TOTAL (UG/L) (50004)	ETHYL- BENZENE, TOTAL (UG/L) (34371)
<u>BUTLER COUNTY</u>										
BU-1161	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1162	<.09	E.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1163	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1165	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1168	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1164	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
BU-1166	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.09	<.2	<.05	<.27	<.2	<.2	<.10	<.2	<.05	<.03
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<u>CLARK COUNTY</u>										
CL-285	<.09	<.2	<.05	<.27	<.2	<.2	<.10	<.2	<.05	<.03
CL-288	<.09	<.2	<.05	<.18	M	<.2	<.10	<.2	<.05	<.03
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CL-287	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
CL-286	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
<u>GREENE COUNTY</u>										
GR-658	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
GR-659	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
GR-660	<.09	<.2	<.05	<.27	<.2	<.2	<.10	<.2	<.05	<.03
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GR-657	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
<u>HAMILTON COUNTY</u>										
H-154	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
H-158	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
H-157	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
H-156	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
MT-1257	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
MT-1259	<.09	.7	E.04	<.18	<.2	<.2	<.10	<.2	<.05	<.03
MT-1260	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
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MT-1256	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
<u>WARREN COUNTY</u>										
W-54	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03
W-55	<.09	<.2	<.05	<.18	<.2	<.2	<.10	<.2	<.05	<.03

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(39702), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	HEXA- CHLORO- BUT- ADIENE, TOTAL (UG/L) (39702)	HEXA- CHLORO- ETHANE, TOTAL (UG/L) (34396)	ISO- PROPYL- BENZENE, TOTAL (UG/L) (77223)	META- AND PARA- XYLENE, TOTAL (UG/L) (85795)	METHYL- ACRY- LATE, TOTAL (UG/L) (49991)	METHYL- ACRYLO- NITRILE, TOTAL (UG/L) (81593)	METHYL- IODIDE, TOTAL (UG/L) (77424)	METHYL- METHAC- RYLATE, TOTAL (UG/L) (81597)	N- PROPYL- BENZENE, TOTAL (UG/L) (77224)	NAPHTH- ALENE, TOTAL (UG/L) (34696)
<u>BUTLER COUNTY</u>										
BU-1161	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1162	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1163	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1165	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1168	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1164	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
BU-1166	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.1	<.2	<.03	<.06	<1.4	<.6	<.12	<.3	<.04	<.5
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<u>CLARK COUNTY</u>										
CL-285	<.1	<.2	<.03	<.06	<1.4	<.6	<.12	<.3	<.04	<.5
CL-288	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
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CL-287	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
CL-286	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
<u>GREENE COUNTY</u>										
GR-658	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
GR-659	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
GR-660	<.1	<.2	<.03	<.06	<1.4	<.6	<.12	<.3	<.04	<.5
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GR-657	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
<u>HAMILTON COUNTY</u>										
H-154	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
H-158	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
H-157	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
H-156	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
MT-1257	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
MT-1259	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
MT-1260	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
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MT-1256	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
<u>WARREN COUNTY</u>										
W-54	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5
W-55	<.1	<.2	<.06	<.06	<2.0	<.6	<.25	<.3	<.04	<.5

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(77220), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREVIATED STATION NAME	ORTHO- ETHYL- TOLUENE, TOTAL (UG/L) (77220)	ORTHO- XYLENE, TOTAL (UG/L) (77135)	SEC- BUTYL- BENZENE, TOTAL (UG/L) (77350)	STYRENE, TOTAL (UG/L) (77128)	TERT- BUTYL METHYL ETHER, TOTAL (UG/L) (78032)	TERT - BUTYL- BENZENE, TOTAL (UG/L) (77353)	TERT- PENTYL METHYL- ETHER, TOTAL (UG/L) (50005)	TETRA- CHLORO- ETHYL- ENE, TOTAL (UG/L) (34475)	CARBON TETRA- CHLORO- RIDE, (TETRA- CHLORO- METHANE) , TOTAL (UG/L) (32102)	TETRA- HYDRO- FURAN, TOTAL (UG/L) (81607)
<u>BUTLER COUNTY</u>										
BU-1161	<.06	<.07	<.03	<.04	<.2	<.05	<.08	E.02	<.06	<2
BU-1162	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
BU-1163	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
BU-1165	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
BU-1168	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
BU-1164	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
BU-1166	<.06	<.07	<.03	<.04	<.2	<.05	<.08	E.05	<.06	<2
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.06	<.04	<.03	<.04	<.2	<.06	<.11	<.10	<.06	<2
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<u>CLARK COUNTY</u>										
CL-285	<.06	<.04	<.03	<.04	<.2	<.06	<.11	<.10	<.06	<2
CL-288	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
	--	--	--	--	--	--	--	--	--	--
CL-287	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
CL-286	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
<u>GREENE COUNTY</u>										
GR-658	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
GR-659	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
GR-660	<.06	<.04	<.03	<.04	<.2	<.06	<.11	<.10	<.06	<2
	--	--	--	--	--	--	--	--	--	--
GR-657	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
<u>HAMILTON COUNTY</u>										
H-154	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
H-158	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
H-157	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
H-156	<.06	<.07	<.03	<.04	<.2	<.05	<.08	.26	<.06	<2
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.06	<.07	<.03	<.04	<.2	<.05	<.08	E.01	<.06	<2
MT-1257	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
MT-1259	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
MT-1260	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
	--	--	--	--	--	--	--	--	--	--
MT-1256	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2
<u>WARREN COUNTY</u>										
W-54	<.06	<.07	<.03	<.04	<.2	<.05	<.08	E.08	<.06	<2
W-55	<.06	<.07	<.03	<.04	<.2	<.05	<.08	<.03	<.06	<2

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(34010), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREV- IATED STATION NAME	TOLUENE, TOTAL (UG/L) (34010)	TRANS- 1,2-DI- CHLORO- ETHENE, TOTAL (UG/L) (34546)	TRANS- 1,3-DI- CHLORO- PROPENE, TOTAL (UG/L) (34699)	TRANS- 1,4-DI- CHLORO-2- BUTENE, TOTAL (UG/L) (73547)	TRI- CHLORO- ETHYL- ENE, TOTAL (UG/L) (39180)	TRI- CHLORO- FLUORO- METHANE, TOTAL (UG/L) (34488)	VINYL CHLO- RIDE, TOTAL (UG/L) (39175)	1,4-DI- CHLORO- BENZENE, DIS- SOLVED (UG/L) (34572)	1- METHYL- NAPH- THALENE DIS- SOLVED (UG/L) (62054)	2,6-DI- METHYL- NAPH- THALENE, DIS- SOLVED (UG/L) (62055)
<u>BUTLER COUNTY</u>										
BU-1161	<.05	<.03	<.09	<.7	E.04	<.09	<.1	M	<.5	<.5
BU-1162	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
BU-1163	<.05	<.03	<.09	<.7	<.04	<.09	<.1	M	<.5	<.5
BU-1165	<.05	<.03	<.09	<.7	<.04	<.09	<.1	M	<.5	<.5
BU-1168	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
BU-1164	M	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
BU-1166	E.01	<.03	<.09	<.7	.12	<.09	<.1	<.5	<.5	<.5
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
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<u>CLARK COUNTY</u>										
CL-285	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
CL-288	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
CL-287	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
CL-286	<.05	<.03	<.09	<.7	<.04	<.09	<.1	M	<.5	<.5
<u>GREENE COUNTY</u>										
GR-658	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
GR-659	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
GR-660	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
GR-657	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
<u>HAMILTON COUNTY</u>										
H-154	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
H-158	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
H-157	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
H-156	E.01	<.03	<.09	<.7	E.08	<.09	<.1	M	<.5	<.5
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
MT-1257	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
MT-1259	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
MT-1260	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
MT-1256	E.01	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
<u>WARREN COUNTY</u>										
W-54	<.05	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5
W-55	E.02	<.03	<.09	<.7	<.04	<.09	<.1	<.5	<.5	<.5

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(62056), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREVIATED STATION NAME	2-METHYL- NAPH- THALENE, DIS- SOLVED (UG/L) (62056)	3-BETA- COPRO- STANOL, DIS- SOLVED (UG/L) (62057)	3-METHYL- 1(H)- INDOLE, (SKAT- OLE), DIS- SOLVED (UG/L) (62058)	3-TERT- BUTYL- 4- HYDROXY ANISOLE, (BHA), DIS- SOLVED (UG/L) (62059)	4-CUMYL PHENOL, DIS- SOLVED (UG/L) (62060)	4-N- OCTYL- PHENOL, (4- OCTYL- PHENOL), DIS- SOLVED (UG/L) (62061)	4-TERT- OCTYL- PHENOL, DIS- SOLVED (UG/L) (62062)	5-METHYL- 1-H- BENZO- TRI- AZOLE, DIS- SOLVED (UG/L) (62063)	ACETO- PHENONE, DIS- SOLVED (UG/L) (62064)	ACETYL HEXA- METHYL TETRA- HYDRO- NAPH- THALENE, (AHTN), DIS- SOLVED (UG/L) (62065)
<u>BUTLER COUNTY</u>										
BU-1161	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
BU-1162	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
BU-1163	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
BU-1165	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
BU-1168	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
BU-1164	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
BU-1166	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
<u>CHAMPAIGN COUNTY</u>										
CH-137	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
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<u>CLARK COUNTY</u>										
CL-285	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
CL-288	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
CL-287	<.5	M	<1	<5	<1	<1	<1	<2	<.5	<.5
CL-286	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
<u>GREENE COUNTY</u>										
GR-658	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
GR-659	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
GR-660	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
GR-657	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
<u>HAMILTON COUNTY</u>										
H-154	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
H-158	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
H-157	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
H-156	<.5	<2	<1	<5	<1	<1	M	<2	<.5	<.5
<u>MONTGOMERY COUNTY</u>										
MT-1258	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
MT-1257	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
MT-1259	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
MT-1260	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--	--
MT-1256	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
<u>WARREN COUNTY</u>										
W-54	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5
W-55	<.5	<2	<1	<5	<1	<1	<1	<2	<.5	<.5

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(34221), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREV- IATED STATION NAME	ANTHRA- CENE, DIS- SOLVED (UG/L) (34221)	ANTHRA- QUINONE, DIS- SOLVED (UG/L) (62066)	BENZO- [A] PYRENE, DIS- SOLVED (UG/L) (34248)	BENZO- PHENONE, DIS- SOLVED (UG/L) (62067)	BETA- SITOS- TEROL, DIS- SOLVED (UG/L) (62068)	BETA- STIGMA- STANOL, (STIGMA- STANOL), DIS- SOLVED (UG/L) (62086)	BIS- PHENOL A, DIS- SOLVED (UG/L) (62069)	BRO- MACIL, DIS- SOLVED (UG/L) (04029)	BROMO- FORM, DIS- SOLVED (UG/L) (34288)
<u>BUTLER COUNTY</u>									
BU-1161	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1162	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1163	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1165	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1168	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1164	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
BU-1166	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
<u>CHAMPAIGN COUNTY</u>									
CH-137	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
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<u>CLARK COUNTY</u>									
CL-285	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
CL-288	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
	--	--	--	--	--	--	--	--	--
CL-287	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
CL-286	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
<u>GREENE COUNTY</u>									
GR-658	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
GR-659	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
GR-660	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
	--	--	--	--	--	--	--	--	--
GR-657	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
<u>HAMILTON COUNTY</u>									
H-154	<.5	<.5	E.3	<.5	<2	<2	<1	<.5	<.5
H-158	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
H-157	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
H-156	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
<u>MONTGOMERY COUNTY</u>									
MT-1258	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
MT-1257	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
MT-1259	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	E.1
MT-1260	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
	--	--	--	--	--	--	--	--	--
MT-1256	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
<u>WARREN COUNTY</u>									
W-54	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5
W-55	<.5	<.5	<.5	<.5	<2	<2	<1	<.5	<.5

**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(50305), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREV- IATED STATION NAME	CAF- FEINE, DIS- SOLVED (UG/L) (50305)	CAMPBOR, DIS- SOLVED (UG/L) (62070)	CARBA- ZOLE, DIS- SOLVED (UG/L) (62071)	CHOLE- TEROL, DIS- SOLVED (UG/L) (62072)	COT- ININE, DIS- SOLVED (UG/L) (62005)	D-LIMO- NENE, DIS- SOLVED (UG/L) (62073)	DICHLOR VOS, DIS- SOLVED (UG/L) (38775)	FLUOR- ANTHENE, DIS- SOLVED (UG/L) (34377)	HEXA- DYDRO- HEXA- METHYL- CYCLO- PENTA- BENZO- PYRAN, DIS- SOLVED (UG/L) (62075)
<u>BUTLER COUNTY</u>									
BU-1161	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1162	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1163	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1165	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1168	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1164	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
BU-1166	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
<u>CHAMPAIGN COUNTY</u>									
CH-137	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
	--	--	--	--	--	--	--	--	--
<u>CLARK COUNTY</u>									
CL-285	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
CL-288	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
	--	--	--	--	--	--	--	--	--
CL-287	<.5	<.5	<.5	M	<1	<.5	<1.00	<.5	<.5
CL-286	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
<u>GREENE COUNTY</u>									
GR-658	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
GR-659	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
GR-660	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
	--	--	--	--	--	--	--	--	--
GR-657	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
<u>HAMILTON COUNTY</u>									
H-154	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
H-158	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
H-157	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
H-156	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
<u>MONTGOMERY COUNTY</u>									
MT-1258	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
MT-1257	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
MT-1259	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
MT-1260	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
	--	--	--	--	--	--	--	--	--
MT-1256	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
<u>WARREN COUNTY</u>									
W-54	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5
W-55	<.5	<.5	<.5	<2	<1	<.5	<1.00	<.5	<.5

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[illegible]

PROJECT DATA

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**Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)**

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUEDURBAN LAND-USE STUDY WATER SAMPLES—Continued

[(34443), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value]

ABBREVIATED STATION NAME	NAPHTHALENE, DIS-SOLVED (UG/L) (34443)	DIETHOXY-NONYL-PHENOL, (TOTAL), DIS-SOLVED (UG/L) (62083)	DI-ETHOXY-OCTYL-PHENOL, DIS-SOLVED (UG/L) (61705)	MONO-ETHOXY-OCTYL-PHENOL, DIS-SOLVED (UG/L) (61706)	PARA-CRESOL, DIS-SOLVED (UG/L) (62084)	PARA-NONYL-PHENOL, (TOTAL), DIS-SOLVED (UG/L) (62085)	PENTA-CHLORO-PHENOL, DIS-SOLVED (UG/L) (34459)	PHENANTHRENE, DIS-SOLVED (UG/L) (34462)	PHENOL, DIS-SOLVED (UG/L) (34466)
<u>BUTLER COUNTY</u>									
BU-1161	<.5	<5	<1	<1	<1	<5	<2	<.5	.8
BU-1162	<.5	<5	<1	<1	<1	<5	<2	<.5	E.2
BU-1163	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4
BU-1165	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4
BU-1168	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
BU-1164	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
BU-1166	<.5	<5	<1	<1	<1	<5	<2	<.5	1.3
<u>CHAMPAIGN COUNTY</u>									
CH-137	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--
<u>CLARK COUNTY</u>									
CL-285	<.5	<5	<1	<1	<1	<5	<2	<.5	E.2
CL-288	<.5	<5	<1	<1	<1	<5	<2	<.5	E.1
	--	--	--	--	--	--	--	--	--
CL-287	<.5	<5	<1	<1	<1	<5	<2	<.5	E.2
CL-286	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
<u>GREENE COUNTY</u>									
GR-658	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
GR-659	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
GR-660	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--
GR-657	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
<u>HAMILTON COUNTY</u>									
H-154	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
H-158	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4
H-157	<.5	<5	<1	<1	<1	<5	<2	<.5	E.3
H-156	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4
<u>MONTGOMERY COUNTY</u>									
MT-1258	<.5	<5	<1	<1	<1	<5	<2	<.5	E.3
MT-1257	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
MT-1259	<.5	<5	<1	<1	<1	<5	<2	<.5	.6
MT-1260	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
	--	--	--	--	--	--	--	--	--
MT-1256	<.5	<5	<1	<1	<1	<5	<2	<.5	<.5
<u>WARREN COUNTY</u>									
W-54	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4
W-55	<.5	<5	<1	<1	<1	<5	<2	<.5	E.4

PROJECT DATA
Results from Selected Sites in the Great and Little Miami River Basins
(National Water-Quality Assessment Program)

SOIL AND GROUND-WATER DATA COLLECTED AT SPECIAL STUDY SITES—CONTINUED

URBAN LAND-USE STUDY WATER SAMPLES—Continued

[(34470), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated value; M, presence of compound verified but concentration not quantified]

ABBREVIATED STATION NAME	PYRENE, DIS- SOLVED (UG/L) (34470)	TETRA- CHLORO- ETHY- LENE, DIS- SOLVED (UG/L) (34476)	TRI (2- BUTOXY- ETHYL) PHOS- PHATE, DIS- SOLVED (UG/L) (62093)	TRI (2- CHLORO- ETHYL) PHOS- (FYROL CEP) , DIS- SOLVED (UG/L) (62087)	TRIBUTYL PHOS- PHATE, DIS- SOLVED (UG/L) (62089)	TRICLO- SAN, DIS- SOLVED (UG/L) (62090)	TRI- ETHYL CITRATE, (ETHYL CITRATE) , DIS- SOLVED (UG/L) (62091)	TRI- PHENYL PHOS- PHATE, DIS- SOLVED (UG/L) (62092)	TRIS (DICHORO- ISO- PROPYL) PHOS- PHATE, (FYROL PCF) , DIS- SOLVED (UG/L) (62088)
<u>BUTLER COUNTY</u>									
BU-1161	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1162	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1163	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1165	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1168	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1164	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
BU-1166	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
<u>CHAMPAIGN COUNTY</u>									
CH-137	<.5	<.5	<.5	<.5	<.5	<1	<.5	M	<.5
	--	--	--	--	--	--	--	--	--
<u>CLARK COUNTY</u>									
CL-285	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
CL-288	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
	--	--	--	--	--	--	--	--	--
CL-287	<.5	<.5	<.5	<.5	<.5	<1	<.5	E.1	E.1
CL-286	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
<u>GREENE COUNTY</u>									
GR-658	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
GR-659	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
GR-660	<.5	<.5	<.5	<.5	<.5	<1	<.5	M	<.5
	--	--	--	--	--	--	--	--	--
GR-657	<.5	<.5	<.5	<.5	<.5	<1	<.5	M	<.5
<u>HAMILTON COUNTY</u>									
H-154	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
H-158	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
H-157	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
H-156	<.5	E.3	<.5	<.5	<.5	<1	<.5	<.5	<.5
<u>MONTGOMERY COUNTY</u>									
MT-1258	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
MT-1257	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
MT-1259	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
MT-1260	<.5	<.5	<.5	<.5	<.5	<1	<.5	M	<.5
	--	--	--	--	--	--	--	--	--
MT-1256	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5
<u>WARREN COUNTY</u>									
W-54	<.5	E.1	<.5	<.5	<.5	<1	<.5	<.5	<.5
W-55	<.5	<.5	<.5	<.5	<.5	<1	<.5	<.5	<.5

Results from Selected Sites in the White, Great, and Little Miami River Basins (National Water-Quality Assessment Program)

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 characterized 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).



PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS

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 mi².

REMARKS.—Ten discharge measurements were made at this site. Streamflow computed from these measurements is reported below. Continuous stage data are collected at Holes Creek at Mad River Road (03271300), a station 0.6 miles upstream of the sampling site that is maintained by the Miami Conservancy District.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; --, no data]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)
OCT										
03...	1215	1.9	742	--	--	8.3	797	23.0	16.0	207
18...	1200	11	750	10.5	93	8.1	658	12.0	9.0	--
NOV										
07...	1100	19	748	--	--	8.2	865	14.0	6.6	264
19...	1400	19	739	--	--	8.2	860	12.0	20.0	--
DEC										
06...	1300	96	745	10.3	96	8.1	928	11.0	10.9	247
19...	1230	47	734	11.6	100	8.2	656	10.0	7.2	--
JAN										
09...	1400	11	748	14.1	105	8.2	2060	12.0	2.4	288
24...	1445	96	737	11.3	94	8.1	1230	4.5	6.1	--
FEB										
08...	1230	13	743	13.4	110	8.2	1000	14.0	5.6	272
25...	1115	13	740	13.1	109	8.1	879	18.0	6.0	--
MAR										
05...	1000	13	751	14.0	99	8.4	997	3.0	.7	232
19...	1430	14	746	13.4	118	8.5	843	9.5	8.6	--
APR										
03...	1230	52	748	12.3	109	8.4	726	6.5	8.9	217
25...	1030	27	749	11.5	113	8.3	678	10.5	13.6	--
MAY										
01...	1215	17	745	12.1	121	8.4	743	22.0	14.1	--
10...	1500	34	752	9.4	100	8.3	628	18.0	17.7	--
14...	1130	106	743	10.8	106	8.2	535	12.9	13.5	--
21...	1400	14	754	11.8	110	8.4	763	9.3	11.6	--
JUN										
06...	1330	440	744	9.0	102	8.1	320	17.0	19.9	108
12...	1200	11	743	11.6	138	8.5	782	28.0	22.4	--
20...	1130	12	754	10.5	119	8.2	793	29.0	20.8	--
27...	1130	13	741	10.1	122	8.1	768	28.0	23.2	--
JUL										
02...	1000	7.7	748	8.4	101	7.9	804	30.0	23.5	--
10...	1200	13	746	11.2	133	8.0	823	27.0	22.3	--
18...	1300	6.2	744	8.7	101	7.9	857	30.0	21.3	256
AUG										
14...	1300	5.2	744	13.1	153	8.0	785	32.0	23.1	227
28...	1345	2.7	748	13.1	157	8.0	785	28.0	23.1	--
SEP										
11...	1600	3.7	745	8.4	100	7.8	810	24.0	22.6	239

PROJECT DATA

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Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00453), USGS National Water Information System parameter code; MG/L, milligrams per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULATE WAT FLT SUSP (MG/L AS N) (49570)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)
OCT										
03...	249	1	102	40.0	<.04	.30	.90	E.004	<.02	<.02
18...	--	--	--	--	<.04	.58	.84	.008	--	.02
NOV										
07...	316	3	110	43.6	<.04	.30	.95	.008	.04	<.02
19...	--	--	--	--	<.04	.27	.68	E.004	--	<.02
DEC										
06...	297	2	87.2	41.5	<.04	.57	1.36	.012	.18	E.02
19...	--	--	--	--	<.04	.56	1.35	E.007	--	.02
JAN										
09...	345	3	464	54.2	E.02	.32	1.54	E.006	<.02	<.02
24...	--	--	--	--	.04	.67	.66	.011	--	<.02
FEB										
08...	326	3	131	53.0	E.03	.39	1.40	E.007	.04	<.02
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	278	2	144	44.5	<.04	.51	1.19	E.007	.12	<.02
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	258	3	87.0	41.5	E.03	.54	.94	.013	.18	<.02
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	--	--	71.9	39.2	<.04	.52	1.06	.014	.16	E.01
10...	--	--	--	--	<.04	.64	.87	.037	--	<.02
14...	--	--	--	--	<.04	.81	.79	.010	--	.02
21...	--	--	--	--	<.04	.28	1.42	.019	--	<.02
JUN										
06...	131	1	19.7	14.8	E.04	1.5	.59	.022	.69	.03
12...	--	--	--	--	<.04	1.6	1.26	E.006	--	E.01
20...	--	--	--	--	<.04	.34	1.63	E.005	--	<.02
27...	--	--	93.1	39.4	<.04	.34	1.45	.008	--	<.02
JUL										
02...	--	--	90.2	40.4	<.04	.23	1.62	E.005	.03	<.02
10...	--	--	--	--	E.025	.47	2.29	.018	--	.015
18...	307	3	--	--	<.04	.21	2.61	.009	--	<.02
AUG										
14...	271	3	87.8	41.9	<.04	.29	2.04	E.005	.08	E.02
28...	--	--	--	--	<.04	.20	1.90	.008	--	<.02
SEP										
11...	287	2	87.4	41.3	<.04	.21	2.38	E.007	.04	<.02

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00665), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	PHOS- TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)
OCT										
03...	.018	.3	--	3.1	--	<.009	<.02	<.02	<.002	<.006
18...	.061	--	--	--	--	<.009	.11	<.02	<.002	<.006
NOV										
07...	.021	.3	--	3.4	--	<.009	E.02	<.02	<.002	<.006
19...	.017	--	--	--	--	<.009	<.02	<.02	<.002	<.006
DEC										
06...	.119	2.8	--	4.4	--	<.009	E.10	<.02	<.002	<.006
19...	.090	--	--	--	--	<.009	.05	<.02	<.002	<.006
JAN										
09...	.014	.2	--	2.3	--	<.009	<.02	<.02	<.006	<.006
24...	.117	--	--	--	--	<.009	.06	<.02	<.006	<.006
FEB										
08...	.031	.6	<.1	3.1	.6	<.009	E.02	<.02	<.006	<.006
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	.041	.8	<.1	3.9	.8	<.009	<.02	<.02	<.006	<.006
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	.056	1.6	<.1	3.7	1.6	<.009	.33	<.02	<.006	<.006
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	.047	1.0	<.1	4.4	1.0	E.113	.52	<.02	<.006	<.006
10...	.090	--	--	--	--	.030	.57	<.02	<.006	<.006
14...	.125	--	--	--	--	<.009	.36	<.02	<.006	<.006
21...	.032	--	--	--	--	<.009	.11	<.02	<.006	<.006
JUN										
06...	.32	9.8	2.1	7.0	7.7	<.009	.98	<.02	<.006	<.006
12...	.033	--	--	--	--	<.009	<.02	<.02	<.006	<.006
20...	.040	--	--	--	--	<.009	.25	<.02	<.006	<.006
27...	.036	--	--	--	--	<.009	.44	<.02	<.006	<.006
JUL										
02...	.016	.5	<.1	2.9	.5	<.009	<.02	<.02	<.006	<.006
10...	.047	--	--	--	--	.030	E.97	<.02	<.006	<.006
18...	.016	--	--	--	--	<.009	<.02	<.02	<.006	<.006
AUG										
14...	.023	.7	<.1	4.3	.7	<.009	.59	<.02	<.006	<.006
28...	.011	--	--	--	--	<.009	<.02	<.02	<.006	<.006
SEP										
11...	.010	.3	<.1	1.9	.3	<.009	<.02	<.02	<.006	<.006

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(50295), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	3-KETO CARBO- FURAN WATER FLTRD REC (UG/L) (50295)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BENDIO- CARB, WATER FLTRD REC (UG/L) (50299)
OCT										
03...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	E.013	<.03
18...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	.024	<.03
NOV										
07...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	E.008	<.03
19...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	E.008	<.03
DEC										
06...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	E.007	<.03
19...	<2	<.004	<.007	<.002	<.02	<.008	<.04	<.005	.013	<.03
JAN										
09...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.009	<.03
24...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.017	<.03
FEB										
08...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.017	<.03
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.014	<.03
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<2	<.006	<.130	<.004	<.02	<.008	<.04	<.005	.013	<.03
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<2	E.006	<.007	<.004	<.02	<.008	<.04	<.005	.027	<.03
10...	<2	.015	<.007	<.004	<.02	<.008	<.04	<.005	.032	<.03
14...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.027	<.03
21...	<2	.009	<.007	<.004	<.02	<.008	<.04	<.005	.020	<.03
JUN										
06...	<2	.116	<.007	<.015	<.02	<.008	<.04	<.005	.152	<.03
12...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.061	<.03
20...	<2	.023	<.007	<.004	<.02	<.008	<.04	<.005	.538	<.03
27...	<2	.014	<.007	<.004	<.02	<.008	<.04	<.005	.234	<.03
JUL										
02...	<2	E.005	<.007	<.004	<.02	<.008	<.04	<.005	.131	<.03
10...	<2	.009	<.007	<.004	<.02	<.008	<.04	<.005	.049	<.03
18...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.019	<.03
AUG										
14...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.039	<.03
28...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.020	<.03
SEP										
11...	<2	<.006	<.007	<.004	<.02	<.008	<.04	<.005	.011	<.03

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82673), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated; M, presence verified but not quantified]

DATE	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN- SUL- FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAF- FEINE, WATER FLTRD REC (UG/L) (50305)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
OCT										
03...	<.010	.017	<.02	<.01	<.03	<.02	<.002	E.007	<.03	<.041
18...	<.010	<.004	<.02	M	E.01	<.02	<.002	.055	<.03	<.041
NOV										
07...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.033	<.03	<.041
19...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.023	<.03	<.041
DEC										
06...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.050	<.03	<.041
19...	<.010	<.004	<.02	M	<.03	<.02	<.002	<.010	<.03	<.041
JAN										
09...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.158	<.03	<.041
24...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.266	<.03	E.005
FEB										
08...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.410	<.03	<.041
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.010	<.004	<.02	<.01	E.01	<.02	<.002	.091	<.03	<.041
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	E.003	<.004	<.02	<.01	<.03	<.02	<.002	.092	<.03	<.041
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	E.037	<.0019	E.003
10...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	.038	M	E.005
14...	<.010	<.004	<.02	E.01	<.03	<.02	<.002	.172	E.01	<.041
21...	<.010	<.004	<.02	E.01	<.03	<.02	<.002	.044	E.01	E.015
JUN										
06...	<.010	<.004	<.02	E.01	<.03	<.02	<.002	.092	E.02	E.057
12...	<.010	.029	<.02	<.01	E.01	<.02	<.002	.020	<.03	<.041
20...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	E.01	E.023
27...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	E.211	E.02	E.059
JUL										
02...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	<.03	E.004
10...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	M	E.014
18...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	<.03	<.041
AUG										
14...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	E.04	E.068
28...	<.010	.006	<.02	<.01	<.03	<.02	<.002	<.010	<.03	<.041
SEP										
11...	<.010	<.004	<.02	<.01	<.03	<.02	<.002	<.010	<.03	<.041

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(49309), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN, WATER, FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- AMBEN, METHYL ESTER WATER FLTRD (UG/L) (61188)	CHLORI- MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CY- CLOATE, WATER, DISS, REC (UG/L) (04031)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)
OCT										
03...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
18...	<.006	<.020	<.02	<.010	<.04	<.005	.05	<.018	<.01	--
NOV										
07...	<.006	<.020	<.02	<.010	<.04	<.005	.05	<.018	<.01	<.01
19...	<.006	<.020	<.02	<.010	<.04	<.005	E.03	<.018	<.01	<.01
DEC										
06...	<.006	<.020	<.02	<.010	E11.1	<.005	<.01	<.018	<.01	<.01
19...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
JAN										
09...	<.006	<.020	<.02	<.010	<.04	<.005	.02	<.018	<.01	<.01
24...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
FEB										
08...	<.006	<.020	<.02	<.010	<.04	<.005	.03	<.018	<.01	<.01
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.006	<.020	<.02	<.010	<.04	<.005	.16	.018	<.01	<.01
10...	<.006	<.020	<.02	<.010	<.04	<.005	.10	<.018	<.01	<.01
14...	<.006	<.020	<.02	<.010	<.04	<.005	.06	<.018	<.01	<.01
21...	<.006	<.020	<.02	<.010	<.04	.006	.05	<.018	<.01	<.01
JUN										
06...	<.006	<.020	<.02	<.010	<.04	<.006	<.01	<.018	<.01	<.01
12...	<.006	<.020	<.02	<.010	<.04	<.005	.06	<.018	<.01	<.01
20...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
27...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
JUL										
02...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
10...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
18...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
AUG										
14...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
28...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01
SEP										
11...	<.006	<.020	<.02	<.010	<.04	<.005	<.01	<.018	<.01	<.01

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82682), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated; M, presence verified but not quantified]

DATE	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSIB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)
OCT										
03...	<.003	E.005	<.01	<.04	.020	<.01	<.01	<.005	<.01	<.03
18...	<.003	E.01	<.01	E.01	.081	.12	.01	<.005	<.01	<.03
NOV										
07...	<.003	E.01	<.01	<.04	.013	.02	<.01	<.005	<.01	<.03
19...	<.003	E.01	M	M	.009	<.01	<.01	<.005	<.01	<.03
DEC										
06...	<.003	<.03	<.01	<.04	.008	.03	<.01	<.005	<.01	<.03
19...	<.003	E.008	<.01	<.04	<.005	.02	<.01	<.005	<.01	<.03
JAN										
09...	<.003	E.007	E.01	<.04	<.005	<.01	<.01	<.005	<.01	<.03
24...	<.003	E.010	<.01	<.04	.005	<.01	<.01	<.005	<.01	<.03
FEB										
08...	<.003	E.010	<.01	<.04	<.005	<.01	<.01	<.005	<.01	<.03
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.003	E.007	<.01	<.04	<.005	<.01	<.01	<.005	<.01	<.03
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<.003	E.006	<.01	<.04	.028	<.01	<.01	<.005	<.01	<.03
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.003	E.011	<.01	<.04	.038	.35	<.01	<.005	<.01	<.03
10...	<.003	E.013	<.01	<.04	.061	.25	<.01	<.005	<.01	<.03
14...	<.003	E.011	<.01	<.04	.100	.15	<.01	<.005	<.01	<.03
21...	<.003	E.012	<.01	<.04	.050	.16	<.01	<.005	<.01	<.03
JUN										
06...	<.003	E.068	E.04	E.05	.142	<.01	.05	<.005	<.01	<.03
12...	<.003	E.027	E.01	E.01	.024	.05	<.01	<.005	<.01	<.03
20...	<.003	E.044	E.03	E.03	.032	.04	<.01	<.005	<.01	<.03
27...	<.003	E.042	E.03	<.04	.065	<.01	<.01	<.005	<.01	<.03
JUL										
02...	<.003	E.026	<.01	E.03	.014	<.01	<.01	<.005	<.01	<.03
10...	<.003	E.015	<.01	<.04	.120	E.58	<.01	<.005	<.01	<.03
18...	<.003	E.006	<.01	<.04	<.005	<.01	<.01	<.005	<.01	<.03
AUG										
14...	E.001	E.009	E.03	<.04	.021	<.01	<.01	<.005	<.01	<.03
28...	<.003	E.008	<.01	M	.010	<.01	<.01	<.005	<.01	<.03
SEP										
11...	<.003	E.004	<.01	M	E.002	<.01	<.01	<.005	<.01	<.03

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82677), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUMET- SULAM WATER FLTRD REC (UG/L) (61694)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	HYDROXY ATRA- ZINE WATER FLTRD REC (UG/L) (50355)
OCT										
03...	<.02	E.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.036
18...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.098
NOV										
07...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.059
19...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.028
DEC										
06...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.070
19...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.045
JAN										
09...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.043
24...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	.063
FEB										
08...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.031
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.032
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.036
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.02	E.11	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.056
10...	<.02	.02	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.031
14...	<.02	.02	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.045
21...	<.02	E.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.041
JUN										
06...	<.02	E.10	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.092
12...	<.02	.03	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.056
20...	<.02	.04	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.078
27...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.079
JUL										
02...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.043
10...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	<.008
18...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.012
AUG										
14...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.088
28...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	E.020
SEP										
11...	<.02	<.01	<.002	<.009	<.005	<.03	<.01	<.03	<.003	<.008

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(50356), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated; M, presence verified but not quantified]

DATE	IMAZ- AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE- THAPYR WATER FLTRD REC (UG/L) (50407)	IMID- ACLOP- RID WATER FLTRD REC (UG/L) (61695)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METAL- AXYL WATER FLTRD REC (UG/L) (50359)
OCT										
03...	<.02	<.02	.023	<.004	<.01	<.035	<.027	<.02	<.01	E.01
18...	E.01	E.02	.058	<.004	<.01	<.035	<.027	.07	<.01	.03
NOV										
07...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	E.01	<.01	E.01
19...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
DEC										
06...	E.09	<.02	E.015	<.004	<.01	<.035	<.027	.12	<.01	<.02
19...	E.04	E.02	.038	<.004	<.01	<.035	<.027	E.01	<.01	M
JAN										
09...	E.18	<.02	E.014	<.004	<.01	<.035	<.027	<.02	<.01	<.02
24...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	E.01	<.01	<.02
FEB										
08...	<.02	E.02	.022	<.004	<.01	<.035	<.027	<.02	<.01	<.02
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.02	<.02	E.022	<.004	<.01	<.035	<.027	<.02	<.01	<.02
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<.02	<.02	.021	<.004	<.01	<.035	<.027	.25	<.01	<.02
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.02	<.02	E.018	<.004	<.01	<.035	<.027	.07	<.01	<.02
10...	<.02	<.02	.043	<.004	<.01	<.035	<.027	.12	<.01	<.02
14...	<.02	<.02	.035	<.004	<.01	<.035	<.027	.16	<.01	<.02
21...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	.04	<.01	<.02
JUN										
06...	<.02	E.02	E.117	<.004	<.01	<.035	<.027	<.02	<.01	<.02
12...	<.02	<.02	.072	<.004	<.01	<.035	<.027	<.02	<.01	<.02
20...	<.02	<.02	.039	<.004	<.01	<.035	<.027	<.02	<.01	<.02
27...	<.02	E.02	<.007	<.004	<.01	<.035	<.027	.11	<.01	<.02
JUL										
02...	<.02	<.02	.081	<.004	<.01	<.035	<.027	<.02	<.01	<.02
10...	<.02	<.02	.113	<.004	<.01	<.035	.100	E.56	<.01	<.02
18...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
AUG										
14...	<.02	<.02	E.256	<.004	<.01	<.035	<.027	.08	<.01	<.02
28...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02
SEP										
11...	<.02	<.02	<.007	<.004	<.01	<.035	<.027	<.02	<.01	<.02

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(38501), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET- SUL- FURON METHYL WAT FLT REC (UG/L) (61697)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)
OCT										
03...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
18...	<.008	<.004	<.050	<.006	E.004	<.006	<.03	<.002	<.007	<.01
NOV										
07...	<.008	<.004	<.050	<.006	E.002	<.006	<.03	<.002	<.007	<.01
19...	<.008	<.004	<.050	<.006	E.002	<.006	<.03	<.002	<.007	<.01
DEC										
06...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
19...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
JAN										
09...	<.008	<.004	<.050	<.006	<.013	<.006	<.03	<.002	<.007	<.01
24...	<.008	<.004	<.050	<.006	E.004	<.006	<.03	<.002	<.007	<.01
FEB										
08...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
25...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
19...	--	--	--	--	--	--	--	--	--	--
APR										
03...	<.008	<.004	<.050	<.006	E.007	<.006	<.03	<.002	<.007	<.01
25...	--	--	--	--	--	--	--	--	--	--
MAY										
01...	<.008	<.004	<.050	<.006	E.007	<.006	<.03	<.002	<.007	<.01
10...	<.008	<.004	<.050	<.006	E.012	<.006	<.03	<.002	<.007	<.01
14...	<.008	<.004	<.050	<.006	<.013	<.006	E.05	<.002	<.007	<.01
21...	<.008	<.004	<.050	<.006	E.012	<.006	E.02	<.002	<.007	<.01
JUN										
06...	<.008	<.004	<.050	<.006	.057	<.006	<.03	<.002	<.007	<.01
12...	<.008	<.004	<.050	<.006	.014	<.006	<.03	<.002	<.007	<.01
20...	<.008	<.004	<.050	<.006	.014	<.006	<.03	<.002	<.007	<.01
27...	<.008	<.004	<.050	<.006	E.013	<.006	<.03	<.002	<.007	<.01
JUL										
02...	<.008	<.004	<.050	<.006	E.006	<.006	<.03	<.002	<.007	<.01
10...	<.008	<.004	<.050	<.006	.016	<.006	<.03	<.002	<.007	<.01
18...	<.008	<.004	<.050	<.006	<.013	<.006	<.03	<.002	<.007	<.01
AUG										
14...	<.008	<.004	<.050	<.006	E.003	<.006	<.03	<.002	<.007	<.01
28...	<.008	<.004	<.050	<.006	E.005	<.006	<.03	<.002	<.007	<.01
SEP										
11...	<.008	<.004	<.050	<.006	E.005	<.006	<.03	<.002	<.007	<.01

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(50364), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	P, P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)
OCT									
03...	E.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
18...	E.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
NOV									
07...	<.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
19...	<.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
DEC									
06...	<.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
19...	<.01	<.02	<.02	<.01	<.003	<.007	<.002	<.010	<.006
JAN									
09...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
24...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
FEB									
08...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
25...	--	--	--	--	--	--	--	--	--
MAR									
05...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
19...	--	--	--	--	--	--	--	--	--
APR									
03...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	.065	<.006
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	.030	<.006
10...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	.036	<.006
14...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
21...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	E.016	<.006
JUN									
06...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	.026	<.006
12...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
20...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	E.009	<.006
27...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
JUL									
02...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
10...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
18...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
AUG									
14...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
28...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006
SEP									
11...	<.01	<.02	<.02	<.01	<.003	<.010	<.004	<.022	<.006

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82664), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP- ICONA- ZOLE , WATER FLTRD REC (UG/L) (50471)
OCT									
03...	<.011	<.02	.02	<.004	<.010	<.011	<.02	<.010	E.01
18...	<.011	<.02	.02	<.004	<.010	<.011	<.02	<.010	<.03
NOV									
07...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
19...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
DEC									
06...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
19...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
JAN									
09...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
24...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	.01
FEB									
08...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
25...	--	--	--	--	--	--	--	--	--
MAR									
05...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	E.01
19...	--	--	--	--	--	--	--	--	--
APR									
03...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.011	<.02	.03	<.004	<.010	<.011	<.02	<.010	E.01
10...	<.011	.39	.02	<.004	<.010	<.011	<.02	<.010	<.02
14...	<.011	.53	<.01	<.004	<.010	<.011	<.02	<.010	E.01
21...	<.011	.30	E.01	<.004	<.010	<.011	<.02	<.010	<.02
JUN									
06...	<.011	<.02	.05	<.004	<.010	<.011	<.02	<.010	E.02
12...	<.011	<.02	.02	<.004	<.010	<.011	<.02	<.010	.03
20...	<.011	<.02	.05	<.004	<.010	<.011	<.02	<.010	<.02
27...	<.011	<.02	.06	<.004	<.010	<.011	<.02	<.010	<.02
JUL									
02...	<.011	<.02	.04	<.004	<.010	<.011	<.02	<.010	<.02
10...	<.011	<.02	.03	<.004	<.010	<.011	<.02	<.010	<.02
18...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02
AUG									
14...	<.011	<.02	.09	<.009	<.010	<.011	<.02	<.010	<.02
28...	<.011	<.02	.03	<.004	<.010	<.011	<.02	<.010	<.02
SEP									
11...	<.011	<.02	E.01	<.004	<.010	<.011	<.02	<.010	<.02

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(38538), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SIDURON WATER FLTRD REC (UG/L) (38548)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO- MET- RURON METHYL WTR FLT REC (UG/L) (50337)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL, WATER, DISS, REC (UG/L) (04032)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)
OCT									
03...	<.008	<.02	E.006	<.009	<.02	<.010	<.034	<.02	<.005
18...	<.008	<.02	E.006	<.009	<.006	<.010	<.034	<.02	<.005
NOV									
07...	<.008	<.02	E.004	<.009	<.006	<.010	<.034	<.02	<.005
19...	<.008	<.02	E.005	<.009	<.006	<.010	<.034	<.02	<.005
DEC									
06...	<.008	<.02	<.011	<.009	<.006	<.010	<.034	<.02	<.005
19...	<.008	<.02	<.011	<.009	<.02	<.010	<.034	<.02	<.005
JAN									
09...	<.008	<.02	<.005	<.009	<.02	<.010	<.034	<.02	<.005
24...	<.008	<.02	.006	<.009	<.02	<.010	<.034	<.02	<.005
FEB									
08...	<.008	<.02	E.003	<.009	<.02	<.010	<.034	<.02	<.005
25...	--	--	--	--	--	--	--	--	--
MAR									
05...	<.008	<.02	.008	<.009	<.02	<.010	<.034	<.02	<.005
19...	--	--	--	--	--	--	--	--	--
APR									
03...	<.008	.10	.007	<.009	<.02	<.010	<.034	<.02	<.005
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.008	E.03	.005	E.009	<.02	<.010	<.034	<.02	<.005
10...	<.008	.02	.006	<.009	<.02	<.010	<.034	<.02	<.005
14...	<.008	E.01	<.005	<.009	<.02	<.010	<.034	<.02	<.005
21...	<.008	E.01	.010	<.009	<.02	<.010	<.034	<.02	<.005
JUN									
06...	<.008	<.02	.022	<.009	<.02	<.010	<.034	<.02	<.005
12...	<.008	<.02	<.010	<.009	<.02	<.010	<.034	<.02	<.005
20...	<.008	<.02	.010	<.009	<.02	<.010	<.034	<.02	<.005
27...	<.008	<.02	.012	<.009	<.02	<.010	<.034	<.02	<.005
JUL									
02...	<.008	<.02	.007	<.009	<.02	<.010	<.034	<.02	<.005
10...	<.008	<.02	<.005	<.009	<.02	<.010	<.034	<.02	<.005
18...	<.008	<.02	<.005	<.009	<.02	<.010	<.034	<.02	<.005
AUG									
14...	<.008	<.02	E.005	<.009	<.02	<.010	<.034	<.02	<.005
28...	<.008	<.02	.017	<.009	<.02	<.010	<.034	<.02	<.005
SEP									
11...	<.008	<.02	.006	<.009	<.02	<.010	<.034	<.02	<.005

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82678), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3 (4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L) (61692)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L) (34506)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L) (34511)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L) (34496)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L) (34501)	1,1-DI- CHLORO- PRO- PENE, WAT, WH TOTAL (UG/L) (77168)
OCT									
03...	<.002	E.02	<.009	<.02	--	--	--	--	--
18...	<.002	.08	<.009	<.02	--	--	--	--	--
NOV									
07...	<.002	.06	<.009	<.02	<.03	<.06	<.04	<.04	<.05
19...	<.002	.04	<.009	<.02	<.03	<.06	<.04	<.04	<.05
DEC									
06...	<.002	.04	E.004	<.02	<.03	<.06	<.04	<.04	<.05
19...	<.002	.06	<.009	<.02	<.03	<.06	<.04	<.04	<.05
JAN									
09...	<.002	<.02	<.009	<.02	<.03	<.06	<.04	<.04	<.05
24...	<.002	<.02	<.009	<.02	<.03	<.06	<.04	<.04	<.05
FEB									
08...	<.002	E.01	<.009	<.02	<.03	<.06	<.04	<.04	<.05
25...	--	--	--	--	<.03	<.06	<.04	<.04	<.05
MAR									
05...	<.002	<.02	<.009	<.02	<.03	<.06	<.04	<.04	<.05
19...	--	--	--	--	<.03	<.06	<.04	<.04	<.05
APR									
03...	<.002	<.02	E.006	<.02	<.03	<.06	<.04	<.04	<.05
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.002	.12	E.004	<.02	<.03	<.06	<.04	<.04	<.05
10...	<.002	<.02	E.005	<.02	--	--	--	--	--
14...	<.002	.08	<.009	<.02	<.03	<.06	<.04	<.04	<.05
21...	<.002	.07	E.001	<.02	--	--	--	--	--
JUN									
06...	<.002	<.02	E.003	<.02	<.03	<.06	<.04	<.04	<.05
12...	<.002	<.02	<.009	<.02	--	--	--	--	--
20...	<.002	.03	E.001	<.02	--	--	--	--	--
27...	<.002	<.02	<.009	<.02	--	--	--	--	--
JUL									
02...	<.002	<.02	E.003	<.02	<.03	<.06	<.04	<.04	<.05
10...	<.002	.10	<.009	<.02	--	--	--	--	--
18...	<.002	<.02	<.009	<.02	--	--	--	--	--
AUG									
14...	<.002	.09	<.009	<.02	<.03	<.06	<.04	<.04	<.05
28...	<.002	<.02	<.009	<.02	--	--	--	--	--
SEP									
11...	<.002	<.02	<.009	<.02	<.03	<.06	<.04	<.04	<.05

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(77443), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

DATE	123-TRI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L) (77443)	1,2- DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	1,2-DI- CHLORO- ETHANE WATER WHOLE TOTAL (UG/L) (32103)	1,2-DI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L) (34541)	TRANS- 1,2-DI- CHLORO- ETHENE WATER WHOLE TOTAL (UG/L) (34546)	2,2-DI- CHLORO- PROPANE WATER WHOLE TOTAL (UG/L) (77170)	2BUTENE TRANS-1 4-DI- CHLORO UNFLTRD RECOVER (UG/L) (73547)	2-HEXA- NONE WATER WHOLE TOTAL (UG/L) (77103)	ACETONE WATER WHOLE TOTAL (UG/L) (81552)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
19...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
DEC									
06...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
19...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
JAN									
09...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
24...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
FEB									
08...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
25...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
MAR									
05...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
19...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
APR									
03...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
10...	--	--	--	--	--	--	--	--	--
14...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.16	<.04	<.1	<.03	<.03	<.05	<.7	<.7	<.7

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(34215), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	ACRYLO- NITRILE TOTAL (UG/L) (34215)	1, 2, 3- TRI- CHLORO BENZENE WAT, WH REC (UG/L) (77613)	BENZENE 123-TRI METHYL- WATER UNFLTRD RECOVER (UG/L) (77221)	BENZENE 1, 2, 4- TRI- CHLORO- WAT UNF REC (UG/L) (34551)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 1, 3-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1, 4-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34571)	ISO- PROPYL- BENZENE WATER WHOLE REC (UG/L) (77223)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<1	<.3	<.1	<.1	E.01	<.04	<.03	<.05	<.06
19...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
DEC									
06...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
19...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
JAN									
09...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
24...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
FEB									
08...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
25...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
MAR									
05...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
19...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
APR									
03...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
10...	--	--	--	--	--	--	--	--	--
14...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<1	<.3	<.1	<.1	<.06	<.04	<.03	<.05	<.06

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(77342), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE O-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34536)	BENZENE SEC BUTYL- WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT- BUTYL- WATER UNFLTRD REC (UG/L) (77353)	BENZENE TOTAL (UG/L) (34030)	BROMO- BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO- ETHENE WATER UNFLTRD RECOVER (UG/L) (50002)	BROMO- FORM TOTAL (UG/L) (32104)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.2	<.04	<.03	<.03	<.05	E.02	<.04	<.1	<.06
19...	<.2	<.04	<.03	<.03	<.05	E.01	<.04	<.1	<.06
DEC									
06...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
19...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
JAN									
09...	<.2	<.04	<.03	<.03	<.05	E.01	<.04	<.1	<.06
24...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
FEB									
08...	<.2	<.04	<.03	<.03	<.05	E.01	<.04	<.1	<.06
25...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
MAR									
05...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
19...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
APR									
03...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
10...	--	--	--	--	--	--	--	--	--
14...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.2	<.04	<.03	<.03	<.05	E.01	<.04	<.1	<.06
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.2	<.04	<.03	<.03	<.05	<.04	<.04	<.1	<.06

PROJECT DATA

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Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(77041), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	CARBON DI- SULFIDE WATER WHOLE TOTAL (UG/L) (77041)	CARBON TETRA- CHLO- RIDE TOTAL (UG/L) (32102)	CHLORO- BENZENE TOTAL (UG/L) (34301)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L) (32105)	CHLORO- ETHANE TOTAL (UG/L) (34311)	CHLORO- FORM TOTAL (UG/L) (32106)	CIS-1,2 -DI- CHLORO- ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L) (34704)	DIBROMO CHLORO- PROPANE WATER WHOLE TOT.REC (UG/L) (82625)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.07	<.06	<.03	<.2	<.1	E.02	<.04	<.09	<.5
19...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5
DEC									
06...	<.07	<.06	<.03	<.2	<.1	E.01	<.04	<.09	<.5
19...	<.07	<.06	<.03	<.2	<.1	E.01	<.04	<.09	<.5
JAN									
09...	<.07	<.06	<.03	<.2	<.1	E.01	<.04	<.09	<.5
24...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5
FEB									
08...	<.07	<.06	<.03	<.2	<.1	E.02	<.04	<.09	<.5
25...	<.07	<.06	<.03	<.2	<.1	E.02	<.04	<.09	<.5
MAR									
05...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5
19...	<.07	<.06	<.03	<.2	<.1	E.02	<.04	<.09	<.5
APR									
03...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.07	<.06	<.03	<.2	<.1	E.05	<.04	<.09	<.5
10...	--	--	--	--	--	--	--	--	--
14...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.07	<.06	<.03	<.2	<.1	E.01	<.04	<.09	<.5
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.07	<.06	<.03	<.2	<.1	E.02	<.04	<.09	<.5
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.07	<.06	<.03	<.2	<.1	E.07	<.04	<.09	<.5
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.07	<.06	<.03	<.2	<.1	<.02	<.04	<.09	<.5

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(30217), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

DATE	DI- BROMO- METHANE WATER WHOLE RECOVER (UG/L) (30217)	BROMO- DI- CHLORO- METHANE TOTAL (UG/L) (32101)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L) (34668)	DI-ISO- PROPYL- ETHER, WATER, UNFLTRD RECOVER (UG/L) (81577)	ETHANE, 1112- TETRA- CHLORO- WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRA- CHLORO- WAT UNF REC (UG/L) (34516)	ETHANE HEXA- CHLORO- WATER UNFLTRD RECOVER (UG/L) (34396)	ETHER ETHYL WATER UNFLTRD RECOVER (UG/L) (81576)	ETHER TERT- BUTYL ETHYL UNFLTRD RECOVER (UG/L) (50004)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
19...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
DEC									
06...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
19...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
JAN									
09...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
24...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
FEB									
08...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
25...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
MAR									
05...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
19...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
APR									
03...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
10...	--	--	--	--	--	--	--	--	--
14...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.05	<.05	<.18	<.10	<.03	<.09	<.2	<.2	<.05

PROJECT DATA

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Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(50005), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated]

DATE	ETHER TERT- PENTYL METHYL UNFLTRD RECOVER (UG/L) (50005)	ETHYL- BENZENE TOTAL (UG/L) (34371)	FREON- 113 WATER UNFLTRD REC (UG/L) (77652)	FURAN, TETRA- HYDRO- WATER UNFLTRD RECOVER (UG/L) (81607)	HEXA- CHLORO- BUT- ADIENE TOTAL (UG/L) (39702)	ISO- DURENE WATER UNFLTRD RECOVER (UG/L) (50000)	METHAC- RYLATE ETHYL- WATER UNFLTRD RECOVER (UG/L) (73570)	METHAC- RYLATE METHYL WATER UNFLTRD RECOVER (UG/L) (81597)	METH- ACRYLO- NITRILE WATER UNFLTRD RECOVER (UG/L) (81593)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
19...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
DEC									
06...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
19...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
JAN									
09...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
24...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
FEB									
08...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
25...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
MAR									
05...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
19...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
APR									
03...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
10...	--	--	--	--	--	--	--	--	--
14...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.08	<.03	<.06	<2	<.1	<.2	<.2	<.3	<.6

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(77297), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated; M, presence verified but not quantified]

DATE	METHANE BROMO- CHLORO- WAT UNFLTRD REC (UG/L) (77297)	METHYL ACRY- LATE WATER UNFLTRD RECOVER (UG/L) (49991)	METHYL IODIDE WATER UNFLTRD RECOVER (UG/L) (77424)	METHYL TERT- BUTYL ETHER WAT UNF REC (UG/L) (78032)	METHYL- BROMIDE TOTAL (UG/L) (34413)	METHYL- CHLO- RIDE TOTAL (UG/L) (34418)	METHYL ENE CHLO- RIDE TOTAL (UG/L) (34423)	METHYL- ETHYL- KETONE WATER WHOLE TOTAL (UG/L) (81595)	METHYL ISO- BUTYL KETONE WAT. WH. TOTAL (UG/L) (78133)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	<.07	<2.0	<.25	<.2	<.3	<.2	M	<5.0	<.4
19...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
DEC									
06...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
19...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
JAN									
09...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
24...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
FEB									
08...	<.07	<2.0	<.25	<.2	<.3	M	<.2	<5.0	<.4
25...	<.07	<2.0	<.25	<.2	<.3	E.1	<.2	<5.0	<.4
MAR									
05...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
19...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
APR									
03...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
10...	--	--	--	--	--	--	--	--	--
14...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.07	<2.0	<.25	<.2	<.3	<.2	<.2	<5.0	<.4

PROJECT DATA

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Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(85795), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	META/ PARA- XYLENE WATER UNFLTRD REC (UG/L) (85795)	NAPHTH- ALENE TOTAL (UG/L) (34696)	O- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	O- XYLENE WATER WHOLE TOTAL (UG/L) (77135)	P-ISO- PROPYL- TOLUENE WATER WHOLE REC (UG/L) (77356)	1234- TETRA METHYL BENZENE UNFLTRD REC (UG/L) (49999)	1,3-DI- CHLORO- PROPANE WAT. WH TOTAL (UG/L) (77173)	PROPENE 3- CHLORO- WATER UNFLTRD RECOVER (UG/L) (78109)	STYRENE TOTAL (UG/L) (77128)
OCT									
03...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
NOV									
07...	E.02	<.5	<.03	E.01	<.07	<.2	<.1	<.07	<.04
19...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
DEC									
06...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
19...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
JAN									
09...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
24...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
FEB									
08...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
25...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
MAR									
05...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
19...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
APR									
03...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
10...	--	--	--	--	--	--	--	--	--
14...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
21...	--	--	--	--	--	--	--	--	--
JUN									
06...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
12...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
JUL									
02...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
10...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
AUG									
14...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04
28...	--	--	--	--	--	--	--	--	--
SEP									
11...	<.06	<.5	<.03	<.07	<.07	<.2	<.1	<.07	<.04

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

393944084120700 HOLES CREEK AT HUFFMAN PARK NEAR KETTERING, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(34475), USGS National Water Information System parameter code; UG/L, micrograms per liter; MG/L, milligrams per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated]

DATE	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L) (34475)	TOLUENE O-ETHYL WATER UNFLTRD RECOVER (UG/L) (77220)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOLUENE TOTAL (UG/L) (34010)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L) (34699)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L) (39180)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L) (34488)	VINYL CHLO- RIDE TOTAL (UG/L) (39175)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)
OCT									
03...	--	--	--	--	--	--	--	--	17
18...	--	--	--	--	--	--	--	--	15
NOV									
07...	<.03	<.06	<.05	E.06	<.09	<.04	<.09	<.1	13
19...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	11
DEC									
06...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	215
19...	<.03	<.06	<.05	E.03	<.09	<.04	<.09	<.1	138
JAN									
09...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	30
24...	<.03	<.06	<.05	E.04	<.09	<.04	<.09	<.1	102
FEB									
08...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	35
25...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	--
MAR									
05...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	58
19...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	--
APR									
03...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	69
25...	--	--	--	--	--	--	--	--	--
MAY									
01...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	19
10...	--	--	--	--	--	--	--	--	45
14...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	77
21...	--	--	--	--	--	--	--	--	31
JUN									
06...	<.03	<.06	<.05	E.04	<.09	<.04	<.09	<.1	345
12...	--	--	--	--	--	--	--	--	40
20...	--	--	--	--	--	--	--	--	80
27...	--	--	--	--	--	--	--	--	35
JUL									
02...	<.03	<.06	<.05	E.02	<.09	<.04	<.09	<.1	40
10...	--	--	--	--	--	--	--	--	90
18...	--	--	--	--	--	--	--	--	30
AUG									
14...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	74
28...	--	--	--	--	--	--	--	--	11
SEP									
11...	<.03	<.06	<.05	<.05	<.09	<.04	<.09	<.1	9.7

PROJECT DATA

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**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

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 mi².

REMARKS.—Eleven discharge measurements were made at this site. This station is maintained by the Miami Conservancy District. Continuous discharge data for this site are located in the surface-water section in volume 1 of this report.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; --, no data]

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	TEMPER- ATURE AIR (DEG C) (00020)
OCT										
02...	1100	141	737	--	--	8.1	8.1	729	742	18.0
17...	1200	495	745	10.7	97	7.9	--	637	--	12.0
NOV										
06...	0930	244	745	--	--	8.0	8.1	729	754	10.0
20...	1330	178	742	11.8	105	8.5	--	685	--	6.0
DEC										
05...	1100	323	743	--	--	8.0	8.2	709	728	19.0
19...	1000	1050	732	10.3	89	7.7	--	617	--	7.5
JAN										
09...	1030	255	745	12.6	102	7.7	8.1	762	758	5.0
24...	1100	251	736	10.4	94	8.0	--	725	--	6.0
FEB										
08...	1030	302	743	11.6	98	7.8	7.9	731	732	4.0
MAR										
04...	1300	366	745	16.7	123	8.1	8.2	695	698	-5.0
APR										
02...	1000	487	733	11.1	102	8.1	8.1	694	691	19.0
MAY										
01...	1015	613	745	10.7	100	8.0	7.8	689	691	20.0
10...	1030	534	747	10.4	99	8.1	--	693	--	16.0
15...	1130	965	745	10.1	96	8.0	--	647	--	16.0
23...	1300	515	743	10.2	100	8.1	--	695	--	16.5
JUN										
05...	1145	427	738	10.4	114	8.0	8.1	729	693	27.0
12...	0920	521	740	9.9	105	8.1	--	733	--	25.0
20...	0910	391	748	9.9	104	8.2	--	732	--	23.5
26...	1100	337	741	11.2	121	7.9	--	734	--	27.0
JUL										
03...	1000	282	743	9.2	100	7.8	8.1	715	716	27.0
10...	1530	264	743	12.6	142	7.9	--	724	--	26.0
17...	1030	215	744	10.7	115	7.5	--	739	--	29.0
AUG										
15...	1100	170	743	9.0	99	7.8	8.2	715	673	31.0
28...	0930	159	744	9.7	104	7.7	--	724	--	22.0
SEP										
11...	1130	138	740	9.8	106	7.8	8.2	744	712	23.0

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; MG/L, milligrams per liter; --, no data]

DATE	TEMPER- ATURE WATER (DEG C) (00010)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT										
02...	13.0	92.0	35.1	2.24	11.4	277	334	2	24.9	.3
17...	10.0	--	--	--	--	--	--	--	--	--
NOV										
06...	7.6	96.8	35.2	2.18	9.27	301	364	1	22.4	.3
20...	8.9	--	--	--	--	--	--	--	--	--
DEC										
05...	11.7	94.1	33.2	2.10	8.15	294	354	2	22.6	.3
19...	7.3	--	--	--	--	--	--	--	--	--
JAN										
09...	5.3	93.5	34.2	1.84	9.94	291	352	1	25.4	.3
24...	9.4	--	--	--	--	--	--	--	--	--
FEB										
08...	6.9	94.7	34.8	2.09	9.24	289	348	2	21.6	.3
MAR										
04...	1.9	86.0	31.8	2.03	8.93	272	327	2	22.1	.2
APR										
02...	9.8	91.3	33.8	1.89	8.79	267	321	2	19.7	.3
MAY										
01...	11.2	89.0	32.1	1.85	7.40	--	--	--	18.9	.23
10...	12.2	--	--	--	--	--	--	--	--	--
15...	11.7	--	--	--	--	--	--	--	--	--
23...	13.2	--	--	--	--	--	--	--	--	--
JUN										
05...	17.9	92.9	34.6	1.93	8.70	275	329	3	19.9	.3
12...	16.8	--	--	--	--	--	--	--	--	--
20...	16.5	--	--	--	--	--	--	--	--	--
26...	17.6	--	--	--	--	--	--	--	--	--
JUL										
03...	17.8	97.3	35.3	2.03	8.53	--	--	--	20.8	.2
10...	19.8	--	--	--	--	--	--	--	--	--
17...	17.8	--	--	--	--	299	359	3	--	--
AUG										
15...	18.8	87.3	33.0	2.49	10.4	225	269	3	23.6	.2
28...	17.3	--	--	--	--	--	--	--	--	--
SEP										
11...	17.7	95.0	34.2	2.70	11.1	283	339	3	25.2	.3

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00955), USGS National Water Information System parameter code; MG/L, milligrams per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULATE WAT FLT SUSP (MG/L AS N) (49570)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT										
02...	7.53	65.1	438	<.04	.14	4.07	E.006	.02	.04	.059
17...	--	--	--	<.04	.77	4.87	.015	--	.07	.151
NOV										
06...	8.33	68.3	454	<.04	.19	4.16	E.006	.03	E.01	.026
20...	--	--	--	<.04	.21	3.78	E.007	--	E.01	.035
DEC										
05...	8.10	65.8	454	<.04	.24	4.33	.008	.03	.03	.042
19...	--	--	--	<.04	.72	4.84	E.007	--	.05	.129
JAN										
09...	7.80	70.3	474	<.04	.18	4.39	E.005	<.02	.03	.037
24...	--	--	--	<.04	.26	3.98	E.005	--	<.02	.034
FEB										
08...	7.63	64.1	450	<.04	.27	4.61	.018	.04	E.01	.023
MAR										
04...	7.67	54.4	422	<.04	.25	4.72	.010	.07	E.01	.042
APR										
02...	5.91	56.8	423	<.04	.26	4.44	.012	.07	.02	.038
MAY										
01...	6.54	57.6	430	<.04	.26	4.17	.010	.09	.02	.044
10...	--	--	--	<.04	.31	4.04	.016	--	.02	.048
15...	--	--	--	E.02	.47	4.68	.017	--	.03	.083
23...	--	--	--	<.04	.23	4.21	.009	--	E.02	.041
JUN										
05...	6.97	55.9	481	<.04	.28	4.27	.016	.05	.02	.044
12...	--	--	--	<.04	.23	4.54	.012	--	.02	.045
20...	--	--	--	<.04	.26	4.25	.010	--	<.02	.033
26...	--	--	--	<.04	.19	4.32	.010	--	E.01	.024
JUL										
03...	8.28	58.8	452	<.04	.26	4.42	.013	<.02	.02	.044
10...	--	--	--	<.04	.29	4.22	.017	--	.03	.057
17...	--	--	--	<.04	.21	4.42	.012	--	.02	.034
AUG										
15...	8.18	57.0	416	<.04	.22	4.19	.010	.06	.04	.040
28...	--	--	--	<.04	.20	4.47	.011	--	.07	.096
SEP										
11...	8.66	60.4	442	<.04	.18	4.47	.011	.09	.04	.059

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00694), USGS National Water Information System parameter code; MG/L, milligrams per liter; UG/L, micrograms per liter; ESA, ethanesulfonic acid; OA, oxanilic acid; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, INOR- GANIC, PARTIC. TOTAL (MG/L AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 UM GF, REC (UG/L) (82660)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER REC (UG/L) (49260)
OCT										
02...	.4	--	1.8	--	12	7.1	<.002	--	--	<.004
17...	--	--	--	--	--	--	<.002	.1	.1	<.004
NOV										
06...	.4	--	2.1	--	11	15.4	<.002	<.1	<.1	<.004
20...	--	--	--	--	--	--	<.002	--	--	<.004
DEC										
05...	.3	--	2.1	--	E8	12.9	<.002	.1	<.1	<.004
19...	--	--	--	--	--	--	<.002	--	--	<.004
JAN										
09...	.2	--	1.5	--	12	19.2	<.006	--	--	<.006
24...	--	--	--	--	--	--	<.006	--	--	<.006
FEB										
08...	.5	<.1	1.6	.5	E9	16.5	<.006	.09	<.05	<.006
MAR										
04...	.6	.5	2.4	<.1	E5	17.0	<.006	<.05	<.05	<.006
APR										
02...	.7	<.1	2.1	.7	E8	15.5	<.006	.06	<.05	<.006
MAY										
01...	.9	<.1	3.3	.8	E7	15.0	<.006	<.05	<.05	.020
10...	--	--	--	--	--	--	<.006	--	--	.023
15...	--	--	--	--	--	--	<.006	.29	.32	.992
23...	--	--	--	--	--	--	<.006	--	--	.020
JUN										
05...	.5	<.1	2.2	.5	<10	7.7	<.006	.10	.08	.038
12...	--	--	--	--	--	--	<.006	--	--	.059
20...	--	--	--	--	--	--	<.006	.08	<.05	.012
26...	--	--	--	--	--	--	<.006	--	--	.007
JUL										
03...	.3	<.1	1.8	.3	E9	8.4	<.006	<.05	<.05	E.005
10...	--	--	--	--	--	--	<.006	--	--	.006
17...	--	--	--	--	--	--	<.006	<.05	<.05	<.05
AUG										
15...	.3	<.1	2.3	.3	<10	3.8	<.006	<.05	<.05	<.006
28...	--	--	--	--	--	--	<.006	--	--	<.006
SEP										
11...	.3	<.1	1.7	.3	31	3.4	<.006	<.05	<.05	<.006

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(61031), USGS National Water Information System parameter code; UG/L, micrograms per liter; ESA, ethanesulfonic acid; OA, oxanilic acid; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	ALA- CHLOR OA FLTRD 0.7 UM GF, REC (UG/L) (61031)	ALA- CHLOR ESA WAT FLT 0.7 UM GF, REC (UG/L) (50009)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 UM GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 UM GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 UM GF, REC (UG/L) (82674)
OCT									
02...	--	--	<.002	<.005	.012	<.010	<.002	<.041	<.020
17...	<.1	.2	<.002	<.005	.092	<.010	<.002	<.041	<.020
NOV									
06...	<.1	.3	<.002	<.005	.024	<.010	<.002	<.041	<.020
20...	--	--	<.002	<.005	<.007	<.010	<.002	<.041	<.020
DEC									
05...	<.1	.3	<.002	<.005	.032	<.010	<.002	<.041	<.020
19...	--	--	<.002	<.005	.064	<.010	<.002	<.041	<.020
JAN									
09...	--	--	<.004	<.005	.011	<.010	<.002	<.041	<.020
24...	--	--	<.004	<.005	.012	<.010	<.002	<.041	<.020
FEB									
08...	<.05	.23	<.004	<.005	.021	<.010	<.002	<.041	<.020
MAR									
04...	<.05	.20	<.004	<.005	.037	<.010	<.002	<.041	<.020
APR									
02...	<.05	.19	<.004	<.005	.030	<.010	<.002	<.041	<.020
MAY									
01...	<.05	.19	<.004	<.005	.526	<.010	<.002	<.041	<.020
10...	--	--	<.004	<.005	.402	<.010	<.002	<.041	<.020
15...	<.05	.16	<.004	<.005	4.39	<.010	<.002	<.041	<.020
23...	--	--	<.004	<.005	.220	<.010	<.002	E.003	<.020
JUN									
05...	<.05	.18	<.004	<.005	.413	<.010	<.002	<.041	<.020
12...	--	--	<.004	<.005	.878	<.010	<.002	<.041	<.020
20...	.14	.20	<.004	<.005	.194	<.010	<.002	<.041	<.020
26...	--	--	<.004	<.005	.113	<.010	<.002	E.049	<.020
JUL									
03...	<.05	.26	<.004	<.005	.065	<.010	<.002	<.041	<.020
10...	--	--	<.004	<.005	.061	<.010	<.002	E.006	<.020
17...	<.05	.18	<.05	<.005	.05	<.010	<.002	E.006	<.020
AUG									
15...	<.05	.17	<.004	<.005	.021	<.010	<.002	E.002	<.020
28...	--	--	<.004	<.005	.023	<.010	<.002	<.041	<.020
SEP									
11...	<.05	.17	<.004	<.005	.018	<.010	<.002	<.041	<.020

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(38933), USGS National Water Information System parameter code; UG/L, micrograms per liter; ESA, ethanesulfonic acid; OA, oxanilic acid; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 UM GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DISUL- FOTON WATER FLTRD 0.7 UM GF, REC (UG/L) (82677)
OCT									
02...	<.005	<.018	<.003	E.006	<.005	<.005	--	--	<.02
17...	<.005	<.018	<.003	E.060	<.005	<.005	<.05	<.05	<.02
NOV									
06...	<.005	<.018	<.003	E.013	<.005	<.005	<.05	<.05	<.02
20...	<.005	<.018	<.003	<.006	<.005	<.005	--	--	<.02
DEC									
05...	<.005	<.018	<.003	E.021	<.005	<.005	<.05	<.05	<.02
19...	<.005	<.018	<.003	E.043	<.005	<.005	--	--	<.02
JAN									
09...	<.005	<.018	<.003	E.006	<.005	<.005	--	--	<.02
24...	<.005	<.018	<.003	E.007	<.005	<.005	--	--	<.02
FEB									
08...	<.005	<.018	<.003	E.015	<.005	<.005	<.05	<.05	<.02
MAR									
04...	<.005	<.018	<.003	E.023	<.005	<.005	<.05	<.05	<.02
APR									
02...	<.005	<.018	<.003	E.011	<.005	<.005	<.05	<.05	<.02
MAY									
01...	<.005	<.018	<.003	E.025	<.005	<.005	<.05	<.05	<.02
10...	<.005	<.018	<.003	E.025	<.005	<.005	--	--	<.02
15...	<.005	<.018	<.003	E.138	<.005	<.005	<.05	<.05	<.02
23...	<.005	<.018	<.003	E.021	<.005	<.005	--	--	<.02
JUN									
05...	<.005	<.018	<.003	E.046	<.005	<.005	<.05	<.05	<.02
12...	<.005	<.018	<.003	E.059	<.005	<.005	--	--	<.02
20...	<.005	<.018	<.003	E.023	<.005	<.005	<.05	<.05	<.02
26...	<.005	<.018	<.003	E.016	<.005	<.005	--	--	<.02
JUL									
03...	<.005	<.018	<.003	E.010	<.005	<.005	<.05	<.05	<.02
10...	<.005	<.018	<.003	E.011	E.003	<.005	--	--	<.02
17...	<.005	<.05	<.003	<.05	<.005	<.005	<.05	<.05	<.02
AUG									
15...	<.005	<.018	<.003	E.006	<.005	<.005	<.05	<.05	<.02
28...	<.005	<.018	<.003	E.007	<.005	<.005	--	--	<.02
SEP									
11...	<.005	<.018	<.003	E.006	<.005	<.005	<.05	<.05	<.02

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82668), USGS National Water Information System parameter code; UG/L, micrograms per liter; ESA, ethanesulfonic acid; OA, oxanilic acid; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	EPTC WATER FLTRD 0.7 UM GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 UM GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 UM GF, REC (UG/L) (82672)	FLUFEN- ACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 UM GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)
OCT									
02...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
17...	<.002	<.009	<.005	--	<.05	<.003	<.004	<.035	<.027
NOV									
06...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
20...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
DEC									
05...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
19...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
JAN									
09...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
24...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
FEB									
08...	<.002	<.009	<.005	.08	<.05	<.003	<.004	<.035	<.027
MAR									
04...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
APR									
02...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
MAY									
01...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
10...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
15...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
23...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
JUN									
05...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
12...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
20...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
26...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
JUL									
03...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
10...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
17...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027
AUG									
15...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	E.003
28...	<.002	<.009	<.005	--	--	<.003	<.004	<.035	<.027
SEP									
11...	<.002	<.009	<.005	<.05	<.05	<.003	<.004	<.035	<.027

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(82686), USGS National Water Information System parameter code; UG/L, micrograms per liter; ESA, ethanesulfonic acid; OA, oxanilic acid; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value]

DATE	METHYL AZIN- PHOS WAT FLT 0.7 UM GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 UM GF, REC (UG/L) (82667)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 UM GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 UM GF, REC (UG/L) (82684)	P, P' DDE DISSOLV (UG/L) (34653)
OCT									
02...	<.050	<.006	--	--	E.004	<.006	<.002	<.007	<.003
17...	<.050	<.006	1.2	.4	.038	<.006	<.002	<.007	<.003
NOV									
06...	<.050	<.006	.5	.1	E.006	<.006	<.002	<.007	<.003
20...	<.050	<.006	--	--	<.013	<.006	<.002	<.007	<.003
DEC									
05...	<.050	<.006	.6	<.1	E.008	<.006	<.002	<.007	<.003
19...	<.050	<.006	--	--	.023	<.006	<.002	<.007	<.003
JAN									
09...	<.050	<.006	--	--	E.004	<.006	<.002	<.007	<.003
24...	<.050	<.006	--	--	E.004	<.006	<.002	<.007	<.003
FEB									
08...	<.050	<.006	.43	.15	E.006	<.006	<.002	<.007	<.003
MAR									
04...	<.050	<.006	.48	.12	.015	<.006	<.002	<.007	<.003
APR									
02...	<.050	<.006	.46	.11	E.011	<.006	<.002	<.007	<.003
MAY									
01...	<.050	<.006	.43	.13	.166	<.006	<.002	<.007	<.003
10...	<.050	<.006	--	--	.095	E.005	<.002	<.007	<.003
15...	<.050	<.006	.73	.32	1.08	.027	<.002	<.007	<.003
23...	<.050	<.006	--	--	.059	<.006	<.002	<.007	<.003
JUN									
05...	<.050	<.006	.42	.09	.089	<.006	<.002	<.007	<.003
12...	<.050	<.006	--	--	.205	<.006	<.002	<.007	<.003
20...	<.050	<.006	.40	.11	.044	<.006	<.002	<.007	<.003
26...	<.050	<.006	--	--	.028	<.006	<.002	<.007	<.003
JUL									
03...	<.050	<.006	.42	.07	.019	<.006	<.002	<.007	<.003
10...	<.050	<.006	--	--	.020	<.006	<.002	<.007	<.003
17...	<.050	<.006	.31	.06	.05	<.05	<.002	<.007	<.003
AUG									
15...	<.050	<.006	.27	<.05	E.008	<.006	<.002	<.007	<.003
28...	<.050	<.006	--	--	E.009	<.006	<.002	<.007	<.003
SEP									
11...	<.050	<.006	.24	.05	E.007	<.006	<.002	<.007	<.003

**Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)**

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00061), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; E, estimated concentration or value; M, presence verified but not quantified]

DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 UM GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 UM GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 UM GF, REC (UG/L) (82687)	PHORATE WATER FILTRD 0.7 UM GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FILTRD 0.7 UM GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FILTRD 0.7 UM GF, REC (UG/L) (82679)
OCT									
02...	<.007	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011
17...	<.007	<.002	<.010	<.006	<.011	M	<.004	<.010	<.011
NOV									
06...	<.007	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011
20...	<.007	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011
DEC									
05...	<.007	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011
19...	<.007	<.002	<.010	<.006	<.011	<.01	<.004	<.010	<.011
JAN									
09...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
24...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
FEB									
08...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
MAR									
04...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
APR									
02...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
MAY									
01...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
10...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
15...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
23...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
JUN									
05...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
12...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
20...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
26...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
JUL									
03...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
10...	<.010	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
17...	<.010	<.004	<.05	<.006	<.011	<.05	<.004	<.05	<.011
AUG									
15...	<.010	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
28...	<.010	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
SEP									
11...	<.010	<.004	<.022	<.006	<.011	M	<.004	<.010	<.011

PROJECT DATA
Results from Selected Sites in the White, Great, and Little Miami River Basins
(National Water-Quality Assessment Program)

WATER-QUALITY RECORDS—CONTINUED

03267900 MAD RIVER AT ST. PARIS PIKE NEAR EAGLE CITY, OHIO—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

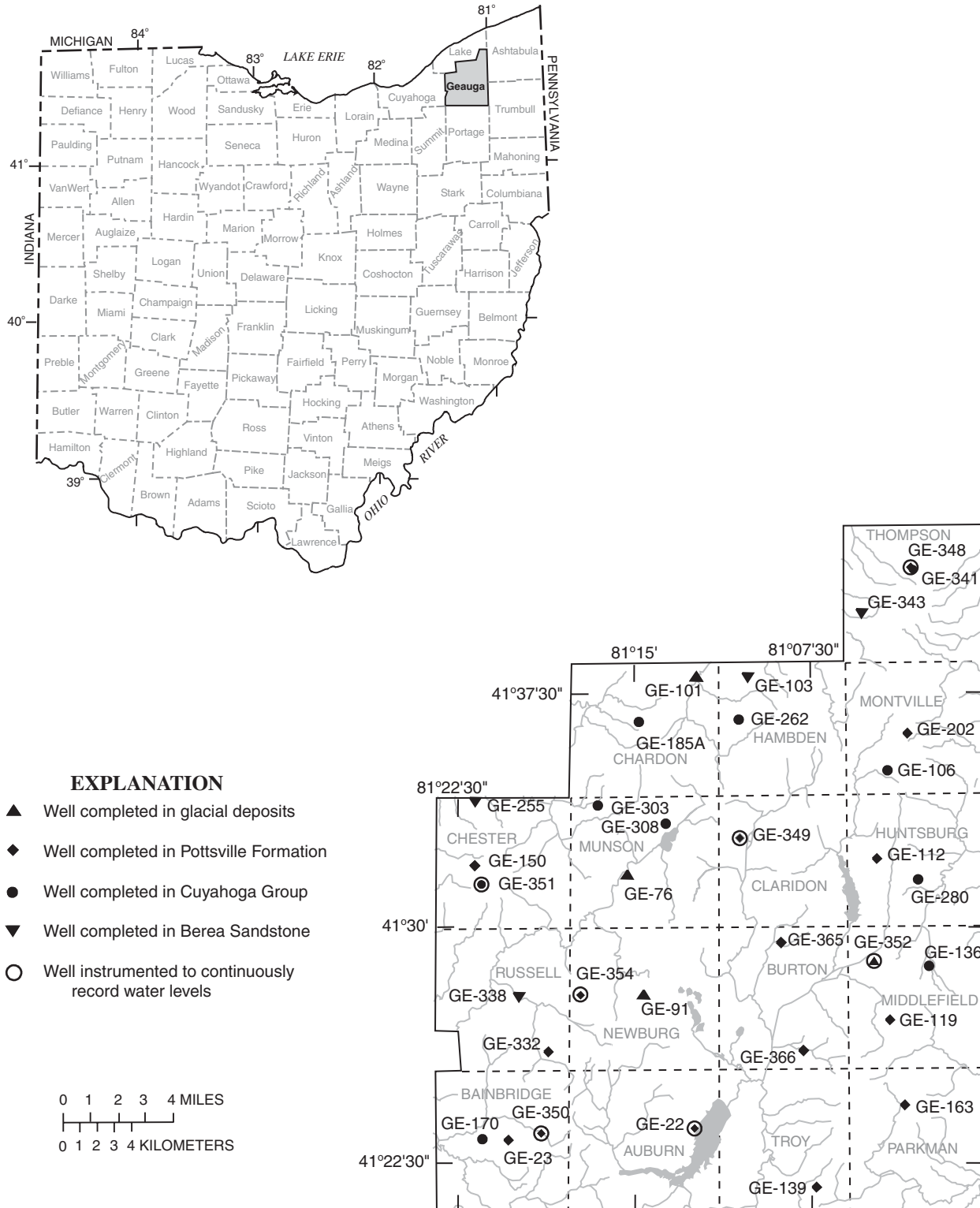
[(82685), USGS National Water Information System parameter code; UG/L, micrograms per liter; --, no data; <, concentration or value reported is less than that indicated; M, presence verified but not quantified]

DATE	PRO- PARGITE WATER FLTRD 0.7 UM GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 UM GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 UM GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 UM GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 UM GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 UM GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 UM GF, REC (UG/L) (82661)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT									
02...	<.02	<.011	<.02	<.034	<.02	<.005	<.002	<.009	14
17...	<.02	E.009	<.02	<.034	<.02	<.005	<.002	<.009	48
NOV									
06...	<.02	E.003	<.02	<.034	<.02	<.005	<.002	<.009	29
20...	<.02	<.011	<.02	<.034	<.02	<.005	<.002	<.009	6.7
DEC									
05...	<.02	E.006	<.02	<.034	<.02	<.005	<.002	<.009	184
19...	<.02	.071	M	<.034	<.02	<.005	<.002	<.009	157
JAN									
09...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	10
24...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	25
FEB									
08...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	48
MAR									
04...	<.02	.006	<.02	<.034	<.02	<.005	<.002	<.009	72
APR									
02...	<.02	.013	<.02	<.034	<.02	<.005	<.002	<.009	56
MAY									
01...	<.02	.062	<.02	<.034	<.02	<.005	<.002	<.009	12
10...	<.02	.058	<.02	<.034	<.02	<.005	<.002	<.009	42
15...	<.02	.756	<.02	<.034	<.02	<.005	<.002	<.009	86
23...	<.02	.027	<.02	<.034	<.02	<.005	<.002	<.009	21
JUN									
05...	<.02	.048	<.02	<.034	<.02	<.005	<.002	<.009	8.3
12...	<.02	.059	<.02	<.034	<.02	<.005	<.002	<.009	93
20...	<.02	.019	<.02	<.034	<.02	<.005	<.002	<.009	18
26...	<.02	.013	<.02	<.034	<.02	<.005	<.002	<.009	6.8
JUL									
03...	<.02	.010	<.02	<.034	<.02	<.005	<.002	<.009	34
10...	<.02	.008	<.02	<.034	<.02	<.005	<.002	<.009	55
17...	<.02	<.05	<.02	<.034	<.02	<.005	<.002	<.009	45
AUG									
15...	<.02	E.003	<.02	<.034	<.02	<.005	<.002	<.009	48
28...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	4.1
SEP									
11...	<.02	E.005	<.02	<.034	<.02	<.005	<.002	<.009	7.5

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

277

Ground-water-level data was collected as part of a USGS cooperative study with the Geauga County Planning Commission and the Board of County Commissioners. Measurements from 34 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 ± 5 ft. Water levels known to have been measured after a well had been recently pumped are designated with an asterisk (*).



PROJECT DATA

Ground-Water Data for Geauga County, Ohio

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 located in pit, 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.

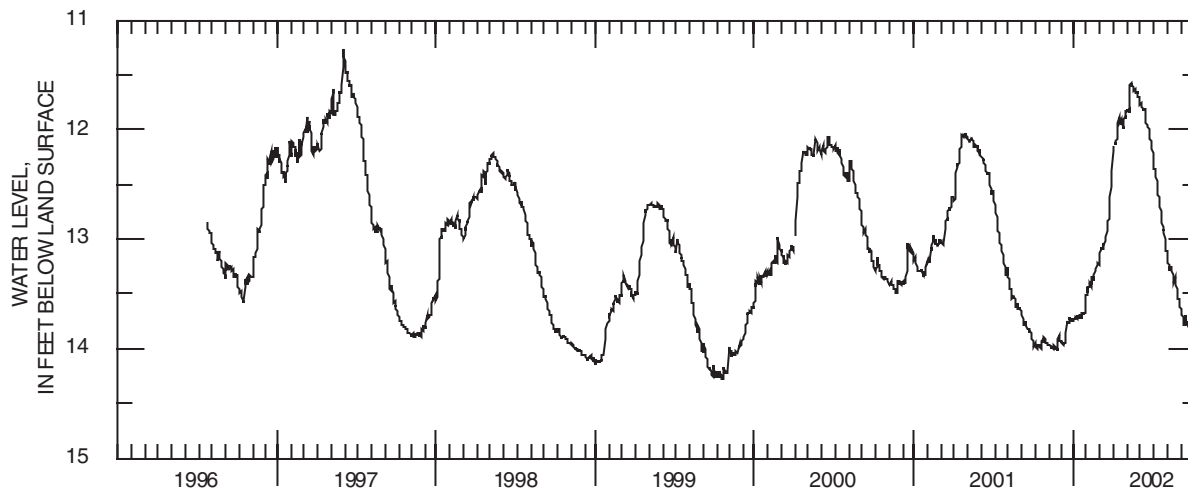
PERIOD OF RECORD.—Periodic water-level measurements from June 8, 1978 through September 8, 1994. Continuous water-level data from July 24, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.26 ft below land-surface datum, June 2, 1997; lowest measured, 14.34 ft below land-surface datum, Nov. 12, 1980.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.93	13.95	13.92	13.75	13.51	13.24	12.40	11.90	11.70	12.15	13.02	13.55
2	13.95	13.95	13.92	13.75	13.51	13.19	12.37	11.83	11.77	12.17	13.07	13.55
3	13.97	13.94	13.93	13.73	13.43	13.12	12.20	11.83	11.78	12.21	13.10	13.56
4	13.98	13.95	13.93	13.73	13.50	13.13	12.19	11.82	11.77	12.25	13.11	13.60
5	13.98	13.96	13.94	13.73	13.49	13.13	12.15	11.82	11.78	12.29	13.12	13.61
6	13.95	13.96	13.93	13.71	13.44	13.09	12.16	11.80	11.75	12.32	13.16	13.64
7	13.97	13.96	13.95	13.73	13.43	13.09	---	11.83	11.77	12.35	13.19	13.67
8	13.98	13.97	13.94	13.72	13.44	13.09	12.12	11.82	11.77	12.36	13.22	13.69
9	13.99	13.96	13.96	13.71	13.44	13.07	12.13	11.81	11.79	12.36	13.23	13.70
10	14.00	13.97	13.95	13.72	13.40	13.09	12.13	11.85	11.80	12.37	13.26	13.71
11	14.01	13.99	13.97	13.70	13.43	13.08	12.10	11.85	11.80	12.41	13.28	13.75
12	13.98	14.00	13.95	13.70	13.39	13.04	12.08	11.78	11.82	12.43	13.28	13.76
13	13.96	13.99	13.95	13.71	13.42	13.04	12.07	11.59	11.82	12.47	13.25	13.78
14	13.96	13.99	13.94	13.71	13.40	13.05	12.03	11.57	11.81	12.51	13.26	13.78
15	13.99	13.99	13.92	13.71	13.35	13.02	11.93	11.60	11.81	12.54	13.27	13.69
16	13.98	14.01	13.90	13.72	13.35	13.01	11.89	11.59	11.85	12.59	13.28	13.72
17	13.96	14.01	13.85	13.70	13.38	13.00	11.91	11.57	11.89	12.61	13.29	13.74
18	13.97	14.01	13.74	13.70	13.38	12.99	11.93	11.59	11.91	12.64	13.33	13.75
19	13.99	14.00	13.74	13.70	13.33	12.98	11.94	11.60	11.94	12.67	13.33	13.76
20	14.00	13.96	13.75	13.71	13.28	12.92	11.94	11.62	11.96	12.71	13.37	13.76
21	14.00	13.99	13.77	13.72	13.29	12.89	11.91	11.63	11.96	12.74	13.39	13.75
22	13.93	14.00	13.77	13.73	13.29	12.89	11.95	11.64	11.95	12.76	13.40	13.78
23	13.93	14.01	13.71	13.67	13.28	12.85	11.95	11.62	11.97	12.76	13.35	13.79
24	13.92	14.01	13.72	13.68	13.27	12.84	11.93	11.67	11.99	12.80	13.37	13.82
25	13.92	14.01	13.73	13.69	13.23	12.81	11.97	11.67	12.01	12.83	13.40	13.82
26	13.94	14.00	13.72	13.68	13.22	12.77	11.99	11.67	12.02	12.86	13.42	13.81
27	13.89	14.00	13.72	13.68	13.22	12.69	11.99	11.67	12.03	12.88	13.46	13.80
28	13.92	14.02	13.73	13.68	13.22	12.62	11.90	11.67	12.08	12.92	13.48	13.78
29	13.94	13.92	13.75	13.68	---	12.53	11.91	11.65	12.11	12.91	13.49	13.80
30	13.95	13.88	13.74	13.61	---	12.46	11.89	11.67	12.12	12.95	13.52	13.81
31	13.94	---	13.74	13.60	---	12.45	---	11.70	---	12.99	13.54	---
MEAN	13.96	13.98	13.84	13.70	13.37	12.94	12.04	11.71	11.88	12.57	13.30	13.72
MAX	14.01	14.02	13.97	13.75	13.51	13.24	12.40	11.90	12.12	12.99	13.54	13.82
MIN	13.89	13.88	13.71	13.60	13.22	12.45	11.89	11.57	11.70	12.15	13.02	13.55

CAL YR 2001 MEAN 13.17 HIGH 12.03 LOW 14.02
WTR YR 2002 MEAN 13.09 HIGH 11.57 LOW 14.02



PROJECT DATA
Ground-Water Data for Geauga County, Ohio

279

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, 20.15 ft below land-surface datum, Nov. 13, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	20.15
01/15/02	19.62
03/19/02	19.47
05/21/02	18.33
07/30/02	18.94
09/23/02	20.14

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

DATE	WATER LEVEL
11/14/01	25.21
01/15/02	24.80
03/20/02	24.42
05/22/02	24.34
07/31/02	24.71
09/24/02	25.21*

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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, 47.45* ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/01	46.09
01/16/02	46.47
03/19/02	46.53*
05/22/02	46.08*
07/31/02	45.74
09/24/02	47.45*

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

DATE	WATER LEVEL
11/13/01	24.64
01/16/02	23.73
03/20/02	22.93
05/22/02	22.02*
07/30/02	24.65*
09/23/02	25.46

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

281

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, 92.59 ft below land-surface datum, May 22, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	92.39
01/16/02	92.26
03/20/02	91.95
05/22/02	92.59
07/30/02	92.15
09/23/02	92.39

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

DATE	WATER LEVEL
11/13/01	36.42
01/16/02	36.74
03/20/02	36.22
05/21/02	36.34
07/30/02	36.14
06/23/02	36.61

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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

DATE	WATER LEVEL
11/13/01	49.42
01/15/02	50.61
03/20/02	49.43
05/21/02	48.75
07/30/02	49.45
09/23/02	49.60

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, 16.35* ft below land-surface datum, Nov. 13, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	16.35*
01/15/02	15.43*
03/19/02	14.80
05/21/02	14.17
07/30/02	14.32
09/23/02	15.17

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

283

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

DATE	WATER LEVEL
11/13/01	19.02*
01/15/02	19.28*
03/19/02	19.44*
05/21/02	17.89*
07/30/02	20.15*
09/23/02	20.08

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, 32.85 ft below land-surface datum, May 14, 1997; lowest measured, 39.94 ft below land-surface datum, Oct. 26, 1999.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	38.85
01/15/02	37.12
03/19/02	35.69
05/21/02	34.23
07/30/02	36.46
09/23/02	38.45

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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, 1.55 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

DATE	WATER LEVEL
05/22/02	29.07
07/31/02	30.33

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

DATE	WATER LEVEL
11/13/01	16.83
01/15/02	15.79
03/19/02	15.39
05/21/02	14.84
07/30/02	16.02
09/23/02	17.11

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

285

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, 51.65 ft below land-surface datum, Sept. 23, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	48.91
01/15/02	45.89
03/19/02	45.11
05/21/02	44.46
07/30/02	49.66
09/23/02	51.65

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, 37.19 ft below land-surface datum, Dec. 15, 1998.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	35.41
01/16/02	34.50
03/20/02	34.06
05/22/02	33.02
07/30/02	35.20
09/23/02	35.97

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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

DATE	WATER LEVEL
11/13/01	30.77
01/16/02	30.76
03/20/02	30.05
05/21/02	30.00
07/30/02	30.31
09/23/02	30.77

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, 51.32 ft below land surface datum, May 14, 1997; lowest measured, 55.82* ft below land-surface datum, Jan. 15, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/01	53.86
01/15/02	55.82*
03/20/02	53.00
05/22/02	53.03
07/31/02	52.65
09/24/02	52.98

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

287

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

DATE	WATER LEVEL
11/13/01	41.64
01/16/02	42.55
03/20/02	41.41*
05/22/02	40.66
07/30/02	40.07
09/23/02	40.48

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, 32.26 ft below land-surface datum, Apr. 20, 1998; lowest measured, 35.96 ft below land-surface datum, Dec. 14, 1998.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	35.27*
01/15/02	34.90
03/20/02	33.78
05/21/02	33.39
07/30/02	34.45
09/23/02	35.11

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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

DATE	WATER LEVEL
11/14/01	62.94*
01/15/02	63.15
03/20/02	62.73
05/22/02	62.20
07/31/02	62.49
09/24/02	62.60

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

DATE	WATER LEVEL
11/14/01	26.18
01/15/02	25.59
03/20/02	24.91
05/22/02	24.85
07/31/02	27.26
09/24/02	27.74

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

289

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

DATE	WATER LEVEL
11/14/01	35.87
01/16/02	36.10
03/20/02	35.55
05/22/02	35.25
07/31/02	35.55
09/24/02	35.88

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, 58.84 ft below land-surface datum, Sept. 8, 1994; lowest measured, 73.29 ft below land-surface datum, Jan. 22, 1997.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/01	60.12
01/16/02	60.83
03/20/02	59.60
05/22/02	59.34
07/31/02	63.05
09/24/02	61.95

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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

DATE	WATER LEVEL
11/13/01	7.60
01/16/02	6.47
03/20/02	5.24
05/21/02	4.93
07/30/02	7.91*
09/23/02	9.12*

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, 1.60 ft above land-surface datum.

PERIOD OF RECORD.—September 7, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 69.40 ft below land-surface datum, May 14, 1997; lowest measured, 72.93 ft below land-surface datum, Sept. 7, 1994.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/01	72.03
01/16/02	70.70
03/20/02	69.41
05/21/02	69.67
07/30/02	70.94
09/23/02	72.63

PROJECT DATA
Ground-Water Data for Geauga County, Ohio

291

414125081031500. LOCAL NUMBER, GE-348

LOCATION.—Latitude 41°41'25", longitude 81°03'15", Geauga County, 66506 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.—Pressure transducer and CR10 data logger (records hourly) with SM192 storage module. Instrumentation 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.

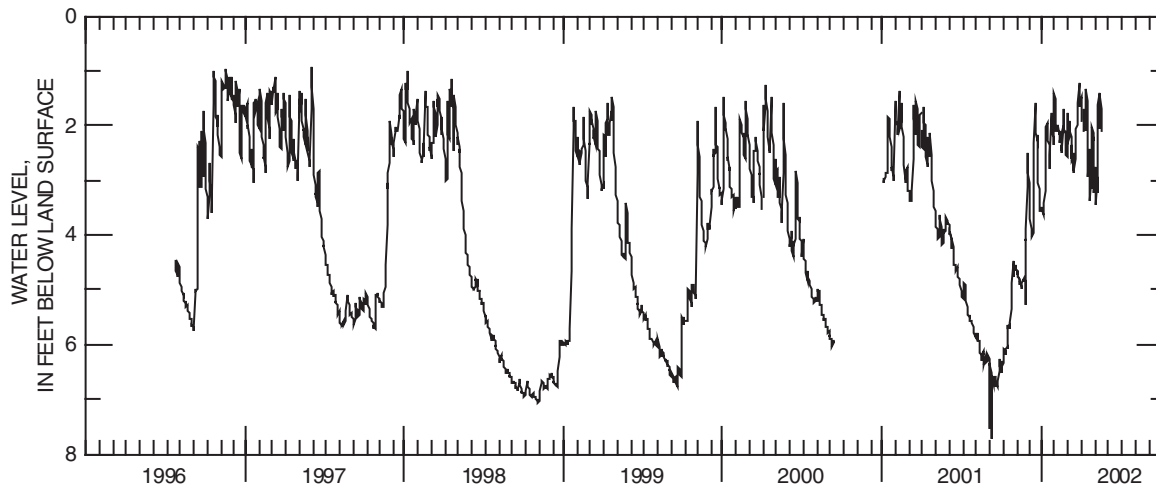
PERIOD OF RECORD.—July 23, 1996 to current year.

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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.34	4.76	2.51	3.55	1.39	2.56	1.66	2.26	---	---	---	---
2	6.30	4.61	2.66	3.57	1.50	2.33	1.59	2.21	---	---	---	---
3	6.34	4.61	2.86	3.49	1.62	1.77	1.46	2.43	---	---	---	---
4	6.53	4.53	3.06	3.50	2.01	2.13	1.53	3.21	---	---	---	---
5	6.42	4.65	3.10	3.62	2.00	2.30	1.68	2.74	---	---	---	---
6	6.32	4.62	3.36	3.50	2.11	2.20	1.91	2.91	---	---	---	---
7	6.10	4.66	3.46	3.50	2.11	1.91	---	3.44	---	---	---	---
8	6.13	4.71	3.69	3.50	2.11	2.00	2.09	3.44	---	---	---	---
9	6.09	4.66	3.87	3.39	2.11	2.04	1.77	2.92	---	---	---	---
10	6.12	4.77	3.90	3.20	2.00	2.08	1.71	3.17	---	---	---	---
11	6.18	4.79	3.97	2.23	2.17	2.22	1.88	3.24	---	---	---	---
12	6.12	4.92	3.95	2.01	2.08	2.62	2.11	3.12	---	---	---	---
13	6.07	4.92	4.03	2.03	2.25	2.33	2.02	1.61	---	---	---	---
14	6.04	4.86	3.97	2.03	2.30	2.64	1.45	1.40	---	---	---	---
15	6.07	4.83	2.79	1.96	2.26	2.55	1.33	1.67	---	---	---	---
16	5.93	4.93	2.43	1.99	2.13	2.85	1.54	2.07	---	---	---	---
17	5.79	4.97	2.30	2.15	2.51	2.51	1.84	1.60	---	---	---	---
18	5.65	4.98	1.57	2.27	2.35	2.70	2.02	1.44	---	---	---	---
19	5.68	5.00	1.73	2.36	2.45	2.81	2.30	1.71	---	---	---	---
20	5.65	4.87	1.98	2.50	1.97	2.59	2.92	2.10	---	---	---	---
21	5.72	4.79	2.12	2.74	1.68	2.26	2.42	---	---	---	---	---
22	5.63	4.79	2.27	2.78	1.86	2.15	2.69	---	---	---	---	---
23	5.61	4.84	2.18	2.54	1.97	2.17	3.38	---	---	---	---	6.81
24	5.34	4.84	2.27	1.76	2.05	2.04	3.36	---	---	---	---	---
25	5.25	4.84	2.48	1.86	2.12	1.98	2.89	---	---	---	---	---
26	5.10	5.28	2.77	2.03	2.08	1.91	3.03	---	---	---	---	---
27	4.89	4.08	3.03	2.12	2.33	1.76	3.15	---	---	---	---	---
28	4.48	4.09	3.14	2.20	2.52	1.57	2.91	---	---	---	---	---
29	4.46	3.88	3.37	2.33	---	1.22	2.01	---	---	5.71	---	---
30	4.46	3.12	3.47	2.04	---	1.28	2.13	---	---	---	---	---
31	4.64	---	3.54	1.43	---	1.48	---	---	---	---	---	---
MEAN	5.72	4.67	2.96	2.59	2.07	2.16	2.16	2.43	---	---	---	---
MAX	6.53	5.28	4.03	3.62	2.52	2.85	3.38	3.44	---	---	---	---
MIN	4.46	3.12	1.57	1.43	1.39	1.22	1.33	1.40	---	---	---	---

CAL YR 2001 MEAN 4.14 HIGH 1.37 LOW 7.74
WTR YR 2002 MEAN 3.14 HIGH 1.22 LOW 6.81



PROJECT DATA

Ground-Water Data for Geauga County, Ohio

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.

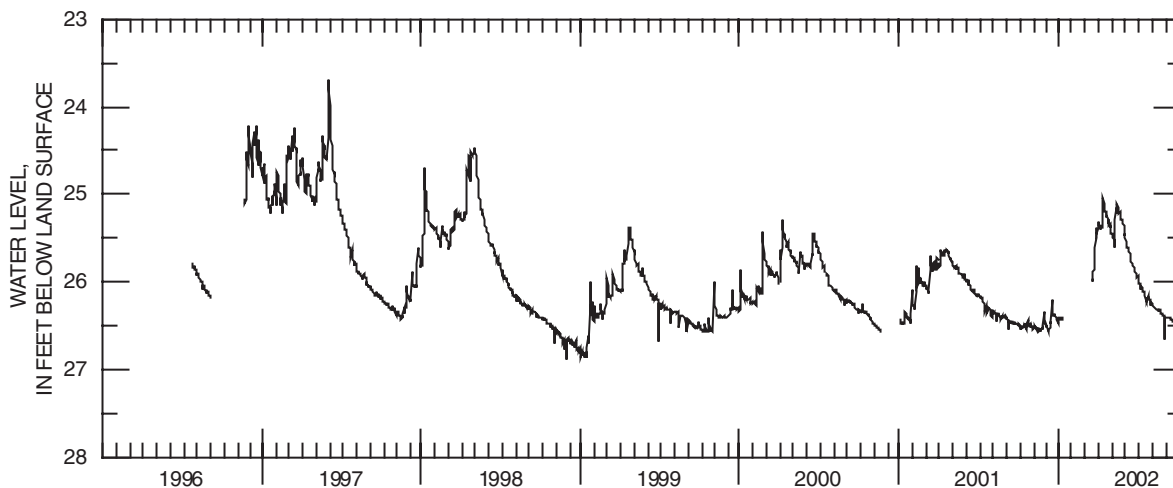
DATUM.—Elevation of land-surface datum is 1,190 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 1.05 ft above land-surface datum.

PERIOD OF RECORD.—July 24, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 23.68 ft below land-surface datum, June 3, 1997; lowest measured, 26.89 ft below land-surface datum, Nov. 30, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.50	26.49	26.45	26.47	---	---	25.46	25.37	25.35	25.93	26.20	26.38
2	26.50	26.50	26.47	26.42	---	---	25.44	25.35	25.44	25.95	26.27	26.38
3	26.50	26.52	26.48	26.41	---	---	25.37	25.43	25.47	25.94	26.23	26.39
4	26.51	26.51	26.50	26.41	---	---	25.31	25.44	25.46	25.96	26.25	26.66
5	26.49	26.53	26.50	26.42	---	---	25.32	25.45	25.50	25.98	26.24	26.40
6	26.50	26.54	26.51	26.41	---	---	25.36	25.45	25.53	25.99	26.24	26.41
7	26.54	26.52	26.52	26.43	---	---	---	25.48	25.57	26.03	26.28	26.42
8	26.54	26.53	26.51	26.43	---	---	25.35	25.50	25.58	26.02	26.27	26.41
9	26.52	26.52	26.56	26.43	---	---	25.37	25.51	25.61	26.03	26.30	26.41
10	26.53	26.50	26.55	26.43	---	---	25.40	25.58	25.62	26.04	26.30	26.41
11	26.52	26.54	26.54	26.41	---	---	25.39	25.60	25.61	26.09	26.30	26.42
12	26.50	26.54	26.54	26.40	---	---	25.37	25.54	25.64	26.04	26.30	26.42
13	26.52	26.53	26.54	26.41	---	---	25.27	25.29	25.66	26.06	26.30	26.42
14	26.51	26.52	26.52	26.41	---	---	25.17	25.16	25.65	26.10	26.32	26.42
15	26.53	26.53	26.45	---	---	---	25.05	25.22	25.67	26.09	26.31	26.42
16	26.52	26.54	26.48	---	---	---	25.11	25.21	25.70	26.12	26.32	26.42
17	26.49	26.54	26.45	---	---	---	25.13	25.14	25.73	26.11	26.32	26.43
18	26.52	26.56	26.20	---	---	---	25.15	25.10	25.76	26.15	26.32	26.43
19	26.51	26.53	26.32	---	---	---	25.18	25.15	25.77	26.17	26.33	26.43
20	26.54	26.56	26.36	---	---	---	25.20	25.18	25.79	26.17	26.34	26.43
21	26.54	26.54	26.39	---	---	25.97	25.20	25.21	25.80	26.23	26.33	26.43
22	26.53	26.56	26.39	---	---	25.99	25.23	25.23	25.81	26.18	26.33	26.44
23	26.48	26.55	26.37	---	---	25.96	25.26	25.21	25.82	26.18	26.33	26.45
24	26.44	26.55	26.36	---	---	25.89	25.25	25.25	25.84	26.19	26.35	26.45
25	26.47	26.53	26.39	---	---	25.87	25.28	25.27	25.83	26.18	26.35	26.45
26	26.50	26.52	26.38	---	---	25.85	25.31	25.26	25.83	26.22	26.36	26.43
27	26.50	26.54	26.38	---	---	25.71	25.33	25.30	25.85	26.17	26.37	26.42
28	26.47	26.55	26.40	---	---	25.62	25.29	25.29	25.89	26.21	26.36	26.44
29	26.49	26.50	26.41	---	---	25.49	25.36	25.31	25.91	26.18	26.36	26.44
30	26.53	26.35	26.42	---	---	25.38	25.34	25.31	25.94	26.20	26.37	26.44
31	26.49	---	26.43	---	---	25.41	---	25.33	---	26.21	26.38	---
MEAN	26.51	26.52	26.44	26.42	---	25.74	25.28	25.33	25.69	26.10	26.31	26.43
MAX	26.54	26.56	26.56	26.47	---	25.99	25.46	25.60	25.94	26.23	26.38	26.66
MIN	26.44	26.35	26.20	26.40	---	25.38	25.05	25.10	25.35	25.93	26.20	26.38
CAL YR 2001	MEAN 26.22	HIGH 25.63	LOW 26.56									
WTR YR 2002	MEAN 26.08	HIGH 25.05	LOW 26.66									



PROJECT DATA
Ground-Water Data for Geauga County, Ohio

293

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.

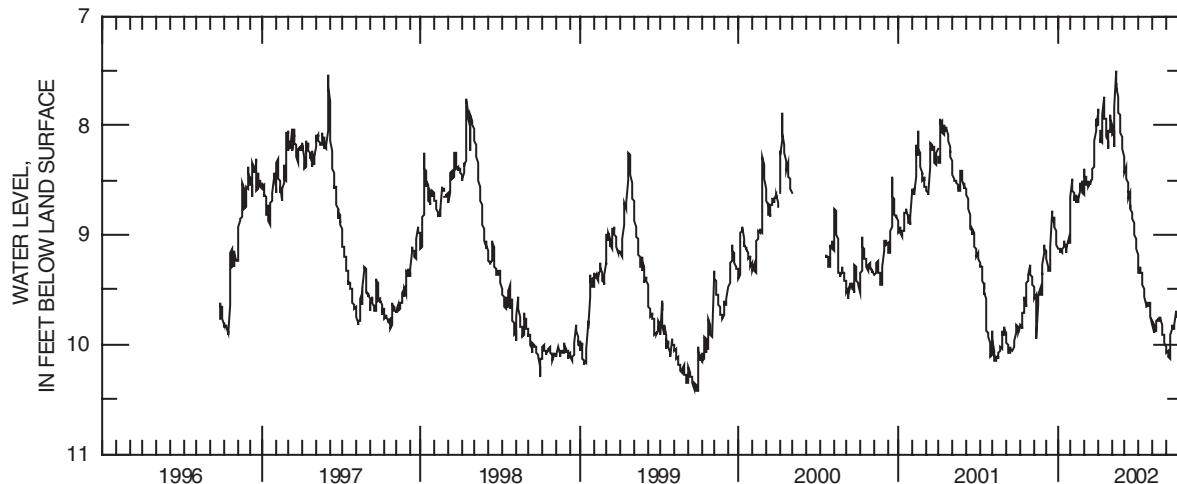
PERIOD OF RECORD.—September 26, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 7.50 ft below land-surface datum, May 14, 2002; lowest measured, 10.41 ft below land-surface datum, Sept. 27, 1999.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.84	9.37	9.09	9.13	8.65	8.64	8.01	8.07	8.28	9.09	9.62	9.91
2	9.87	9.37	9.10	9.13	8.51	8.63	8.01	8.03	8.38	9.13	9.65	9.92
3	9.88	9.38	9.12	9.12	8.49	8.40	7.88	7.90	8.41	9.18	9.74	9.95
4	9.89	9.38	9.15	9.13	8.58	8.44	7.84	7.94	8.41	9.19	9.81	9.97
5	9.90	9.41	9.16	9.13	8.59	8.47	7.89	7.99	8.43	9.25	9.81	9.99
6	9.84	9.46	9.17	9.13	8.59	8.46	8.00	8.00	8.37	9.32	9.78	10.02
7	9.81	9.47	9.21	9.16	8.61	8.50	---	8.07	8.40	9.35	9.79	10.06
8	9.83	9.51	9.22	9.16	8.66	8.50	8.04	8.09	8.44	9.34	9.79	10.07
9	9.83	9.58	9.28	9.15	8.68	8.50	8.11	8.07	8.49	9.34	9.83	10.07
10	9.84	9.58	9.29	9.16	8.67	8.54	8.15	8.17	8.52	9.30	9.85	10.06
11	9.85	9.55	9.33	9.12	8.68	8.54	8.14	8.20	8.62	9.34	9.89	10.08
12	9.84	9.57	9.33	9.12	8.64	8.51	8.15	8.16	8.60	9.34	9.89	10.09
13	9.71	9.57	9.33	9.12	8.70	8.51	8.15	7.82	8.66	9.34	9.88	10.12
14	9.71	9.83	9.33	9.12	8.70	8.55	8.12	7.50	8.67	9.38	9.88	10.13
15	9.69	9.95	9.17	9.10	8.66	8.53	7.91	7.62	8.62	9.44	9.87	9.97
16	9.69	9.64	9.16	9.11	8.65	8.54	7.74	7.68	8.70	9.46	9.85	9.92
17	9.57	9.59	9.10	9.06	8.70	8.54	7.79	7.61	8.76	9.50	9.79	9.91
18	9.56	9.59	8.77	9.09	8.70	8.52	7.84	7.64	8.72	9.53	9.77	9.91
19	9.58	9.57	8.77	9.09	8.67	8.53	7.92	7.73	8.76	9.53	9.77	9.91
20	9.63	9.54	8.81	9.11	8.60	8.49	7.93	7.80	8.79	9.57	9.78	9.85
21	9.65	9.50	8.86	9.12	8.53	8.42	7.94	7.86	8.81	9.63	9.78	9.81
22	9.59	9.51	8.88	9.16	8.55	8.42	8.03	7.89	8.83	9.66	9.78	9.84
23	9.44	9.54	8.83	9.12	8.55	8.39	8.09	7.91	8.86	9.66	9.78	9.85
24	9.42	9.54	8.86	9.06	8.55	8.40	8.10	7.99	8.88	---	9.75	9.86
25	9.38	9.54	8.89	9.07	8.53	8.38	8.13	8.02	8.92	9.62	9.76	9.86
26	9.39	9.36	8.89	9.07	8.51	8.35	8.19	8.02	8.92	9.62	9.77	9.86
27	9.36	9.35	8.92	9.07	8.56	8.22	8.21	8.07	8.94	9.63	9.81	9.83
28	9.27	9.37	8.96	9.07	8.61	8.14	8.15	8.10	8.99	9.65	9.82	9.70
29	9.30	9.27	9.03	9.06	---	8.05	8.04	8.15	9.03	9.63	9.84	9.74
30	9.32	9.16	9.05	9.03	---	7.93	8.04	8.16	9.06	9.62	9.87	9.74
31	9.33	---	9.08	8.91	---	7.95	---	8.21	---	9.61	9.91	---
MEAN	9.64	9.50	9.07	9.10	8.61	8.42	8.02	7.95	8.68	9.44	9.80	9.93
MAX	9.90	9.95	9.33	9.16	8.70	8.64	8.21	8.21	9.06	9.66	9.91	10.13
MIN	9.27	9.16	8.77	8.91	8.49	7.93	7.74	7.50	8.28	9.09	9.62	9.70

CAL YR 2001 MEAN 9.08 HIGH 7.94 LOW 10.15
WTR YR 2002 MEAN 9.02 HIGH 7.50 LOW 10.13



PROJECT DATA
Ground-Water Data for Geauga County, Ohio

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.

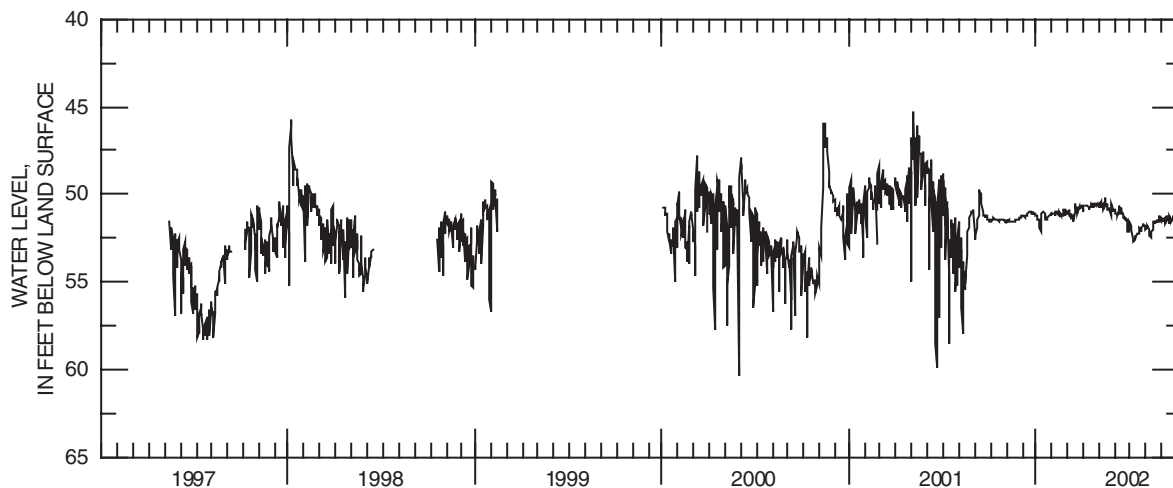
PERIOD OF RECORD.—May 15, 1997 through February 16, 1999, and January 6, 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 45.27 ft below land-surface datum, May 8, 2001; lowest measured, 60.33 ft below land-surface datum, May 31, 2000.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.49	51.50	51.30	51.17	51.15	51.18	50.63	50.53	50.86	52.13	51.74	51.26
2	51.50	51.52	51.35	51.18	51.18	51.14	50.69	50.56	51.01	52.17	51.80	51.41
3	51.54	51.49	51.36	51.21	51.13	51.08	50.66	50.63	51.01	51.96	51.82	51.55
4	51.55	51.48	51.29	51.26	51.08	51.07	50.83	50.64	50.85	51.82	51.81	51.55
5	51.53	51.52	51.28	51.27	51.08	50.96	50.94	50.56	50.90	51.70	51.97	51.45
6	51.45	51.55	51.24	51.30	51.13	50.99	50.85	50.78	51.01	51.59	51.99	51.31
7	51.50	51.51	51.22	51.48	51.13	51.08	---	50.79	51.13	51.77	51.96	51.49
8	51.52	51.49	51.23	51.48	51.13	51.05	50.66	50.71	51.13	51.94	51.86	51.61
9	51.50	51.52	51.23	51.59	51.25	50.90	50.67	50.47	51.07	51.99	51.82	51.61
10	51.50	51.49	51.24	51.93	51.25	51.25	50.64	50.68	51.11	52.60	51.81	51.47
11	51.49	51.58	51.32	52.09	51.06	51.29	50.65	50.74	51.18	52.62	52.05	51.32
12	51.45	51.58	51.33	51.97	50.97	51.08	50.66	50.67	51.23	52.74	52.10	51.47
13	51.38	51.58	51.31	51.54	51.07	51.34	50.64	50.57	50.89	52.75	52.37	51.63
14	51.39	51.58	51.27	51.16	51.08	51.32	50.65	50.81	50.61	52.61	52.52	51.63
15	51.43	51.59	51.27	51.05	51.20	51.22	50.76	50.84	50.92	52.38	52.53	51.48
16	51.44	51.53	51.28	51.02	51.21	51.20	50.90	50.61	51.11	52.49	52.45	51.23
17	51.43	51.52	51.22	50.97	51.04	51.57	50.89	50.24	51.10	52.48	52.19	51.30
18	51.44	51.54	51.08	51.01	51.05	51.52	50.79	50.57	50.78	52.30	52.08	51.52
19	51.42	51.53	51.06	51.12	51.20	50.94	50.63	50.61	51.01	52.30	51.84	51.64
20	51.44	51.54	51.03	51.29	51.22	50.56	50.80	50.60	51.13	52.27	51.61	51.58
21	51.56	51.54	51.04	51.28	51.15	50.53	50.79	50.58	51.15	52.24	51.52	51.26
22	51.58	51.49	51.06	51.39	51.10	50.77	50.54	50.54	51.09	52.23	51.60	51.22
23	51.56	51.49	51.05	51.39	51.20	50.82	50.61	50.82	51.30	52.10	51.64	51.42
24	51.51	51.43	51.06	51.44	51.20	51.06	50.77	50.90	51.38	51.93	51.62	51.54
25	51.50	51.40	51.05	51.45	51.13	51.10	50.73	50.87	51.41	51.88	51.61	51.53
26	51.47	51.48	51.09	51.30	50.91	51.07	50.57	50.77	51.44	52.07	51.56	51.36
27	51.47	51.48	51.09	51.26	50.93	50.81	50.55	50.92	51.32	52.17	51.49	51.18
28	51.47	51.43	51.06	51.26	51.15	50.91	50.49	51.19	51.30	52.16	51.55	51.33
29	51.44	51.43	51.07	51.23	---	50.87	50.64	51.19	51.46	51.97	51.57	51.37
30	51.50	51.34	51.10	51.20	---	50.79	50.65	50.86	51.47	51.83	51.53	51.37
31	51.51	---	51.14	51.16	---	50.79	---	50.49	---	51.64	51.41	---
MEAN	51.48	51.51	51.18	51.34	51.12	51.04	50.70	50.70	51.11	52.16	51.85	51.44
MAX	51.58	51.59	51.36	52.09	51.25	51.57	50.94	51.19	51.47	52.75	52.53	51.64
MIN	51.38	51.34	51.03	50.97	50.91	50.53	50.49	50.24	50.61	51.59	51.41	51.18

CAL YR 2001 MEAN 50.95 HIGH 45.27 LOW 59.96
WTR YR 2002 MEAN 51.31 HIGH 50.24 LOW 52.75



PROJECT DATA
Ground-Water Data for Geauga County, Ohio

295

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.

INSTRUMENTATIO.—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.

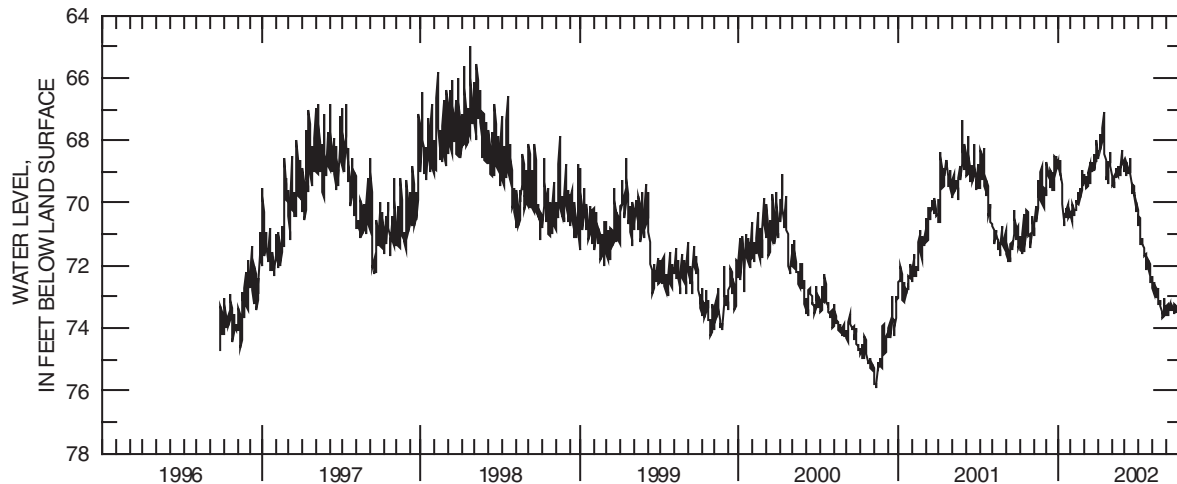
PERIOD OF RECORD.—September 25, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 64.96 ft below land-surface datum, Apr. 26, 1998; lowest measured, 75.90 ft below land-surface datum, Nov. 11, 2000.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70.74	71.46	70.15	68.68	70.37	69.31	68.26	68.34	68.61	70.05	72.03	73.61
2	71.00	71.35	70.05	68.86	70.60	69.13	68.01	68.55	68.91	69.93	72.26	73.10
3	71.19	70.93	69.55	68.88	70.40	69.12	68.52	68.55	69.04	70.20	72.51	73.05
4	71.39	70.52	69.60	68.83	70.19	69.09	68.50	68.81	68.87	70.45	72.55	73.36
5	71.43	70.44	69.77	69.08	70.18	69.19	68.30	69.16	68.84	70.71	72.36	73.56
6	71.23	70.61	69.69	69.07	70.03	69.52	68.53	69.16	68.73	70.70	72.31	73.57
7	71.05	70.81	69.19	68.61	70.23	69.53	---	69.28	69.12	70.40	72.61	73.58
8	71.35	71.01	68.69	68.76	70.25	69.30	68.18	69.42	69.12	70.49	72.75	73.46
9	71.47	71.05	69.00	69.03	70.41	69.12	67.81	69.40	68.71	70.70	72.88	73.30
10	71.56	70.66	69.16	69.38	70.25	69.51	68.18	69.41	68.87	71.05	72.88	73.26
11	71.62	70.07	69.11	69.41	70.21	69.47	68.29	69.50	69.05	71.25	72.69	73.52
12	71.47	70.33	69.13	69.41	70.15	69.00	68.05	69.49	69.03	71.30	72.52	73.59
13	70.96	70.46	69.12	69.90	69.89	69.06	67.94	69.12	68.85	71.32	72.61	73.43
14	70.33	70.60	69.28	70.06	69.90	69.03	67.97	69.00	69.02	71.17	72.73	73.22
15	70.75	70.58	69.50	70.59	70.00	68.77	67.58	69.22	69.01	71.10	72.88	73.38
16	70.77	70.16	69.38	70.76	70.01	69.40	67.07	69.08	68.57	71.32	73.00	73.43
17	71.31	69.78	68.93	70.46	69.66	69.41	67.64	68.90	68.85	71.42	73.01	73.29
18	71.55	69.27	69.08	70.37	69.97	68.80	68.01	69.04	68.85	71.50	72.75	73.33
19	71.46	69.30	69.04	70.42	69.99	68.69	67.99	69.14	69.07	71.61	72.82	73.42
20	70.97	69.75	69.03	70.49	69.65	68.99	68.40	68.96	69.48	71.72	73.11	73.39
21	70.47	69.88	69.57	70.16	69.64	69.01	68.63	68.80	69.74	71.65	73.19	73.32
22	70.24	69.88	69.57	70.24	69.51	68.77	69.16	69.01	69.74	71.62	73.22	73.35
23	70.23	69.52	69.06	70.20	69.68	68.69	69.27	69.07	69.38	71.99	73.23	73.30
24	70.28	69.01	69.05	70.03	69.82	68.93	69.19	68.80	69.44	72.17	73.17	73.44
25	70.59	68.84	69.07	70.23	69.59	68.92	69.07	68.89	69.71	72.16	73.09	73.52
26	70.81	69.28	68.75	70.47	68.93	68.44	69.26	69.14	69.79	71.83	73.29	73.52
27	71.03	69.58	68.52	70.45	69.33	68.89	69.36	68.95	69.62	72.08	73.51	73.25
28	71.02	69.93	68.57	70.35	69.46	68.92	68.86	68.28	69.75	72.06	73.56	73.30
29	71.23	70.03	68.50	70.32	---	68.56	68.71	68.42	70.18	71.92	73.49	73.46
30	71.43	70.15	68.93	70.49	---	68.58	68.67	68.72	70.29	71.81	73.56	73.46
31	71.43	---	68.94	70.34	---	68.66	---	68.77	---	71.95	73.68	---
MEAN	71.04	70.17	69.19	69.82	69.94	69.03	68.39	68.98	69.21	71.28	72.91	73.39
MAX	71.62	71.46	70.15	70.76	70.60	69.53	69.36	69.50	70.29	72.17	73.68	73.61
MIN	70.23	68.84	68.50	68.61	68.93	68.44	67.07	68.28	68.57	69.93	72.03	73.05

CAL YR 2001 MEAN 70.35 HIGH 67.35 LOW 73.15
WTR YR 2002 MEAN 70.29 HIGH 67.07 LOW 73.68



PROJECT DATA

Ground-Water Data for Geauga County, Ohio

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).

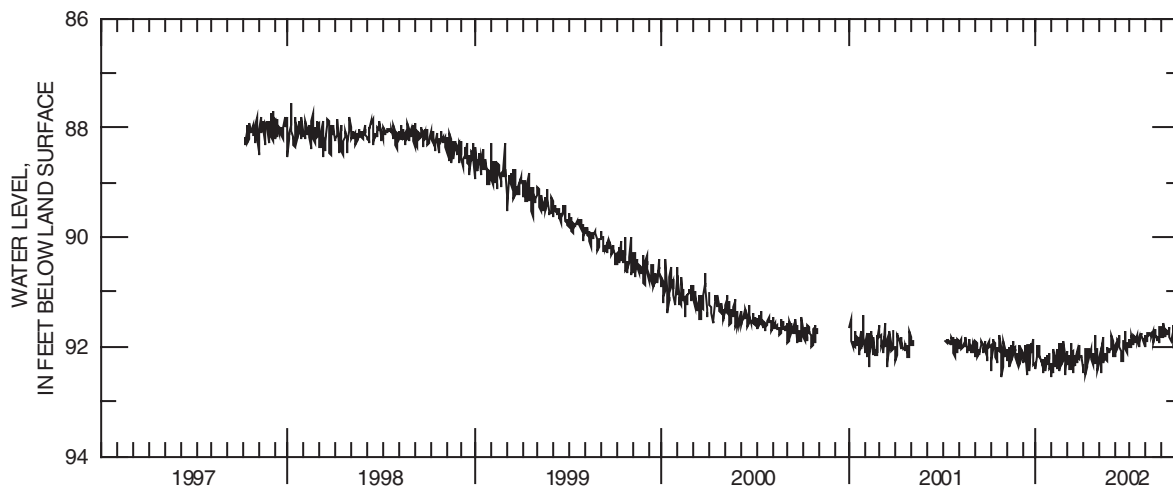
DATUM.—Elevation of land-surface datum is 1,275 ft above sea level. Measuring point: mark on wooden base of instrument shelter, 4.15 ft above land-surface datum.

PERIOD OF RECORD.—October 7, 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 87.53 ft below land-surface datum, Jan. 8, 1998; lowest measured, 92.56 ft below land-surface datum, Oct. 28, 2001.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91.96	91.88	92.30	92.41	92.45	92.52	92.15	92.05	91.89	91.94	91.85	91.82
2	91.91	92.03	92.34	92.41	92.54	92.44	92.14	92.04	92.09	91.92	91.91	91.62
3	91.95	92.19	92.22	92.14	92.30	92.09	92.42	92.43	92.18	91.87	92.01	91.64
4	91.99	92.12	92.16	92.12	92.47	92.32	92.49	92.43	92.05	91.88	91.92	91.80
5	91.96	92.14	92.17	92.04	92.48	92.32	92.38	92.31	91.98	92.02	91.79	91.84
6	92.12	92.11	92.03	91.96	92.22	92.21	92.32	92.21	92.09	92.01	91.91	91.83
7	92.31	92.04	92.12	92.16	92.04	92.28	---	92.19	92.20	91.99	91.90	91.82
8	92.43	92.09	92.11	92.17	92.26	92.27	92.03	92.19	92.11	91.92	91.89	91.83
9	92.25	92.26	92.28	91.96	92.36	92.14	92.37	92.06	92.03	91.78	91.87	91.74
10	92.04	92.00	92.27	92.14	92.17	92.40	92.51	92.42	91.99	91.93	91.76	91.58
11	91.93	92.31	92.26	92.26	92.31	92.39	92.36	92.47	91.89	91.98	91.76	91.74
12	91.86	92.36	92.22	92.26	92.03	92.05	92.09	92.07	91.85	91.88	91.78	91.83
13	91.88	92.24	91.96	92.24	92.42	91.95	92.05	91.84	91.88	91.78	91.78	91.77
14	91.93	91.98	92.11	92.24	92.37	92.13	92.05	92.10	91.79	91.83	91.75	91.69
15	92.20	91.96	92.51	92.42	92.07	92.08	92.04	92.29	91.83	91.88	91.83	91.71
16	92.18	92.19	92.46	92.49	91.93	92.48	92.19	92.13	92.00	91.92	91.84	91.78
17	92.27	92.27	91.98	92.24	92.42	92.48	92.16	92.11	92.09	91.90	91.82	91.76
18	92.31	92.16	91.97	92.32	92.46	92.35	92.18	92.19	92.20	91.78	91.73	91.68
19	92.00	91.89	91.96	92.29	92.24	92.35	92.04	92.24	92.26	91.81	91.74	91.62
20	92.06	92.05	92.23	92.18	91.93	92.15	92.13	92.27	92.25	91.92	91.94	91.64
21	92.07	92.01	92.45	92.21	92.11	92.21	92.13	92.27	92.14	91.92	91.94	91.78
22	92.06	92.03	92.44	92.43	92.33	92.23	92.21	92.24	92.02	91.82	91.78	91.82
23	91.89	92.07	91.95	92.16	92.33	92.07	92.32	92.00	91.91	91.99	91.70	91.90
24	91.79	92.05	92.01	92.18	92.26	92.20	92.26	92.04	91.89	92.01	91.69	91.89
25	92.01	92.19	92.11	92.32	92.07	92.29	92.13	92.05	91.90	91.94	91.81	91.89
26	92.17	92.28	92.06	92.31	91.89	92.20	92.29	92.13	91.83	91.75	91.82	91.71
27	92.49	92.10	91.86	92.24	92.16	92.24	92.30	92.08	91.72	91.77	91.90	91.60
28	92.56	92.29	91.96	92.14	92.33	92.23	91.80	92.04	92.03	91.76	91.90	91.93
29	92.36	92.12	92.27	92.12	---	91.98	92.06	91.95	92.12	91.79	91.84	91.94
30	92.27	91.96	92.32	92.39	---	92.20	92.06	91.90	92.05	91.89	91.87	91.84
31	92.10	---	92.28	92.37	---	92.20	---	91.80	---	91.88	91.93	---
MEAN	92.11	92.11	92.17	92.24	92.25	92.24	92.20	92.15	92.01	91.89	91.84	91.77
MAX	92.56	92.36	92.51	92.49	92.54	92.52	92.51	92.47	92.26	92.02	92.01	91.94
MIN	91.79	91.88	91.86	91.96	91.89	91.95	91.80	91.80	91.72	91.75	91.69	91.58
CAL YR 2001	MEAN 92.02	HIGH 91.41	LOW 92.56									
WTR YR 2002	MEAN 92.08	HIGH 91.58	LOW 92.56									



PROJECT DATA
Ground-Water Data for Geauga County, Ohio

297

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, 13.08 ft below land-surface datum, May 22, 2002; lowest measured, 14.83 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
03/21/02	13.66
05/22/02	13.08
07/31/02	14.54
09/24/02	14.83

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, 23.09* ft below land-surface datum, May 22, 2002; lowest measured, 25.96 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
05/22/02	23.09*
07/31/02	25.35*
09/24/02	25.96

PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

The following tables contain daily maximum ground-water levels and temperature from three monitoring wells on former Air Force Plant 36 in Evendale, Ohio. These data were collected as part of a cooperative study with U.S. Air Force Aeronautical Systems Center headquartered at Wright-Patterson Air Force Base. The purpose of the study is to provide technical support for ongoing remedial actions at the plant.



PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

299

391411084264000. LOCAL NUMBER, AF-3S

LOCATION.—Latitude 39°14'11", longitude 84°26'40", Hamilton County, Hydrologic Unit 05090203.

AQUIFER.—Shallow part of glacial outwash. Geologic Unit 112OTSH.

WELL CHARACTERISTICS.—Drilled observation water well, depth 52.0 ft.

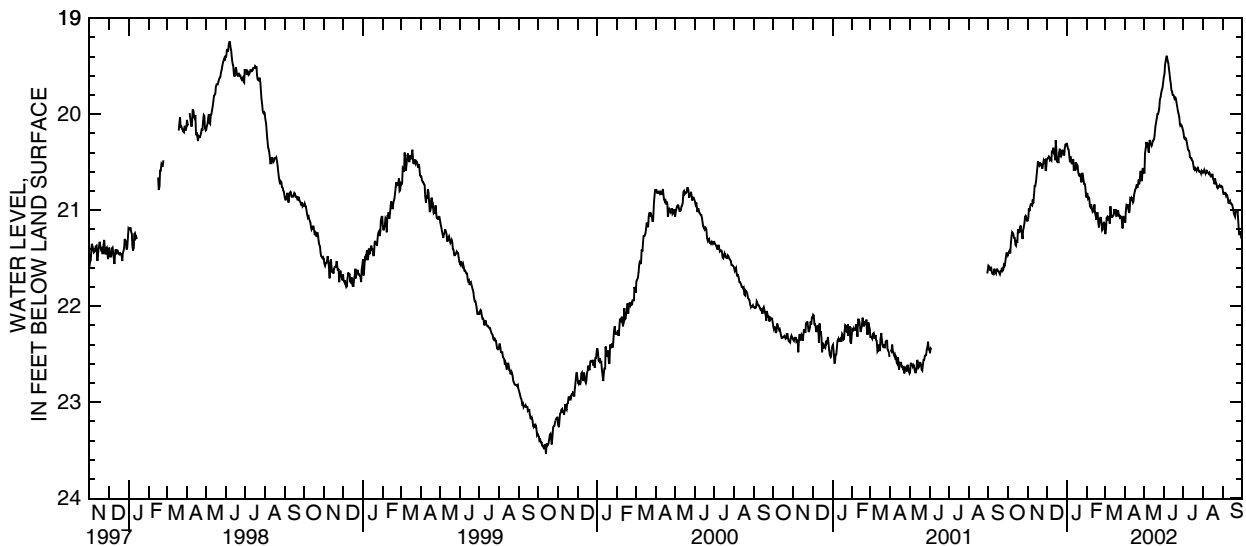
DATUM.—Altitude of land surface is 560.40 feet above National Geodetic Vertical Datum of 1929. Measuring point is top of inner casing, 1.94 ft above land-surface datum.

PERIOD OF RECORD.—Nov. 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 23.54 ft below land-surface datum, Oct. 13, 1999; minimum daily low, 19.25 ft below land-surface datum, June 7 and 8, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.47	21.11	20.47	20.30	20.86	21.14	21.09	20.61	19.62	20.17	20.61	20.79
2	21.45	21.08	20.46	20.34	20.82	21.25	21.13	20.61	19.58	20.21	20.60	20.83
3	21.43	20.98	20.46	20.36	20.88	21.20	21.01	20.41	19.49	20.25	20.58	20.83
4	21.42	21.01	20.44	20.37	20.87	21.08	20.95	20.35	19.45	20.26	20.60	20.82
5	21.45	20.96	20.45	20.45	20.87	21.07	20.96	20.29	19.40	20.25	20.62	20.82
6	21.34	20.94	20.48	20.50	20.96	21.09	20.94	20.32	19.40	20.26	20.60	20.85
7	21.27	20.94	20.47	20.44	20.97	21.07	20.99	20.30	19.44	20.30	20.59	20.84
8	21.23	20.95	20.48	20.50	20.94	21.07	21.03	20.38	19.47	20.34	20.60	20.85
9	21.24	20.89	20.39	20.52	20.98	21.14	21.00	20.40	19.52	20.37	20.61	20.89
10	21.26	20.93	20.39	20.49	21.01	20.96	20.88	20.27	19.57	20.38	20.62	20.93
11	21.29	20.83	20.35	20.47	21.00	21.05	20.89	20.29	19.65	20.40	20.61	20.91
12	21.29	20.75	20.41	20.59	21.02	21.07	20.87	20.31	19.68	20.45	20.63	20.90
13	21.36	20.75	20.42	20.54	20.94	21.07	20.88	20.33	19.75	20.46	20.65	20.93
14	21.37	20.70	20.48	20.59	21.02	21.06	20.92	20.31	19.77	20.46	20.65	20.93
15	21.31	20.65	20.27	20.50	21.06	21.05	20.91	20.28	19.80	20.48	20.63	20.94
16	21.34	20.58	20.40	20.55	21.10	20.99	20.84	20.27	19.80	20.49	20.63	20.95
17	21.20	20.49	20.50	20.53	21.03	21.03	20.80	20.26	19.82	20.53	20.68	20.99
18	21.23	20.51	20.46	20.54	21.03	20.99	20.78	20.22	19.84	20.57	20.69	21.03
19	21.23	20.53	20.51	20.61	21.13	21.06	20.76	20.13	19.83	20.58	20.73	21.05
20	21.19	20.50	20.40	20.64	21.18	21.06	20.73	20.09	19.85	20.56	20.67	21.07
21	21.16	20.53	20.36	20.64	21.12	21.02	20.77	20.04	19.88	20.57	20.71	21.02
22	21.22	20.52	20.43	20.62	21.08	21.00	20.73	20.00	19.93	20.59	20.73	21.02
23	21.24	20.53	20.44	20.69	21.08	21.05	20.68	20.00	19.97	20.57	20.76	21.01
24	21.30	20.57	20.42	20.71	21.13	21.07	20.73	19.97	19.99	20.56	20.77	21.01
25	21.21	20.52	20.37	20.61	21.21	21.05	20.65	19.94	20.03	20.58	20.75	21.08
26	21.18	20.48	20.40	20.64	21.20	21.09	20.59	19.85	20.10	20.60	20.75	21.23
27	21.13	20.49	20.40	20.68	21.14	21.06	20.69	19.82	20.12	20.60	20.74	21.26
28	21.07	20.48	20.43	20.73	21.13	21.13	20.69	19.78	20.11	20.60	20.76	21.22
29	21.06	20.59	20.35	20.73	---	21.19	20.57	19.75	20.12	20.62	20.76	21.26
30	21.08	20.57	20.31	20.76	---	21.06	20.57	19.72	20.14	20.59	20.75	21.30
31	21.11	---	20.33	20.86	---	21.09	---	19.68	---	20.60	20.76	---
MAX	21.47	21.11	20.51	20.86	21.21	21.25	21.13	20.61	20.14	20.62	20.77	21.30

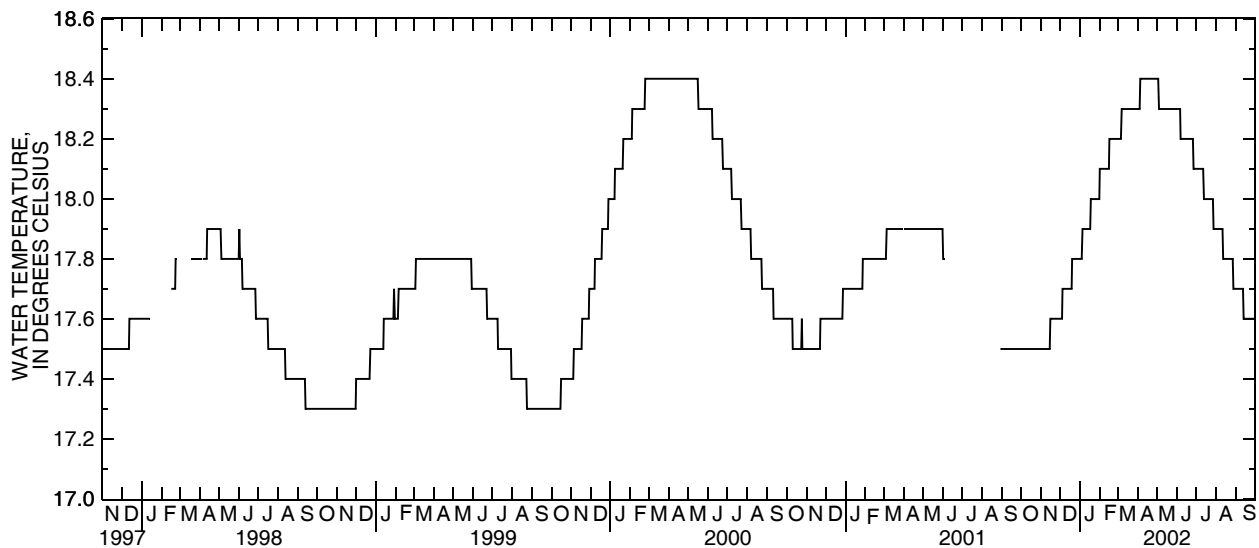


PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

391411084264000. LOCAL NUMBER, AF-3S—CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.5	17.5	17.6	17.8	18.1	18.2	18.3	18.4	18.3	18.1	17.9	17.7
2	17.5	17.5	17.6	17.8	18.1	18.2	18.3	18.4	18.3	18.1	17.9	17.7
3	17.5	17.5	17.6	17.8	18.1	18.2	18.3	18.4	18.3	18.1	17.9	17.7
4	17.5	17.5	17.6	17.8	18.1	18.2	18.3	18.3	18.3	18.1	17.9	17.7
5	17.5	17.5	17.7	17.9	18.1	18.2	18.4	18.3	18.3	18.1	17.9	17.7
6	17.5	17.5	17.7	17.9	18.1	18.2	18.4	18.3	18.3	18.1	17.9	17.7
7	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.9	17.7
8	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.9	17.7
9	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.9	17.7
10	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.9	17.7
11	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.9	17.7
12	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.1	17.8	17.7
13	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.0	17.8	17.6
14	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.0	17.8	17.6
15	17.5	17.5	17.7	17.9	18.1	18.3	18.4	18.3	18.2	18.0	17.8	17.6
16	17.5	17.6	17.7	17.9	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
17	17.5	17.6	17.7	17.9	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
18	17.5	17.6	17.7	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
19	17.5	17.6	17.7	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
20	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
21	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
22	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
23	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
24	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
25	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
26	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.2	18.0	17.8	17.6
27	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.1	18.0	17.8	17.6
28	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.3	18.1	17.9	17.7	17.6
29	17.5	17.6	17.8	18.0	---	18.3	18.4	18.3	18.1	17.9	17.7	17.6
30	17.5	17.6	17.8	18.0	---	18.3	18.4	18.3	18.1	17.9	17.7	17.6
31	17.5	---	17.8	18.0	---	18.3	---	18.3	---	17.9	17.7	---
MAX	17.5	17.6	17.8	18.0	18.2	18.3	18.4	18.4	18.3	18.1	17.9	17.7



PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

301

391408084264101. LOCAL NUMBER, AF-5P

LOCATION.—Latitude 39°14'08", longitude 84°26'41", Hamilton County, Hydrologic Unit 05090203.

AQUIFER.—Perched part of glacial outwash. Geologic Unit 112OTSH.

WELL CHARACTERISTICS.—Drilled observation water well, depth 33.0 ft.

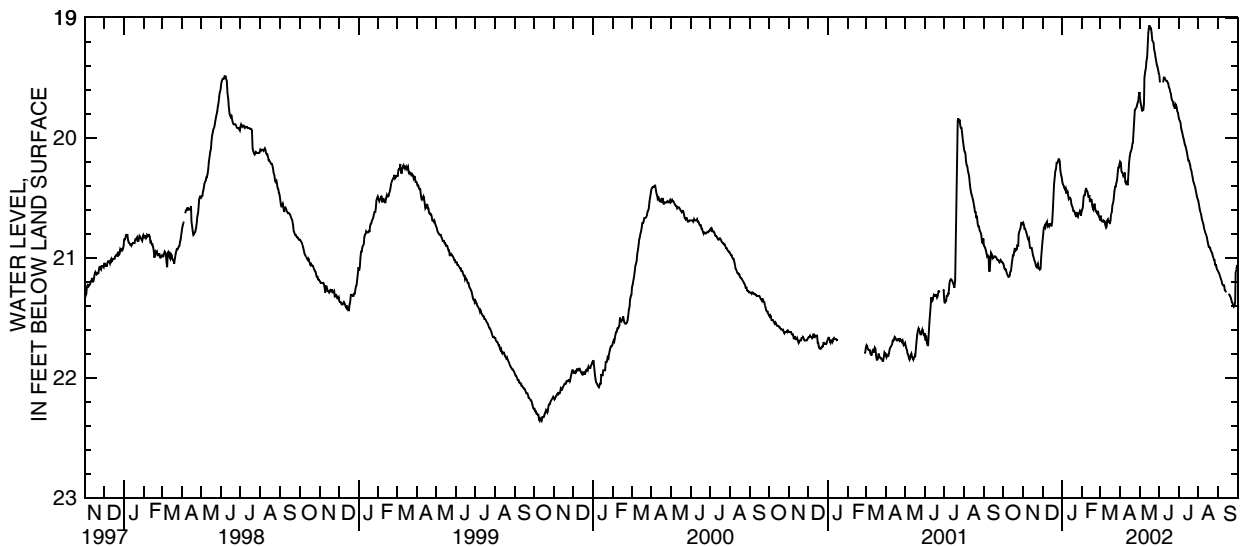
DATUM.—Altitude of land surface is 559.90 feet above National Geodetic Vertical Datum of 1929. Measuring point is top of inner casing, 1.34 ft above land-surface datum.

PERIOD OF RECORD.—Nov. 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 22.36 ft. below land-surface datum, Oct. 10 and 13, 1999; minimum daily low, 19.07 ft below land-surface datum, May 16-17, 2002.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.05	20.71	20.86	20.37	20.60	20.69	20.20	19.62	19.48	19.83	20.53	21.12
2	21.07	20.73	20.81	20.39	20.58	20.65	20.21	19.68	19.54	19.85	20.57	21.13
3	21.09	20.76	20.76	20.40	20.49	20.69	20.28	19.71	---	19.86	20.60	21.15
4	21.10	20.76	20.74	20.42	20.48	20.70	20.29	19.74	---	19.88	20.62	21.16
5	21.10	20.78	20.75	20.43	20.48	20.70	20.30	19.78	---	19.92	20.64	21.18
6	21.12	20.79	20.72	20.42	20.44	20.69	20.32	19.77	---	19.94	20.67	21.20
7	21.14	20.81	20.71	20.46	20.42	20.70	20.31	19.77	19.54	19.97	20.69	21.22
8	21.15	20.84	20.70	20.46	20.44	20.70	20.29	19.72	19.50	19.99	20.71	21.23
9	21.16	20.85	20.74	20.45	20.45	20.73	20.37	19.50	19.50	20.01	20.73	21.23
10	21.16	20.84	20.73	20.48	20.47	20.75	20.38	19.45	19.51	20.04	20.76	21.23
11	21.15	20.90	20.74	20.51	20.50	20.74	20.37	19.42	19.52	20.06	20.78	21.27
12	21.12	20.92	20.72	20.50	20.48	20.69	20.39	19.37	19.53	20.07	20.80	21.28
13	21.11	20.92	20.72	20.50	20.53	20.68	20.39	19.33	19.53	20.10	20.81	21.29
14	21.06	20.92	20.72	20.51	20.53	20.70	20.27	19.22	19.54	20.12	20.83	---
15	21.03	20.94	20.74	20.55	20.51	20.70	20.21	19.13	19.55	20.15	20.86	---
16	20.98	20.97	20.71	20.57	20.53	20.72	20.16	19.07	19.58	20.19	20.88	---
17	20.98	21.00	20.62	20.58	20.58	20.69	20.12	19.07	19.59	20.19	20.91	21.30
18	20.96	21.01	20.52	20.61	20.60	20.64	20.11	19.09	19.62	20.21	20.91	21.31
19	20.92	21.03	20.39	20.61	20.58	20.62	20.09	19.09	19.64	20.23	20.92	21.32
20	20.94	21.05	20.33	20.62	20.55	20.56	20.05	19.13	19.67	20.26	20.94	21.33
21	20.93	21.07	20.28	20.64	20.59	20.54	20.04	19.19	19.69	20.28	20.95	21.35
22	20.93	21.08	20.26	20.66	20.61	20.51	19.91	19.20	19.70	20.31	20.96	21.37
23	20.89	21.06	20.21	20.62	20.62	20.45	19.83	19.21	19.73	20.33	20.98	21.38
24	20.91	21.05	20.21	20.65	20.63	20.41	19.77	19.27	19.74	20.37	21.00	21.40
25	20.80	21.09	20.20	20.66	20.61	20.41	19.76	19.29	19.76	20.38	21.02	21.41
26	20.78	21.09	20.18	20.64	20.63	20.38	19.75	19.33	19.72	20.40	21.02	21.40
27	20.76	21.10	20.18	20.63	20.66	20.35	19.74	19.36	19.73	20.42	21.06	21.37
28	20.75	21.09	20.20	20.61	20.67	20.31	19.71	19.39	19.75	20.45	21.06	21.12
29	20.71	20.99	20.28	20.62	---	20.25	19.70	19.41	19.78	20.47	21.08	21.10
30	20.71	20.94	20.31	20.65	---	20.25	19.66	19.43	19.79	20.50	21.10	21.06
31	20.72	---	20.33	20.61	---	20.22	---	19.46	---	20.52	21.11	---
MAX	21.16	21.10	20.86	20.66	20.67	20.75	20.39	19.78	---	20.52	21.11	---

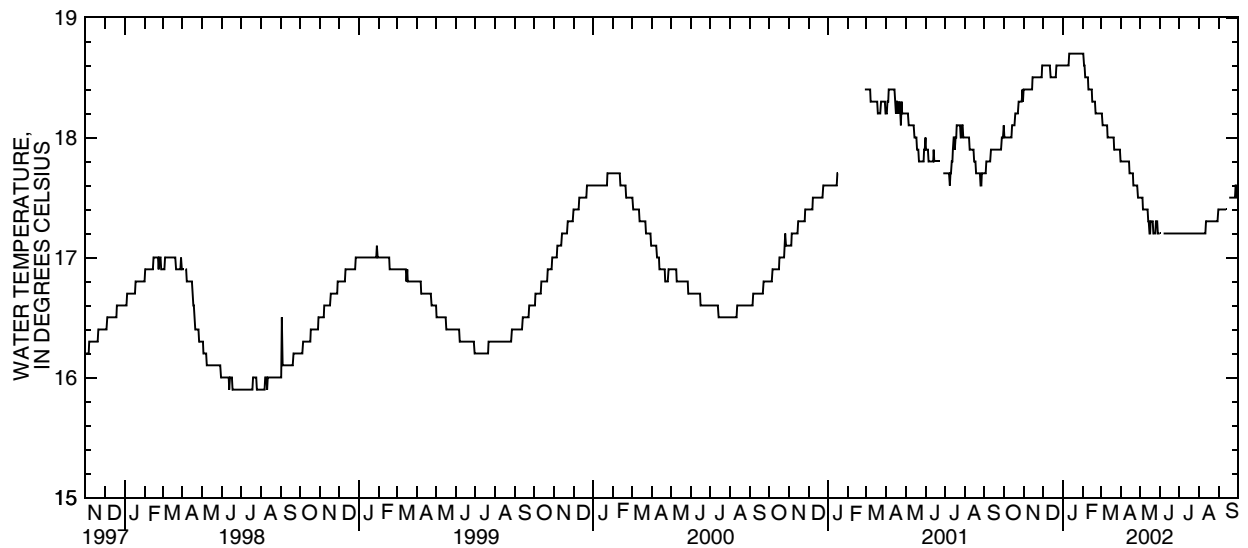


PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

391408084264101. LOCAL NUMBER, AF-5P—CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.1	18.4	18.6	18.6	18.7	18.2	17.8	17.5	17.2	17.2	17.2	17.4
2	18.0	18.4	18.6	18.6	18.7	18.2	17.8	17.5	17.2	17.2	17.2	17.4
3	18.0	18.4	18.6	18.6	18.6	18.2	17.8	17.5	---	17.2	17.2	17.4
4	18.0	18.4	18.6	18.6	18.6	18.1	17.8	17.5	---	17.2	17.2	17.4
5	18.0	18.4	18.6	18.6	18.5	18.1	17.8	17.5	---	17.2	17.2	17.4
6	18.0	18.4	18.6	18.6	18.5	18.1	17.8	17.4	---	17.2	17.2	17.4
7	18.0	18.4	18.6	18.6	18.5	18.1	17.8	17.4	17.2	17.2	17.2	17.4
8	18.0	18.4	18.6	18.6	18.5	18.1	17.8	17.4	17.2	17.2	17.2	17.4
9	18.0	18.4	18.6	18.6	18.5	18.1	17.8	17.4	17.2	17.2	17.2	17.4
10	18.0	18.4	18.6	18.6	18.4	18.1	17.8	17.4	17.2	17.2	17.2	17.4
11	18.0	18.4	18.6	18.7	18.4	18.1	17.8	17.4	17.2	17.2	17.2	17.4
12	18.0	18.4	18.6	18.7	18.4	18.0	17.8	17.4	17.2	17.2	17.3	17.4
13	18.0	18.4	18.5	18.7	18.4	18.0	17.8	17.4	17.2	17.2	17.3	17.4
14	18.1	18.4	18.5	18.7	18.4	18.0	17.8	17.3	17.2	17.2	17.3	---
15	18.1	18.5	18.5	18.7	18.4	18.0	17.7	17.3	17.2	17.2	17.3	---
16	18.1	18.5	18.5	18.7	18.3	18.0	17.7	17.2	17.2	17.2	17.3	---
17	18.1	18.5	18.5	18.7	18.3	18.0	17.7	17.2	17.2	17.2	17.3	17.5
18	18.1	18.5	18.5	18.7	18.3	18.0	17.7	17.3	17.2	17.2	17.3	17.5
19	18.2	18.5	18.5	18.7	18.3	18.0	17.7	17.3	17.2	17.2	17.3	17.5
20	18.2	18.5	18.5	18.7	18.3	18.0	17.7	17.3	17.2	17.2	17.3	17.5
21	18.2	18.5	18.5	18.7	18.2	18.0	17.6	17.3	17.2	17.2	17.3	17.5
22	18.2	18.5	18.6	18.7	18.2	17.9	17.6	17.2	17.2	17.2	17.3	17.5
23	18.2	18.5	18.6	18.7	18.2	17.9	17.6	17.2	17.2	17.2	17.3	17.5
24	18.3	18.5	18.6	18.7	18.2	17.9	17.6	17.2	17.2	17.2	17.3	17.5
25	18.3	18.5	18.6	18.7	18.2	17.9	17.6	17.2	17.2	17.2	17.3	17.5
26	18.3	18.5	18.6	18.7	18.2	17.9	17.6	17.3	17.2	17.2	17.3	17.5
27	18.3	18.5	18.6	18.7	18.2	17.9	17.6	17.3	17.2	17.2	17.3	17.6
28	18.3	18.5	18.6	18.7	18.2	17.9	17.5	17.3	17.2	17.2	17.3	17.6
29	18.3	18.5	18.6	18.7	---	17.9	17.5	17.2	17.2	17.2	17.3	17.5
30	18.4	18.6	18.6	18.7	---	17.9	17.5	17.2	17.2	17.2	17.3	17.5
31	18.3	---	18.6	18.7	---	17.9	---	17.2	---	17.2	17.4	---
MAX	18.4	18.6	18.6	18.7	18.7	18.2	17.8	17.5	---	17.2	17.4	---



PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

303

391408084264100. LOCAL NUMBER, AF-5S

LOCATION.—Latitude 39°14'08", longitude 84°26'41", Hamilton County, Hydrologic Unit 05090203.

AQUIFER.—Shallow part of glacial outwash. Geologic Unit 112OTSH.

WELL CHARACTERISTICS.—Drilled observation water well, depth 51.0 ft.

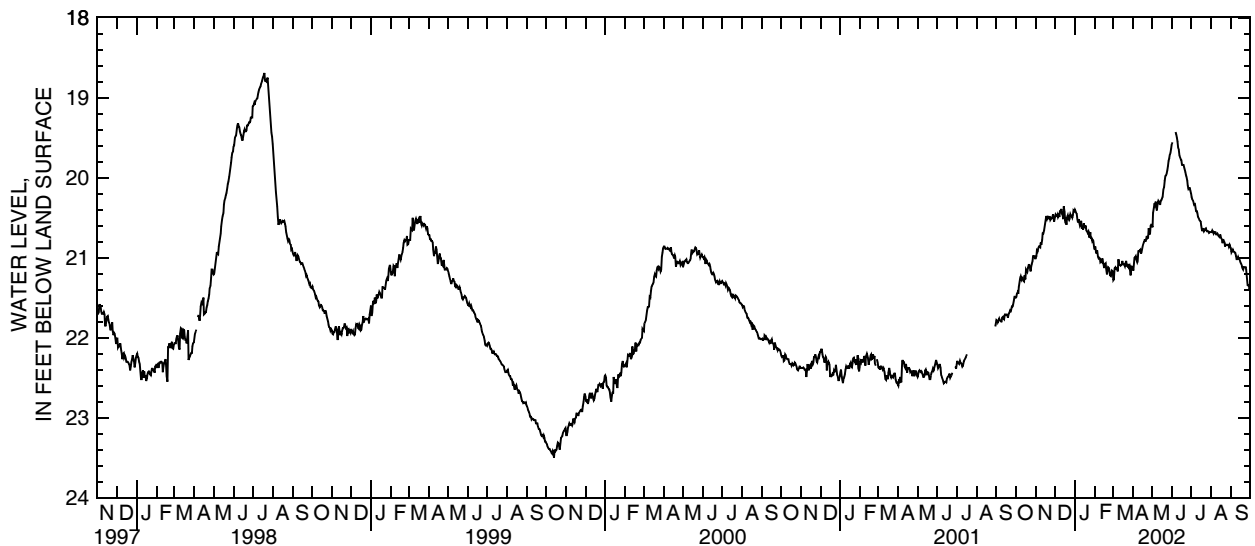
DATUM.—Altitude of land surface is 559.90 feet above National Geodetic Vertical Datum of 1929. Measuring point is top of inner casing, 2.09 ft above land-surface datum.

PERIOD OF RECORD.—Nov. 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 23.50 ft below land-surface datum, Oct. 13, 1999; minimum daily low, 18.69 ft below land-surface datum, July 19, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.50	21.01	20.49	20.40	20.90	21.17	21.12	20.60	19.58	20.20	20.68	20.88
2	21.49	20.98	20.46	20.42	20.86	21.28	21.16	20.62	19.56	20.24	20.68	20.93
3	21.45	20.91	20.47	20.44	20.94	21.27	21.09	20.44	---	20.27	20.66	20.91
4	21.43	20.92	20.48	20.45	20.94	21.13	21.00	20.38	---	20.29	20.67	20.90
5	21.45	20.88	20.46	20.52	20.91	21.12	20.99	20.32	---	20.31	20.70	20.92
6	21.37	20.86	20.49	20.56	20.99	21.14	20.98	20.34	---	20.34	20.68	20.93
7	21.30	20.86	20.47	20.52	21.01	21.14	21.03	20.30	19.43	20.33	20.68	20.93
8	21.25	20.87	20.49	20.56	21.00	21.12	21.06	20.38	19.46	20.37	20.68	20.94
9	21.23	20.81	20.42	20.60	21.01	21.17	21.04	20.41	19.50	20.42	20.71	20.98
10	21.27	20.84	20.41	20.58	21.06	21.02	20.92	20.32	19.55	20.42	20.71	21.02
11	21.25	20.78	20.39	20.54	21.05	21.09	20.92	20.29	19.63	20.44	20.70	21.02
12	21.25	20.70	20.45	20.64	21.06	21.09	20.91	20.30	19.65	20.49	20.72	20.99
13	21.29	20.70	20.47	20.61	21.01	21.10	20.90	20.33	19.72	20.51	20.73	21.01
14	21.30	20.66	20.52	20.65	21.05	21.09	20.95	20.33	19.75	20.53	20.74	21.01
15	21.22	20.62	20.36	20.57	21.10	21.09	20.93	20.29	19.77	20.54	20.72	21.04
16	21.27	20.57	20.43	20.62	21.13	21.04	20.89	20.28	19.78	20.55	20.72	21.06
17	21.15	20.50	20.54	20.62	21.08	21.08	20.84	20.25	19.84	20.60	20.76	21.08
18	21.16	20.48	20.53	20.60	21.07	21.08	20.82	20.24	19.84	20.66	20.77	21.10
19	21.18	20.51	20.59	20.66	21.14	21.09	20.80	20.14	19.84	20.66	20.82	21.13
20	21.13	20.48	20.49	20.67	21.21	21.11	20.77	20.12	19.86	20.63	20.77	21.15
21	21.09	20.52	20.47	20.69	21.16	21.06	20.80	20.04	19.89	20.67	20.79	21.12
22	21.09	20.49	20.51	20.67	21.12	21.04	20.77	19.98	19.93	20.66	20.81	21.12
23	21.12	20.49	20.53	20.71	21.13	21.10	20.73	19.97	19.96	20.64	20.86	21.12
24	21.17	20.53	20.51	20.75	21.17	21.11	20.76	19.95	19.99	20.63	20.84	21.12
25	21.12	20.51	20.46	20.68	21.22	21.08	20.75	19.91	20.04	20.66	20.84	21.15
26	21.08	20.50	20.48	20.75	21.23	21.12	20.63	19.86	20.10	20.67	20.84	21.25
27	21.04	20.50	20.48	20.75	21.19	21.10	20.68	19.79	20.14	20.67	20.84	21.34
28	20.98	20.46	20.50	20.79	21.16	21.16	20.71	19.76	20.13	20.67	20.84	21.34
29	20.98	20.53	20.47	20.78	---	21.22	20.60	19.71	20.13	20.69	20.86	21.37
30	20.98	20.55	20.41	20.79	---	21.12	20.59	19.69	20.16	20.68	20.84	21.40
31	21.01	---	20.42	20.88	---	21.13	---	19.64	---	20.68	20.87	---
MAX	21.50	21.01	20.59	20.88	21.23	21.28	21.16	20.62	---	20.69	20.87	21.40

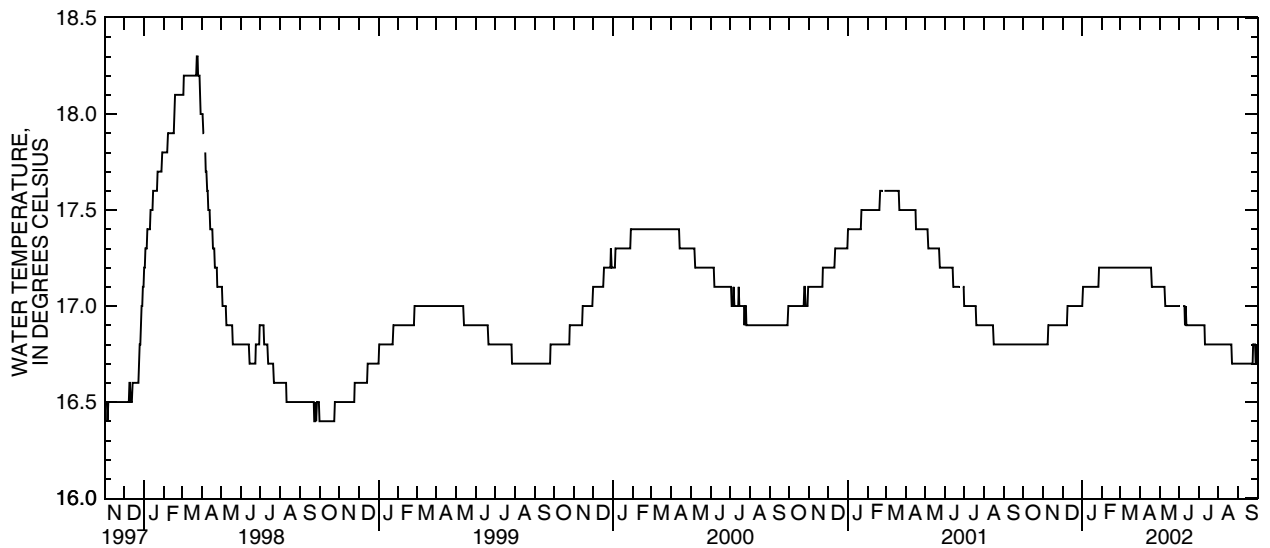


PROJECT DATA
Ground-Water Records for Former Air Force Plant 36

391408084264100. LOCAL NUMBER, AF-5S—CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.8	16.8	16.9	17.0	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7
2	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7
3	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	---	16.9	16.8	16.7
4	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	---	16.9	16.8	16.7
5	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	---	16.9	16.8	16.7
6	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	---	16.9	16.8	16.7
7	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7
8	16.8	16.8	16.9	17.1	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7
9	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7
10	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.9	16.8	16.7
11	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	17.0	16.8	16.8	16.7
12	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
13	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
14	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
15	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
16	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
17	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
18	16.8	16.9	17.0	17.1	17.2	17.2	17.2	17.0	16.9	16.8	16.8	16.7
19	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.8	16.7
20	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.8	16.7
21	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.8	16.7
22	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.7
23	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.7
24	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.8
25	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.8
26	16.8	16.9	17.0	17.1	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.8
27	16.8	16.9	17.0	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.8
28	16.8	16.9	17.0	17.2	17.2	17.2	17.1	17.0	16.9	16.8	16.7	16.7
29	16.8	16.9	17.0	17.2	---	17.2	17.1	17.0	16.9	16.8	16.7	16.7
30	16.8	16.9	17.0	17.2	---	17.2	17.1	17.0	16.9	16.8	16.7	16.8
31	16.8	---	17.0	17.2	---	17.2	---	17.0	---	16.8	16.7	---
MAX	16.8	16.9	17.0	17.2	17.2	17.2	17.2	17.1	---	16.9	16.8	16.8



PROJECT DATA
Columbus Well Field, Southern Franklin County

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.



PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	23.13

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

DATE	WATER LEVEL
08/09/02	19.13

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

DATE	WATER LEVEL
08/09/02	18.64

PROJECT DATA
Columbus Well Field, Southern Franklin County

307

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

DATE	WATER LEVEL
08/10/02	38.59

PROJECT DATA

Columbus Well Field, Southern Franklin County

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.

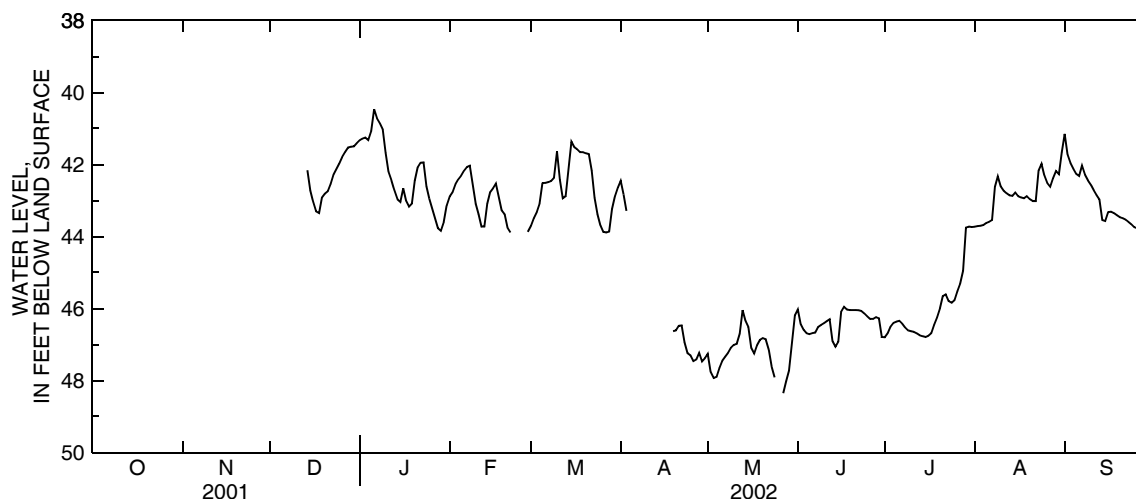
EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 48.35 ft below land-surface datum, May 27, 2002; minimum daily low, 27.21 ft below land-surface datum, May 3, 1984.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	41.33	42.89	43.70	42.45	47.26	46.02	46.80	43.73	41.15
2	---	---	---	41.28	42.77	43.49	42.83	47.76	46.44	46.69	43.71	41.73
3	---	---	---	41.25	42.55	43.32	43.29	47.93	46.59	46.50	43.70	41.96
4	---	---	---	41.32	42.41	43.08	---	47.90	46.68	46.40	43.68	42.12
5	---	---	---	41.06	42.31	42.52	---	47.65	46.71	46.36	43.62	42.26
6	---	---	---	40.47	42.17	42.51	---	47.45	46.68	46.34	43.59	42.32
7	---	---	---	40.72	42.07	42.49	---	47.34	46.67	46.42	43.54	42.03
8	---	---	---	40.86	42.03	42.46	---	47.23	46.52	46.53	42.62	42.29
9	---	---	---	41.03	42.54	42.37	---	47.09	46.46	46.61	42.33	42.44
10	---	---	---	41.68	43.09	41.64	---	47.01	46.41	46.63	42.60	42.56
11	---	---	---	42.21	43.38	42.42	---	46.98	46.35	46.65	42.73	42.71
12	---	---	---	42.44	43.72	42.94	---	46.70	46.30	46.69	42.80	42.85
13	---	---	---	42.71	43.72	42.88	---	46.04	46.91	46.74	42.86	42.97
14	---	---	42.16	42.97	43.09	42.09	---	46.34	47.06	46.77	42.87	43.54
15	---	---	42.72	43.04	42.77	41.37	---	46.52	46.92	46.79	42.78	43.57
16	---	---	43.04	42.66	42.66	41.52	---	47.10	46.09	46.76	42.88	43.32
17	---	---	43.30	43.01	42.53	41.58	---	47.25	45.95	46.68	42.92	43.31
18	---	---	43.35	43.17	42.92	41.66	---	47.02	46.03	46.45	42.94	43.35
19	---	---	42.92	43.08	43.27	41.66	46.63	46.87	46.04	46.25	42.88	43.41
20	---	---	42.81	42.45	43.38	41.69	46.61	46.82	46.04	46.00	42.96	43.46
21	---	---	42.74	42.08	43.76	41.71	46.48	46.85	46.04	45.66	43.02	43.49
22	---	---	42.54	41.95	43.89	42.17	46.47	47.15	46.05	45.61	43.02	43.53
23	---	---	42.28	41.94	---	42.93	46.94	47.62	46.07	45.79	42.16	43.59
24	---	---	42.12	42.60	---	43.38	47.24	47.91	46.14	45.84	41.98	43.66
25	---	---	41.97	42.95	---	43.69	47.30	---	46.22	45.77	42.31	43.74
26	---	---	41.79	43.22	---	43.87	47.46	---	46.29	45.52	42.52	43.77
27	---	---	41.65	43.50	---	43.89	47.42	48.35	46.29	45.30	42.62	43.80
28	---	---	41.53	43.77	43.87	43.86	47.23	48.02	46.24	44.95	42.38	43.78
29	---	---	41.51	43.84	---	43.23	47.47	47.72	46.27	43.75	42.18	43.73
30	---	---	41.50	43.60	---	42.88	47.38	47.02	46.79	43.72	42.27	43.70
31	---	---	41.41	43.14	---	42.64	---	46.18	---	43.74	41.66	---
MEAN	---	---	42.30	42.30	42.95	42.63	46.21	47.21	46.38	46.02	42.83	43.00
MAX	---	---	43.35	43.84	43.89	43.89	47.47	48.35	47.06	46.80	43.73	43.80

WTR YR 2002 MEAN 44.16 LOW 48.35



PROJECT DATA
Columbus Well Field, Southern Franklin County

309

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.

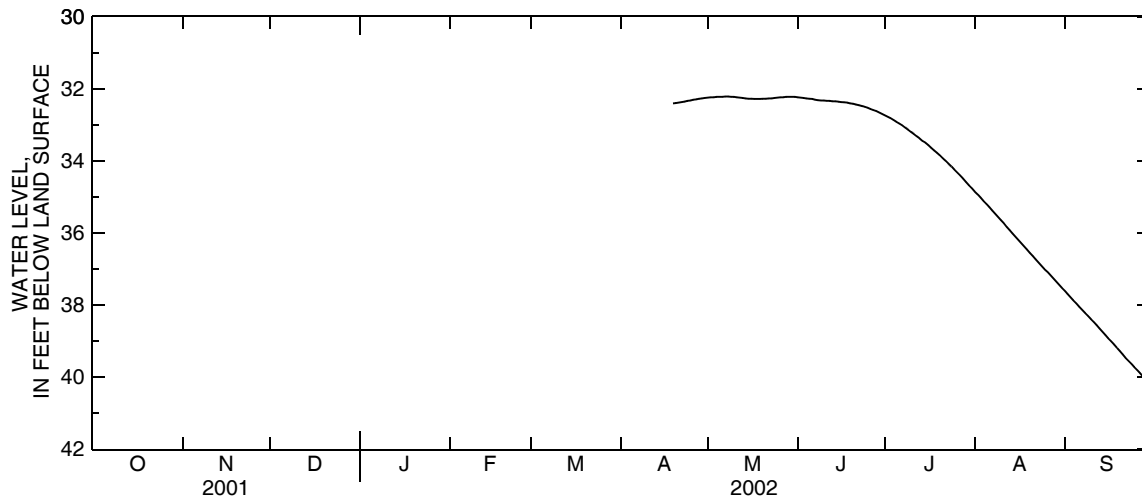
PERIOD OF RECORD.—January 1982 to current year.

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 BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	32.24	32.23	32.73	34.84	37.60
2	---	---	---	---	---	---	---	32.23	32.24	32.77	34.93	37.69
3	---	---	---	---	---	---	---	32.23	32.25	32.81	35.02	37.78
4	---	---	---	---	---	---	---	32.22	32.26	32.86	35.11	37.87
5	---	---	---	---	---	---	---	32.22	32.27	32.91	35.19	37.95
6	---	---	---	---	---	---	---	32.22	32.28	32.96	35.28	38.04
7	---	---	---	---	---	---	---	32.21	32.30	33.01	35.37	38.13
8	---	---	---	---	---	---	---	32.21	32.31	33.07	35.46	38.22
9	---	---	---	---	---	---	---	32.22	32.32	33.13	35.55	38.30
10	---	---	---	---	---	---	---	32.22	32.32	33.19	35.64	38.39
11	---	---	---	---	---	---	---	32.23	32.33	33.25	35.73	38.47
12	---	---	---	---	---	---	---	32.24	32.33	33.31	35.83	38.56
13	---	---	---	---	---	---	---	32.25	32.34	33.37	35.92	38.65
14	---	---	---	---	---	---	---	32.26	32.34	33.44	36.01	38.74
15	---	---	---	---	---	---	---	32.27	32.35	33.49	36.10	38.83
16	---	---	---	---	---	---	---	32.27	32.36	33.56	36.19	38.92
17	---	---	---	---	---	---	---	32.28	32.37	33.63	36.28	39.01
18	---	---	---	---	---	---	---	32.28	32.38	33.70	36.37	39.10
19	---	---	---	---	---	---	32.40	32.28	32.40	33.77	36.46	39.19
20	---	---	---	---	---	---	32.39	32.27	32.41	33.84	36.55	39.28
21	---	---	---	---	---	---	32.38	32.27	32.43	33.92	36.64	39.37
22	---	---	---	---	---	---	32.36	32.26	32.45	33.99	36.73	39.47
23	---	---	---	---	---	---	32.35	32.26	32.47	34.07	36.82	39.55
24	---	---	---	---	---	---	32.33	32.25	32.49	34.15	36.91	39.63
25	---	---	---	---	---	---	32.32	32.24	32.52	34.24	37.00	39.72
26	---	---	---	---	---	---	32.30	32.23	32.55	34.32	37.07	39.81
27	---	---	---	---	---	---	32.29	32.23	32.58	34.40	37.16	39.90
28	---	---	---	---	---	---	32.27	32.22	32.61	34.49	37.25	39.99
29	---	---	---	---	---	---	32.26	32.22	32.65	34.58	37.34	40.08
30	---	---	---	---	---	---	32.25	32.22	32.69	34.67	37.43	40.16
31	---	---	---	---	---	---	---	32.22	---	34.75	37.52	---
MEAN	---	---	---	---	---	---	32.33	32.24	32.39	33.63	36.18	38.88
MAX	---	---	---	---	---	---	32.40	32.28	32.69	34.75	37.52	40.16

WTR YR 2002 MEAN 34.48 LOW 40.16



PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/10/02	17.50

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

DATE	WATER LEVEL
08/09/02	25.72

PROJECT DATA
Columbus Well Field, Southern Franklin County

311

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.

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.

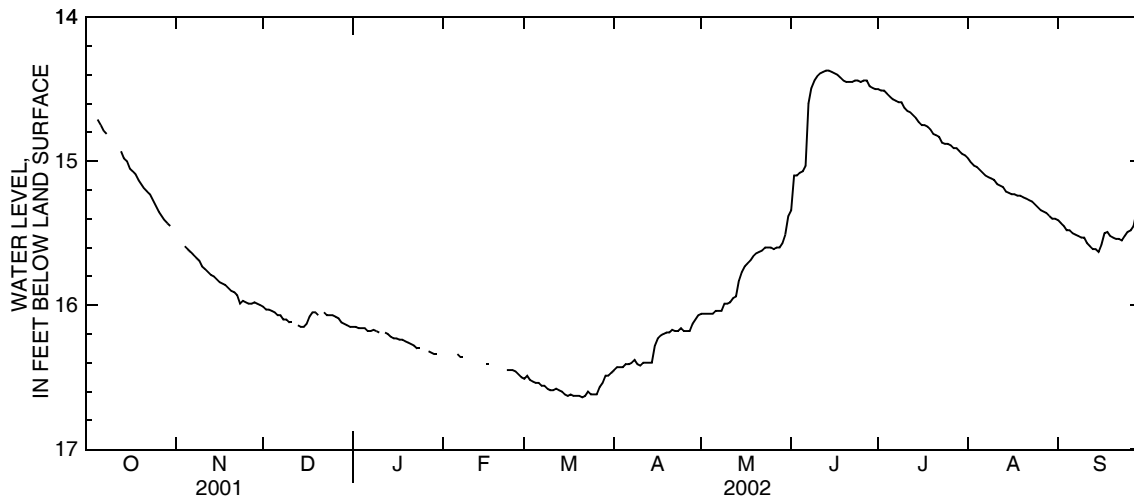
PERIOD OF RECORD.—April 1982 to current year.

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.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	16.01	16.15	---	16.51	16.45	16.06	15.34	14.50	14.98	15.41
2	---	15.54	16.03	16.15	---	16.49	16.43	16.06	15.10	14.51	15.01	15.43
3	---	---	16.03	16.16	---	16.52	16.43	16.06	15.10	14.51	15.03	15.45
4	---	15.59	16.04	16.16	---	16.53	16.43	16.06	15.08	14.53	15.04	15.48
5	14.71	15.61	16.05	16.16	---	16.54	16.41	16.06	15.07	14.55	15.06	15.48
6	14.75	15.63	16.07	16.18	16.34	16.54	16.41	16.04	15.03	14.57	15.08	15.50
7	14.79	15.65	16.07	16.18	16.36	16.56	16.40	16.04	14.60	14.58	15.10	15.51
8	14.81	15.67	16.10	16.17	16.36	16.56	16.38	16.04	14.49	14.59	15.11	15.52
9	---	15.69	16.10	16.18	---	16.58	16.41	15.99	14.44	14.59	15.12	15.53
10	14.86	15.73	16.12	16.19	---	16.59	16.42	15.99	14.41	14.63	15.13	15.53
11	---	15.75	16.12	---	---	16.59	16.40	15.98	14.39	14.65	15.16	15.57
12	---	15.77	---	16.19	---	16.58	16.40	15.95	14.38	14.66	15.17	15.59
13	14.93	15.79	16.14	16.20	16.38	16.59	16.40	15.94	14.37	14.68	15.18	15.61
14	14.98	15.80	16.15	16.22	---	16.60	16.40	15.83	14.37	14.70	15.21	15.61
15	15.00	15.82	16.15	16.23	---	16.62	16.28	15.77	14.38	14.73	15.22	15.63
16	15.05	15.84	16.13	16.23	16.41	16.63	16.23	15.73	14.39	14.75	15.23	15.58
17	15.07	15.85	16.08	16.24	16.41	16.62	16.21	15.71	14.40	14.75	15.23	15.50
18	15.09	15.86	16.05	16.24	---	16.63	16.20	15.69	14.42	14.76	15.24	15.49
19	15.13	15.88	16.05	16.25	---	16.63	16.19	15.66	14.44	14.78	15.24	15.52
20	15.16	15.90	16.07	16.26	16.43	16.63	16.19	15.64	14.45	14.81	15.25	15.53
21	15.19	15.91	---	16.27	---	16.64	16.17	15.63	14.45	14.82	15.26	15.54
22	15.21	15.93	16.05	16.28	---	16.63	16.18	15.62	14.45	14.83	15.27	15.54
23	15.23	15.99	16.07	16.30	16.45	16.60	16.18	15.60	14.44	14.87	15.28	15.55
24	15.27	15.97	16.07	16.30	16.45	16.62	16.16	15.60	14.44	14.88	15.30	15.52
25	15.31	15.98	16.07	---	16.45	16.62	16.18	15.60	14.45	14.88	15.32	15.49
26	15.35	15.99	16.08	---	16.46	16.62	16.18	15.61	14.44	14.89	15.34	15.48
27	15.38	15.99	16.09	16.32	16.48	16.57	16.18	15.60	14.44	14.91	15.35	15.45
28	15.41	15.98	16.12	16.33	16.50	16.54	16.13	15.60	14.48	14.91	15.36	15.35
29	15.43	15.99	16.13	16.34	---	16.49	16.10	15.57	14.49	14.93	15.38	15.26
30	15.45	16.00	16.14	16.34	---	16.49	16.07	15.51	14.50	14.95	15.40	15.28
31	---	---	16.15	---	---	16.47	---	15.38	---	14.96	15.40	---
MEAN	15.11	15.82	16.09	16.23	16.42	16.58	16.29	15.79	14.57	14.73	15.21	15.50
MAX	15.45	16.00	16.15	16.34	16.50	16.64	16.45	16.06	15.34	14.96	15.40	15.63

WTR YR 2002 MEAN 15.66 LOW 16.64



PROJECT DATA
Columbus Well Field, Southern Franklin County

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.—Highest water level measured, 1.96 ft below land-surface datum, June 17, 1981; lowest measured, 51.42 ft below land-surface datum, Nov. 9, 1977.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	15.03

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

DATE	WATER LEVEL
08/09/02	51.66

395218083023900. LOCAL NUMBER, FR-133

LOCATION.—Latitude 39°52'18", longitude 83°02'39", Hydrologic Unit 05060001, on White Road near Grove City, Ohio. Owner: Franklin County.

AQUIFER.—Gravel of Quaternary age.

WELL CHARACTERISTICS.—Drilled observation water well, diameter 2 in., depth 82 ft, cased to 78 ft, finished with 4 ft of 0.8 in. well screen.

INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 762.66 ft above sea level (from topographic map). Measuring point: Top of casing, 1.65 ft above land-surface datum.

PERIOD OF RECORD.—April 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 49.05 ft below land-surface datum, Apr. 1, 1981; lowest measured, 79.36 ft below land-surface datum, June 22, 1978.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/10/02	58.25

PROJECT DATA
Columbus Well Field, Southern Franklin County

313

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

DATE	WATER LEVEL
08/09/02	28.34

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, 23.00 ft below land-surface datum, Mar. 26, 1986; lowest measured, 37.56 ft below land-surface datum, Mar. 16, 1992.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	32.79

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

DATE	WATER LEVEL
08/09/02	91.39

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	15.98

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

DATE	WATER LEVEL
08/09/02	80.87

PROJECT DATA
Columbus Well Field, Southern Franklin County

315

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 91.8 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.

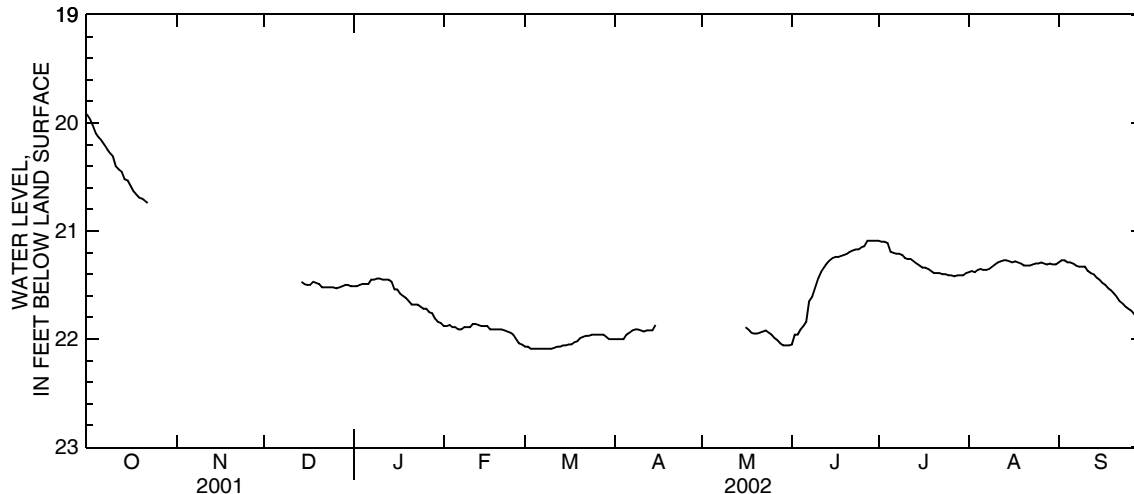
PERIOD OF RECORD.—September 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 25.00 ft below land-surface datum, Apr. 25-May 2, 1992; minimum daily low, 13.92 ft below land-surface datum, Mar. 18, 1991.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.92	---	---	21.51	21.88	22.07	22.00	---	22.05	21.09	21.38	21.29
2	19.96	---	---	21.51	21.88	22.07	22.00	---	21.96	21.10	21.37	21.27
3	20.02	---	---	21.50	21.87	22.09	22.00	---	21.96	21.10	21.38	21.27
4	20.09	---	---	21.49	21.89	22.09	22.00	---	21.91	21.11	21.36	21.29
5	20.13	---	---	21.49	21.89	22.09	21.96	---	21.88	21.19	21.35	21.29
6	20.16	---	---	21.49	21.91	22.09	21.94	---	21.84	21.20	21.36	21.30
7	20.20	---	---	21.45	21.91	22.09	21.92	---	21.65	21.21	21.36	21.32
8	20.24	---	---	21.45	21.89	22.09	21.91	---	21.61	21.21	21.35	21.33
9	20.28	---	---	21.44	21.89	22.09	21.91	---	21.52	21.22	21.33	21.33
10	20.31	---	---	21.44	21.89	22.09	21.92	---	21.44	21.25	21.31	21.33
11	20.40	---	---	21.45	21.86	22.08	21.93	---	21.38	21.26	21.29	21.37
12	20.43	---	---	21.45	21.86	22.07	21.92	---	21.34	21.26	21.28	21.39
13	20.45	---	---	21.45	21.87	22.07	21.92	---	21.30	21.28	21.27	21.40
14	20.52	---	21.47	21.47	21.88	22.06	21.92	---	21.27	21.30	21.27	21.43
15	20.53	---	21.49	21.54	21.88	22.06	21.87	---	21.25	21.32	21.28	21.45
16	20.58	---	21.50	21.54	21.88	22.05	---	21.89	21.24	21.34	21.29	21.48
17	20.63	---	21.50	21.58	21.91	22.05	---	21.91	21.24	21.34	21.28	21.50
18	20.66	---	21.47	21.60	21.91	22.03	---	21.94	21.23	21.35	21.29	21.53
19	20.69	---	21.48	21.62	21.91	22.02	---	21.95	21.22	21.37	21.30	21.55
20	20.70	---	21.49	21.65	21.91	21.99	---	21.95	21.21	21.39	21.32	21.58
21	20.72	---	21.52	21.68	21.91	21.98	---	21.94	21.19	21.39	21.32	21.61
22	20.74	---	21.52	21.68	21.92	21.97	---	21.93	21.18	21.39	21.32	21.65
23	---	---	21.52	21.68	21.93	21.97	---	21.92	21.17	21.40	21.31	21.67
24	---	---	21.52	21.70	21.94	21.96	---	21.94	21.17	21.40	21.30	21.70
25	---	---	21.52	21.72	21.96	21.96	---	21.96	21.15	21.41	21.30	21.72
26	---	---	21.53	21.72	22.00	21.96	---	21.99	21.14	21.41	21.29	21.74
27	---	---	21.52	21.75	22.04	21.96	---	22.01	21.09	21.42	21.30	21.77
28	---	---	21.51	21.76	22.05	21.96	---	22.04	21.09	21.41	21.31	21.80
29	---	---	21.50	21.81	---	21.98	---	22.06	21.09	21.41	21.30	21.82
30	---	---	21.50	21.84	---	22.00	---	22.06	21.09	21.41	21.31	21.84
31	---	---	21.51	21.85	---	22.00	---	22.06	---	21.39	21.31	---
MEAN	20.38	---	21.50	21.59	21.91	22.03	21.94	21.97	21.40	21.30	21.32	21.50
MAX	20.74	---	21.53	21.85	22.05	22.09	22.00	22.06	22.05	21.42	21.38	21.84

WTR YR 2002 MEAN 21.52 LOW 22.09



PROJECT DATA
Columbus Well Field, Southern Franklin County

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.

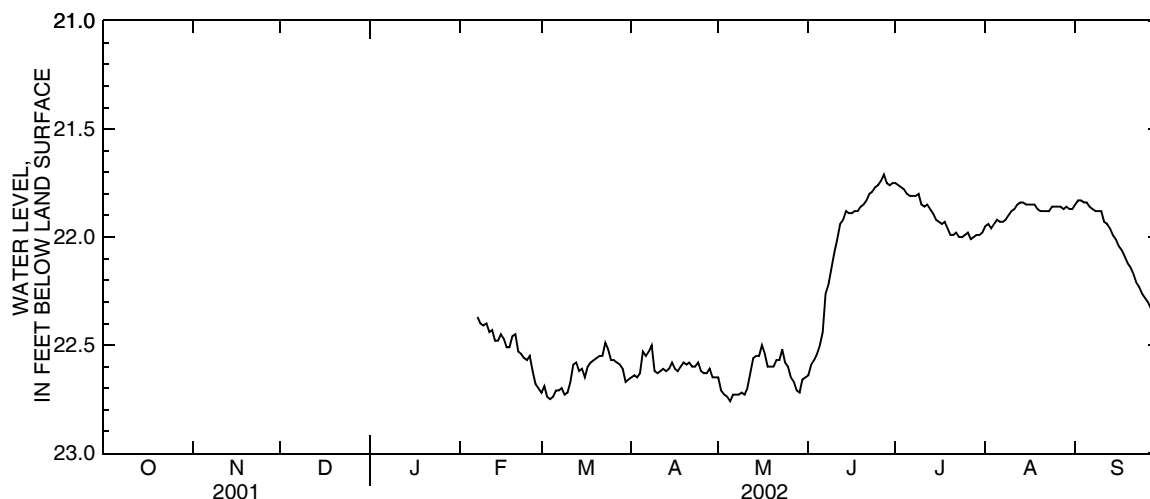
PERIOD OF RECORD.—August 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily low, 25.45 ft below land-surface datum, Apr. 24, 1992; minimum daily low, 12.43 ft below land-surface datum, June 19, 1996.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	22.72	22.65	22.65	22.64	21.75	21.95	21.85
2	---	---	---	---	---	22.69	22.64	22.71	22.59	21.76	21.94	21.83
3	---	---	---	---	---	22.74	22.65	22.73	22.57	21.77	21.96	21.83
4	---	---	---	---	---	22.75	22.63	22.74	22.54	21.78	21.94	21.84
5	---	---	---	---	---	22.74	22.53	22.76	22.50	21.80	21.92	21.84
6	---	---	---	---	---	22.71	22.55	22.73	22.44	21.81	21.93	21.86
7	---	---	---	---	22.37	22.71	22.53	22.73	22.26	21.81	21.93	21.87
8	---	---	---	---	22.40	22.70	22.50	22.73	22.22	21.81	21.92	21.88
9	---	---	---	---	22.41	22.73	22.62	22.72	22.14	21.80	21.90	21.88
10	---	---	---	---	22.40	22.72	22.63	22.73	22.07	21.85	21.88	21.88
11	---	---	---	---	22.44	22.67	22.62	22.70	22.01	21.86	21.87	21.93
12	---	---	---	---	22.43	22.59	22.61	22.63	21.94	21.85	21.85	21.94
13	---	---	---	---	22.48	22.58	22.62	22.56	21.92	21.87	21.84	21.96
14	---	---	---	---	22.48	22.62	22.61	22.55	21.88	21.89	21.84	21.99
15	---	---	---	---	22.45	22.61	22.58	22.55	21.89	21.92	21.85	22.01
16	---	---	---	---	22.47	22.65	22.61	22.50	21.89	21.93	21.85	22.04
17	---	---	---	---	22.51	22.60	22.62	22.54	21.88	21.94	21.85	22.06
18	---	---	---	---	22.51	22.58	22.60	22.60	21.88	21.93	21.85	22.09
19	---	---	---	---	22.46	22.57	22.58	22.60	21.86	21.96	21.87	22.12
20	---	---	---	---	22.45	22.56	22.59	22.60	21.85	21.99	21.88	22.14
21	---	---	---	---	22.53	22.55	22.58	22.57	21.83	21.99	21.88	22.17
22	---	---	---	---	22.54	22.55	22.60	22.57	21.80	21.98	21.88	22.21
23	---	---	---	---	22.56	22.49	22.60	22.52	21.79	22.00	21.88	22.23
24	---	---	---	---	22.57	22.52	22.58	22.58	21.77	22.00	21.86	22.26
25	---	---	---	---	22.55	22.57	22.62	22.60	21.76	21.99	21.86	22.28
26	---	---	---	---	22.62	22.57	22.63	22.65	21.74	21.98	21.86	22.30
27	---	---	---	---	22.68	22.58	22.63	22.67	21.71	22.01	21.86	22.33
28	---	---	---	---	22.70	22.59	22.61	22.71	21.75	22.00	21.87	22.36
29	---	---	---	---	---	22.61	22.65	22.72	21.76	21.99	21.86	22.38
30	---	---	---	---	---	22.67	22.65	22.66	21.75	21.99	21.87	22.40
31	---	---	---	---	---	22.66	---	22.65	---	21.98	21.87	---
MEAN	---	---	---	---	22.50	22.63	22.60	22.64	22.02	21.90	21.88	22.06
MAX	---	---	---	---	22.70	22.75	22.65	22.76	22.64	22.01	21.96	22.40

WTR YR 2002 MEAN 22.27 LOW 22.76



PROJECT DATA
Columbus Well Field, Southern Franklin County

317

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

DATE	WATER LEVEL
08/09/02	19.83

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

DATE	WATER LEVEL
08/09/02	13.84

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

DATE	WATER LEVEL
08/09/02	12.57

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	73.79

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

DATE	WATER LEVEL
08/09/02	19.01

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

DATE	WATER LEVEL
08/09/02	32.33

PROJECT DATA
Columbus Well Field, Southern Franklin County

319

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

DATE	WATER LEVEL
08/09/02	11.71

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

DATE	WATER LEVEL
08/09/02	39.78

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

DATE	WATER LEVEL
08/09/02	10.99

PROJECT DATA
Columbus Well Field, Southern Franklin County

395131083003801. LOCAL NUMBER FR-301

LOCATION.—Latitude 39°51'31", longitude 83°00'38", Hydrologic Unit 05060001. Owner: City of Columbus.

AQUIFER.—Sand and gravel of Quaternary age.

WELL CHARACTERISTICS.—Drilled observation water well, 8 in. diameter, 74 ft deep.

INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 683.02 ft above sea level. Measuring point: Top of casing, 2.48 ft above land-surface datum.

PERIOD OF RECORD.—December 15, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 4.36 ft below land-surface datum, May 31, 1993; lowest measured, 31.95 ft below land-surface datum, Nov. 14, 1997.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	17.05

395140083003901. LOCAL NUMBER FR-302

LOCATION.—Latitude 39°51'40", longitude 83°00'39", Hydrologic Unit 05060001. Owner: City of Columbus.

AQUIFER.—Sand and gravel of Quaternary age.

WELL CHARACTERISTICS.—Drilled observation water well, 8 in. diameter, 56 ft deep.

INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 684.21 ft above sea level. Measuring point: Top of casing, 2.26 ft above land-surface datum.

PERIOD OF RECORD.—December 15, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 4.92 ft below land-surface datum, May 31, 1996; lowest measured, 31.91 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	15.52

395150083004001. LOCAL NUMBER FR-303

LOCATION.—Latitude 39°51'50", longitude 83°00'40", Hydrologic Unit 05060001. Owner: City of Columbus.

AQUIFER.—Sand and gravel of Quaternary age.

WELL CHARACTERISTICS.—Drilled observation water well, 8 in. diameter, 57 ft deep.

INSTRUMENTATION.—Periodic measurement with steel or electric tape by USGS personnel.

DATUM.—Elevation of land-surface datum is 690.43 ft above sea level. Measuring point: Top of casing, 2.40 ft above land-surface datum.

PERIOD OF RECORD.—December 15, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 11.32 ft below land-surface datum, May 31, 1996; lowest measured, 35.78 ft below land-surface datum, Mar. 2, 2000.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	20.34

PROJECT DATA
Columbus Well Field, Southern Franklin County

321

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

DATE	WATER LEVEL
08/09/02	24.61

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

DATE	WATER LEVEL
08/09/02	16.88

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

DATE	WATER LEVEL
08/09/02	32.08

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	55.31

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

DATE	WATER LEVEL
08/09/02	22.25

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

DATE	WATER LEVEL
08/09/02	27.05

PROJECT DATA
Columbus Well Field, Southern Franklin County

323

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

DATE	WATER LEVEL
08/09/02	35.96

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

DATE	WATER LEVEL
08/09/02	6.74

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, 45.77 ft below land-surface datum, May 15, 1997; lowest measured, 56.83 ft below land-surface datum, Aug. 9, 2002.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	56.83

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	33.38

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

DATE	WATER LEVEL
08/09/02	22.92

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

DATE	WATER LEVEL
08/09/02	51.81

PROJECT DATA
Columbus Well Field, Southern Franklin County

325

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

DATE	WATER LEVEL
08/09/02	23.29

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, 78.41 ft below land-surface datum, Aug. 9, 2002; lowest measured, 153.30 ft below land-surface datum, Aug. 13, 1996.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	78.41

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

DATE	WATER LEVEL
08/09/02	35.38

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	53.61

395059083000900. LOCAL NUMBER, FR-328

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

DATE	WATER LEVEL
08/09/02	46.56

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

DATE	WATER LEVEL
08/09/02	44.58

PROJECT DATA
Columbus Well Field, Southern Franklin County

327

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.—May 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.—No previous data.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	92.58

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

DATE	WATER LEVEL
08/09/02	51.31

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

DATE	WATER LEVEL
08/09/02	31.57

PROJECT DATA
Columbus Well Field, Southern Franklin County

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, 42.31 ft below land-surface datum, Aug. 9, 2002; lowest measured, 135.40 ft below land-surface datum, Mar. 13, 1996.

WATER LEVEL
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
08/09/02	42.31

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

DATE	WATER LEVEL
08/09/02	34.96

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

DATE	WATER LEVEL
08/09/02	42.82

PROJECT DATA
Columbus Well Field, Southern Franklin County

329

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

DATE	WATER LEVEL
08/09/02	22.89

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

DATE	WATER LEVEL
08/09/02	24.37

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

DATE	WATER LEVEL
08/09/02	20.07

PROJECT DATA
Columbus Well Field, Southern Franklin County

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

DATE	WATER LEVEL
08/09/02	54.93

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

DATE	WATER LEVEL
08/09/02	51.77

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

DATE	WATER LEVEL
08/09/02	35.81

PROJECT DATA
Columbus Well Field, Southern Franklin County

331

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

DATE	WATER LEVEL
08/09/02	24.22

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

DATE	WATER LEVEL
08/10/02	56.94

PROJECT DATA

Columbus Well Field, Southern Franklin County

The following table contains discharge data collected August 2002. Location may not match site identifier for existing sites which are noted with an asterisk (*).

STREAM DISCHARGE MEASUREMENT

[FT³/SEC, cubic feet per second; DRY, indicates no visible surface-water flow]

SITE IDENTIFIER	SITE NAME	LOCATION	DATE	DISCHARGE (FT ³ /SEC)
395417083003200*	Jackson Pike Sewage Treatment Plant outfall at Columbus, Ohio	Latitude 39°54'31", longitude 83°00'50"	08/10/02	107 ^a
395325083004200	Columbus Limestone outflow to Scioto River	Latitude 39°53'25", longitude 83°00'42"	08/09/02	20.1 ^b
395328083003500*	Scioto River, 2.4 mi below Frank Road at Columbus, Ohio	Latitude 39°53'28", longitude 83°00'37"	08/09/02	141
395406083001100	Scioto River above Kian Run near Columbus, Ohio	Latitude 39°54'06", longitude 83°00'11"	08/09/02	142
395250083010900*	Scioto Big Run at Columbus, Ohio	Latitude 39°52'49", longitude 83°01'09"	08/09/02	7.99
395244083010700*	Scioto River below Scioto Big Run at Columbus, Ohio	Latitude 39°52'41", longitude 83°01'09"	08/09/02	177
395408083000200*	Kian Run at Columbus, Ohio	Latitude 39°54'07", longitude 83°00'04"	08/09/02	1.59
395110083011000	Scioto River above CW-101 near Columbus, Ohio	Latitude 39°51'10", longitude 83°01'10"	08/09/02	168
395046083003200*	Scioto River at FR-103-CW, Columbus, Ohio	Latitude 39°50'46", longitude 83°00'33"	08/10/02	183
395021083003600*	Scioto River at CW-104 near Columbus, Ohio	Latitude 39°50'22", longitude 83°00'35"	08/09/02	175
395042083004700	Scioto River between CW-101 and CW-103 near Columbus, Ohio	Latitude 39°50'42", longitude 83°00'47"	08/09/02	174
395037083010100*	Grant Run near Shadeville, Ohio	Latitude 39°50'35", longitude 83°01'09"	08/10/02	DRY
394928083003900	Scioto River at Scioto Canoe Livery near Shadeville, Ohio	Latitude 39°49'28", longitude 83°00'39"	08/10/02	185
394902083010300*	Plum Run near Shadeville, Ohio	Latitude 39°49'01", longitude 83°01'04"	08/09/02	0.216
394856083005800	Scioto River at S. Waste Water Plant near Shadeville, Ohio	Latitude 39°48'56", longitude 83°00'58"	08/09/02	194
394902083010200	S. Waste Water Plant lagoon outflow to Scioto River	Latitude 39°49'02", longitude 83°01'02"	08/09/02	3.40 ^c
394852083004900	S. Waste Water Treatment Plant outflow to Scioto River	Latitude 39°48'52", longitude 83°00'49"	08/09/02	112.53 ^c
395301083014000	Unnamed tributary to Scioto River at State Route 104, 0.1 mi South of Interstate 270	Latitude 39°53'01", longitude 83°01'40"	08/09/02	DRY
395151083014000	Unnamed tributary to Scioto River at State Route 104, 1.5 mi South of Interstate 270	Latitude 39°51'51", longitude 83°01'40"	08/09/02	0.145
394826082594300	Big Walnut Creek at U.S. Highway 23	Latitude 39°48'26", longitude 82°59'43"	08/09/02	89.2
394838082583100	Big Walnut Creek at Rowe Road	Latitude 39°48'38", longitude 82°58'31"	08/09/02	96.0
394918082585100	S&S Aggregate outflow to Big Walnut Creek	Latitude 39°49'18", longitude 82°58'51"	08/10/02	22.3 ^d
394958082593400	Big Walnut Creek at State Route 317	Latitude 39°49'58", longitude 82°59'34"	08/09/02	95.4

PROJECT DATA
Columbus Well Field, Southern Franklin County

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STREAM DISCHARGE MEASUREMENT—Continued

[FT³/SEC, cubic feet per second; DRY, indicates no visible surface-water flow]

SITE IDENTIFIER	SITE NAME	LOCATION	DATE	DISCHARGE (FT ³ /SEC)
03229500*	Big Walnut Creek at Reese Road	Latitude 39°51'16", longitude 82°57'29"	08/09/02	93.0
395039082585500	J&P Gravel outflow to Big Walnut Creek	Latitude 39°50'39", longitude 82°58'55"	08/09/02	0.00 ^e
395058082582200	Big Walnut Creek at Lockbourne Road	Latitude 39°50'58", longitude 82°58'22"	08/09/02	82.4
395123082562100	Big Walnut Creek at Alum Creek Drive	Latitude 39°51'23", longitude 82°56'21"	08/09/02	83.7
394743083004200	Scioto River at AEP Plant below Big Walnut Creek	Latitude 39°47'43", longitude 82°00'42"	08/09/02	394

^a Discharge reported from Jackson Pike Sewage Treatment Plant.

^b Discharge reported from Columbus Limestone.

^c Discharge reported from Columbus Southern Waste Water Treatment Plant.

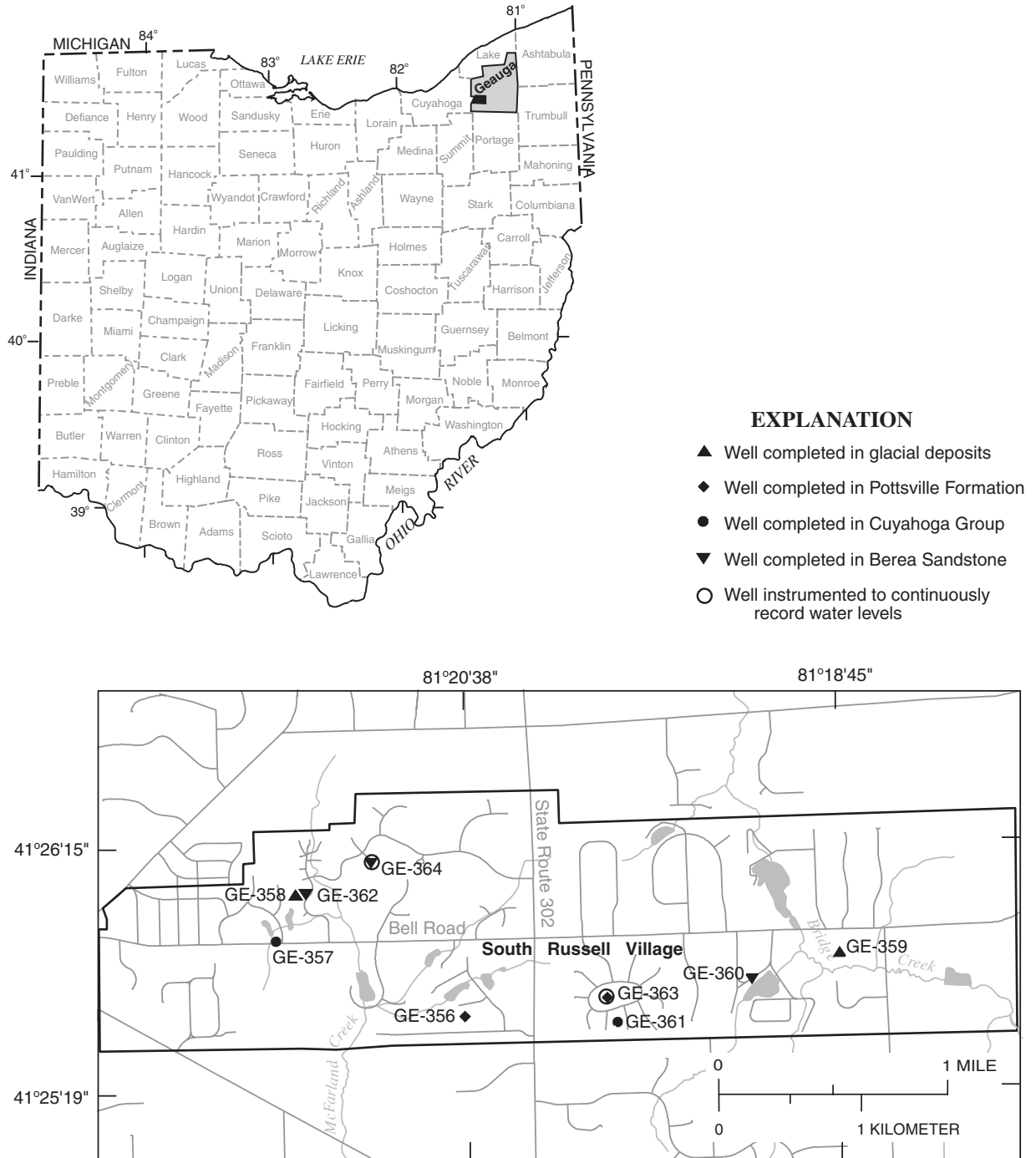
^d Discharge reported from S&S Aggregate.

^e Discharge reported from J&P Gravel.

PROJECT DATA

Ground-Water Data for South Russell Village, Ohio

The following tables contain ground-water-level data collected as part of a cooperative study with the Village of South Russell, Ohio. Data-collection sites are shown below.



PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

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LONG-TERM GROUND-WATER MONITORING NETWORK

Ground-water-level measurements from the 9 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 ± 5 ft. Water levels known to have been measured after a well had been recently pumped are designated with an asterisk (*).

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, 11.31 ft below land-surface datum, May 2, 2000; lowest measured, 13.21* ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/2001	12.56
01/16/2002	12.52
03/21/2002	11.69
05/23/2002	11.34
07/31/2002	12.55
09/24/2002	13.21*

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, 12.43 ft below land-surface datum, May 23, 2001; lowest measured, 14.32 ft below land-surface datum, Nov. 14, 2001.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/2001	14.32
01/16/2002	14.15
03/21/2002	13.43
05/23/2002	12.43
07/31/2002	12.90
09/24/2002	13.61

PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

LONG-TERM GROUND-WATER MONITORING NETWORK—CONTINUED

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, 163.27 ft below land-surface datum, May 3, 2000; lowest measured, 177.21* ft below land-surface datum, July 31, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/2001	169.06*
01/16/2002	170.78*
03/21/2002	166.81
05/23/2002	169.26*
07/31/2002	177.21*
09/24/2002	172.22*

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

DATE	WATER LEVEL
11/14/2001	12.87
01/16/2002	11.76
03/20/2002	11.36
05/23/2002	11.14
07/31/2002	11.80
09/24/2002	12.00

PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

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LONG-TERM GROUND-WATER MONITORING NETWORK—CONTINUED

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

DATE	WATER LEVEL
11/14/2001	153.66*
01/16/2002	157.39*
03/21/2002	154.36*
05/23/2002	151.17
07/31/2002	158.04
09/24/2002	158.90*

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, 67.55 ft below land-surface datum, Jan. 5, 2001; lowest measured, 69.16 ft below land-surface datum, Jan. 16, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/14/2001	68.53
01/16/2002	69.16
03/20/2002	68.33
05/23/2002	68.10
07/31/2002	68.35
09/24/2002	68.97

PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

LONG-TERM GROUND-WATER MONITORING NETWORK—CONTINUED

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, 7.68 ft below land-surface datum, Feb. 28, 2001; lowest measured, 9.51 ft below land-surface datum, Sept. 24, 2002.

WATER LEVEL,
IN FEET BELOW LAND-SURFACE DATUM
INSTANTANEOUS OBSERVATION

DATE	WATER LEVEL
11/13/2001	8.36
01/16/2002	7.74
03/21/2002	7.98
05/23/2002	7.72
07/31/2002	9.31
09/24/2002	9.51

PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

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LONG-TERM GROUND-WATER MONITORING NETWORK—CONTINUED

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).

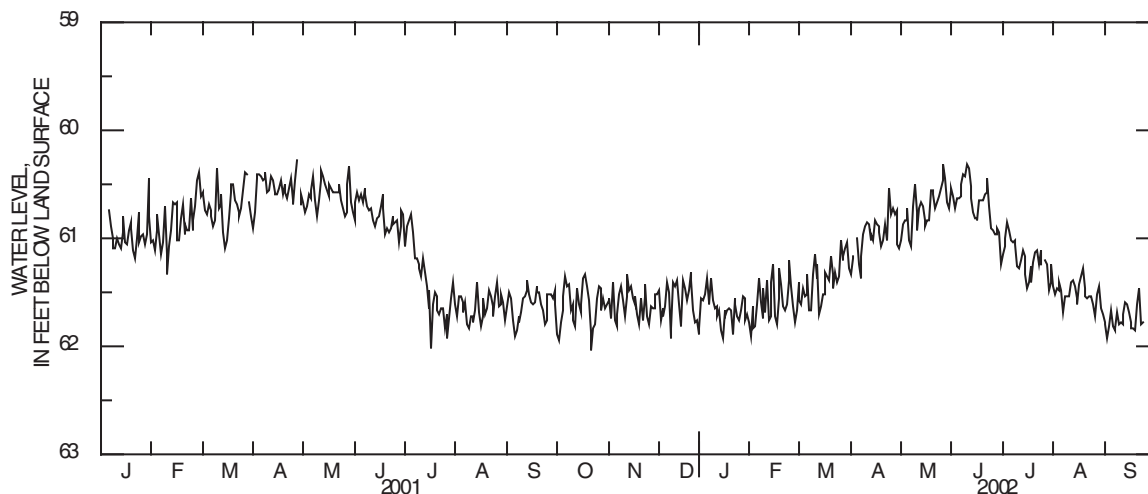
DATUM.—Elevation of land-surface datum is 1,232 ft above sea level. Measuring point: top of casing.

PERIOD OF RECORD.—Continuous water-level data from January 6, 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 60.28 ft below land-surface datum, May 1, 2001; lowest measured, 62.04 ft below land-surface datum, Oct. 28, 2001.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61.51	61.44	61.72	61.89	61.78	61.78	61.10	60.77	60.45	60.96	61.20	61.72
2	61.51	61.46	61.79	61.84	61.90	61.66	61.03	60.74	60.66	60.97	61.25	61.51
3	61.52	61.66	61.63	61.55	61.63	61.40	61.28	61.05	60.73	60.90	61.49	61.44
4	61.55	61.55	61.64	61.58	61.83	61.58	61.33	61.10	60.56	60.94	61.41	61.64
5	61.49	61.65	61.65	61.51	61.82	61.60	61.19	61.02	60.53	61.24	61.24	61.71
6	61.60	61.61	61.51	61.37	61.61	61.47	61.17	60.87	60.61	61.15	61.45	61.78
7	61.88	61.57	61.52	61.59	61.37	61.53	---	60.83	60.72	61.08	61.52	61.80
8	61.95	61.56	61.49	61.61	61.59	61.51	60.99	60.84	60.63	60.99	61.47	61.93
9	61.78	61.74	61.75	61.37	61.74	61.33	61.23	60.72	60.62	60.85	61.49	61.81
10	61.66	61.40	61.65	61.57	61.47	61.67	61.37	61.02	60.61	60.93	61.41	61.67
11	61.53	61.76	61.73	61.65	61.69	61.66	61.17	61.08	60.50	61.01	61.48	61.81
12	61.36	61.82	61.63	61.63	61.38	61.33	60.97	60.71	60.40	61.03	61.68	61.85
13	61.44	61.70	61.41	61.73	61.76	61.15	60.88	60.50	60.42	61.01	61.53	61.84
14	61.43	61.52	61.50	61.67	61.72	61.37	60.85	60.75	60.32	61.06	61.53	61.69
15	61.67	61.44	61.92	61.85	61.41	61.24	60.86	60.93	60.36	61.26	61.54	61.79
16	61.61	61.57	61.84	61.92	61.24	61.70	61.02	60.73	60.52	61.28	61.53	61.78
17	61.76	61.73	61.40	61.67	61.73	61.63	60.97	60.67	60.62	61.21	61.41	61.79
18	61.82	61.54	61.44	61.72	61.80	61.51	61.01	60.71	60.75	61.12	61.38	61.70
19	61.47	61.34	61.38	61.67	61.55	61.52	60.84	60.84	60.82	61.16	61.44	61.59
20	61.60	61.48	61.60	61.65	61.28	61.31	60.86	60.88	60.81	61.34	61.56	61.60
21	61.69	61.45	61.81	61.67	61.42	61.35	60.88	60.83	60.84	61.46	61.60	61.68
22	61.60	61.55	61.79	61.88	61.63	61.38	60.95	60.83	60.65	61.40	61.43	61.77
23	61.37	61.60	61.38	61.55	61.67	61.16	61.08	60.56	60.65	61.26	61.35	61.83
24	61.34	61.53	61.47	61.60	61.62	61.34	61.01	60.56	60.64	61.41	61.27	61.83
25	61.45	61.71	61.58	61.73	61.38	61.46	60.87	60.59	60.60	61.22	61.47	61.85
26	61.57	61.79	61.49	61.75	61.21	61.31	61.02	60.72	60.58	61.13	61.54	61.61
27	61.87	61.56	61.31	61.67	61.44	61.40	61.01	60.66	60.44	61.12	61.56	61.46
28	62.04	61.75	61.39	61.54	61.63	61.36	60.53	60.61	60.70	61.23	61.54	61.79
29	61.84	61.54	61.67	61.55	---	61.02	60.78	60.54	60.90	61.11	61.54	61.80
30	61.79	61.42	61.77	61.75	---	61.20	60.73	60.46	60.93	61.25	61.61	61.77
31	61.55	---	61.76	61.70	---	61.17	---	60.31	---	---	61.72	---
MAX	62.04	61.82	61.92	61.92	61.90	61.78	61.37	61.10	60.93	61.46	61.72	61.93
WTR YR 2002	LOW 62.04											



PROJECT DATA
Ground-Water Data for South Russell Village, Ohio

LONG-TERM GROUND-WATER MONITORING NETWORK—CONTINUED

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.

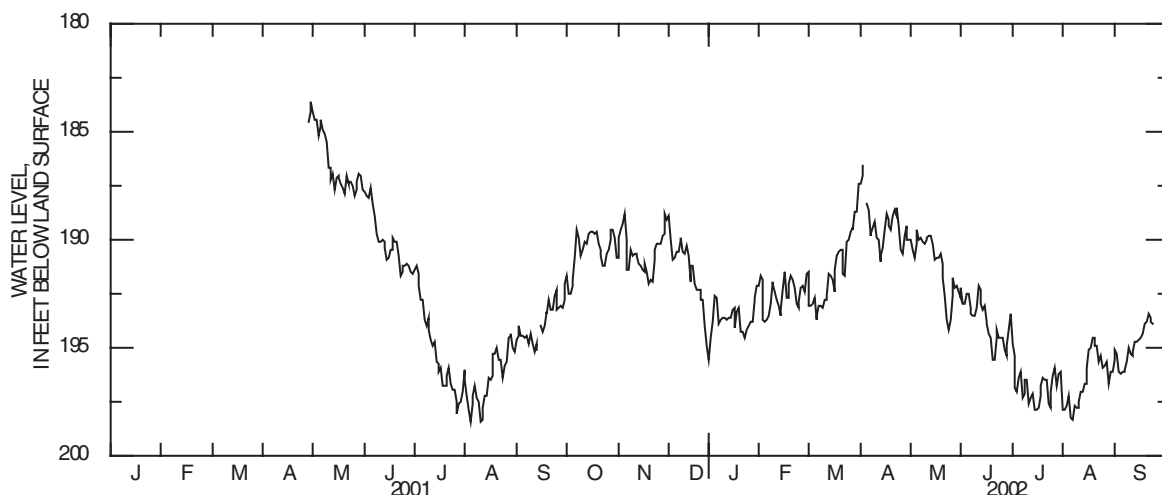
PERIOD OF RECORD.—Continuous water-level data from May 2, 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.—Highest water level measured, 183.65 ft below land-surface datum, May 4, 2001; lowest measured, 198.46 ft below land-surface datum, Aug. 15, 2001.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
 DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193.23	190.43	190.15	195.55	192.17	192.39	188.67	189.78	192.19	195.12	195.92	195.86
2	193.18	190.01	190.16	195.55	191.67	191.52	188.67	189.30	192.13	195.33	196.79	195.64
3	193.02	189.55	190.17	194.52	191.80	191.51	187.38	189.99	192.39	194.92	196.23	196.66
4	193.11	189.53	189.79	193.80	193.68	193.01	187.37	189.99	192.64	194.15	196.13	196.14
5	192.76	189.94	189.71	192.62	193.79	193.01	187.03	189.99	192.25	193.42	196.08	196.14
6	192.04	190.80	188.77	192.63	193.73	192.95	186.56	190.41	192.92	194.82	197.83	195.53
7	191.71	190.80	189.10	193.91	193.49	192.72	---	190.85	192.93	195.41	197.85	195.11
8	192.52	189.86	188.90	193.93	192.93	193.68	188.32	190.21	192.46	196.89	197.68	195.30
9	192.50	189.49	189.97	193.71	191.90	193.53	188.57	189.54	192.48	197.06	197.23	196.12
10	192.14	189.26	190.97	193.65	192.04	193.00	189.83	190.02	193.19	196.35	197.23	196.21
11	191.87	188.82	190.93	193.58	192.40	193.00	189.69	189.90	193.43	196.08	198.27	196.12
12	190.86	189.99	190.85	193.74	192.81	193.12	189.45	190.12	193.48	197.29	198.33	196.12
13	189.53	191.40	190.53	193.72	193.03	192.75	189.13	190.22	193.51	197.09	197.72	195.99
14	189.93	191.40	190.53	193.57	193.53	192.76	189.93	190.03	193.15	196.44	197.75	195.63
15	190.72	190.49	190.01	193.61	193.23	192.55	189.97	189.90	192.10	196.52	197.73	195.02
16	190.49	190.77	189.88	193.26	192.26	191.57	191.00	189.82	192.32	197.61	197.46	195.30
17	190.46	190.62	190.54	193.19	191.43	191.71	190.70	189.85	192.95	197.27	197.05	195.33
18	190.12	190.64	190.63	194.07	192.70	191.88	190.32	190.20	193.20	197.14	197.05	195.16
19	190.21	190.70	190.31	193.30	192.70	192.39	189.49	190.91	193.03	197.88	196.69	194.75
20	189.77	191.10	190.77	193.17	192.08	191.42	188.78	190.91	193.78	197.86	196.70	194.74
21	189.60	191.17	191.92	194.29	191.71	190.70	189.07	190.81	193.89	197.87	195.90	194.62
22	189.60	191.38	191.16	194.26	191.87	190.54	189.36	190.81	194.39	197.77	195.11	194.56
23	189.60	191.45	191.23	194.58	192.22	190.50	189.55	190.62	194.50	197.21	195.01	194.57
24	189.68	191.07	192.00	194.54	192.99	190.48	188.90	191.12	195.59	196.78	194.50	194.34
25	189.63	191.47	192.33	194.19	193.12	191.55	188.56	191.79	195.59	196.41	194.58	193.87
26	190.20	192.04	192.29	194.01	192.88	191.63	188.87	192.57	194.50	196.51	194.92	193.75
27	190.51	191.87	192.36	193.79	192.24	190.08	188.52	193.74	194.19	196.45	194.92	193.38
28	190.75	191.91	192.78	193.75	192.14	189.96	189.34	194.16	194.53	197.63	195.68	193.62
29	191.19	190.93	192.81	192.79	---	189.64	190.41	193.70	194.53	197.75	195.39	193.75
30	191.20	190.43	194.00	192.71	---	189.44	190.62	192.61	194.56	197.05	195.93	193.91
31	190.61	---	194.90	192.16	---	189.54	---	191.79	---	196.28	195.86	---
MAX	193.23	192.04	194.90	195.55	193.79	193.68	191.00	194.16	195.59	197.88	198.33	196.66

WTR YR 2002 LOW 198.33

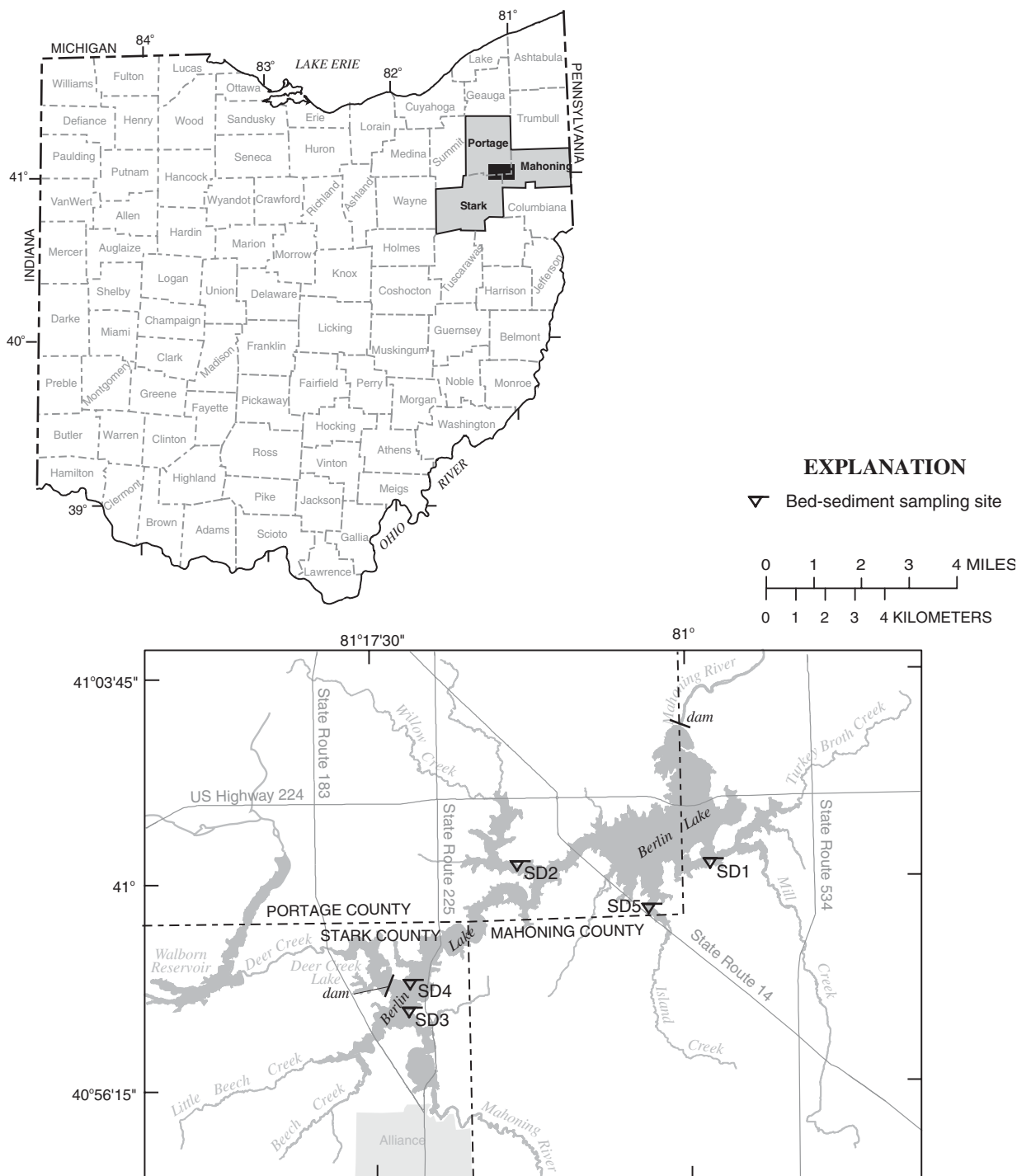


PROJECT DATA

Water Data for Berlin Reservoir Area, Ohio

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The following tables contain bed-sediment data was collected as part of a USGS cooperative study with the Bureau of Land Management.



MAP IDENTIFIER	SITE IDENTIFIER	STATION NAME	LATITUDE	LONGITUDE
SD1	410021080592000	Berlin Lake near the mouth of Mill Creek	41°00'21"	80°59'20"
SD2	410014081035900	Willow Creek at Berlin Lake	41°00'14"	81°03'59"
SD3	405739081064000	Mahoning River at Rockhill Road	40°57'39"	81°06'40"
SD4	405807081064000	Deer Creek below Deer Creek Dam	40°58'07"	81°06'40"
SD5	405924081004900	Island Creek at Berlin Lake	40°59'24"	81°00'49"

PROJECT DATA
Water Data for Berlin Reservoir Area, Ohio

BED-SEDIMENT QUALITY DATA

[WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

MAP IDENTIFIER	SITE IDENTIFIER	ACENAPHTHYLENE, WS, <2MM DW, REC (UG/KG) (49428)	ACENAPHTHENE, WS, <2MM DW, REC (UG/KG) (49429)	ACRIDINE, WS <2MM DW, REC (UG/KG) (49430)	C8-ALKYL PHENOL, WS <2MM DW, REC (UG/KG) (49424)	ANTHRA-CENE, WS <2MM DW, REC (UG/KG) (49434)	9,10 ANTHRA-QUINONE, WS <2MM DW, REC (UG/KG) (49437)	AZO-BENZENE, WS <2MM DW, REC (UG/KG) (49443)	BENZ [A] ANTHRA-CENE, WS <2MM DW, REC (UG/KG) (49436)
SD1	410021080592000	<50	<50	<50	<50	<50	<50	<50	E20
SD2	410014081035900	<50	<50	<50	<50	<50	<50	<50	E20
SD3	405739081064000	E30	140	50	E20	310	340	<50	830
SD4	405807081064000	E5	<50	<50	<50	E10	40	<50	50
SD5	405924081004900	E8	E7	<50	E20	E40	E50	<50	100

MAP IDENTIFIER	SITE IDENTIFIER	BENZO-CINNOLINE, WS <2MM DW, REC (UG/KG) (49468)	BENZO [B] FLUO-RANTHENE, WS <2MM DW, REC (UG/KG) (49458)	BENZO [K] FLUO-RANTHENE, WS <2MM DW, REC (UG/KG) (49397)	BENZO [G,H,I] PERYLENE, WS <2MM DW, REC (UG/KG) (49408)	BENZO [A] PYRENE, WS <2MM DW, REC (UG/KG) (49389)	2,2'-BIQUINO-LINE, WS <2MM DW, REC (UG/KG) (49391)	4-BROMO-PHENYL-PHENYL-ETHER, WS <2MM DW, REC (UG/KG) (49454)	BUTYL-BENZYL-PHTHALATE, WS <2MM DW, REC (UG/KG) (49427)
SD1	410021080592000	<50	E20	M	E40	E20	<50	<50	E40
SD2	410014081035900	<50	E20	<50	E10	E20	<50	<50	50
SD3	405739081064000	<50	820	700	440	760	<50	<50	<50
SD4	405807081064000	<50	80	60	60	60	<50	<50	50
SD5	405924081004900	<50	120	100	190	120	<50	<50	50

MAP IDENTIFIER	SITE IDENTIFIER	CARBA-ZOLE, WS <2MM DW, REC (UG/KG) (49449)	BIS (2-CHLORO-ETHOXY) METHANE, WS <2MM DW, REC (UG/KG) (49401)	4-CHLORO-3-METHYL-PHENOL, WS <2MM DW, REC (UG/KG) (49422)	2-CHLORO-NAPH-THALENE, WS <2MM DW, REC (UG/KG) (49407)	2-CHLORO-PHENOL, WS <2MM DW, REC (UG/KG) (49467)	4-CHLORO-PHENYL-ETHER, WS <2MM DW, REC (UG/KG) (49455)	CHRYSENE, WS <2MM DW, REC (UG/KG) (49450)	P-CRESOL, WS <2MM DW, REC (UG/KG) (49451)
SD1	410021080592000	<50	<50	<50	<50	<50	<50	M	<50
SD2	410014081035900	<50	<50	<50	<50	<50	<50	<50	<50
SD3	405739081064000	250	<50	<50	<50	<50	<50	940	110
SD4	405807081064000	M	<50	<50	<50	<50	<50	60	E50
SD5	405924081004900	M	<50	<50	<50	<50	<50	120	E30

MAP IDENTIFIER	SITE IDENTIFIER	DIBENZ [A,H] ANTHRA-CENE, WS <2MM DW, REC (UG/KG) (49461)	DIBENZO-THIO-PHENE, WS <2MM DW, REC (UG/KG) (49452)	DI-N BUTYL-PHTHALATE, WS <2MM DW, REC (UG/KG) (49381)	1,2-DICHLORO-BENZENE, WS <2MM DW, REC (UG/KG) (49439)	1,3-DICHLORO-BENZENE, WS <2MM DW, REC (UG/KG) (49441)	1,4-DICHLORO-BENZENE, WS <2MM DW, REC (UG/KG) (49442)	DIETHYL-PHTHALATE, WS <2MM DW, REC (UG/KG) (49383)	1,2-DIMETHYL-NAPH-THALENE, WS <2MM DW, REC (UG/KG) (49403)
SD1	410021080592000	<50	<50	M	<50	<50	<50	<50	<50
SD2	410014081035900	<50	<50	E10	<50	<50	<50	<50	<50
SD3	405739081064000	160	100	<50	<50	<50	<50	<50	E40
SD4	405807081064000	60	<50	E10	<50	<50	<50	<50	<50
SD5	405924081004900	E30	E10	E20	<50	<50	<50	M	E40

PROJECT DATA
Water Data for Berlin Reservoir Area, Ohio

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BED-SEDIMENT QUALITY DATA

[WS, wet sieved; MM, millimeter; DW, dry weight; REC, recoverable; UG/KG, micrograms per kilogram; <, concentration or value reported is less than that indicated; E, estimated; M, presence of compound verified but concentration not quantified]

MAP IDENTIFIER	SITE IDENTIFIER	1,6-DIMETHYLNAPHTHALENE, WS <2MM DW, REC (UG/KG) (49404)	2,6-DIMETHYLNAPHTHALENE, WS <2MM DW, REC (UG/KG) (49406)	3,5-DIMETHYLPHENOL, WS <2MM DW, REC (UG/KG) (49421)	DIMETHYLPHTHALATE, WS <2MM DW, REC (UG/KG) (49384)	2,4-DINITROTOLUENE, WS <2MM DW, REC (UG/KG) (49395)	2,6-DINITROTOLUENE, WS <2MM DW, REC (UG/KG) (49396)	DI-N-OCTYLPHTHALATE, WS <2MM DW, REC (UG/KG) (49382)	BIS (2-ETHYLHEXYL)PHTHALATE, WS <2MM DW, REC (UG/KG) (49426)
SD1	410021080592000	E10	E10	<50	<50	<50	<50	<50	70
SD2	410014081035900	<50	M	<50	<50	<50	<50	<50	120
SD3	405739081064000	110	150	<50	<50	<50	<50	<50	400
SD4	405807081064000	E10	E40	<50	<50	<50	<50	<50	130
SD5	405924081004900	110	130	<50	<50	<50	<50	<50	E50

MAP IDENTIFIER	SITE IDENTIFIER	FLUORANTHENE, WS <2MM DW, REC (UG/KG) (49466)	FLUORENE, WS <2MM DW, REC (UG/KG) (49399)	HEXACHLOROBENZENE, WS <2MM DW, REC (UG/KG) (49343)	INDENO [1,2,3-CD]PYRENE, WS <2MM DW, REC (UG/KG) (49390)	ISO-PHORONE, WS <2MM DW, REC (UG/KG) (49400)	ISO-QUINOLINE, WS <2MM DW, REC (UG/KG) (49394)	2-METHYLANTHRACENE, WS <2MM DW, REC (UG/KG) (49435)	4,5-METHYLENETHRANTRHENE, WS <2MM DW, REC (UG/KG) (49411)
SD1	410021080592000	20	<50	<50	E30	<50	<50	<50	<50
SD2	410014081035900	E20	<50	<50	E30	<50	<50	<50	<50
SD3	405739081064000	2,400	190	<50	580	<50	<50	80	<50
SD4	405807081064000	110	<50	<50	80	<50	<50	E20	M
SD5	405924081004900	200	30	<50	100	<50	<50	E20	E10

MAP IDENTIFIER	SITE IDENTIFIER	1-METHYL-9H-FLUORENE, WS <2MM DW, REC (UG/KG) (49398)	1-METHYL-PHE-NANTHRENE, WS <2MM DW, REC (UG/KG) (49410)	1-METHYL-PYRENE, WS <2MM DW, REC (UG/KG) (49388)	NAPHTHALENE, WS <2MM DW, REC (UG/KG) (49402)	NITROBENZENE, WS <2MM DW, REC (UG/KG) (49444)	N-NITROSO-DIPHENYLAMINE, WS <2MM DW, REC (UG/KG) (49433)	N-NITROSO-DI-N-PROPYLAMINE, WS <2MM DW, REC (UG/KG) (49431)	PENTACHLOROANISOLE, WS <2MM DW, REC (UG/KG) (49460)
SD1	410021080592000	<50	M	M	E20	<50	<50	<50	<50
SD2	410014081035900	<50	<50	<50	<50	<50	<50	<50	<50
SD3	405739081064000	E50	140	100	230	<50	<50	<50	<50
SD4	405807081064000	<50	M	E10	E20	<50	<50	<50	<50
SD5	405924081004900	E30	60	E50	160	<50	<50	<50	<50

MAP IDENTIFIER	SITE IDENTIFIER	PENTACHLORONITROBENZENE, WS <2MM DW, REC (UG/KG) (49280)	PHE-NANTHRENE, WS <2MM DW, REC (UG/KG) (49409)	PHE-NANTHRIDINE, WS <2MM DW, REC (UG/KG) (49393)	PHENOL, WS <2MM DW, REC (UG/KG) (49413)	PYRENE, WS <2MM DW, REC (UG/KG) (49387)	QUINOLINE, WS <2MM DW, REC (UG/KG) (49392)	1,2,4-TRICHLOROBENZENE, WS <2MM DW, REC (UG/KG) (49438)	2,3,6-TRIMETHYLNAPHTHALENE, WS <2MM DW, REC (UG/KG) (49405)
SD1	410021080592000	<50	E40	<50	E20	E20	<50	<50	<50
SD2	410014081035900	<50	<50	<50	E30	E10	<50	<50	<50
SD3	405739081064000	<50	2,100	50	E40	1,900	E10	<50	60
SD4	405807081064000	<50	E40	<50	E30	90	<50	<50	M
SD5	405924081004900	<50	250	<50	E30	190	<50	<50	E40

PROJECT DATA

Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

The following tables include data for a water-quality study in three counties in southwestern Ohio where drinking water is derived from carbonate bedrock and glacial aquifers. In areas where elevated arsenic concentrations had been detected in previous studies, 31 domestic wells were sampled for arsenic and other water-quality constituents. The goal was to determine which aquifer types, hydrogeologic settings or depth intervals were most (and least) likely to produce water with elevated concentrations of arsenic. Samples were collected in June and July 2002.



Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(72008), USGS National Water Information System parameter code; NGVD, National Geodetic Vertical Datum of 1929; MG/L, milligrams per liter; M, presence verified but not quantified; --, no data]

WELL NAME	WELL NUMBER	DATE	TIME	GEOLOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV OF LAND SURFACE DATUM (FEET ABOVE NGVD) (72000)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)
PR-211	395252084404000	07/26/02	1500	350SLRN	161	1135	.4	7.1
PR-209	395252084420900	07/25/02	1700	350SLRN	155	1191	.3	7.1
PR-204	395252084421300	07/11/02	1100	112TILL	84	1198	.2	7.6
PR-207	395256084413200	07/19/02	1100	350SLRN	98	1065	M	7.2
PR-206	395323084403600	07/18/02	1700	112TILL	46	1125	.2	7.4
PR-208	395337084421400	07/25/02	1400	112TILL	84	1185	.2	7.1
PR-210	395428084404700	07/26/02	1000	112TILL	66	1135	.3	7.1
PR-205	395431084421800	07/11/02	1500	350SLRN	150	1175	.2	7.3
MI-207	400700084240900	07/10/02	1100	350SLRN	66	970	.5	7.1
MI-209	400703084240600	07/18/02	1300	350SLRN	140	970	.2	6.9
MI-214	400709084251000	07/24/02	1400	350SLRN	120	992	.2	6.7
MI-213	400711084250000	07/24/02	1100	350SLRN	80	987	.2	6.8
MI-208	400716084234000	07/10/02	1500	350SLRN	126	967	.6	7.1
MI-210	400821084241100	07/23/02	1100	350SLRN	73	950	.2	7.0
MI-211	400833084225200	07/23/02	1400	350SLRN	65	960	.2	7.0
MI-212	400846084240300	07/23/02	1700	350SLRN	115	980	.2	7.0
SH-108	401317084133000	07/02/02	1600	350SLRN	215	975	.1	6.0
SH-113	401324084122100	07/09/02	1500	350SLRN	56	895	5.8	7.3
SH-109	401335084152900	07/03/02	1000	112TILL	98	965	.1	6.5
SH-115	401415084134500	07/22/02	1700	350SLRN	--	970	.2	7.1
SH-102	401423084183100	06/26/02	1400	112OTSH	212	990	1.9	7.1
SH-101	401430084183400	06/24/02	1400	112OTSH	219	985	.1	7.0
SH-110	401434084133300	07/03/02	1500	350SLRN	158	982	.1	5.2
SH-106	401440084161500	06/28/02	1400	350SLRN	180	975	.2	7.0
SH-107	401502084131600	07/02/02	1000	112TILL	82	1005	.1	6.3
SH-104	401504084180500	06/27/02	1400	112OTSH	124	985	.1	7.4
SH-111	401505084130700	07/08/02	1600	350SLRN	145	1010	.4	7.1
SH-105	401528084162300	06/28/02	1000	350SLRN	143	982	.2	6.9
SH-103	401533084162500	06/27/02	1100	350SLRN	181	985	M	7.0
SH-112	401553084133200	07/09/02	1100	350SLRN	81	975	.2	7.2
SH-114	401845084052400	07/19/02	1500	112OTSH	155	1045	.2	7.2

PROJECT DATA
Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00095), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; MG/L, micrograms per liter; E, estimated value; <, concentration or value reported is less than that indicated]

WELL NAME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
PR-211	670	75.2	31.3	1.69	20.0	324	.12	15.5	1.0
PR-209	638	74.4	33.7	1.25	11.6	327	E.03	2.91	1.3
PR-204	652	69.3	38.8	1.59	14.9	342	.04	2.15	1.5
PR-207	640	73.5	32.6	1.21	11.9	343	E.02	1.94	1.2
PR-206	709	76.3	37.5	1.43	15.1	363	E.03	2.69	1.2
PR-208	789	80.5	46.0	1.72	15.8	342	.04	3.36	1.5
PR-210	741	86.1	39.1	1.48	13.2	344	.05	4.81	1.2
PR-205	747	84.6	42.7	1.42	16.9	399	.05	2.49	1.3
MI-207	919	108	37.9	1.27	28.2	311	.03	75.1	.1
MI-209	733	101	35.7	1.26	5.43	378	.04	5.73	.6
MI-214	958	118	52.6	1.74	11.1	448	.04	10.9	1.3
MI-213	865	113	40.5	1.47	11.5	398	.04	29.0	.5
MI-208	785	107	35.5	.98	9.04	280	.03	16.4	.3
MI-210	815	107	43.5	1.76	8.85	420	E.03	3.93	1.1
MI-211	905	121	44.9	1.71	7.48	346	.04	32.8	.4
MI-212	733	105	36.4	1.32	4.53	356	.03	5.47	.4
SH-108	780	99.5	38.4	1.94	11.7	368	.17	9.37	.9
SH-113	575	68.6	30.7	.77	12.4	277	.03	20.6	.5
SH-109	656	94.4	33.2	1.62	6.20	275	.03	20.4	.3
SH-115	904	106	44.6	5.56	22.4	392	.10	10.2	.7
SH-102	832	104	44.8	1.42	14.3	422	E.02	1.81	.9
SH-101	1280	133	55.1	2.63	65.7	735	<.06	2.77	.5
SH-110	850	106	51.6	2.21	13.0	425	.04	2.84	.8
SH-106	1040	114	45.8	3.50	46.2	364	.48	63.9	1.9
SH-107	1190	121	59.9	2.97	37.0	435	.19	75.7	1.5
SH-104	772	76.4	38.2	1.92	48.3	452	<.03	2.77	.7
SH-111	992	115	57.4	2.15	12.2	456	.06	10.0	1.4
SH-105	933	108	47.2	1.75	21.7	384	.04	54.3	.9
SH-103	918	105	64.5	2.14	14.3	478	.05	3.39	1.6
SH-112	803	104	46.9	1.39	8.99	354	.08	22.4	.5
SH-114	659	84.8	32.8	1.16	7.16	330	.03	5.82	.7

Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00955), USGS National Water Information System parameter code; MG/L, milligrams per liter; DEG. C, degrees Celsius; E, estimated value;
 <, concentration or value reported is less than that indicated]

WELL NAME	SILICA, DIS- SOLVED (MG/L AS SIO ₂) (00955)	SULFATE DIS- SOLVED (MG/L AS SO ₄) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
PR-211	13.9	11.2	384	.49	.63	<.05	<.008	E.01	1.6
PR-209	16.5	11.7	370	.65	.78	<.05	<.008	<.02	1.6
PR-204	17.3	24.1	414	.79	.98	<.05	<.008	E.01	1.6
PR-207	16.2	3.4	373	.98	1.1	<.05	<.008	.02	2.0
PR-206	16.3	24.8	430	1.02	1.1	<.05	<.008	<.02	1.7
PR-208	17.5	85.1	506	.53	.61	<.05	<.008	<.02	1.4
PR-210	18.2	47.1	459	.40	.51	<.05	<.008	<.02	1.4
PR-205	17.8	59.3	496	.45	.54	<.05	<.008	E.01	1.3
MI-207	10.2	63.9	544	<.04	<.10	2.90	<.008	<.02	.5
MI-209	17.0	23.6	450	.11	.11	<.05	<.008	<.02	1.1
MI-214	21.9	76.7	603	.34	.46	<.05	<.008	<.02	1.4
MI-213	16.4	85.2	551	<.04	E.06	<.05	E.004	<.02	1.2
MI-208	12.4	103	499	<.04	<.10	3.73	<.008	<.02	.8
MI-210	19.9	39.4	485	.35	.43	<.05	<.008	<.02	1.0
MI-211	15.9	97.5	564	.07	.12	<.05	.009	<.02	1.0
MI-212	16.3	45.7	443	.05	.10	<.05	E.004	<.02	.9
SH-108	16.6	53.7	483	.26	.32	<.05	<.008	<.02	1.1
SH-113	8.95	19.7	341	<.04	<.10	.63	<.008	<.02	.7
SH-109	11.7	62.3	429	<.04	<.10	<.05	<.008	<.02	.8
SH-115	13.7	101	586	.52	.72	<.05	<.008	<.02	1.4
SH-102	22.3	44.9	511	.48	.59	<.05	<.008	.05	1.6
SH-101	17.3	<.1	714	19.3	22	<.05	<.008	.56	13.3
SH-110	17.7	83.1	571	.22	.31	<.05	E.004	E.01	1.8
SH-106	14.5	112	642	.50	.62	<.05	<.008	E.01	1.4
SH-107	21.7	98.3	750	.20	.27	<.05	E.004	<.02	1.7
SH-104	17.4	.3	484	3.25	4.4	<.05	<.008	.08	5.0
SH-111	21.5	85.3	637	.24	.29	<.05	E.006	E.01	1.6
SH-105	19.7	45.7	565	.08	.13	<.05	E.005	<.02	1.0
SH-103	22.5	70.7	620	.32	.36	<.05	<.008	<.02	1.8
SH-112	16.3	83.4	530	.09	.11	<.05	<.008	<.02	1.7
SH-114	19.0	21.0	388	.29	.33	<.05	<.008	.04	1.1

PROJECT DATA
Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(01106), USGS National Water Information System parameter code; UG/L, micrograms per liter; E, estimated value; <, concentration or value reported is less than that indicated]

WELL NAME	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
PR-211	<1	E.03	8.4	7	226	<.06	77	E.03
PR-209	<1	.05	2.3	E1	140	<.06	62	.06
PR-204	<1	<.05	12.0	12	143	<.06	91	.09
PR-207	<1	<.05	1.9	E2	167	<.06	73	E.03
PR-206	<1	<.05	4.7	5	218	<.06	110	.06
PR-208	<1	.05	16.6	15	142	<.06	101	.08
PR-210	2	E.03	13.1	14	84	E.04	73	.05
PR-205	<1	<.05	14.7	13	94	<.06	96	.07
MI-207	<1	.13	E.1	<2	81	<.06	49	.04
MI-209	<1	.07	9.0	9	294	<.06	30	E.03
MI-214	<1	<.05	8.9	9	188	<.06	44	.10
MI-213	1	<.05	2.0	E2	186	<.06	28	<.04
MI-208	<1	.06	E.1	<2	74	<.06	55	.06
MI-210	<1	E.03	13.7	15	143	<.06	42	.05
MI-211	<1	<.05	8.2	8	113	<.06	25	E.02
MI-212	<1	E.02	7.1	7	240	<.06	17	E.02
SH-108	<1	.09	8.6	10	196	<.06	62	E.03
SH-113	<1	E.04	.8	E1	99	<.06	37	.04
SH-109	<1	<.05	.8	E2	169	<.06	19	<.04
SH-115	<1	<.05	.5	<2	38	<.06	214	<.04
SH-102	<1	<.05	5.2	5	122	<.06	77	.05
SH-101	1	E.04	1.9	<2	602	<.06	127	<.04
SH-110	<1	E.03	13.6	12	80	<.06	68	.04
SH-106	<1	E.03	.7	<2	49	<.06	161	<.04
SH-107	<1	<.05	13.3	12	92	<.06	42	.07
SH-104	<1	<.05	5.6	5	745	<.06	155	.05
SH-111	<1	E.03	11.7	11	67	<.06	73	.06
SH-105	<1	<.05	4.5	4	228	<.06	30	E.02
SH-103	<1	<.05	30.7	25	81	<.06	62	.07
SH-112	<1	.05	3.6	4	232	<.06	35	E.03
SH-114	<1	<.05	.9	<2	438	<.06	34	E.03

Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(01030), USGS National Water Information System parameter code; UG/L, micrograms per liter; E, estimated value; <, concentration or value reported is less than that indicated]

WELL NAME	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)
PR-211	<.8	.20	.5	1120	<.08	7.0	26.7	13.1
PR-209	<.8	.21	2.1	38	E.08	7.4	50.9	21.3
PR-204	<.8	.15	.4	1340	<.08	10.0	50.8	33.5
PR-207	<.8	.20	.3	962	<.08	6.4	60.2	8.9
PR-206	<.8	.17	.4	2310	<.08	7.6	84.7	18.7
PR-208	<.8	.28	.7	2000	<.08	20.5	16.5	30.5
PR-210	<.8	.26	.7	1740	.11	11.1	55.7	19.4
PR-205	<.8	.20	.6	1780	E.04	12.9	15.9	27.1
MI-207	<.8	.27	9.9	E7	.27	2.8	2.9	1.8
MI-209	<.8	.59	.6	850	.08	9.6	37.0	9.7
MI-214	<.8	.24	5.4	1580	<.08	18.5	93.8	17.1
MI-213	<.8	.30	.9	1240	<.08	10.2	110	6.5
MI-208	<.8	.33	9.3	<10	.31	5.4	38.3	5.7
MI-210	<.8	.53	.6	1310	.09	16.9	29.3	17.7
MI-211	<.8	.37	.8	2720	E.04	9.7	79.6	9.3
MI-212	<.8	.53	.6	1640	E.06	8.5	31.5	7.3
SH-108	<.8	.46	.5	1440	E.05	13.2	106	12.6
SH-113	<.8	.14	7.9	<10	.08	1.5	1.7	13.8
SH-109	<.8	.18	.7	820	<.08	4.0	28.7	4.1
SH-115	<.8	.32	.6	281	<.08	24.5	33.9	3.1
SH-102	<.8	.24	.6	1970	<.08	13.7	28.7	20.0
SH-101	E.5	.63	.5	6820	<.08	2.5	31.0	1.0
SH-110	<.8	.38	.7	2160	<.08	21.8	24.4	15.9
SH-106	<.8	.26	1.0	964	E.07	31.6	30.3	3.3
SH-107	<.8	.26	1.0	2930	<.08	43.5	60.0	24.3
SH-104	<.8	.30	.4	4010	<.08	8.6	12.8	17.1
SH-111	<.8	.21	.8	2680	.14	40.2	50.2	21.8
SH-105	<.8	.16	.6	2080	<.08	18.7	54.5	11.0
SH-103	<.8	.24	.7	2290	<.08	35.1	27.5	31.6
SH-112	<.8	.31	.7	1550	.08	11.2	89.5	11.3
SH-114	<.8	.17	.4	2250	<.08	7.3	34.2	10.9

PROJECT DATA
Water-Quality of Domestic Wells in Selected Parts of Preble, Miami, and Shelby Counties

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(01065), USGS National Water Information System parameter code; UG/L, micrograms per liter; E, estimated value; <, concentration or value reported is less than that indicated]

WELL NAME	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
PR-211	.94	E.3	<1	6150	<.04	.5	15	.36
PR-209	1.05	<.3	<1	8350	<.04	.5	106	.63
PR-204	<.06	<.3	<1	14700	<.04	.8	8	.56
PR-207	<.06	<.3	<1	9890	<.04	2.2	20	.16
PR-206	<.06	<.3	<1	12900	<.04	2.2	28	.54
PR-208	.92	E.2	<1	17800	<.04	.6	<2	1.55
PR-210	1.53	<.3	<1	9800	<.04	.6	5	.59
PR-205	<.06	<.3	<1	15500	<.04	.6	93	.56
MI-207	2.13	.5	<1	207	.07	1.8	10	1.17
MI-209	.55	<.3	<1	597	<.04	1.8	2	1.57
MI-214	.32	<.3	<1	4850	<.04	.8	79	1.53
MI-213	.60	<.3	<1	588	<.04	1.0	2	3.46
MI-208	1.56	2.4	<1	164	E.04	1.6	50	1.78
MI-210	.11	E.2	<1	3680	<.04	.5	3	1.43
MI-211	<.06	.3	<1	2340	<.04	.4	<2	1.98
MI-212	.20	E.3	<1	1450	E.03	.4	5	1.06
SH-108	.16	<.3	<1	6330	<.04	.4	12	1.29
SH-113	<.06	.6	<1	3510	E.04	.8	2	.70
SH-109	<.06	<.3	<1	1050	<.04	.6	12	1.02
SH-115	4.07	E.3	<1	5030	<.04	.4	<2	.20
SH-102	.98	E.3	<1	6820	<.04	5.3	<2	.13
SH-101	1.58	<.3	<1	2790	<.04	9.7	16	<.02
SH-110	<.06	<.3	<1	15300	<.04	1.1	2	1.40
SH-106	<.06	<.3	<1	3460	E.04	2.0	21	.63
SH-107	<.06	<.3	<1	13800	<.04	.4	2	6.02
SH-104	1.00	E.2	<1	2490	<.04	6.3	<2	.04
SH-111	<.06	<.3	<1	14500	<.04	1.6	10	2.14
SH-105	<.06	<.3	<1	1570	E.04	2.1	13	2.57
SH-103	.96	E.2	<1	14400	<.04	6.2	<2	3.53
SH-112	.10	<.3	<1	2940	<.04	1.2	2	1.32
SH-114	<.06	<.3	<1	3150	<.04	1.8	<1	.10

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 2002 water year. The second table lists the discontinued streamflow-gaging stations for which a discharge measurement was performed in 2002 that were used for index stations for this project. The discontinued stations are not shown.



PROJECT DATA

Low-Flow Magnitude and Frequency of Ohio Streams

LOW-FLOW PARTIAL-RECORD STATIONS

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
<u>BEAVER RIVER BASIN</u>						
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 upstream from Mahoning Creek, 0.7 mi north of Mahoning, 2.7 mi east, southeast of Garrettsville, Ohio. (Garrettsville 1:24000 quad)	38.4	2002	09/12/02	3.71
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 2001-02	09/11/02	4.58
<u>CROSS CREEK BASIN</u>						
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	09/12/02	0.98
<u>SUNFISH CREEK BASIN</u>						
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	07/31/02	1.40
<u>LITTLE MUSKINGUM RIVER BASIN</u>						
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	07/31/02	0.64
<u>MUSKINGUM RIVER BASIN</u>						
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	09/12/02	2.20
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	09/12/02	1.36
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	2000-02	07/31/02 09/12/02	3.19 1.31

PROJECT DATA
Low-Flow Magnitude and Frequency of Ohio Streams

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LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
MUSKINGUM RIVER BASIN—CONTINUED						
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	09/12/02	0
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	08/01/02 09/11/02	1.75 0.97
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 miles upstream of Coon Run, 4.3 miles upstream from Salt Fork Reservoir, 2.1 miles northeast of Old Washington, Ohio. (Old Washington 1:24000 quad)	44.6	2002	09/12/02	0
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 miles northwest of Trinway, 2.3 mi northwest of Dresden, Ohio. (Trinway 1:24000 quad)	40.6	2002	09/12/02	1.44
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	07/31/02 09/11/02	3.32 1.04
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	07/31/02 09/11/02	26.5 15.7
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	08/09/02	2.13
HOCKING RIVER BASIN						
03158165	Monday Creek near Greendale, Ohio	Latitude 39°36'08", longitude 81°09'17", 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 2001-02	07/23/02 07/23/02 09/12/02 09/12/02	5.07 4.55 0.18 0.16

PROJECT DATA

Low-Flow Magnitude and Frequency of Ohio Streams

LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	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 2001-02	09/11/02	0.12
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 2001.02	07/23/02 09/12/02	1.04 0.01
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	2000-02	07/23/02 09/12/02	1.95 0
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	2000-02	07/23/02 09/12/02	4.35 0.04
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	2000-02	07/23/02 09/13/02	3.69 0.02
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 miles upstream from Tombstone Creek, 1.4 miles south of New Dover, 3.5 miles east of Marysville, Ohio. (Marysville 1:24000 quad)	102	2002	09/25/02	9.06
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 miles northwest of Milford Center, Ohio. (Milford Center 1:24000 quad)	66.0	2002	09/25/02	2.39
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	08/05/02 09/12/02	1.14 0.10

PROJECT DATA
Low-Flow Magnitude and Frequency of Ohio Streams

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LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	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	08/05/02 09/12/02	1.97 0.05
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	08/05/02 09/12/02	3.16 0.20
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	08/06/02 09/12/02	5.37 0.40
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	2000-02	08/06/02 09/12/02	6.33 0.18
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 Loudon, 4.8 mi southwest of Sinking Springs, Ohio. (Sinking Spring 1:24000 quad)	64.9	2000 2002	08/08/02	0.02
03237289	Baker Fork near Loudon, 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	08/08/02	0.26
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	08/08/02	0.001
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	09/11/02	0.66
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	09/11/02	1.61
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	09/11/02	0.02

PROJECT DATA

Low-Flow Magnitude and Frequency of Ohio Streams

LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
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	07/31/02 09/12/02	1.91 1.02
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	09/11/02	0
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	09/11/02	0.38
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	07/31/02 09/12/02	1.16 0.21
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 2001-02	08/14/02	2.01
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 2001-02	08/14/02	4.46
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 2001-02	08/08/02	2.75
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 2000-02	08/07/02 09/12/02	0.17 0
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	1999-02	08/07/02 09/12/02	0.34 0.12

PROJECT DATA
Low-Flow Magnitude and Frequency of Ohio Streams

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LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
<u>MAUMEE RIVER BASIN—CONTINUED</u>						
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	08/08/02	2.17
				1999-02	09/13/02	1.43
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	08/07/02	2.93
				1998-99 2002	09/13/02	2.10
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 minortheast 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	--	--
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 2001-02	08/14/02	0
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 2001-02	08/14/02	0.14
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	2000-02	08/08/02 09/13/02	0.35 0.43
<u>PORTAGE RIVER BASIN</u>						
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	08/08/02	0
				1999-02	09/13/02	0
<u>SANDUSKY RIVER BASIN</u>						
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 1997-02	08/01/02 09/11/02	0 0

PROJECT DATA

Low-Flow Magnitude and Frequency of Ohio Streams

LOW-FLOW PARTIAL-RECORD STATIONS—CONTINUED

[MI², square miles; WY, water year; FT³/S, cubic foot per second; --, no data]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
<u>HURON RIVER BASIN</u>						
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 1997-02	08/07/02	2.51
<u>VERMILION RIVER BASIN</u>						
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 Reservoir, 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	1997-02	08/07/02	0
<u>BLACK RIVER BASIN</u>						
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	2000-02	08/08/02	1.82
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 1998-02	08/08/02	1.32
<u>ROCKY RIVER BASIN</u>						
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	09/11/02	2.01
<u>CUYAHOGA RIVER BASIN</u>						
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	09/11/02	7.26
<u>ASHTABULA RIVER BASIN</u>						
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 2001-02	09/11/02	0

PROJECT DATA
Low-Flow Magnitude and Frequency of Ohio Streams

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DISCONTINUED STREAMFLOW-GAGING STATIONS

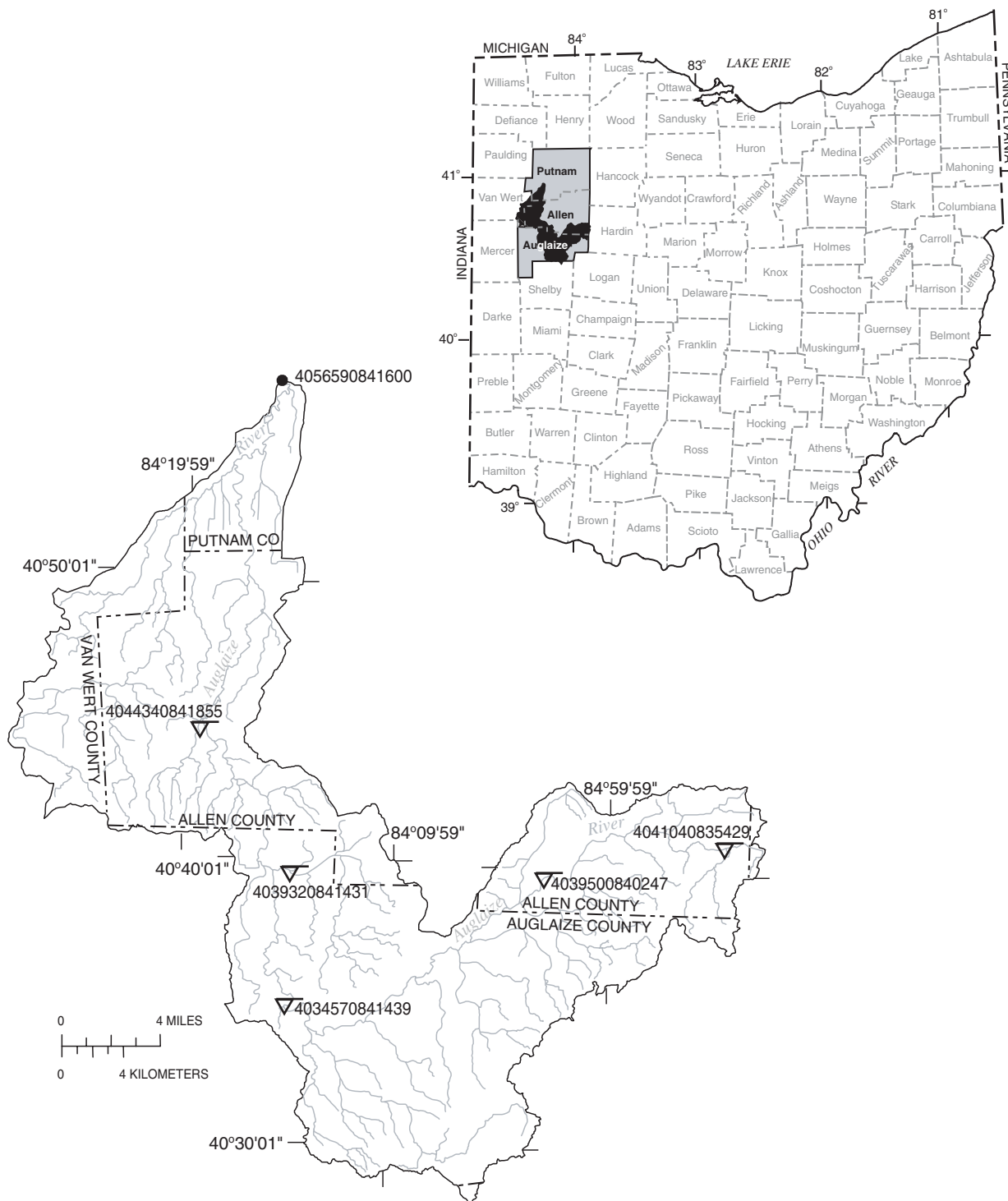
[MI², square miles; WY, water year; FT³/s, cubic foot per second]

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA (MI ²)	PERIOD OF RECORD (WY)	MEASUREMENTS	
					DATE	DISCHARGE (FT ³ /S)
<u>MUSKINGUM RIVER BASIN</u>						
03123000	Sugar Creek above Beach City Dam at Beach City, Ohio	Latitude 40°39'24", longitude 81°34'37", in NE 1/4 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	09/12/02	7.97
<u>SCIOTO RIVER BASIN</u>						
03223000	Olentangy River at Claridon, Ohio	Latitude 40°34'58", longitude 82°59'20", in NW 1/4 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	08/01/02 09/11/02	5.50 1.54
<u>LITTLE MIAMI RIVER BASIN</u>						
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, 3/4 mi west of Roxanna, and 2.2 mi southwest of Spring Valley, Ohio.	366	1968-85	09/11/02	65.6
<u>GREAT MIAMI RIVER BASIN</u>						
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	09/11/02	4.50

PROJECT DATA

Upper Auglaize River Erosion and Sediment Transport

The data contained in the following tables were collected as part of the Upper Auglaize River erosion and sediment transport project. This project is part of a multi-agency effort to characterize erosion and sediment transport in the Upper Auglaize watershed. Stream-bed materials were collected at six sites in the watershed and analyzed to determine their particle-size distributions.



PROJECT DATA
Upper Auglaize River Erosion and Sediment Transport

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STREAM-BED SEDIMENT SAMPLES

[MM, millimeters; (80164), USGS National Water Information System parameter code; --, no data;

STATION NUMBER	DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)
4056590841600	07/18/02	2	3	5	8	14
4044340841855	07/18/02	51	61	73	82	87
4034570841439	07/16/02	0	0	1	6	11
4039500840247	07/16/02	0	2	8	30	52
4041040835429	07/17/02	10	14	22	31	38
4039320841431	07/17/02	2	3	6	20	35

STATION NUMBER	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
4056590841600	26	36	40	45	76	100
4044340841855	92	97	100	--	--	--
4034570841439	18	28	39	58	80	100
4039500840247	76	92	96	96	100	100
4041040835429	46	58	80	85	100	--
4039320841431	48	63	83	100	100	--

Determination of Flow and Selected Water-Quality Characteristics of the Ottawa River

The following tables contain measurements of streamflow for streamwater sites along the Ottawa River and its tributaries in Hardin, Allen, and Putnam Counties. The data were collected in cooperation with the Ottawa River Coalition during the following times: November 2001, July 2002, and September 2002. Objectives of the study are to plot the correlation of low streamflow at each site and daily mean streamflow at an index station (Auglaize River at Ft. Jennings, Ohio) and to help determine the concentration of selected water-quality constituents during periods of potential stress on the aquatic communities at 19 sites.



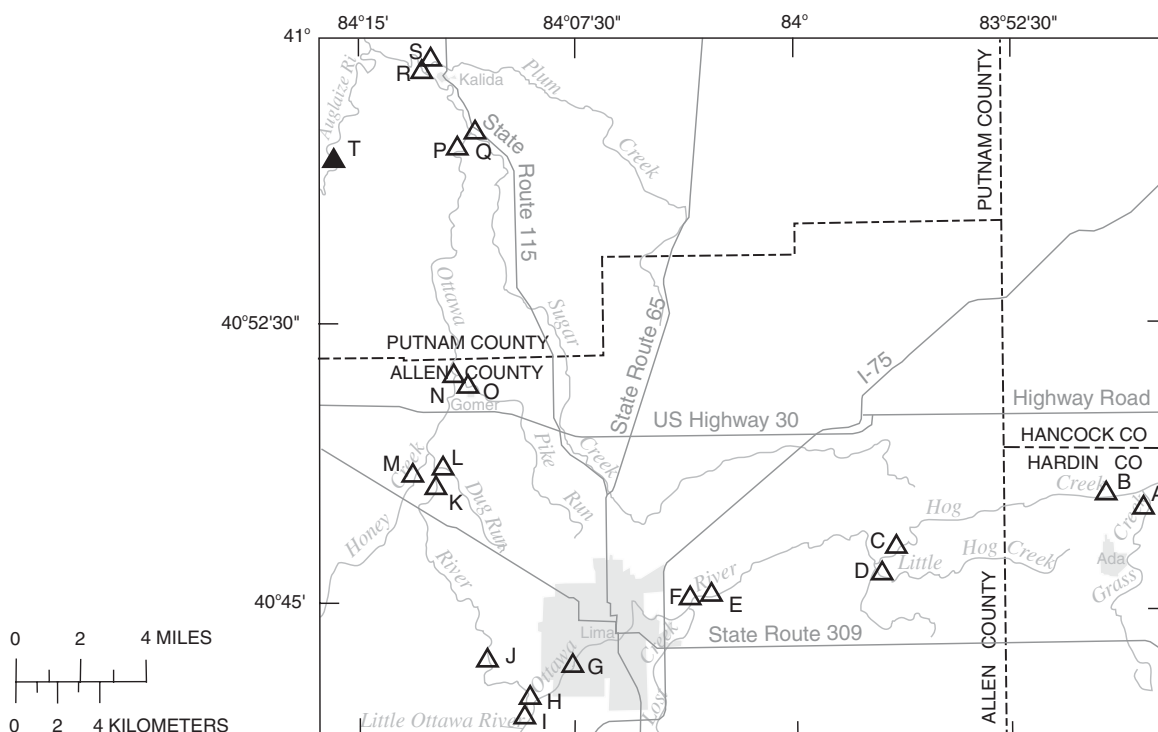
EXPLANATION

△ SITE LOCATION

- A Grass Creek near Ada
- B Hog Creek near Ada
- C Hog Creek at Lafayette
- D Little Hog Creek at Lafayette
- E Ottawa River at Metzger Road at Lima
- F Lost Creek near Lima
- G Ottawa River at Lima
- H Ottawa River at Shawnee Road near Lima
- I Little Ottawa River near Lima
- J Ottawa River at State Route 117 near Lima
- K Ottawa River near Elida
- L Dug Run near Elida
- M Honey Run near Elida
- N Ottawa River at Gomer
- O Pike Run at Gomer
- P Ottawa River near Kalida
- Q Sugar Creek near Kalida
- R Ottawa River at Kalida
- S Plum Creek at Kalida

INDEX STATION

- ▲ T Auglaize River at Ft. Jennings



PROJECT DATA

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Determination of Flow and Selected Water-Quality Characteristics of the Ottawa River

OTTAWA RIVER AND TRIBUTARIES PARTIAL-RECORD STATIONS

[FT³/S, cubic feet per second]

STATION LETTER	STATION NUMBER	STATION NAME	LOCATION	DATE	TIME	STREAMFLOW (FT ³ /S)
A	404728083475300	Grass Creek near Ada, Ohio	Latitude 40°47'28", longitude 83°47'53", Hardin County, Hydrologic Unit 04100007, at Airport Road bridge over Grass Creek 1.5 mi northeast of Ada, Ohio. (Ada 1:24000 quad)	11/18/01 07/15/02 09/16/02	0850 0945 0920	1.0 .71 .68
B	404746083492400	Hog Creek near Ada, Ohio	Latitude 40°47'46", longitude 83°49'24", Hardin County, Hydrologic Unit 04100007, at State Route 235 bridge over Hog Creek, 1.5 mi north of Ada, Ohio. (Ada 1:24000 quad)	11/18/01 07/15/02 09/16/02	1005 1103 1022	4.1 .95 1.4
C	404616083564200	Hog Creek at Lafayette, Ohio	Latitude 40°46'16", longitude 83°56'42", Allen County, Hydrologic Unit 04100007, along North side of State Route 81 between Center Road and Swaney Road, 1 mi northeast of Lafayette, Ohio. (Beaverdam 1:24000 quad)	11/18/01 07/15/02 09/16/02	1110 1231 1202	5.6 1.2 .96
D	404602083571700	Little Hog Creek at Lafayette, Ohio	Latitude 40°46'02", longitude 83°57'17", Allen County, Hydrologic Unit 04100007, at State Route 81 bridge over Little Hog Creek, 0.5 mi northwest of Lafayette, Ohio. (Beaverdam 1:24000 quad)	11/18/01 07/15/02 09/16/02	1225 1350 1325	.82 .10 .14
E	404504084030300	Ottawa River at Metzger Road at Lima, Ohio	Latitude 40°45'04", longitude 84°03'03", Allen County, Hydrologic Unit 04100007, at the North end of Metzger Road, downstream of the pump station, 0.2 mi south of the Lima Reservoir, and 0.5 mi north of Metzger Reservoir, 2 miles east of Lima, Ohio. (Cairo 1:24000 quad)	11/18/01 07/15/02 09/16/02	1340 1540 1413	no flow 1.5 no flow
F	404448084034000	Lost Creek near Lima, Ohio	Latitude 40°44'48", longitude 84°03'40", Allen County, Hydrologic Unit 04100007, north of High Street/Reservoir Road Bridge over Lost Creek, northeast of bait shop, 1 mi east of Lima, Ohio. (Lima 1:24000 quad)	11/18/01 07/15/02 09/16/02	1400 1700 1425	.83 .48 .64
G	04187100	Ottawa River at Lima, Ohio	Latitude 40°43'29", longitude 84°07'35", Allen County, Hydrologic Unit 04100007, at discontinued gaging station at the Lima Wastewater Treatment Plant in Lima, Ohio. (Cridersville 1:24000 quad)	11/18/01 07/15/02 09/16/02	1530 1836 1625	5.1 4.0 1.5
H	404224084090500	Ottawa River at Shawnee Road near Lima, Ohio	Latitude 40°42'40", longitude 84°09'05", Allen County, Hydrologic Unit 04100007, at Shawnee Road bridge over Ottawa River near the intersection of Shawnee Road and Amanda Road, 1 mi south of Lima, Ohio. (Cridersville 1:24000 quad)	11/18/01 07/15/02 09/17/02	0930 1720 0832	23 27 19
I	404221084091500	Little Ottawa River near Lima, Ohio	Latitude 40°42'21", longitude 84°09'15", Allen County, Hydrologic Unit 04100007, 300 yards south of the intersection of the Little Ottawa River and Amanda Road, 1 mi southwest of Lima, Ohio. (Cridersville 1:24000 quad)	11/18/01 07/15/02 09/16/02	1100 1845 1740	.65 .10 no flow
J	404322084102600	Ottawa River at State Route 117 near Lima, Ohio	Latitude 40°43'22", longitude 84°10'26", Allen County, Hydrologic Unit 04100007, at State Route 117 bridge over Ottawa River, 1 mi south of Lima, Ohio. (Cridersville 1:24000 quad)	11/18/01 07/15/02 09/17/02	1620 1550 0911	26 26 19

PROJECT DATA
Determination of Flow and Selected Water-Quality Characteristics of the Ottawa River

OTTAWA RIVER AND TRIBUTARIES PARTIAL-RECORD STATIONS—Continued

[FT³/S, cubic feet per second]

STATION LETTER	STATION NUMBER	STATION NAME	LOCATION	DATE	TIME	STREAMFLOW (FT ³ /S)
K	404808084121700	Ottawa River at Elida, Ohio	Latitude 40°48'08", longitude	11/19/01	1045	31
			84°12'17", Allen County,	07/15/02	1325	27
			Hydrologic Unit 04100007, 300 ft North of the end of Troyer Road, 1 mi north of Elida, Ohio. (Elida 1:24000 quad)	09/17/02	1050	20
L	404839084121400	Dug Run near Elida, Ohio	Latitude 40°48'39", longitude	11/18/01	1335	1.1
			84°12'14", Allen County,	07/15/02	1154	.67
			Hydrologic Unit 04100007, at Dutch Hollow Road bridge over Dug Run, 1.5 mi north of Elida, Ohio. (Elida 1:24000 quad)	09/17/02	0928	.76
M	404826084130400	Honey Run near Elida, Ohio	Latitude 40°48'26", longitude	11/18/01	1230	.89
			84°13'04", Allen County,	07/15/02	1440	.15
			Hydrologic Unit 04100007, at Billymack Road bridge over Honey Run, 1.5 mi northwest of Elida, Ohio. (Elida 1:24000 quad)	09/17/02	1059	.05
N	405051084114000	Ottawa River at Gomer, Ohio	Latitude 40°50'51", longitude	11/18/01	1445	34
			84°11'40", Allen County,	07/15/02	1000	27
			Hydrologic Unit 04100007, at Lincoln Highway bridge over the Ottawa River, 0.5 mile west of Gomer, Ohio. (Elida 1:24000 quad)	09/17/02	0801	21
O	405048084111000	Pike Run at Gomer, Ohio	Latitude 40°50'48", longitude	11/19/01	0945	2.6
			84°11'10", Allen County,	07/16/02	0736	1.2
			Hydrologic Unit 04100007, at Gomer Road bridge over Pike Run, on the northside of Gomer, Ohio. (Elida 1:24000 quad)	09/16/02	1640	1.3
P	405700084113600	Ottawa River near Kalida, Ohio	Latitude 40°57'00", longitude	11/19/01	0755	41
			84°11'36", Putnam County,	07/16/02	0930	30
			Hydrologic Unit 04100007, 0.2 mi north of County Road 43 on east side of County Road 17 across from old brick house, 2 mi south of Kalida, Ohio. (Kalida 1:24000 quad)	09/16/02	1442	24
Q	04187995	Sugar Creek near Kalida, Ohio	Latitude 40°57'16", longitude	11/19/01	0740	4.4
			84°10'45", Putnam County,	07/16/02	0732	no flow
			Hydrologic Unit 04100007, County Road 66 bridge over Sugar Creek, 2.5 mi southeast of Kalida, Ohio. (Kalida 1:24000 quad)	09/16/02	1421	no flow
R	405901084124600	Ottawa River at Kalida, Ohio	Latitude 40°59'01", longitude	11/19/01	1010	44
			84°12'46", Putnam County,	07/16/02	1239	28
			Hydrologic Unit 04100007, at end of drive into St. Michaels Cemetery accessed by State Route 114, 0.2 mi northwest of Kalida, Ohio. (Kalida 1:24000 quad)	09/16/02	1314	25
S	405913084123300	Plum Creek at Kalida, Ohio	Latitude 40°59'13", longitude	11/19/01	0850	2.8
			84°12'33", Putnam County,	07/16/02	1110	.44
			Hydrologic Unit 04100007, at State Route 114 bridge over Plum Creek, 0.2 mi northwest of Kalida, Ohio. (Kalida 1:24000 quad)	09/16/02	1228	.24

Characterization of Microbial Water Quality in Relation to Water-Contact Recreation, Cuyahoga River, Cuyahoga Valley National Park, Ohio

The following tables list the results of microbiological, chemical, and physical measurements collected at four locations along the Cuyahoga River in Summit and Cuyahoga Counties, Ohio. Samples were collected and analyzed as part of a study to characterize the occurrence, distribution, and public health significance of microbiological constituents that may contaminate the river.



PROJECT DATA
Characterization of Microbial Water Quality in Relation to Water-Contact Recreation,
Cuyahoga River, Cuyahoga Valley National Park, Ohio

WATER-QUALITY RECORDS

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00065), USGS National Water Information System parameter code; NTU, nephelometric turbidity units; MM OF HG, millimeters of mercury; MG/L, milligrams per liter; --, no data]

DATE	TIME	GAGE HEIGHT (FEET) (00065)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR- BIDITY FIELD WATER UNFLTRD (NTU (61028)	BARO- METRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PERCENT SATUR- ATION (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)
<u>04206000 CUYAHOGA RIVER AT OLD PORTAGE, OHIO</u>								
MAY								
21...	1045	5.09	960	15	751	9.6	92	7.9
JUN								
17...	1200	3.15	485	8.9	736	5.3	59	7.8
JUL								
15...	1115	2.05	92	5.9	744	7.2	84	7.6
<u>04206200 CUYAHOGA RIVER AT BOTZUM, OHIO</u>								
MAY								
22...	1200	7.92	992	13	752	9.2	91	7.6
JUN								
18...	1300	6.87	413	13	746	6.9	78	7.7
JUL								
16...	1215	5.77	176	3.3	742	7.6	91	7.4
<u>410936081341201 AKRON SEWAGE TREATMENT PLANT-WU1</u>								
MAY								
21...	1415	--	119	4.4	751	7.8	79	7.2
JUN								
17...	1517	--	108	2.3	736	--	36	7.0
JUL								
15...	1315	--	84	2.8	744	6.2	71	7.0
<u>411747081341300 CUYAHOGA RIVER AT JAITE, OHIO</u>								
MAY								
22...	0845	7.80	1040	20	752	9.8	90	7.7
JUN								
18...	0900	6.64	472	24	746	7.3	80	7.6
JUL								
16...	0900	5.72	183	9.4	747	7.3	90	7.9

PROJECT DATA

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**Characterization of Microbial Water Quality in Relation to Water-Contact Recreation,
Cuyahoga River, Cuyahoga Valley National Park, Ohio**

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(00095), USGS National Water Information System parameter code; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; MG/L, milligrams per liter; COL/100 ML, colonies per 100 milliliters; ML, milliliters]

DATE	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	CLOSTR- IDIUM PERFRIN MCP MF, WATER (COL/ 100 ML) (90915)	COLI- PHAGE, E. COLI C13, 1-AGAR (PLAQUE 100 ML) (90903)
<u>04206000 CUYAHOGA RIVER AT OLD PORTAGE, OHIO</u>								
MAY 21...	389	15.0	12.6	46.7	.40	.095	190	790
JUN 17...	561	14.6	19.2	71.1	.82	.097	67	130
JUL 15...	888	28.5	21.8	141	.85	.070	120	72
<u>04206200 CUYAHOGA RIVER AT BOTZUM, OHIO</u>								
MAY 22...	522	27.0	14.0	77.8	1.86	.175	370	63
JUN 18...	647	24.5	20.1	93.3	2.52	.172	350	47
JUL 16...	1040	32.0	22.7	160	5.95	.27	340	470
<u>410936081341201 AKRON SEWAGE TREATMENT PLANT-WU1</u>								
MAY 21...	1160	23.0	14.9	190	6.69	.53	1700	79
JUN 17...	1190	18.8	17.9	191	8.96	1.19	800	290
JUL 15...	1140	31.5	20.8	171	10.5	1.28	1100	170
<u>411747081341300 CUYAHOGA RIVER AT JAITE, OHIO</u>								
MAY 22...	533	19.5	10.9	71.6	1.39	.154	270	170
JUN 18...	748	17.2	18.3	101	2.47	.195	360	78
JUL 16...	1020	30.5	22.8	155	5.19	.47	120	33

PROJECT DATA
Characterization of Microbial Water Quality in Relation to Water-Contact Recreation,
Cuyahoga River, Cuyahoga Valley National Park, Ohio

WATER-QUALITY RECORDS—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[(90904), USGS National Water Information System parameter code; ML, milliliters; L, liters; % REC, percent recovered; COL/100 ML, colonies per 100/milliliters; MG/L, milligrams per liter; <, concentration or value reported is less than that indicated; --, no data]

DATE	COLI- PHAGE, E. COLI F-AMP 1-AGAR, (PLAQUE 100 ML) (90904)	CRYPTO- SPORID- IUM, MTH1623 WATER (OOCYST/ 10 L) (99599)	CRYPTO- SPRIDM, SPIKE EFFICIE P99599, WATER (% REC) (99600)	E. COLI, MTEC MF WATER (COL/ 100 ML) (31633)	GIARDIA METHOD 1623, WATER (CYSTS/ 10 L) (99597)	GIARDIA SPIKE EFFICIE P99597, WATER (% REC) (99598)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
<u>04206000 CUYAHOGA RIVER AT OLD PORTAGE, OHIO</u>							
MAY 21...	34	<1	--	3000	<1	--	21
JUN 17...	160	<1	--	370	3	--	--
JUL 15...	<1	<1	--	350	1	--	11
<u>04206200 CUYAHOGA RIVER AT BOTZUM, OHIO</u>							
MAY 22...	24	<1	15	7300	<1	24	20
JUN 18...	8	<1	32	440	16	31	--
JUL 16...	63	<1	18	410	<1	26	4.7
<u>410936081341201 AKRON SEWAGE TREATMENT PLANT-WU1</u>							
MAY 21...	29	<1	--	210	<1	--	3.7
JUN 17...	34	<1	--	970	10	--	--
JUL 15...	12	<1	--	1300	8	--	--
<u>411747081341300 CUYAHOGA RIVER AT JAITE, OHIO</u>							
MAY 22...	4	<1	--	2200	<1	--	38
JUN 18...	6	<1	--	470	6	--	--
JUL 16...	<1	<1	--	240	<1	--	18

PROJECT DATA

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Determining the Presence of Glyphosate and Other Herbicides in Midwest Streams

03219500. SCIOTO RIVER NEAR PROSPECT, OHIO

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE- CIFIC CONDUCTANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
JUN 04...	1230	248	7.4	7.6	641	28.0	20.9	1.32	1.55	1.38
JUL 31...	0930	21	4.5	7.5	897	25.7	25.4	.32	.25	<.05
DATE	ALACHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALACHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALACHLOR WATER, DISS, REC (UG/L) (46342)	AMETRYN WATER, DISS, REC (UG/L) (38401)	AMINO- METHYL- PHOS- PHONIC ACID, WAT FLT (UG/L) (62649)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CYANA- ZINE- AMIDE WATER FLTRD REC (UG/L) (61709)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
JUN 04...	.06	.17	<.05	<.05	.6	9.69	<.05	<.05	.79	.79
JUL 31...	.05	.29	<.05	.06	.8	7.93	<.05	<.05	.40	.24
DATE	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DI- METHEN- AMID WATER FLTRD REC (UG/L) (61588)	FLUFE- NACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUFE- NACET, WATER, FLT, REC (UG/L) (62481)	GLUFO- SINATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62721)	GLYPHO- SATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62722)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
JUN 04...	.11	.13	.25	<.05	<.05	.09	<.1	.6	2.20	.89
JUL 31...	<.05	<.05	<.05	<.05	<.05	<.05	<.1	.5	.55	.21
DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PROP- AZINE WATER DISS, REC (UG/L) (38535)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BUTRYN WATER, DISS, REC (UG/L) (38888)		
JUN 04...	2.63	.23	<.05	<.05	<.05	.11	3.11	<.05		
JUL 31...	.07	<.05	<.05	<.05	<.05	.16	.16	<.05		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

[illegible]

Determining the Presence of Glyphosate and Other Herbicides in Midwest Streams

03230500. BIG DARBY CREEK AT DARBYVILLE, OHIO

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE- CIFIC CONDUCTANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
JUN 03...	1200	481	7.7	8.1	597	18.9	20.3	.26	.48	.83
AUG 01...	0930	105	6.5	7.6	699	25.0	25.7	.71	.91	.05
DATE	ALACHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALACHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALACHLOR WATER, DISS, REC (UG/L) (46342)	AMETRYN WATER, DISS, REC (UG/L) (38401)	AMINO- METHYL- PHOS- PHONIC ACID, WAT FLT (UG/L) (62649)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CYANA- ZINE- AMIDE WATER, FLTRD REC (UG/L) (61709)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
JUN 03...	<.05	.05	<.05	<.05	.3	10.0	<.05	<.05	.53	.38
AUG 01...	<.05	.10	<.05	<.05	.2	.99	<.05	<.05	.40	.18
DATE	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DI- METHEN- AMID WATER FLTRD REC (UG/L) (61588)	FLUFE- NACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUFE- NACET, WATER, FLT, REC (UG/L) (62481)	GLUFO- SINATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62721)	GLYPHO- SATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62722)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
JUN 03...	.09	.10	.48	<.05	<.05	<.05	<.1	.6	.91	.46
AUG 01...	.06	.10	<.05	<.05	<.05	<.05	<.1	<.1	1.43	.67
DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PROP- AZINE WATER DISS, REC (UG/L) (38535)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BUTRYN WATER, DISS, REC (UG/L) (38888)		
JUN 03...	3.79	.36	<.05	<.05	<.05	.10	1.83	<.05		
AUG 01...	.24	<.05	<.05	<.05	<.05	<.05	.05	<.05		

PROJECT DATA

Determining the Presence of Glyphosate and Other Herbicides in Midwest Streams

03234500. SCIOTO RIVER AT HIGBY, OHIO

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE- CIFIC CONDUCTANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
JUN 04...	1015	4080	7.3	7.9	606	27.6	21.7	.48	.57	.49
JUL 30...	1100	2230	8.8	7.8	676	25.7	26.6	.58	.78	.17
DATE	ALACHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALACHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALACHLOR WATER, DISS, REC (UG/L) (46342)	AMETRYN WATER, DISS, REC (UG/L) (38401)	AMINO- METHYL- PHOS- PHONIC ACID, WAT FLT (UG/L) (62649)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CYANA- ZINE- AMIDE WATER FLTRD REC (UG/L) (61709)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
JUN 04...	<.05	.09	<.05	<.05	.4	4.15	<.05	<.05	.46	.41
JUL 30...	<.05	.09	<.05	<.05	.9	<.05	<.05	<.05	.51	<.05
DATE	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DI- METHEN- AMID WATER FLTRD REC (UG/L) (61588)	FLUFE- NACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUFE- NACET, WATER, FLT, REC (UG/L) (62481)	GLUFO- SINATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62721)	GLYPHO- SATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62722)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
JUN 04...	.05	.06	.18	<.05	<.05	<.05	<.1	.2	.86	.43
JUL 30...	<.05	<.05	<.05	<.05	<.05	<.05	<.1	.2	.67	.34
DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PROP- AZINE WATER DISS, REC (UG/L) (38535)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BUTRYN WATER, DISS, REC (UG/L) (38888)		
JUN 04...	.97	<.05	<.05	<.05	<.05	.06	.71	<.05		
JUL 30...	.35	<.05	<.05	<.05	<.05	<.05	.15	<.05		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

[illegible]

PROJECT DATA

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Determining the Presence of Glyphosate and Other Herbicides in Midwest Streams

04185000. TIFFIN RIVER AT STRYKER, OHIO

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE- CIFIC CONDUCTANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
MAY										
29...	1700	291	8.4	8.4	588	26.0	17.9	.35	.24	.33
JUL										
23...	1530	190	7.3	7.9	705	22.0	26.7	.19	.17	<.05
DATE	ALACHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALACHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALACHLOR WATER, DISS, REC (UG/L) (46342)	AMETRYN WATER, DISS, REC (UG/L) (38401)	AMINO- METHYL- PHOS- PHONIC ACID, WAT FLT (UG/L) (62649)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CYANA- ZINE- AMIDE WATER FLTRD REC (UG/L) (61709)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
MAY										
29...	.05	.30	<.05	<.05	.1	1.85	<.05	<.05	.16	.11
JUL										
23...	.06	.54	<.05	<.05	.3	.45	<.05	<.05	.08	<.05
DATE	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DI- METHEN- AMID WATER FLTRD REC (UG/L) (61588)	FLUFE- NACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUFE- NACET, WATER, FLT, REC (UG/L) (62481)	GLUFO- SINATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62721)	GLYPHO- SATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62722)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
MAY										
29...	<.05	.05	.11	<.05	<.05	<.05	<.1	.2	.60	.20
JUL										
23...	<.05	<.05	<.05	<.05	<.05	<.05	<.1	<.1	.79	.24
DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PROP- AZINE WATER DISS, REC (UG/L) (38535)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BUTRYN WATER, DISS, REC (UG/L) (38888)		
MAY										
29...	.32	<.05	<.05	<.05	<.05	<.05	.36	<.05		
JUL										
23...	<.05	<.05	<.05	<.05	<.05	<.05	.06	<.05		

PROJECT DATA

Determining the Presence of Glyphosate and Other Herbicides in Midwest Streams

04186500. AUGLAIZE RIVER NEAR FORT JENNINGS, OHIO

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[00061, USGS National Water Information System parameter code; MG/L, milligrams per liter; US/CM, microsiemens per centimeter; DEG C, degrees Celsius; UG/L, micrograms per liter; <, concentration or value reported is less than that indicated]

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE (FIELD STANDARD UNITS) (00400)	SPE- CIFIC CONDUCTANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	ACETO- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61029)	ACETO- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61030)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)
MAY 28...	1115	105	8.5	8.1	771	18.0	19.3	.44	.30	.24
JUL 23...	1100	6.2	5.1	7.5	1040	21.0	26.5	2.16	2.87	.05

DATE	ALACHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61031)	ALACHLOR ESA WAT FLT GF 0.7U REC (UG/L) (50009)	ALACHLOR WATER, DISS, REC (UG/L) (46342)	AMETRYN WATER, DISS, REC (UG/L) (38401)	AMINO- METHYL- PHOS- PHONIC ACID, WAT FLT (UG/L) (62649)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	CYANA- ZINE- AMIDE WATER FLTRD REC (UG/L) (61709)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN DISS, REC (UG/L) (04038)
MAY 28...	<.05	.13	<.05	<.05	.3	1.53	<.05	<.05	.16	.11
JUL 23...	.71	.66	<.05	<.05	.6	2.58	<.05	<.05	1.14	.66

DATE	DIMETH- ENAMID OA, WATER FLT, REC (UG/L) (62482)	DIMETH- ENAMID, ESA, WAT FLT (UG/L) (61951)	DI- METHEN- AMID WATER FLTRD REC (UG/L) (61588)	FLUFE- NACET, ESA, WAT FLT (UG/L) (61952)	FLUFE- NACET OA, WATER FLT, REC (UG/L) (62483)	FLUFE- NACET, WATER, FLT, REC (UG/L) (62481)	GLUFO- SINATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62721)	GLYPHO- SATE, WATER, FLTRD, GF 0.7U REC (UG/L) (62722)	METOLA- CHLOR ESA FLTRD 0.7 UM GF REC (UG/L) (61043)	METOLA- CHLOR OA FLTRD 0.7 UM GF REC (UG/L) (61044)
MAY 28...	<.05	.06	.08	<.05	<.05	<.05	<.1	.1	1.23	.33
JUL 23...	.13	.14	<.05	<.05	<.05	<.05	<.1	.2	1.25	.83

DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PROP- AZINE WATER DISS, REC (UG/L) (38535)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BUTRYN WATER, DISS, REC (UG/L) (38888)
MAY 28...	.75	.05	.05	<.05	<.05	<.05	.20	<.05
JUL 23...	.17	.05	.16	<.05	<.05	<.05	.17	<.05

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CONVERSION FACTORS

Multiply	By	To obtain
Length		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
Area		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
Volume		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
Flow		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
Mass		
ton (short)	9.072×10^{-1}	megagram or metric ton

Temperature in degrees Celsius (C) may be converted to degrees Fahrenheit (F) as follows:

$$F = (1.8 \text{ C}) + 32$$

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
6480 Doubletree Avenue
Columbus, OH 43229-1111

