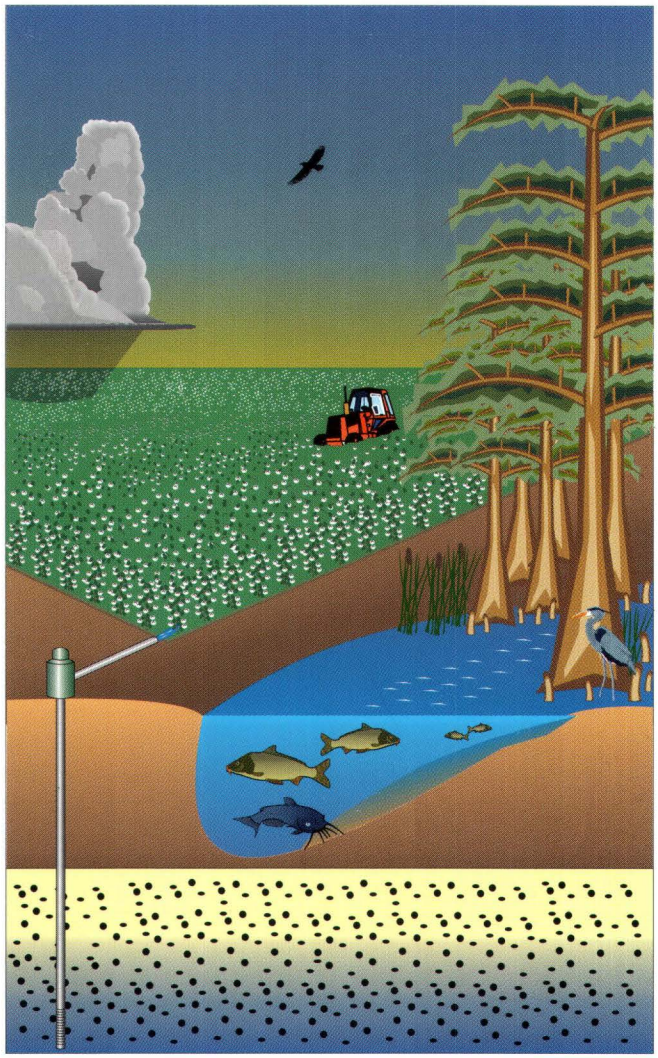
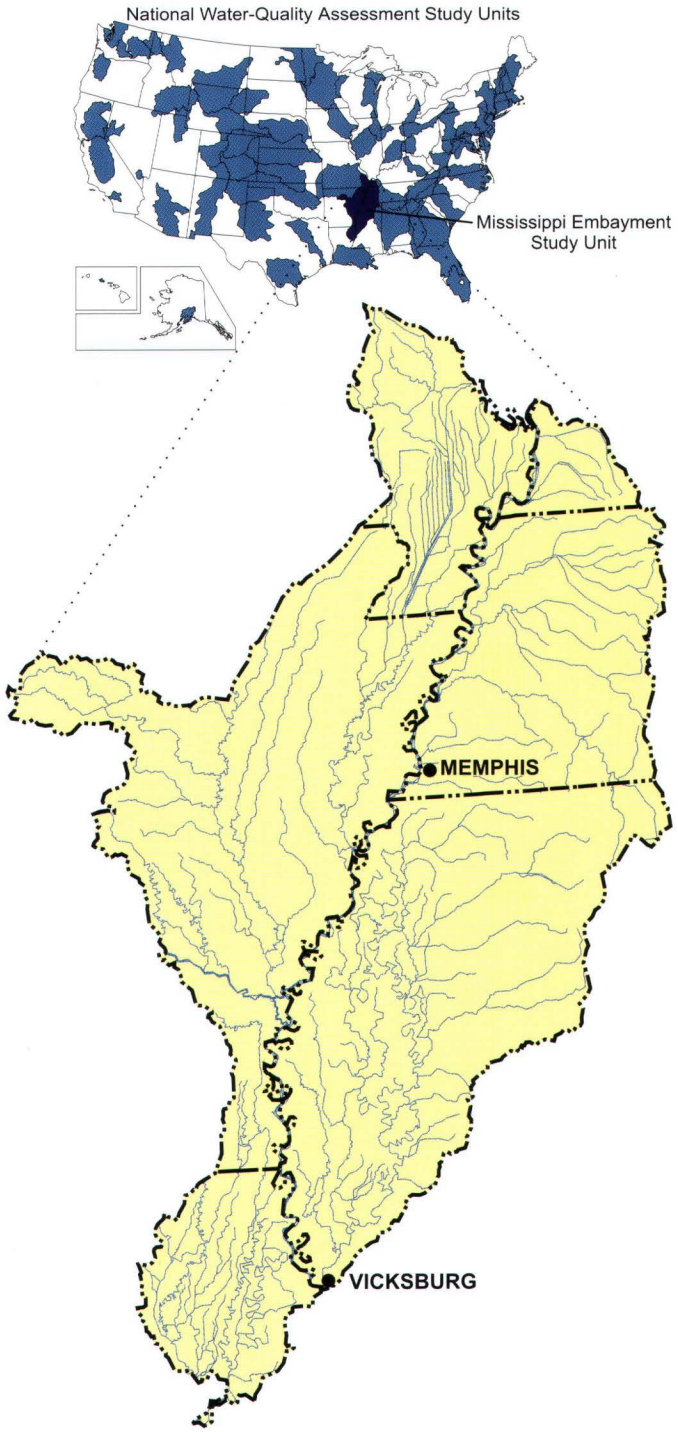
WATER QUALITY IN THE DEEP TERTIARY AQUIFERS OF THE MISSISSIPPI EMBAYMENT, 1996

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations Report 99- 4131





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National Water-Quality Assessment Program

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

WATER QUALITY IN THE DEEP TERTIARY AQUIFERS OF THE MISSISSIPPI EMBAYMENT, 1996

by Gerard J. Gonthier

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National Water-Quality Assessment Program

Pearl, Mississippi
February 2000

U.S. DEPARTMENT OF THE INTERIOR
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Information regarding the National Water-Quality Assessment (NAWQA) Program is available via the Internet at: http://water.usgs.gov/nawqa/nawqa_home.html

FOREWORD

The mission of the U.S. Geological Survey (USGS) is to assess the quantity and quality of the earth resources of the Nation and to provide information that will assist resource managers and policymakers at Federal, State, and local levels in making sound decisions. Assessment of water-quality conditions and trends is an important part of this overall mission.

One of the greatest challenges faced by water-resources scientists is acquiring reliable information that will guide the use and protection of the Nation's water resources. That challenge is being addressed by Federal, State, interstate and local water-resource agencies and by many academic institutions. These organizations are collecting water-quality data for a host of purposes that include: compliance with permits and water-supply standards; development of remediation plans for a specific contamination problem; operational decisions on industrial, wastewater, or water-supply facilities; and research on factors that affect water quality. An additional need for water-quality information is to provide a basis on which regional and national-level policy decisions can be based. Wise decisions must be based on sound information. As a society we need to know whether certain types of water-quality problems are isolated or ubiquitous, whether there are significant differences in conditions among regions, whether the conditions are changing over time, and why these conditions change from place to place and over time. The information can be used to help determine the efficacy of existing water-quality policies and to help analysts determine the need for and likely consequences of new policies.

To address these needs, the Congress appropriated funds in 1986 for the USGS to begin a pilot program in seven project areas to develop and refine the National Water-Quality Assessment (NAWQA) Program. The NAWQA Program builds upon an existing base of water-quality studies of the USGS, as well as those of other Federal, State, and local agencies. The objectives of the NAWQA Program are to:

- Describe current water-quality conditions for a large part of the Nation's freshwater streams, rivers, and aquifers.
- Describe how water quality is changing over time.
- Improve understanding of the primary natural and human factors that affect water-quality conditions.

This information will help support the development and evaluation of management, regulatory, and monitoring decisions by other Federal, State, and local agencies to protect, use and enhance water resources.

The goals of the NAWQA Program are being achieved through ongoing and proposed investigations of more than 50 of the Nation's most important river basins and aquifer systems, which are referred to as study units. These study units are distributed throughout the Nation and cover a diversity of hydro-geologic settings. More than two-thirds of the Nation's freshwater use occurs within the more than 50 study units, and more than two-thirds of the people served by public water-supply systems live within their boundaries.

National synthesis of data analysis, based on aggregations of comparable information obtained from the study units, is a major component of the program. This effort focuses on selected water-quality topics using nationally consistent information. Comparative studies will explain difference and similarities in observed water-quality conditions among study areas and will identify changes and trends and their causes. The first topics addressed by the national synthesis are pesticides, nutrients, volatile organic compounds, and aquatic biology. Discussions on these and other water-quality topics will be published in periodic summaries of the quality of the Nation's ground and surface water as the information becomes available.

This report is an element of the comprehensive body of information developed as part of the NAWQA Program. The program depends heavily on the advice, cooperation, and information from many Federal, State, interstate, Tribal, and local agencies and the public. The assistance and suggestions of all are greatly appreciated.

Robert M. Hirsch
Chief Hydrologist

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
Length		
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
Area		
square mile (mi^2)	2.590	square kilometer
Volume		
gallon (gal)	3.785	liter
Flow rate		
foot per day (ft/d)	0.3048	meter per day
gallon per minute (gal/min)	0.06309	liter per second
inch per year (in/yr)	25.4	millimeter per year
Mass		
pound, avoirdupois (lb)	0.4536	kilogram
tritium unit (TU)	0.118	becquerel per liter
Radioactivity		
picocurie per liter (pCi/L)	0.037	becquerel per liter
Hydraulic conductivity		
foot per day (ft/d)	0.3048	meter per day
Application rate		
pounds per acre per year [(lb/acre)/yr]	1.121	kilograms per hectare per year

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$°C = (°F - 32) / 1.8$$

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Altitude, as used in this report, refers to distance above or below sea level.

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter (µg/L).

WATER QUALITY IN THE DEEP TERTIARY AQUIFERS OF THE MISSISSIPPI EMBAYMENT, 1996

By Gerard J. Gonthier

ABSTRACT

Thirty public-supply wells screened in the deep Tertiary aquifers (Claiborne and Wilcox Groups) were sampled as part of the Mississippi Embayment National Water-Quality Assessment Program. These samples were collected during April and May 1996, and were analyzed for temperature, pH, specific conductance, dissolved oxygen, alkalinity, major ions, nutrients, 88 pesticides, 87 volatile organic compounds, radioisotopes, and stable isotopes. The deep Tertiary aquifers underlie about 39,200 square miles of the Mississippi Embayment and include parts of eastern Arkansas, western Kentucky, northeastern Louisiana, northwestern Mississippi, southeastern Missouri, and western Tennessee.

Water sampled from the public-supply wells indicates that the water was suitable for drinking purposes with respect to the comprehensive suite of constituents analyzed. Concentrations of all constituents that could adversely affect water quality, including nutrients, pesticides, radioisotopes, and volatile organic compounds, were below U.S. Environmental Protection Agency maximum contaminant levels for drinking water. Two pesticides were detected in water from the shallowest well. Fifteen volatile organic compounds were detected in water from the public-supply wells. At least one volatile organic compound was detected in water from 26 of the 30 public-supply wells sampled, but concentrations were below maximum contaminant levels, generally by a few orders of magnitude. Dissolved solids, iron, and manganese concentrations in water from some wells exceeded secondary maximum contaminant levels.

Water from 16 public-supply wells was a sodium bicarbonate type; water from 11 wells was a calcium-magnesium bicarbonate type; and water from 3 wells was a mixed type. Nitrite plus nitrate and volatile organic compound concentrations in water from wells were detected more often in the upper Gulf Coastal Plain than in the Mississippi Alluvial Plain and correlated inversely to well depth more in the upper Gulf Coastal Plain than in the Mississippi Alluvial Plain. These data indicate that water in the upper Gulf Coastal Plain may be more susceptible to surface contamination than water in the Mississippi Alluvial Plain. The ^{2}H and ^{18}O concentrations in water from wells were similar to the ^{2}H and ^{18}O concentrations of precipitation in the study area. No evidence from this study indicates that remnant precipitation from the last ice age—being depleted in ^{2}H and ^{18}O compared to present-day precipitation—is still present in the deep Tertiary aquifer system.

INTRODUCTION

In 1991, the U.S. Geological Survey (USGS) began implementation of the National Water-Quality Assessment (NAWQA) Program to provide a consistent description of the Nation's ground- and surface-water resources. The NAWQA Program consists of 59 river basins or aquifer systems, referred to as study units, throughout the Nation. The objectives of the NAWQA Program are to determine the general ground- and surface-water quality of the Nation's water resources, determine the natural and anthropogenic

genic factors affecting the water quality, and determine any changes in water quality through time. Implementation of the study units is on a rotation basis (Leahy and others, 1990). About 20 study units were implemented in 1991, 1994, and 1997.

The Mississippi Embayment Study Unit was one of 16 NAWQA study units that began in 1994. Ground water is the primary source of drinking water for most of the population within the Mississippi Embayment Study Unit. Most communities in the area of the study unit use water from the deep Tertiary aquifers in the Claiborne and Wilcox Groups. Hence, the quality of water in these aquifers is of interest.

Purpose and Scope

This report describes the results of a study to determine the occurrence and distribution of inorganic and organic chemical constituents in water from aquifers in the Claiborne and Wilcox Groups within the Mississippi Embayment (herein referred to as the deep Tertiary aquifers). The study did not include the quality of water in the Mississippi River Valley alluvial aquifer which overlies the deep Tertiary aquifers in most of the study area. The report contains a brief description of the climate, physiography, geology, hydrogeology, land use, and pesticide application. Land use, hydrogeology, and well characteristics affecting ground-water quality are also discussed. The work included collection of water samples during April and May 1996, from 30 public-supply wells screened in the deep Tertiary aquifers. All water samples were analyzed for temperature, pH, specific conductance, dissolved oxygen, and alkalinity (herein referred to as field parameters), major ions, nutrients, pesticides, volatile organic compounds (VOCs), radioisotopes, and stable isotopes. Land use was assessed within 164 and 1,640 ft (50 and 500 m) of each well. Ancillary information including date of well installation, well depth, and well pumpage also were collected.

Location

The Mississippi Embayment Study Unit is approximately 49,800 mi^2 and includes eastern Arkansas, western Kentucky, northeastern Louisiana, northwestern Mississippi, southeastern Missouri, and western Tennessee (fig. 1). The study unit is approximately situated in the northern part of the Mississippi Embayment trough which is the geologic structure that contains the deep Tertiary aquifers. The deep Tertiary aquifers study area lies entirely within the Mississippi Embayment trough and is smaller than the study unit at 39,200 mi^2 (fig. 1). The deep Tertiary aquifers study area is bounded by the study unit boundary, the outcrop limit of the middle layer of the Wilcox Group as defined by Williamson and others (1990), and the southern extent of potable water in the deep Tertiary aquifers—defined by Pettijohn and others (1988) as water having dissolved solids concentrations less than 3,000 milligrams per liter (mg/L).

Previous Investigations

Ground-water resources of the deep Tertiary aquifers are addressed by a series of reports from the Gulf Coast Regional Aquifer System Analysis (GC-RASA) project (Grubb, 1986). The Mississippi Embayment aquifer system (a subsystem of the Gulf Coast Regional aquifer system which includes the deep Tertiary aquifers) is defined by Arthur and Taylor (1990) within and beyond the Mississippi Embayment Study Unit boundary. Regional ground-water flow in the Mississippi Embayment is discussed by Williamson and others (1990). Field parameter and major-ion data for ground water in the Gulf Coast Regional aquifer system were compiled (Pettijohn, 1986) and are presented in a series of reports by Pettijohn and others (1988, 1993a, 1993b, 1993c, 1993d, and 1993e).

Detailed investigations were done within State boundaries. Ground-water resources of Arkansas are described by Ackerman (1989), Petersen and others (1985), Edds and Fitzpatrick (1984), and Hosman (1982). Ground-water resources in the Jackson Purchase Region of western Kentucky are described by Davis and others (1973). Hydrogeologic characteristics of aquifers in Louisiana are described by Smoot (1988; 1989) and Martin and Early (1987). Water resources of Missouri are described by Mesko (1990) and Luckey (1985). Ground-water resources of Mississippi are described by Wasson (1986), Gandl (1982), Spiers (1977), and Boswell (1976). Geology and ground-water resources of Tennessee are described by Parks and Carmichael (1989; 1990a and 1990b). Changes in ground-water chemistry from the outcrop areas of the deep Tertiary aquifers to the axis of the Mississippi Embayment are discussed by Wasson (1986) and Moore (1962).

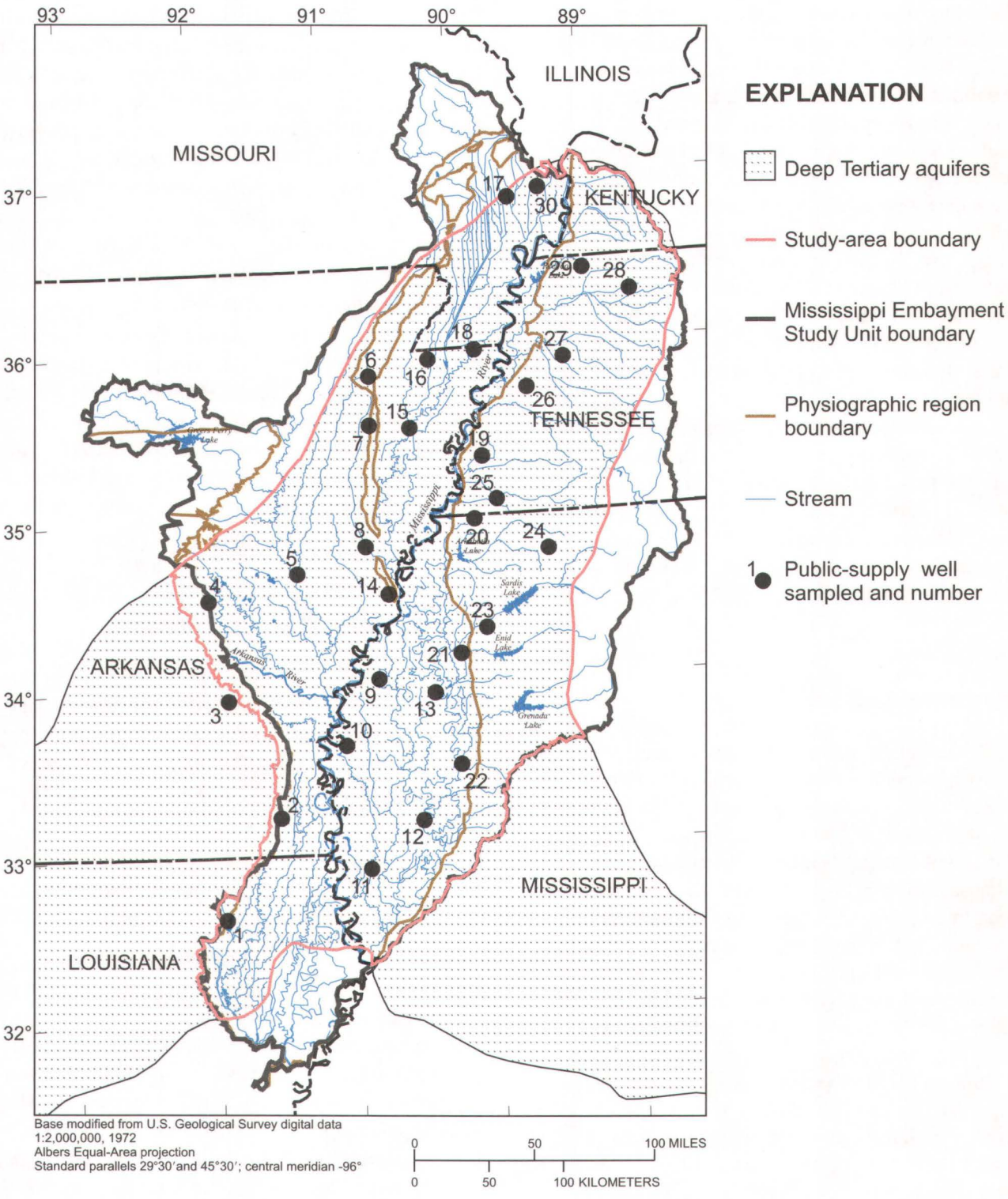

Figure 1. Location of deep Tertiary aquifers study area and locations of sampled public-supply wells in the Mississippi Embayment Study Unit, 1996.

No regional assessment of nutrients, pesticides, or VOCs has previously been conducted in the study area. Lapham and Tadayon (1996) and Zogorski (1994) describe a plan for compiling retrospective data of VOCs on a national scale. VOC data have been compiled within the Mississippi Embayment Study Unit for several hundred well samples from the Mississippi Department of Health; Memphis Light, Gas, and Water; Mississippi Department of Environmental Quality; Arkansas Department of Pollution, Control and Ecology; and the Arkansas Department of Health. These data were selected in accordance with the procedures described by Zogorski (1994). The Ozark Plateaus NAWQA study area is adjacent to the Mississippi Embayment Study Unit; the Ozark Plateaus study was started in 1991. Adamski (1996a) reports on the presence of nutrients and pesticides in ground water in the Ozark Plateaus as part of the Ozark Plateaus NAWQA study.

A few studies have investigated ground-water quality in localized areas overlying the deep Tertiary aquifers study area in Tennessee (Hutson and Haugh, 1992; and Parks and others, 1993). Other studies have investigated ground-water quality at the edge of the deep Tertiary aquifers study area in Louisiana (Stuart and Demas, 1990; Dial and Huff, 1989; and Snider and Sanford, 1981).

Acknowledgments

The author extends his deep appreciation to the following well operators and municipalities who provided access to public-supply wells: Leon Sivils with L & R Utilities Inc., Monroe, Louisiana; the City of Portland, Arkansas; Rodney Cantrel with Star City, Arkansas; Richard Bruce with the England Water Department, Arkansas; Sherman Cox with the City of Clarendon, Arkansas; Jerry Adams with Jonesboro City Water and Light, Jonesboro, Arkansas; Jimmy Chatman with the City of Harrisburg, Arkansas; Alton Yancy with the Marianna Water and Sewer Department, Marianna, Arkansas; Bryant Wolfe with the City of Duncan, Mississippi; the Town of Benoit, Mississippi; the City of Rolling Fork, Mississippi; Terrence Hurssey with the City of Belzoni, Mississippi; the Town of Webb, Mississippi; Eugene Cowsert with the West Helena Water Co., West Helena, Arkansas; Wayne Hendricks with the City of Marked Tree, Arkansas; the City of Leachville Water Department, Leachville, Arkansas; Wayne McSpadden with the Sikeston Board of Public Works, Sikeston, Missouri; Jack Pollard with the Yarbro Water Association, Yarbro, Arkansas; Rickey R. McDaniel with the Millington Water Treatment Plant, Millington, Tennessee; Dennis Wing with the City of Southaven, Mississippi; the Town of Crowder, Mississippi; Greenwood Utilities, Greenwood, Mississippi; City of Batesville, Mississippi; John Tice with the Holly Springs Utility Department, Holly Springs, Mississippi; Michael O'Neill with the City of Germantown, Tennessee; Martha Land with the Ripley Water Plant, Ripley, Tennessee; M.V. Williams and Stallings Estate with the City of Friendship, Tennessee; Jeff Crittenden with Dresden City Hall, Dresden, Tennessee; Bill W. Bell with the City of Union City, Tennessee; and Howard Swim with the City of Charleston, Missouri.

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ENVIRONMENTAL SETTING

This section contains a brief description of the climate, physiography, geology, hydrogeology, land use, and pesticide application within the Mississippi Embayment Study Unit. The environmental setting in the deep Tertiary aquifers study area is similar to that of the Mississippi Embayment Study Unit.

Climate

Climate in the Mississippi Embayment Study Unit varies from humid, temperate in the northern part of the study unit to humid, subtropical in the southern part. Mean annual air temperature ranges from 57 °F in the northern part of the study unit to 65 °F in the southern part. Mean annual precipitation ranges from about 48 in/yr in the northern part of the study unit to 56 in/yr in the southern part. Precipitation is generally greatest in April and least in October but is fairly evenly distributed throughout the year. Minor drought conditions occur frequently during the summer months in the central and northern part of the study unit when evapotranspiration is high.

Physiography

Most of the Mississippi Embayment Study Unit consists of the Coastal Plain Province which includes the Mississippi Alluvial Plain, East Gulf Coastal Plain, and the West Gulf Coastal Plain (Fenneman, 1938) (fig. 2). Two areas of the Mississippi Embayment Study Unit boundary extend into Ouachita Province and the Ozark Plateaus and will not be discussed because data were not collected in these areas. The deep Tertiary aquifers study area lies entirely within the Coastal Plain Province containing 24,500 mi^2 of the Mississippi Alluvial Plain and 14,700 mi^2 of the East Gulf Coastal Plain, West Gulf Coastal Plain, and Crowleys Ridge. The Coastal Plain Province consists of two main terraces. The higher altitude terrace comprises the East and West Gulf Coastal Plains, which are separated by the lower altitude terrace which is the Mississippi Alluvial Plain. Isolated upland areas within the Mississippi Alluvial Plain, such as Crowleys Ridge, are erosional remnants of the same terrace that comprises the East and West Gulf Coastal Plains.

The East Gulf Coastal Plain consists of about 13,900 mi^2 of upland in the eastern part of the deep Tertiary aquifers study area and is bounded on the west by bluffs 100 to 200 ft high. Crowleys Ridge consists of about 800 mi^2 of a long, narrow, north-south trending upland that extends from southeastern Missouri into eastern Arkansas. The West Gulf Coastal Plain is at the western edge of the study unit boundary. In this report the East and West Gulf Coastal Plains and Crowleys Ridge will be called collectively the upper Gulf Coastal Plain. The upper Gulf Coastal Plain consists of rolling hills dissected by small alluvial valleys created by meandering streams; relief is from 50 to 200 ft. The Mississippi Alluvial Plain consists of mostly flat terrain with meandering streams; relief is from 5 to 25 ft. Land-surface altitude increases from south to north throughout the deep Tertiary aquifers study area and ranges from 200 to 600 ft above sea level in the upper Gulf Coastal Plain and from 65 to 325 ft above sea level in the Mississippi Alluvial Plain.

Geology and Hydrogeology

The study unit is approximately situated in the northern part of the Mississippi Embayment, a geologic structural trough that contains the deep Tertiary aquifers. The Mississippi Embayment extends 600 mi from its apex at the southern tip of Illinois to the Louisiana coast. The axis of the embayment roughly follows the course of the Mississippi River and gently plunges to the south-southwest. This area of subsidence since the Mesozoic has been filled with thick deposits of sediments of Jurassic to Holocene age. The geologic formations are usually sands and clays that generally dip towards the axis of the Mississippi Embayment. Thick sand layers in these formations are aquifers that provide a vast ground-water resource to the region, whereas the clay layers function as confining units that impede the interchange of water between these aquifers. In the Mississippi Alluvial Plain, the Mississippi River Valley alluvium of Quaternary age lies unconformably over the older formations. The Tertiary deposits either crop out beneath the Mississippi River Valley alluvium or crop out in the upper Gulf Coastal Plain up to 150 mi from the embayment axis (Brahana and others, 1987; Cushing and others, 1964).

The geologic groups associated with the deep Tertiary aquifers are the Midway, Wilcox, Claiborne, and the Jackson (table 1). The Midway Group of Paleocene age consists of dark clay deposits ranging in thickness from 180 to nearly 1,000 ft. The Midway Group extends throughout the Mississippi Embayment (Cushing and others, 1964), and underlies the entire study area. The top of the Midway Group forms the lower boundary of the deep Tertiary aquifers study. The Wilcox and Claiborne Groups of Eocene age consist of a series of sands and clays that range in thickness from 0 to 2,700 ft. The deep Tertiary aquifers sampled in this study are the sand deposits within the Wilcox and Claiborne Groups. The aquifers that were sampled in this study, from youngest to oldest, include the Cockfield, Sparta, Winona-Talahatta, Memphis, Meridian-upper Wilcox, and Wilcox. Mesko (1988) indicates that the Wilcox and Claiborne Groups combine in the extreme northwestern part of the study area and function as a single hydrogeologic unit. The Jackson Group, a clay confining unit in southeastern Arkansas and in the extreme southern part of the study area, ranges in thickness from 0 to 600 ft (Cushing and others, 1964). The base of the Jackson Group forms the upper boundary of the deep Tertiary aquifers study.

In western Tennessee, the Cook Mountain clay formation, and Cockfield fine sand and clay formation, combine with the Jackson Group to form the Jackson-upper Claiborne confining unit. Thickness of the Jackson-upper Claiborne confining unit in the Memphis area ranges from 0 to 350 ft (Parks, 1990). The Cockfield Formation is a local aquifer in some places within western Tennessee (Parks and Carmichael, 1990a).

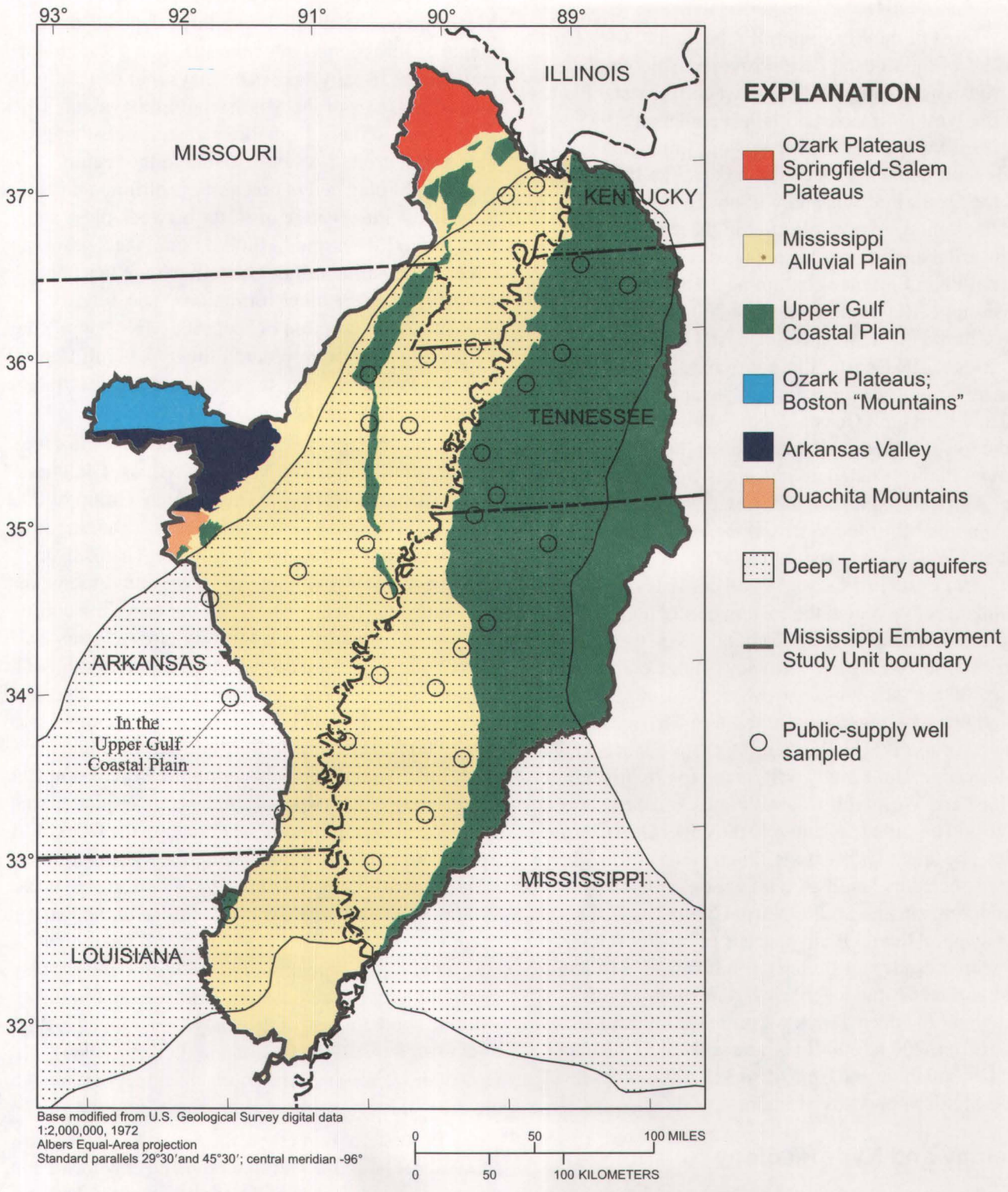

Figure 2. Location of the physiographic regions and the extent of the deep Tertiary aquifers within the Mississippi Embayment Study Unit.

Table 1. Relation of geologic groups and local geologic units with the deep Tertiary aquifers

[Fm., Formation; Mb., Member; Geologic units that represent confining units are shaded gray; Ma, million years before present. Modified from Cushing and others (1964)]

Geologic age	Geologic groups	Local geologic units				Deep Tertiary aquifers (no. of wells sampled is in parentheses)	
		Northern Louisiana	Arkansas	Southeastern Missouri, western Kentucky, and western Tennessee	Northern Mississippi		
Eocene (37 to 58 Ma)	Jackson	Yazoo Clay	Jackson Group	Jackson - Upper Claiborne sand and clay	Yazoo Clay		
		Moodys Branch Fm.			Moodys Branch Fm.		
	Claiborne	Cockfield Fm.	Cockfield Fm.		Cockfield Fm.	Cockfield (1)	
		Cook Mountain Fm.	Cook Mountain Fm.		Cook Mountain Fm.		
		Sparta Sand	Sparta Sand	Memphis Sand	Sparta Sand	Sparta (10)	Memphis (6)
		Cane River Fm.	Cane River Fm.		Zilpha Clay		
					Winona Sand	Winona-Tallahatta (2)	
					Tallahatta Fm.		
		Carrizo Sand	Carrizo Sand		Meridian Sand Mb.	Meridian-upper Wilcox (2)	
	Wilcox	Dolet Hills Fm. Naborton Fm.	Wilcox Group	Wilcox Group	Upper Wilcox.		
					Middle Wilcox	Wilcox (9)	
					Lower Wilcox		
Paleocene (58 to 66 Ma)	Midway	Porters Creek Clay	Porters Creek Clay	Porters Creek Clay	Porters Creek Clay		
		Clayton Fm.	Clayton Fm.	Clayton Fm.	Clayton Fm.		

The Cockfield aquifer is in the top part of the Claiborne Group and is a significant aquifer in the southern part of the study area. Thickness of the Cockfield aquifer ranges from 0 ft where it crops out beneath the Mississippi River Valley alluvium to about 700 ft in the southern part of the study area. The Cockfield aquifer supplies water to low-yield domestic or stock wells. Permeability of the Cockfield aquifer is about 90 ft/d. The Cook Mountain clay confining unit underlies the Cockfield aquifer (Ackerman, 1987; Wasson, 1986; Gandl, 1982; Sanford, 1972; Rogers and others, 1972; Hosman and others, 1968; and Poole, 1961).

The Sparta aquifer underlies the Cook Mountain clay confining unit and is in the middle part of the Claiborne Group. The Sparta aquifer is a major source of public drinking water for southern Arkansas, northern Louisiana, and west-central Mississippi. Thickness ranges from less than 100 ft in the outcrop area to about 1,100 ft in the southern part of the study area. Large capacity wells screened in the Sparta aquifer yield more than 2,000 gal/min. Permeability ranges from 30 to 200 ft/d. South of about 35°N latitude, the Cane River Formation is a clay and fine sand confining unit that underlies the Sparta aquifer (Wasson, 1986; Petersen and others, 1985; Edds and Fitzpatrick, 1984; Rogers and others, 1972; Sanford, 1972; Hosman and others, 1968; and Poole, 1961).

The Cane River confining unit separates the Sparta aquifer from the Winona-Tallahatta aquifer and the Carrizo Sand throughout much of the southern half of the study area. In Mississippi, the upper part of the Cane River Formation is equivalent to the Zilpha Clay which forms the Zilpha Clay confining unit. Also, in Mississippi, the stratigraphic equivalent of the lower part of the Cane River Formation is the Winona Sand and the Neshoba Sand Member of the Tallahatta Formation which form the Winona-Tallahatta aquifer. Thickness of the Winona-Tallahatta aquifer ranges from 200 to 600 ft. Most wells in the Winona-Tallahatta aquifer are low-yield domestic wells though larger wells have yields as much as 500 gal/min; permeability is about 8 ft/d (Wasson, 1986; Petersen and others, 1985; Gandl, 1982; Spiers, 1977; and Hosman and others, 1968).

North of about 35°N latitude, lithology in the Cane River Formation changes from clay and fine sand to sand, thereby connecting the Sparta Sand, Cane River Formation, and the underlying Carrizo Sand into a single unit called the Memphis Sand. The Memphis Sand comprises about the lower two-thirds of the Claiborne group. The uppermost part of the Memphis Sand is the stratigraphic equivalent to the Sparta Sand and underlies the Cook Mountain Formation. The Memphis Sand forms the Memphis aquifer which is the primary source of drinking water for the city of Memphis and surrounding communities. Thickness ranges from 400 to 870 ft. Well yields often exceed 2,000 gal/min, and permeability is about 50 ft/d (Kingsbury and Parks, 1993; Parks and Carmichael, 1990b; Mesko, 1988; Brahana and others, 1987; Parks and others, 1985; Petersen and others, 1985; Edds and Fitzpatrick, 1984; Graham, 1982; and Hosman and others, 1968).

In Mississippi, the upper-Wilcox Group and the Meridian Sand Member of the Tallahatta Formation comprise the Meridian upper-Wilcox aquifer. The Meridian Sand in Mississippi is situated at the base of the Claiborne Group and is the stratigraphic equivalent to the Carrizo Sand in Arkansas. Sands in the upper Wilcox Group, in many places, are more hydrologically connected to sands of the lower Claiborne Group than to sands in the middle and lower Wilcox Group. Thickness of the Meridian upper-Wilcox aquifer is variable and ranges from about 50 to 400 ft. Well yields range from 100 to 1,000 gal/min, and permeability is about 50 ft/d (Wasson, 1986; Gandl, 1982; Boswell, 1976; and Hosman and others, 1968).

The Wilcox Group includes at least two major sand units separated by clays that are collectively called the Wilcox aquifer. The Fort Pillow Sand, also named the "1,400-foot" sand in the Memphis area, is included as part of the Wilcox aquifer. The Wilcox aquifer ranges in thickness from 0 to 1,100 ft. Well yields range from 500 to 2,000 gal/min, and permeability ranges from about 0.01 to 90 ft/d (Kingsbury and Parks, 1993; Parks and Carmichael, 1989; Wasson, 1986; Petersen and others, 1985; Gandl, 1982; Graham, 1982; Boswell, 1976; Hosman and others, 1968; and Rollo, 1960).

The natural regional flow of ground water in the Mississippi Embayment is from the outcrop areas in the upper Gulf Coastal Plain, laterally along the aquifers towards the embayment axis, and then upward through overlying confining units and aquifers to the surface of the Mississippi Alluvial Plain (Grubb and Arthur, 1991; Ackerman, 1989; and Grubb, 1986). Confining units between the aquifers limit the amount of ground water that can naturally flow through the regional system. Pumpage in the deep Tertiary aquifers has increased the recharge rates in the outcrop and production areas (Williamson and others, 1990).

Soils in the study unit relate to geomorphology. In the Mississippi Alluvial Plain, soils are usually fine

grained and tight, causing low infiltration rates in most areas. Soils in the upper Gulf Coastal Plain are silty and have a similar structure to underlying loess deposits causing moderate infiltration rates (Wolock, 1997).

Land Use and Pesticide Application

Land use in the deep Tertiary aquifers study area is mostly agriculture (69 percent), with some forest (26 percent), surface water (3 percent), and urban (2 percent) (fig. 3). Land-use data presented in figure 3 are from the Geographic Information Retrieval and Analysis System) (GIRAS) 1970's data base (U.S. Geological Survey, 1990, and Anderson and others, 1976). Some changes in land use have occurred from the 1970's to the 1990's, but more land use changes occurred during the 1940's and 1950's when forest land was cleared for agriculture.

The land use in the Mississippi Alluvial Plain is 80 percent agriculture, 16 percent forest, 3 percent surface water, and 1 percent urban. Agriculture in the Mississippi Alluvial Plain is predominantly row crops. The most common crops include rice, cotton, soybeans, corn, and sorghum. During 1993-97, cotton acreage decreased as much as 50 percent in some places and has been converted to other crops, mostly corn acreage (U.S. Department of Agriculture, 1997). Aquaculture, mostly catfish, is also a significant agricultural activity in the Mississippi Alluvial Plain that has increased over the last several years. Pecan-tree groves constitute some of the agriculture in the southern part of the study area. Most of the forest land in the Mississippi Alluvial Plain occurs as hardwoods along river corridors and constitutes undeveloped wetlands. Small areas of both deforestation and reforestation have occurred in the Mississippi Alluvial Plain from the 1970's to the 1990's. Urban areas in the Mississippi Alluvial Plain consist of the interstate highway system and small rural communities. Surface water in the Mississippi Alluvial Plain consists of the Mississippi, White, St. Francis, and Yazoo Rivers, oxbow lakes of these rivers, and other smaller rivers.

The land use in the upper Gulf Coastal Plain is 54 percent agriculture, 42 percent forest, 1 percent surface water, and 3 percent urban. Agriculture in the upper Gulf Coastal Plain includes cattle, poultry, hogs, corn, sorghum, cotton, and hay. Forests are usually managed for lumber production and mainly consist of pine and oak. Most of the urban area in the upper Gulf Coastal Plain is the metropolitan area of Memphis, Tennessee, plus small, scattered, rural communities. Surface water in the upper Gulf Coastal Plain consists of several earthen-dam reservoirs.

Annual pesticide application rate on agriculture land within the Mississippi Embayment Study Unit was estimated to be about 40.7 million pounds or an average of about 2 lb/acre during the index years from 1987 to 1991 (Gianessi and Puffer, 1990, 1992a, and 1992b) (table 2). Most of the pesticides applied to agricultural land in the study unit were herbicides. The herbicide most heavily used on agricultural land within the Mississippi Alluvial Plain was propanil, which was

Table 2. Annual pesticide application rate on agricultural land within the Mississippi Embayment Study Unit during the index years from 1987 to 1991

[Rates in million pounds; pounds per acre is in parentheses]

Pesticides (number of pesticides)	Annual pesticide application rate 1987 - 1991					
	Mississippi Embayment Study Unit		Mississippi Alluvial Plain		[1]East Gulf Coastal Plain	
[2]Herbicides (n = 61)	30.2	(1.44)	24.6	(1.70)	5.2	(0.92)
[3]Insecticides (n = 48)	8.5	(.41)	6.8	(.47)	1.6	(.27)
[4]Fungicides (n = 23)	2.0	(.09)	1.3	(.09)	0.7	(.12)
TOTAL	40.7	(1.94)	32.7	(2.26)	7.5	(1.31)

[1] Crowleys Ridge and the West Gulf Coastal Plain are not included.
[2] County data from Gianessi and Puffer (1990).
[3] County data from Gianessi and Puffer (1992a).
[4] County data from Gianessi and Puffer (1992b).

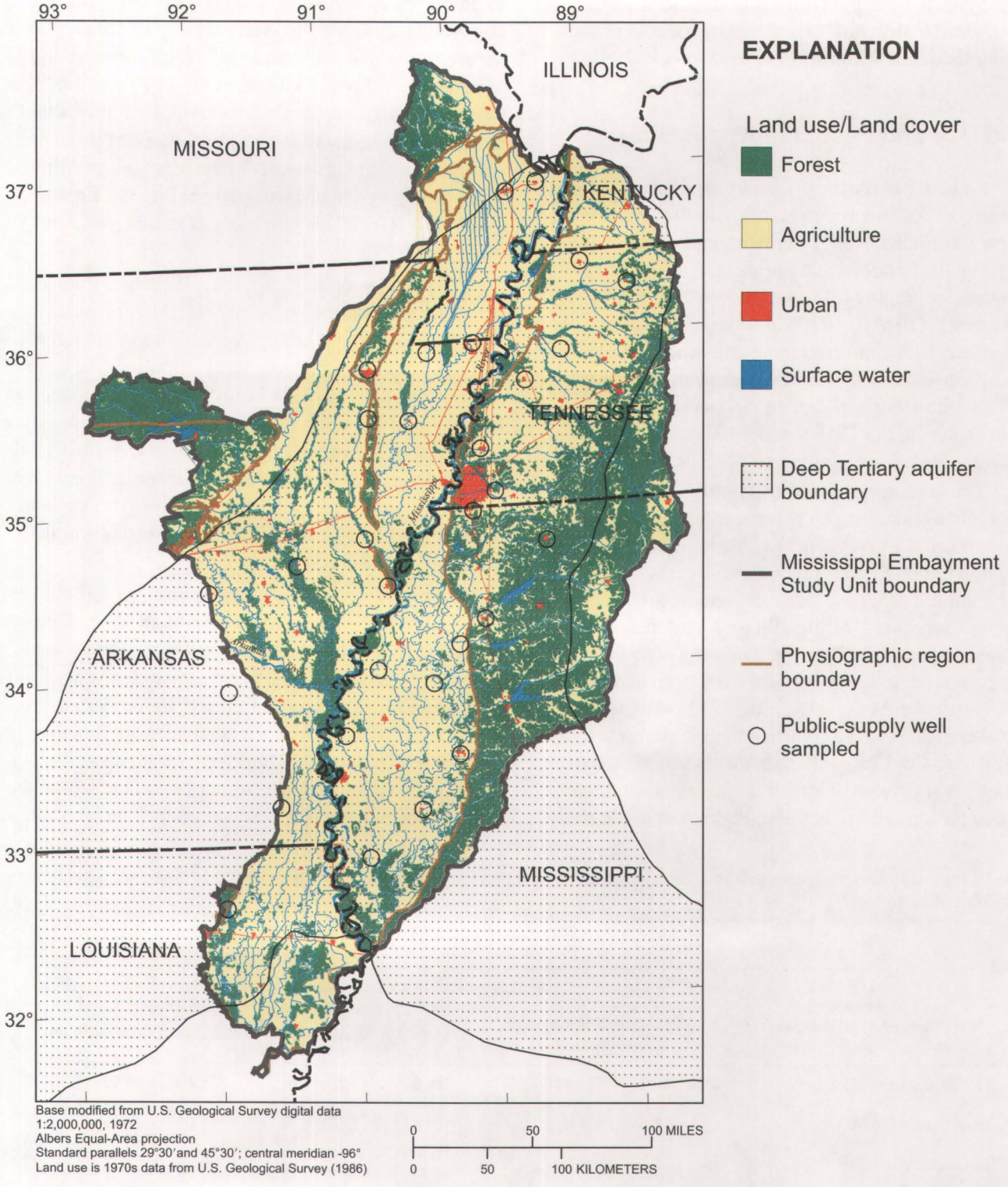

Figure 3. Land use within the Mississippi Embayment Study Unit.

applied to rice fields at an average rate of 0.32 lb/acre. The herbicide most heavily used on agricultural land within the East Gulf Coastal Plain was alachlor, which was applied at an average rate of 0.12 lb/acre. Other herbicides commonly used in the Mississippi Embayment Study Unit during the index years from 1987 to 1991 included MSMA, trifluralin, metolachlor, and atrazine. The insecticide most heavily used on agricultural land within the Mississippi Alluvial Plain and the East Gulf Coastal Plain was methyl parathion, which was applied on agricultural land at an average rate of 0.11 and 0.04 lb/acre, respectively. Other insecticides commonly used in the Mississippi Embayment Study Unit during the index years included thiodicarb, profenofos, acephate, dicrotophos, and sulprofos. The fungicide most heavily used on agricultural land within the Mississippi Alluvial Plain was benomyl, which was applied at an average rate of 0.03 lb/acre. The fungicide most heavily used on agricultural land within the East Gulf Coastal Plain was sulfur, which was applied at a rate of 0.10 lb/acre. Other fungicides commonly used in the Mississippi Embayment Study Unit during the index years included PCNB, mancozeb, and thiophanate methyl.

Actual pesticide usage in the Mississippi Embayment Study Unit is likely greater than is reported in table 2. Data from Gianessi and Puffer (1990, 1992a, and 1992b) do not include pesticide usage in urban settings. Barbash and Resek (1996) note that pesticide usage in urban settings is substantial.

DESIGN, COLLECTION, AND ANALYSIS

The design and data-collection methods used for the deep Tertiary aquifers study were similar among NAWQA study units to provide consistency and comparability of results. Lapham and others (1995) describe site selection and well documentation, and Koterba and others (1995) describe ground-water sample-collection methods for the NAWQA Program. The deep Tertiary aquifers study is a "study-unit survey," one of three NAWQA ground-water study components. The objective of a study unit survey is to determine the temporal and areal variations in ground-water quality in a hydrogeologic unit. Land use is not considered in the selection of wells for a study-unit survey.

Ground-Water Sampling Network

A sampling network was designed to obtain an unbiased evaluation of the ground-water resources in the deep Tertiary aquifers. A geographical information system (GIS) based computer program (Scott, 1990) was used to randomly select sampling locations from a population of public-supply wells. The GIS program uses an equal area method to select sampling locations that are scattered throughout the study area. Stringent criteria were used to select well sites. Wells were required to have a driller's report, to be screened in one of the Claiborne or Wilcox aquifers, and to have a spigot near the well head so that a water sample could be collected prior to any treatment. A few wells without a driller's report were sampled, and an intensive investigation was made to ensure that well depth and date of installations were correct. Water samples were collected from 30 public-supply wells throughout the study area from April through May 1996 (table 3). Well depths ranged from 208 to 1,460 ft. Discharge from wells ranged from 40 to 2,200 gal/min. Wells were primarily in an urban setting. Urban land use within 500 meters (m) of the wells averaged 70 percent. Eighteen wells were located in the Mississippi Alluvial Plain, and 12 wells were located in the upper Gulf Coastal Plain.

Collection of Site Information

Site characteristic information, including date of well construction, land-surface altitude, land use, well depth, casing type, and well logs, was collected at all sites. Well completion reports were acquired, and interviews with the operator or owner were conducted to gain complete information on the well construction and use. Information not obtainable from a water municipality in Arkansas was obtained from the Arkansas Department of Health. Drillers' logs, land-surface altitude, well depth, and geologic maps were used to determine the aquifer in which each well was screened.

Well-head condition and land use within 50 and 500 m of each well were documented. To inspect well-head condition, the area immediately surrounding a well was observed for possible sources of contamination including the presence of oil spills, dead vegetation, bore holes, suspicious plumbing design, gas stations, oil production wells, swimming pools, and pesticide mixing operations. Land-use categories included urban (residential, commercial, municipal, light industrial, parks, vacant land, transportation, and

Table 3. Selected well information for the sampled public-supply wells screened in the deep Tertiary aquifers of the Mississippi Embayment Study Unit, 1996

[D M S, Degrees, minutes, and seconds; W-Talahatta, Winona-Tallahatta aquifer; Meridian-uW, Meridian-upper Wilcox aquifer; CP, East or West Gulf Coastal Plain or Crowleys Ridge; MAP, Mississippi Alluvial Plain. DTo5 is a well near DT-5 that was only sampled for stable hydrogen and oxygen isotopes; --, no data]

Station number (refers to fig. 1)	North Latitude D M S	West Longitude D M S	Location	Year of construc-tion	Well depth (in feet)	Screened aquifer	Physio-graphic region	Land use within 1,640 feet (500 meters) of the well, in percent			
								Urban	Agri-cul-ture	Forest	Other
DT-1	32 38 05	91 55 52	Swartz, La.	1994	700	Sparta	CP	9	0	91	0
DT-2	33 14 06	91 30 33	Portland, Ark.	1992	360	Cockfield	MAP	69	28	0	3
DT-3	33 56 43	91 51 18	Star City, Ark.	1987	897	Sparta	CP	50	0	27	23
DT-4	34 32 47	91 58 25	England, Ark.	1974	401	Sparta	MAP	78	22	0	0
DT-5	34 41 44	91 18 01	Clarendon, Ark.	1995	590	Sparta	MAP	77	22	0	1
DTo5	34 41 22	91 18 36	Clarendon, Ark.	1978	590	Sparta	MAP	--	--	--	--
DT-6	35 51 09	90 42 29	Jonesboro, Ark.	1981	208	Wilcox	CP	74	13	8	5
DT-7	35 33 28	90 43 23	Harrisburg, Ark.	1978	228	Sparta	MAP	98	0	2	0
DT-8	34 50 06	90 47 49	Marianna, Ark.	1968	592	Sparta	MAP	9	68	10	13
DT-9	34 02 31	90 44 53	Duncan, Miss.	1984	1,289	W-Tallahatta	MAP	47	40	12	1
DT-10	33 39 10	91 00 38	Benoit, Miss.	1963	650	Sparta	MAP	52	41	0	7
DT-11	32 54 28	90 52 31	Rolling Fork, Miss.	1967	1,039	Sparta	MAP	91	9	0	0
DT-12	33 11 02	90 28 43	Belzoni, Miss.	1964	791	Sparta	MAP	75	25	0	0
DT-13	33 56 44	90 20 34	Webb, Miss.	1976	822	W-Tallahatta	MAP	58	36	0	6
DT-14	34 32 43	90 38 44	West Helena, Ark.	1976	606	Sparta	MAP	91	0	0	9
DT-15	35 31 52	90 25 22	Marked Tree, Ark.	1979	1,289	Wilcox	MAP	86	0	8	6
DT-16	35 56 07	90 15 26	Leachville, Ark.	1971	1,063	Wilcox	MAP	80	20	0	0
DT-17	36 52 42	89 35 05	Sikeston, Mo.	1960	397	Wilcox	MAP	100	0	0	0
DT-18	35 58 47	89 54 22	Yarbro, Ark.	1967	1,460	Wilcox	MAP	31	69	0	0
DT-19	35 20 35	89 53 46	Millington, Tenn.	1984	1,466	Fort Pillow	CP	99	0	1	0
DT-20	34 58 13	89 58 48	Southaven, Miss.	1996	458	Memphis	CP	84	0	0	16
DT-21	34 10 23	90 08 09	Crowder, Miss.	1983	926	Wilcox	MAP	70	30	0	0
DT-22	33 30 34	90 10 53	Greenwood, Miss.	1984	842	Meridian-uW	MAP	75	21	4	0
DT-23	34 19 11	89 56 13	Batesville, Miss.	1989	1,084	Wilcox	CP	52	28	20	0
DT-24	34 46 16	89 26 47	Holly Springs, Miss.	1989	340	Meridian-uW	CP	99	0	0	1
DT-25	35 05 02	89 48 18	Germantown, Tenn.	1984	314	Memphis	CP	83	0	14	3
DT-26	35 44 44	89 31 44	Ripley, Tenn.	1965	737	Memphis	CP	73	3	24	0
DT-27	35 54 37	89 14 43	Friendship, Tenn.	1967	330	Memphis	CP	69	31	0	0
DT-28	36 17 07	88 42 22	Dresden, Tenn.	1955	398	Memphis	CP	63	16	21	0
DT-29	36 25 52	89 03 20	Union City, Tenn.	1991	886	Memphis	CP	93	7	0	0
DT-30	36 55 31	89 20 53	Charleston, Mo.	1994	404	Wilcox	MAP	78	22	0	0

utilities), agriculture, forest, and other (rangeland, wetland, and surface water). Land use percent within 50 m of the well was estimated on site. Land use within 500 m of the well was determined by reconnaissance within the 0.3-mi^2 (0.79 km^2) area and by delineating land use on a 7 1/2-minute topographic map during the sample visit. Land-use percentage within 500 m of the well was determined from the delineations made on the topographic map. The distribution of land use within 500 m of the public-supply wells compared to land use in the entire study area is shown in figure 4. Although land use in the study area is primarily agriculture, urban land use is more prevalent surrounding the wells than in the study area as a whole because public-supply wells were situated near the urban communities they served (fig. 4). Further information pertaining to the collection of NAWQA site characteristic information can be found in Lapham and others (1995).

Ground-Water Sample Collection and Analysis

Analyses of water from the public-supply wells include major ions (calcium, magnesium, sodium, potassium, manganese, iron, chloride, sulfate, bromide, and fluoride), nutrients (nitrite, nitrite plus nitrate, ammonia, ammonia plus organic nitrogen, phosphorus and orthophosphate), dissolved organic carbon (DOC), and 87 VOCs (table 4). Water from 29 sites was analyzed for 88 pesticides and radon; water from 17 sites was analyzed for stable oxygen and hydrogen isotopes; and water from 10 sites was analyzed for tritium (table 4). Field parameters (water temperature, pH, specific conductance, dissolved oxygen, and alkalinity) were measured at all sites. The presence of hydrogen sulfide odors coming from the sample water was noted.

Water samples were collected from the public-supply wells by using turbine or submersible pumps. The samples were collected and processed directly from the discharge end of a fluoropolymer hose with stainless steel fittings that was connected to a spigot near the well head. Sample collection began after purging several well casing volumes of water and after stabilization of field measurements (Koterba and others, 1995). Risk of sample contamination was minimized by using trace-level sampling protocols described in Koterba and others (1995). Pesticide samples were delivered overnight to a local USGS laboratory for solid phase extraction (SPE), then forwarded to the USGS National Water-Quality Laboratory (NWQL) in Denver, Colorado. Major-ion, nutrient, VOC, and radon samples were sent overnight directly to the NWQL. At the end of the sample period, tritium samples were sent to the USGS Isotope Tracer Laboratory in Menlo Park, California, and stable hydrogen and oxygen samples were sent to the USGS Isotope Fractionation Laboratory in Reston, Virginia.

Quality-assurance samples included field equipment blanks, replicate samples, and field-spiked samples collected at nine locations. Field equipment blanks of major ions, nutrients, DOC, pesticides, and VOCs were collected at three well sites before water samples were collected from the wells and from one equipment storage site. Replicate (duplicate) samples of major ions, nutrients, and DOC were collected at two well sites. Replicate samples of radon were collected at three well sites. Samples were spiked in the field with pesticides and VOCs at three well sites.

Ground-water quality and quality-assurance data are listed in Appendixes 1 and 2, respectively. Data are also stored in the USGS National Water Information System (NWIS).

Statistical Methods for Data Analysis

Data were statistically analyzed for quality assurance. Cation-anion balance errors were determined to be acceptable with errors less than 10 percent in all samples except one sample which had a low specific conductance of 33 microsiemens per centimeter (µS/cm) and a percent error of -14 percent. Analysis of sample blanks indicated that contamination from field equipment did not significantly contribute to the concentrations of constituents detected in water from wells with the possible exceptions of DOC and VOCs. Further discussion about reporting VOC data is presented later in this report. Results from replicate samples indicated that sampling results were reproducible with errors similar to field blank concentrations. Spike data indicated that most pesticides and all VOCs had recoveries between 60 and 140 percent. Only a few pesticides had recoveries consistently below 60 percent; these included desethylatrazine, 1-naphthol, aldicarb sulfone, chloramben, chlorothalonil, and esfenvalerate.

Data were statistically analyzed by using methods presented by Helsel and Hirsch (1992). Boxplots, scatterplots, and trilinear diagrams were used to graphically present the data. LOcally WEighted Scatterplot Smoothing (LOWESS) was used to summarize trends on scatter plots (Cleveland, 1979). The nonparametric

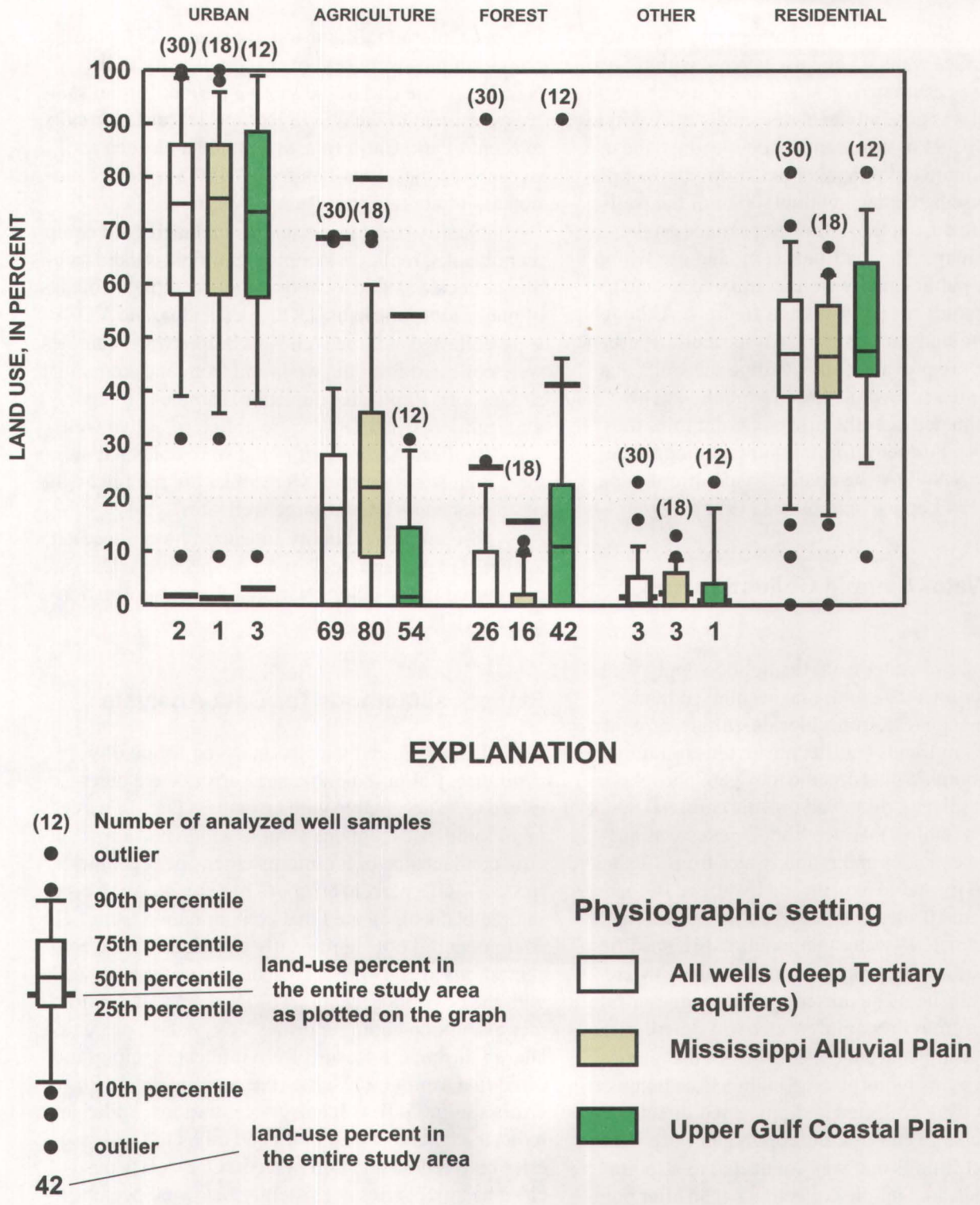

Figure 4. Distribution of land-use percentages within 500 meters of the public-supply wells compared to land use within the entire study area, Mississippi Embayment Study Unit, 1996.

Table 4. Laboratory analysis methods for measured water-quality constituents

[USGS, U.S. Geological Survey; VOCs, volatile organic compounds; DOC, dissolved organic carbon]

Constituent or constituent group	Analysis method	Reference
Major ions (USGS schedule 2750)	Atomic absorption spectrometry	Fishman and Friedman (1989)
Nutrients (USGS schedule 2752)	Colorimetry	Fishman and Friedman (1989)
DOC (USGS schedule 2085)	UV-promoted persulfate oxidation and infrared spectrometry	Brenton and Arnett (1993)
Pesticides (USGS schedule 2010)	Gas chromatography/mass spectrometry	Zaugg and others (1995)
Pesticides (USGS schedule 2051)	Liquid chromatography with UV detection	Werner and others (1996)
VOCs (USGS custom method 9090)	Purge and trap capillary gas chromatography/ mass spectrometry	Rose and Schroeder (1995)
Radon-222 (USGS lab code 1369)	Liquid scintillation, 100-minute counting time	American Society for Testing Materials (1995)
Tritium (USGS lab code 1565)	Electrolytic enrichment with gas counting	Ostlund and Dorsey (1975)
Oxygen-18 (USGS schedule 1142)	For oxygen-18: Equilibration with gaseous CO_2 and mass spectrometry	Epstein and Mayeda (1953)
Deuterium-2 (USGS schedule 1142)	For deuterium-2: Equilibration with hydrogen and mass spectrometry	Coplen and others (1991)

Wilcoxon rank-sum test was used to indicate the significant difference between groups of water samples collected from wells in either the Mississippi Alluvial Plain or the upper Gulf Coastal Plain (Wilcoxon, 1945). Sample sizes of groups of data ranged from 11 to 30. Statistical techniques accounted for the effects of small sample size. The medians of the groups were assumed to be significantly different from one another if the probability that the observed difference occurs by chance (p-value or p) was less than 5 percent (<0.05). Kendall's tau was used to indicate the strength of monotonic correlation between concentrations of constituents in samples and site characteristics such as well depth or percent of a specific land use. As used in this report, one constituent or property was considered correlated to another if the p-value associated with the Kendall's tau test is less than 0.05. Some "nonsignificant" differences between groups or correlations between variables are mentioned in the text when the p-values are close to, but greater than, 0.05. Concentrations of constituents were grouped by physiographic setting and compared, and were then related to well depth and land use.

GROUND-WATER QUALITY

The measurement of field parameters, and the analysis of water samples for major ions, nutrients, DOC, pesticides, volatile organic compounds (VOCs), radon-222, tritium, and stable oxygen and hydrogen isotopes are summarized in this section of the report.

Field Parameters and Major Ions

Field parameters (water temperature, pH, specific conductance, dissolved oxygen, and alkalinity) and major ions usually determine some basic chemical characteristics of the water such as taste, hardness, and the tendency to stain. Calcium and magnesium contribute to the hardness of water, which is an indicator of the

ability of the water to form insoluble residues with soaps and to form scale in plumbing features associated with heating water (Hem, 1985). Dissolved solids can impede suitability of water for drinking purposes. Iron and manganese can cause staining to plumbing and laundry. Alkalinity is the capacity of water to neutralize acid. Bicarbonate is the primary constituent that contributes to alkalinity. Bicarbonate concentrations were calculated from alkalinity values.

Field-parameter measurements and major-ion concentrations are summarized in tables 5 and 6, respectively. The most dominant ions in ground water from the public-supply wells were sodium (Na^{+}), averaging 63 percent of the cation equivalents, and bicarbonate (HCO_3^{-}), averaging 83 percent of the anion equivalents. Sixteen wells had a sodium bicarbonate type water (fig. 5). Calcium (Ca^{+2}) and magnesium (Mg^{+2}) were also significant cations of ground water from public-supply wells. Eleven wells had a calcium-magnesium bicarbonate type water (fig. 5).

Table 5. Statistical summary of field-parameter data for water from sampled public-supply wells, Mississippi Embayment Study Unit, 1996

[n = the number of wells; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter at 25 degrees Celsius]

Field parameter	Units	Minimum	Median	Maximum
Water temperature (n = 30)	°C	15.5	19.8	26.5
pH (n = 26)	pH units	5.8	7.4	8.9
Specific conductance (n = 30)	µS/cm	33	304	1,450
Dissolved oxygen concentration (n = 30)	mg/L	<0.1	<0.1	7.4
Alkalinity (n = 29)	mg/L as $CaCO_3$	16	125	379

Table 6. Statistical summary of major-ion data for water from sampled public-supply wells, Mississippi Embayment Study Unit, 1996

[Concentrations are in milligrams per liter]

Major constituents	Concentration		
	Minimum	Median	Maximum
Sodium	3.3	36.5	310
Calcium	0.21	4.85	63
Magnesium	0.07	1.65	21
Potassium	0.3	1.4	7.5
Iron	<0.003	0.104	8.1
Manganese	<0.001	0.009	0.41
Silica, as SiO_2	9.7	13.5	43
Bicarbonate, as HCO_3	20	168	462
Chloride	0.6	6.2	240
Sulfate	<0.1	2.1	30
Fluoride	<0.1	0.2	0.7
Bromide	0.01	0.05	1.3
Dissolved solids	27	192	822

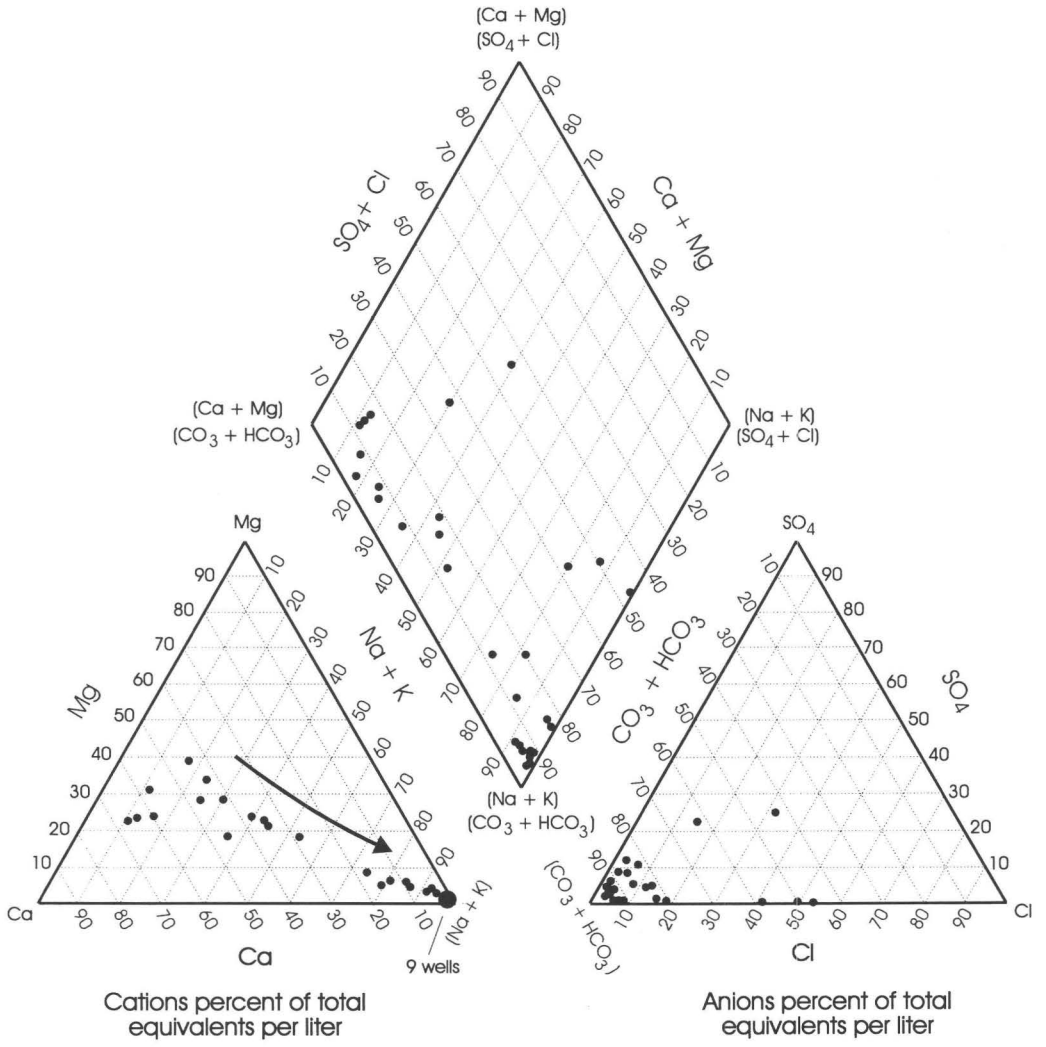

Figure 5. Piper diagram of the ground-water chemistry of water from the public-supply wells, Mississippi Embayment Study Unit, 1996. Arrow on the cation trilinear diagram indicates the trend of ground-water evolution.

The Ca/Mg equivalent ratio was approximately 2 for water samples in most wells. This ratio is apparent on the cation trilinear diagram in figure 5 as a linear distribution of data points. The dissolution of dolomite would cause the Ca/Mg ratio to be close to 1. The Ca/Mg ratio of 2 may be caused by the dissolution of small amounts of magnesium-rich calcite with regular calcite. Water from at least three wells contained a mixture of sodium bicarbonate and sodium chloride type water. Water from three wells had dissolved solids concentrations greater than the secondary maximum contaminant level (SMCL) of 500 mg/L (U.S. Environmental Protection Agency, 1996). Water from 13 wells had iron concentrations greater than the SMCL of 300 micrograms per liter (µg/L) (U.S. Environmental Protection Agency, 1996). Water from nine wells had manganese concentrations greater than the SMCL of 50 µg/L (U.S. Environmental Protection Agency, 1996).

Water from 10 wells had dissolved oxygen concentrations equal to or greater than 0.1 mg/L. Concentrations of almost all constituents were less in ground-water samples with elevated concentrations of dissolved oxygen (0.1 mg/L or greater) than in ground-water samples with almost no dissolved oxygen (less than 0.1 mg/L). The three exceptions were nitrite plus nitrate, pesticides, and most VOCs which were in greater concentrations in ground-water samples with dissolved oxygen compared to ground-water samples with almost no dissolved oxygen. Those constituents (nitrite plus nitrate, pesticides, and VOCs) that appear to increase with increasing dissolved-oxygen concentrations most likely originate as anthropogenic contaminants from the surface near the well (refer to later sections in this report).

Water from wells in the Mississippi Alluvial Plain and the upper Gulf Coastal Plain had differing ground-water chemistry (fig. 6). Water from wells in the Mississippi Alluvial Plain had median concentrations of dissolved solids, sodium, chloride, and iron that were significantly greater (262.5, 73, 13, and 0.36 mg/L, respectively) than water from wells in the upper Gulf Coastal Plain (106.5, 9, 2.5, and 0.014 mg/L, respectively; p-values < 0.02). Hydrogen sulfide odor was noticed and reported more often when wells in the Mississippi Alluvial Plain were sampled than when wells in the upper Gulf Coastal Plain were sampled (p-value = 0.03). Dissolved oxygen concentrations were greater in water from wells in the upper Gulf Coastal Plain than water from wells in the Mississippi Alluvial Plain (p-value = 0.068).

Sodium concentrations and temperature increased in the water from the shallow wells near the aquifer outcrop areas towards the deeper wells near the embayment axis. Also, sampled wells in the outcrop areas had a calcium-magnesium bicarbonate type water and sampled wells close to the axis of the Mississippi Embayment had a sodium bicarbonate type water. As was mentioned in an earlier section of this report, ground-water flow is from the outcrop areas towards the axis of the Mississippi Embayment. Ground-water chemical evolution was from a calcium-magnesium bicarbonate type water towards a sodium bicarbonate type water (Wasson, 1986; Moore, 1962).

Nutrients and Dissolved Organic Carbon

Nutrients can have an effect on human health and can have an association with other surface-derived contaminants. Nutrients discussed in this report consist of the chemical species of nitrogen and phosphorus. Nitrate and phosphorus in water can promote the growth of pathogens that may cause gastrointestinal related illness. Elevated concentrations of nitrate nitrogen in drinking water (greater than the MCL of 10 mg/L) have been associated with methemoglobinemia or "blue-baby" syndrome and with increased rates of stomach cancer (Dorsch and others, 1984; Forman and others, 1985; Fan and others, 1987; National Research Council, 1985). Organic carbon can promote decreased dissolved-oxygen concentrations, which can affect the nutrient species present in water.

Ground-water samples were analyzed for nitrite, nitrite plus nitrate, ammonia, ammonia plus organic nitrogen, phosphorus, and orthophosphate. Nutrients were present in low concentrations in water from wells within the deep Tertiary aquifers (table 7).

Only one ground-water sample had a nitrite concentration greater than the detection limit. Because nitrite was detected in only one well and at a very low concentration, nitrite plus nitrate concentrations closely represent the concentration of nitrate. The highest nutrient concentration detected in ground-water samples from this study was 3.8 mg/L of nitrite plus nitrate nitrogen, which is less than half the MCL for drinking water.

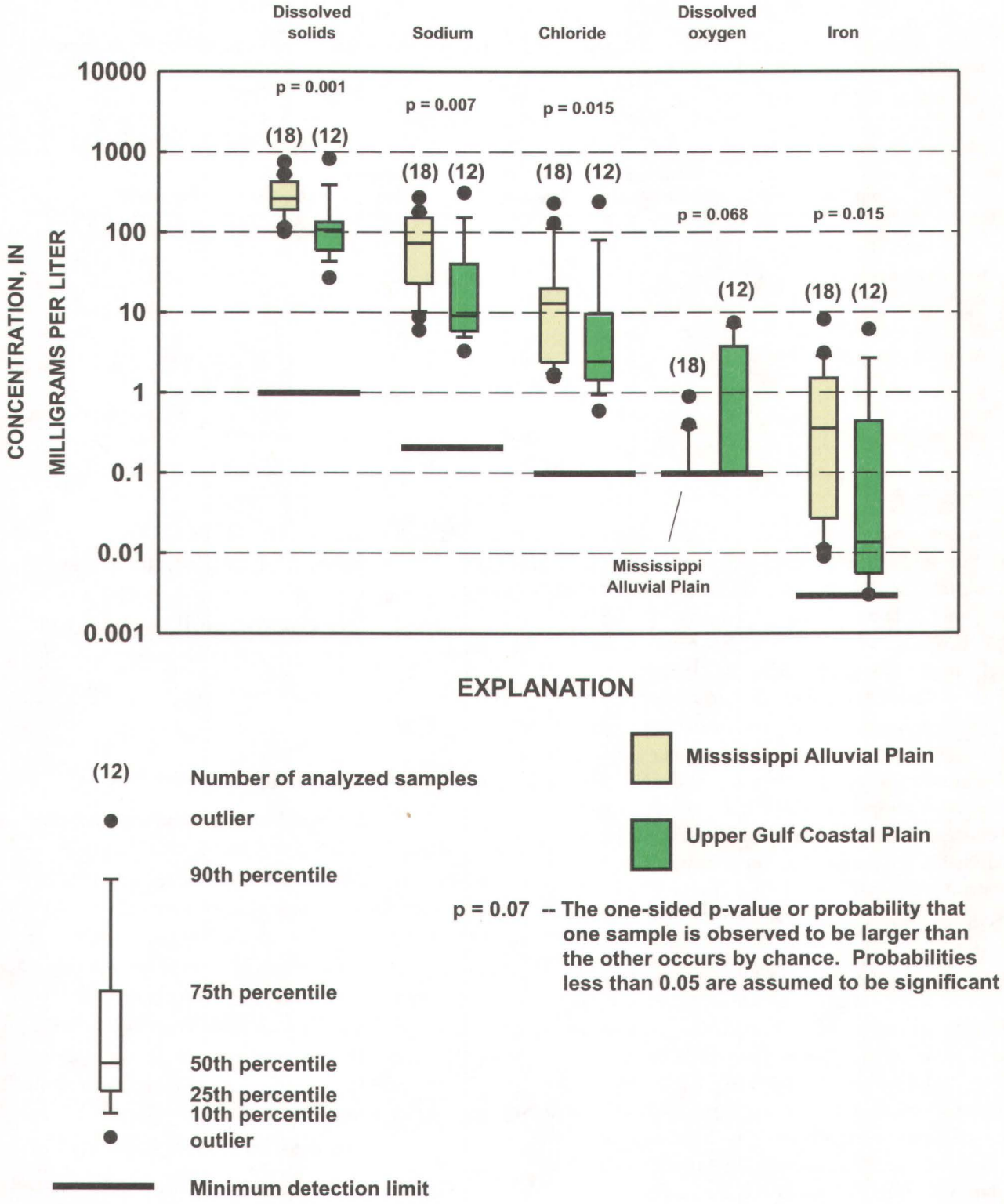

Figure 6. Dissolved solids, sodium, chloride, dissolved oxygen, and iron concentrations in water from public-supply wells, by physiographic setting, Mississippi Embayment Study Unit, 1996.

Table 7. Statistical summary of nutrient and dissolved organic carbon data for water from sampled public-supply wells, Mississippi Embayment Study Unit, 1996

[Concentrations are in milligrams per liter]

Constituent	Number of analyses	Detection limit	Number of detections	Concentration	
				Median	Maximum
Nitrite as N	30	0.01	1	<0.01	0.02
Nitrite plus nitrate as N	30	0.05	16	0.05	3.8
Ammonia as N	30	0.015	27	0.27	1.8
Ammonia plus organic nitrogen as N	30	0.2	16	0.25	1.7
Phosphorus	30	0.01	25	0.19	0.79
Orthophosphate as P	29	0.01	24	0.18	0.84
Dissolved organic carbon	30	0.1	29	0.8	5.7

Nutrient and dissolved organic carbon concentrations in ground-water samples differ by physiographic region (fig. 7). Median concentrations of ammonia, ammonia plus organic nitrogen, phosphorus, and orthophosphate were significantly greater in water from wells in the Mississippi Alluvial Plain than in water from wells in the upper Gulf Coastal Plain (p-values ≤ 0.006). Nitrite plus nitrate concentrations were greater in water from wells in the upper Gulf Coastal Plain than in water from wells in the Mississippi Alluvial Plain (p-value = 0.07). Dissolved organic carbon concentrations are greater in water from wells in the Mississippi Alluvial Plain than in water from wells in the upper Gulf Coastal Plain (p-value = 0.053).

Some nutrient species appear to correlate to land use or well depth. Although nutrient species correlated to the presence of land use and well depth, the causal relations are not apparent. Ammonia concentrations in water from wells decreased with increasing residential land use within 500 m of the wells (Kendall's tau = -0.43 and a p-value = 0.001) (fig. 8). Orthophosphate, phosphorus, and ammonia plus organic nitrogen also showed an inverse correlation with the amount of residential land use (all Kendall's tau values < -0.33 and p-values < 0.02). Nitrite plus nitrate concentrations in water from wells did not correlate to land use surrounding the wells. Water from one public-supply well in a managed forest area (well DT-1) had the greatest ammonia, ammonia plus organic nitrogen, phosphorus, and orthophosphate concentrations of all 12 wells located in the upper Gulf Coastal Plain. Phosphorus concentrations in water from all public-supply wells increased with well depth (Kendall's tau = 0.33 and p-value = 0.01). Nitrite plus nitrate concentrations in ground-water samples were minimally related to well depth; however, three of the five shallower wells had water samples with the greatest nitrite plus nitrate concentrations.

Pesticides

Pesticides in public drinking-water supplies have been of interest since before 1972 when the manufacture and usage of DDT was banned in the United States. Pesticides can have adverse effects on health. Many different pesticides are used today for controlling plants, insects, and fungi that inhibit the growth of crops. Pesticides have widely varying chemical and physical properties but have a tendency to reside in the soil zone (Hem, 1985). Herbicides are generally more soluble than other pesticides, and are more likely to infiltrate into ground water.

Pesticides were detected in water from only 1 of the 29 sampled wells. Water from the shallowest well in the study had a concentration of bromacil, an herbicide, of 0.16 µg/L and desethylatrazine, a degradation product of the herbicide atrazine, of 0.004 µg/L. Although the source of this contamination is unknown, this well also had the second greatest concentration of nitrite plus nitrate of the 30 sampled public-supply wells.

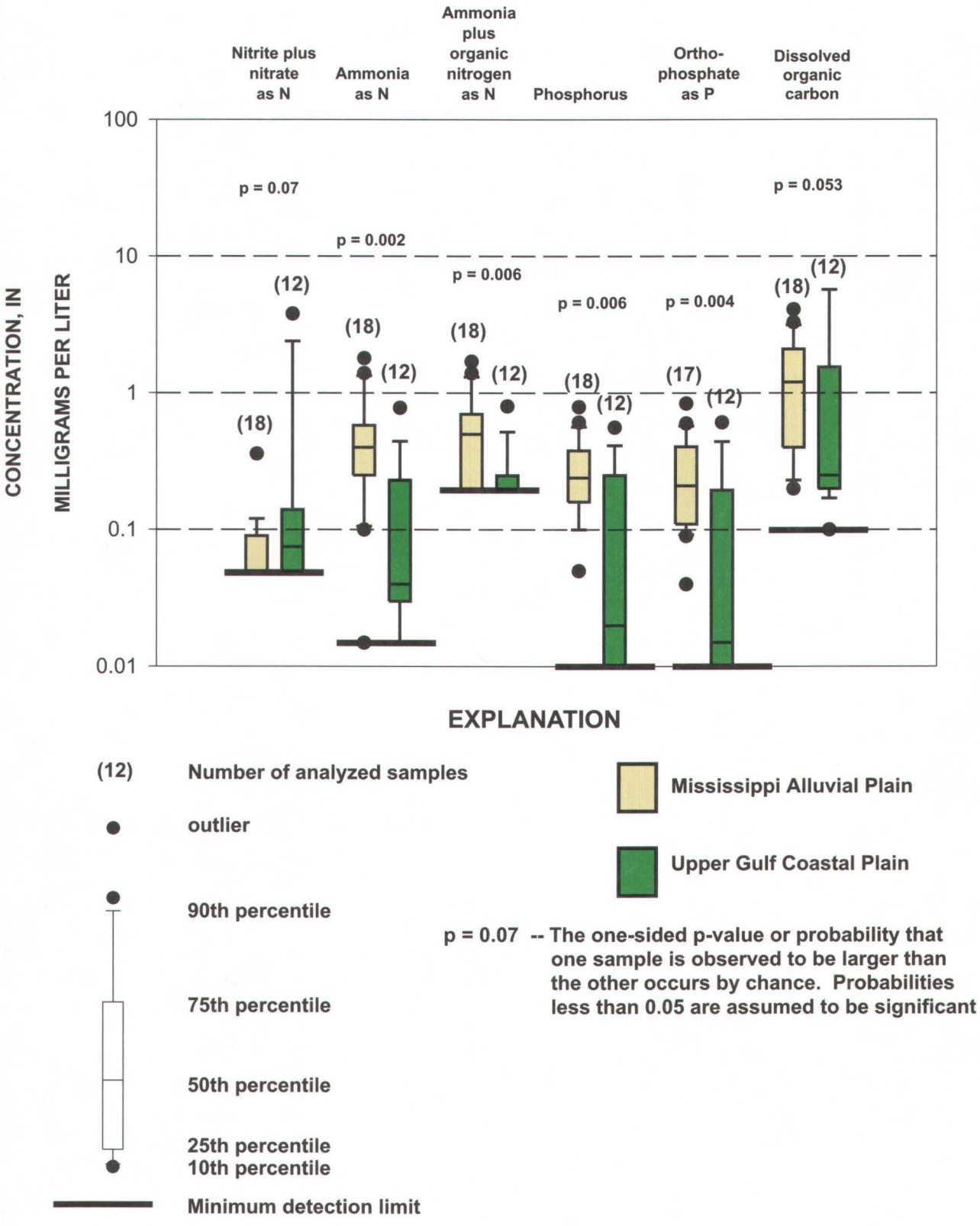

Figure 7. Nutrient and dissolved organic carbon concentrations in water from public-supply wells, by physiographic setting, Mississippi Embayment Study Unit, 1996.

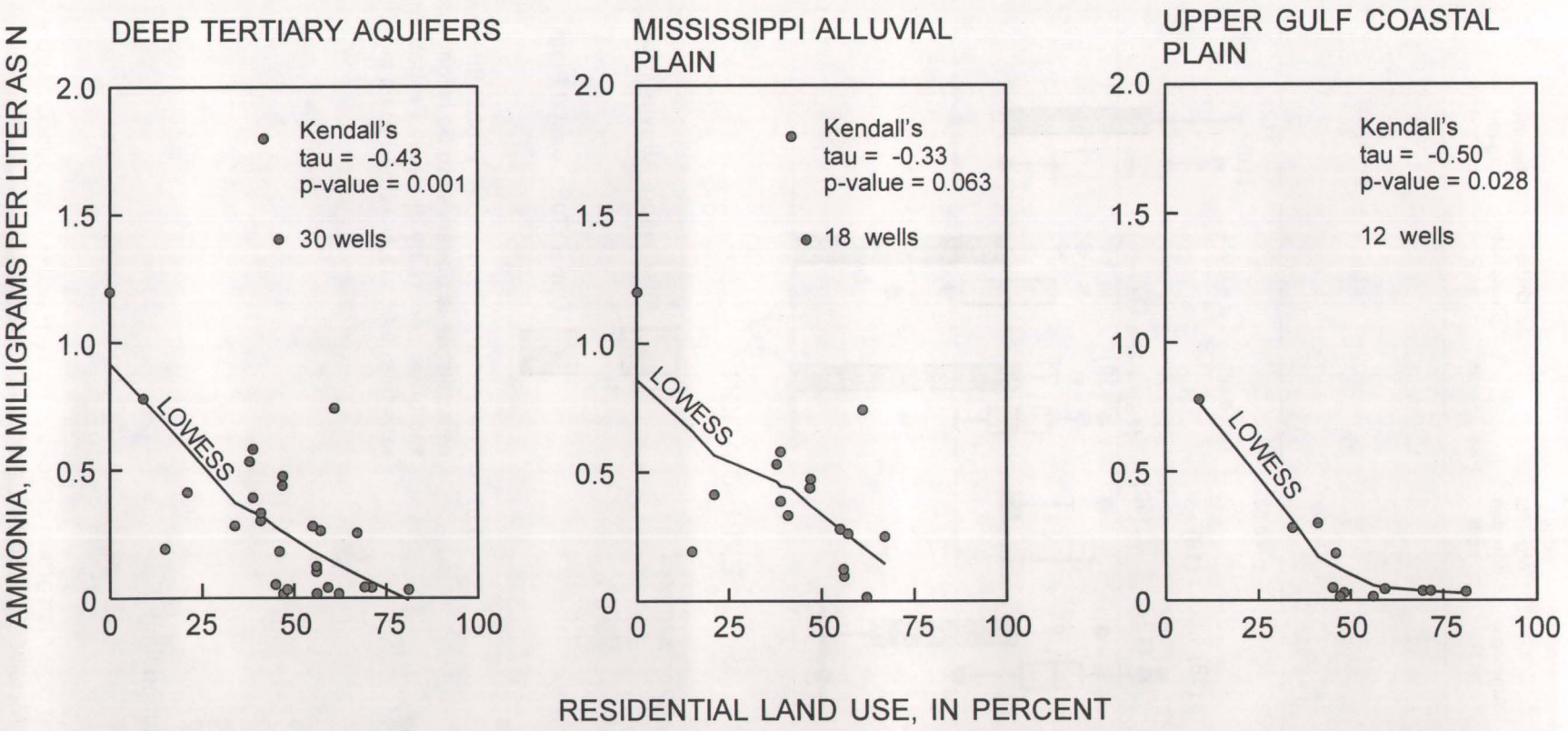

Figure 8. Relation of ammonia concentrations in water from public-supply wells with residential land-use percentage within 500 meters of each well, by physiographic setting, Mississippi Embayment Study Unit, 1996.

Volatile Organic Compounds

Volatile organic compounds are highly soluble, mobile, persistent in ground water, and many are suspected carcinogens (Lapham and Tadayon, 1996). Many commonly used substances such as gasoline, refrigerants, paint products, and plastics contain VOCs. Wells in the deep Tertiary aquifers may be screened below where VOCs might occur in aquifers. In order to acquire as much information as possible about VOC occurrence and distribution, the NWQL analyzes ground-water samples at detection limits of about 5 nanograms per liter. Thus, VOC detection limits are even lower than the trace-level protocols described by Koterba and others (1995) which are designed to sample accurately at microgram-per-liter concentrations. These very sensitive analyses increase the chances of detecting VOCs within the aquifer but they also increase the chances of detecting VOCs that originate from extraneous sources (such as contamination during the sample process). As a result, the interpretation of quality-assurance data is especially important in the interpretation of the VOC results.

Based on recently collected quality-control samples, two reasons are indicated for the failure of VOC detections in equipment-blanks to indicate that VOCs detected in ground-water samples were possibly from extraneous sources. First, during a more recent NAWQA study conducted after the public-supply well study, the "organic-free" blank water used to collect equipment blanks contained detectable concentrations of VOCs. VOCs were possibly present in detectable concentrations in the "organic-free" blank water used to collect equipment blanks for this public-supply well study. This means that VOC detections in the equipment blanks could be attributable to VOCs in the "organic-free" blank water and not to VOC residue left in the sampling equipment from a previous well or decontamination procedure. Secondly, a recent quality-control experiment confirms that routine purging (10 to 20 gal of water) flushed almost all VOCs from the sampling equipment, with the exception of toluene. Cost prohibits flushing 10 to 20 gal of blank water through the sampling equipment during the collection of an equipment blank. Even if the decontamination process left VOC residue in the sampling equipment and VOCs are subsequently detected in an equipment blank, routine purging flushes out most VOCs before a sample is collected.

Some VOC detections in ground-water samples were confirmed to be contamination from extraneous sources. The evidence went beyond just detecting VOCs in equipment blanks. These detections are assigned a "V" code in Appendix 1. The data still have some usefulness because the contamination levels are fairly low. The greatest concentration of a VOC in a ground-water sample was V 5.2 µg/L for 1,2,4-trimethylbenzene. This detection was determined to be caused by contamination during the sampling process (hence the "V" before the reported concentration). Known contamination of methylene chloride was determined to be 0.11 µg/L in one sample. The methylene chloride detection of 0.25 µg/L for this water sample from one well was "V" coded, but 0.14 µg/L of this detection was still included in the interpretation discussed in this section. All other "V" coded detections are excluded from the detection summary (fig. 9) or other interpretation discussed in this section.

While the presence of VOCs in samples was verified, VOC detections with concentrations less than the lowest calibration standard were estimated (Connor and others, 1998). Estimated concentrations were reported with an "E" code in Appendix 1. More than 72 percent of the VOC detections used for interpretations have estimated "E" values.

VOC concentrations were below drinking-water standards, generally by a few orders of magnitude (table 8). Fifteen VOCs were detected (fig. 9) in water from the public-supply wells. Samples from 26 of the 30 public-supply wells had at least one VOC detected. VOC analytes were detected at concentrations as low as 0.005 µg/L. The most frequently detected VOC was 1,2,4-trimethylbenzene which was detected in 68 percent of the wells. Other VOCs detected were carbon disulfide in 33 percent of the wells, methyl ethyl ketone in 24 percent of the wells, chloroform in 17 percent of the wells, chloromethane in 10 percent of the wells, and m- and p-xylene and tetrachloroethene each in 7 percent of the wells. Acetone, methyl isobutyl ketone, ethylbenzene, o-xylene, methylene chloride, diisopropylether, trichloroethene, and dichlorobromomethane were each detected once in sampled wells. A maximum of six VOCs was found in one well. The VOC concentration closest to the MCL is the maximum concentration of tetrachloroethene at 0.18 µg/L, which is 3.6 percent of the MCL of 5 µg/L.

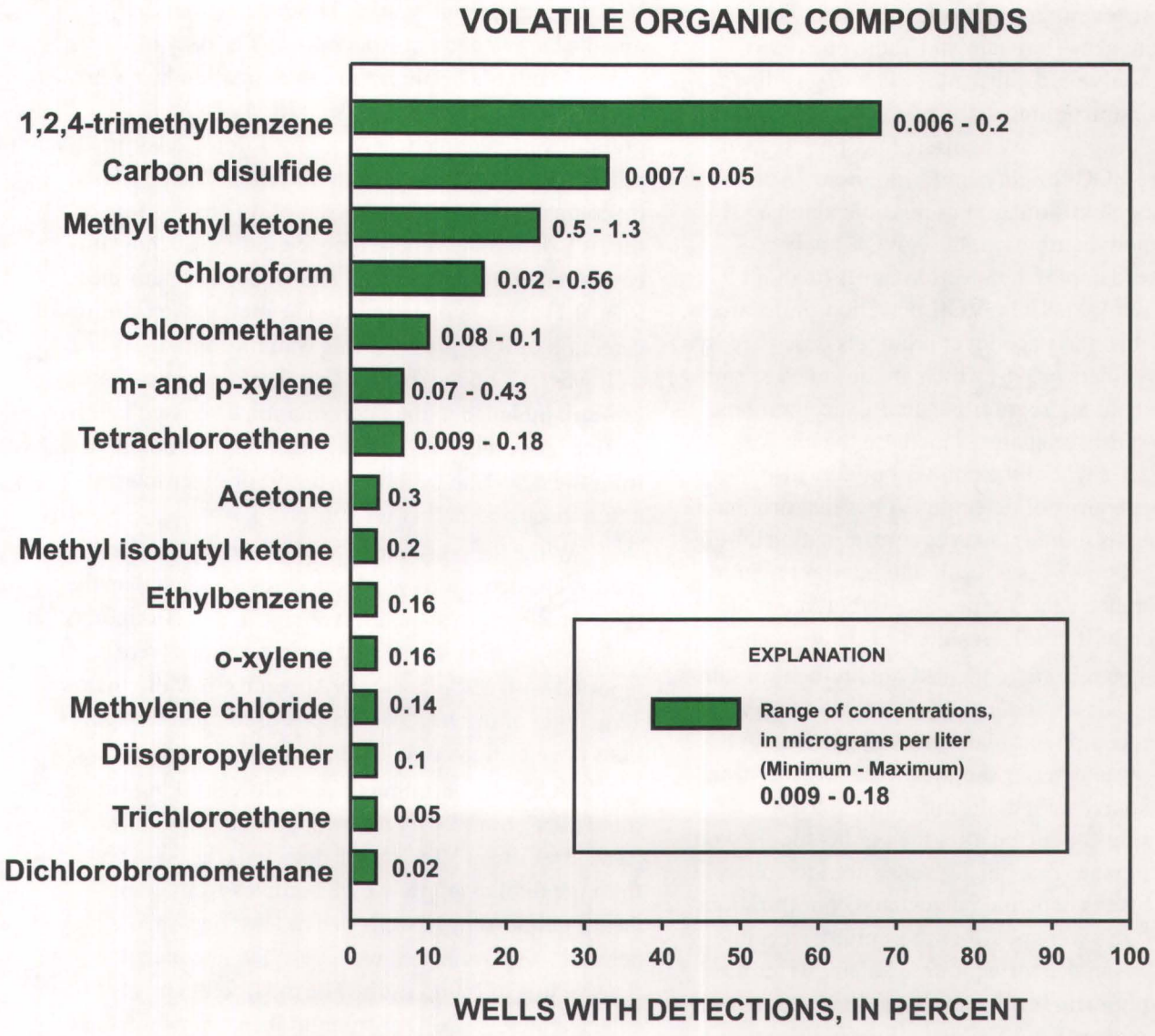

Figure 9. Detections of volatile organic compounds in water from public-supply wells, Mississippi Embayment Study Unit, 1996.

Table 8. Comparison of the maximum concentrations of volatile organic compounds in water from sampled public-supply wells with the U.S. Environmental Protection Agency maximum contaminant levels (MCL)

[All concentrations are in micrograms per liter (µg/L). Total xylenes include 0.43 µg/L of m- and p-xylene and 0.16 µg/L of o-xylene. Total trihalomethanes consist of 0.56 µg/L of chloroform and 0.02 µg/L of dichlorobromomethane]

Constituent	Number of analyses	Number of detections	Maximum concentration (µg/L)	MCL (µg/L)
methyl ethyl ketone	29	7	1.3	--
total xylenes	30	2	0.59	10,000
total trihalomethanes	30	5	0.58	100
acetone	30	1	0.3	--
1,2,4-trimethylbenzene	28	19	0.2	--
methyl isobutyl ketone	28	1	0.2	--
tetrachloroethene	30	2	0.18	5
ethylbenzene	30	1	0.16	700
methylene chloride	30	1	0.14	5
chloromethane	20	2	0.1	--
diisopropylether	30	1	0.1	--
trichloroethene	30	1	0.05	5
carbon disulfide	30	10	0.05	--

Most VOCs probably originate as surface contaminants from anthropogenic sources. Some exceptions may include methyl ethyl ketone, methyl isobutyl ketone, and acetone (herein referred to as ketones) and carbon disulfide. Concentrations of ketones and carbon disulfide are greater in water from wells with almost no oxygen than in water from wells with elevated concentrations of dissolved oxygen, a trend that is opposite the trend of other VOCs. Ketones are usually associated with polyvinyl chloride (PVC) primers and resins which may originate from well plumbing. However, health officials from Arkansas and Mississippi suggest that the use of PVC primers and resins in casings of public-supply wells is unlikely (Ginger Tatom, Arkansas Department of Health; and Wayne Lay, Mississippi Department of Health, oral commun., 1997). Carbon disulfide may be associated with plastics but may also originate from the microbial reduction of sulfate under anaerobic conditions (Howard, 1990). Ketones and carbon disulfide appear to behave differently from other VOCs and are sometimes compared separately from other VOCs in this report with potential factors such as physiographic setting, well depth, and land use. The VOCs remaining in the data set (herein referred to as selected VOCs) are 1,2,4-trimethylbenzene, chloroform, chloromethane, m- and p-xylene, tetrachloroethene, ethylbenzene, o-xylene, methylene chloride, diisopropylether, trichloroethene, and dichlorobromomethane.

VOCs appear to be more common in water from wells in the upper Gulf Coastal Plain than in water from wells in the Mississippi Alluvial Plain. Water from wells in the upper Gulf Coastal Plain had detections of a larger number of VOCs than water from wells in the Mississippi Alluvial Plain (p-value = 0.06) (fig. 10). When ketones and carbon disulfide were excluded from the VOC data set, the p-value decreased from 0.06 to 0.006 (fig. 10). The sums of concentrations of all VOCs were not significantly different in samples from wells grouped by physiographic setting (fig. 11).

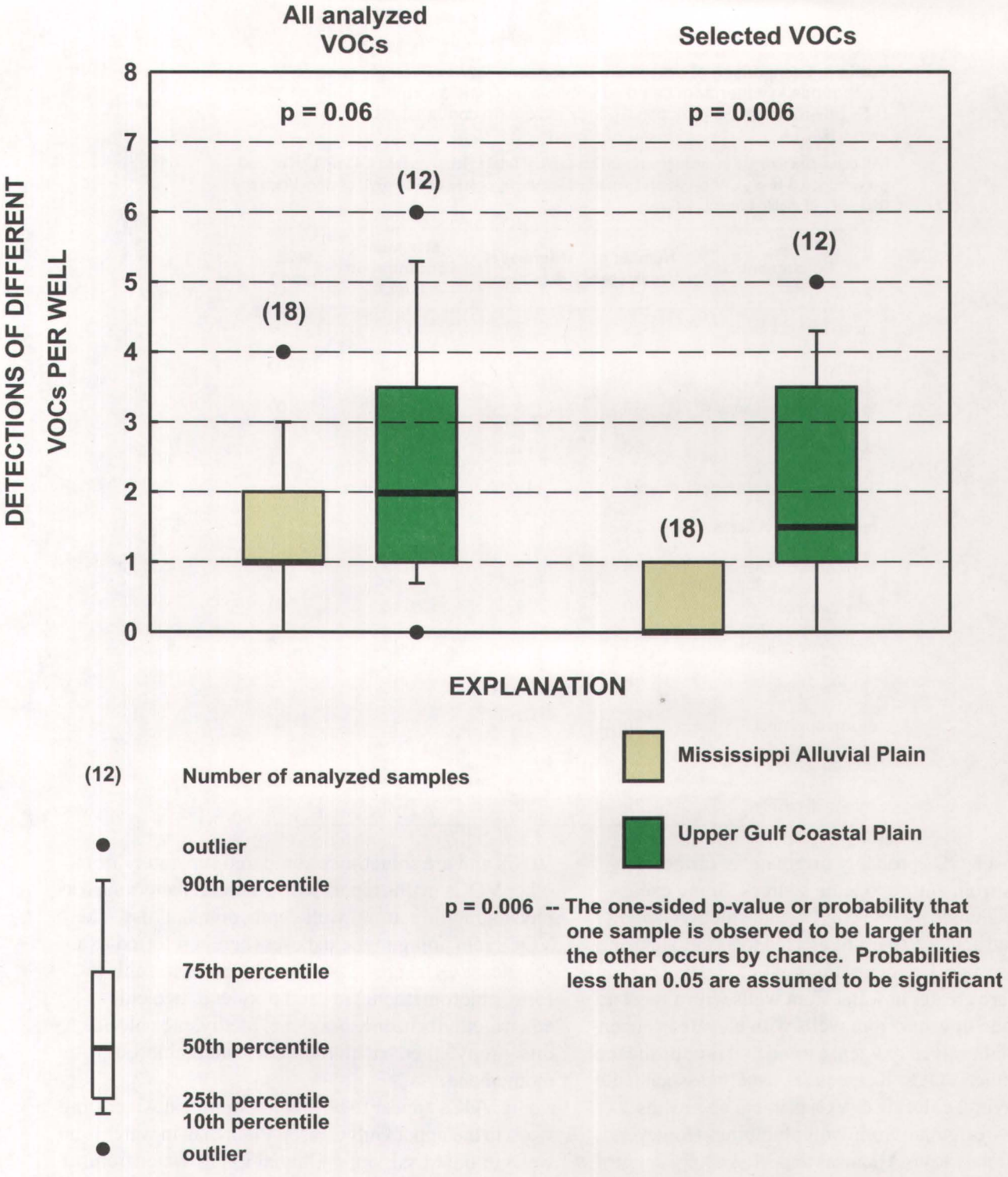

Figure 10. Number of detections of different volatile organic compounds (VOCs) in water from public-supply wells, by physiographic setting, Mississippi Embayment Study Unit, 1996. [Selected VOCs are all VOCs excluding ketones and carbon disulfide.]

Ketones and carbon disulfide were detected at greater concentrations in water from wells in the Mississippi Alluvial Plain than from wells in the upper Gulf Coastal Plain (p-value = 0.065) (fig. 11). The five wells with the greatest concentrations of ketones and carbon disulfide were located in west-central Mississippi and extreme southeastern Arkansas (wells DT-22, DT-9, DT-12, DT-11, and DT-2). Selected VOCs were detected at significantly greater concentrations in water from wells in the upper Gulf Coastal Plain than from wells in the Mississippi Alluvial Plain (p-value = 0.021) (fig. 11). Concentrations of 1,2,4-trimethylbenzene were greater in water from wells in the upper Gulf Coastal Plain than from wells in the Mississippi Alluvial Plain with a p-value = 0.07 (fig. 11).

Elevated concentrations of VOCs occur in the shallower public-supply wells, especially in the upper Gulf Coastal Plain. The number of different VOCs detected in water from all wells had an inverse correlation to well depth (Kendall's tau = -0.28 and p-value = 0.034) (fig. 12). The number of different VOCs detected in water from wells in the Mississippi Alluvial Plain did not correlate to well depth, whereas the number of different VOCs in water from wells in the upper Gulf Coastal Plain had an inverse correlation to well depth (Kendall's tau = -0.44 and p-value = 0.055) (fig. 12). Concentrations of 1,2,4-trimethylbenzene in water from wells within the Mississippi Alluvial Plain did not correlate to well depth, whereas concentrations of 1,2,4-trimethylbenzene in water from wells within the upper Gulf Coastal Plain correlated slightly to well depth (Kendall's tau = -0.49 and a p-value = 0.08) (fig. 13). Concentrations of VOCs in water from wells did not correlate to the presence of different land use within 500 m of the wells.

Radioisotopes (Radon and Tritium)

Radon-222 is a naturally occurring radioactive gas—produced by the decay of uranium—with a half-life of 3.8 days. Rocks and sediment commonly contain high enough concentrations of uranium to cause ground water to have significant concentrations of radon-222 (Rogers, 1958). Radon-222 is soluble in ground water but exists in the gas phase; hence, water with radon-222 quickly degases when the water comes in contact with the atmosphere. Because radon is radioactive, it can pose a health threat. The U.S. Environmental Protection Agency (1996) had set an MCL of 300 picoCuries per liter (pCi/L). At the time of the writing of this report (1999), this MCL had been withdrawn pending further study. Radon in water from the public-supply wells ranged from 54 to 270 pCi/L, which is below the original MCL. Radon results for the public-supply wells are much lower than those reported by Adamski (1996b) who reported radon concentrations in water samples from the carbonate aquifers of the Ozark Plateaus typically in excess of 300 pCi/L.

Tritium is a radioactive isotope of hydrogen with a half-life of 12.43 years. Tritium is produced naturally in the atmosphere at very low concentrations and is incorporated into precipitation. Nuclear weapons testing during the middle of the twentieth century produced tritium amounts much greater than those produced by natural processes. The concentration of naturally produced tritium in rainwater is only about 10 tritium atoms for every 10^{18} hydrogen atoms. Because tritium is not produced after water infiltrates the soil, tritium can be used to determine the presence of young (less than about 50 years) ground water in a sample. Tritium was analyzed in water samples from 10 wells that had very low concentrations of suspected surface contaminants (nitrate, pesticides, and VOCs) to determine if the water in these wells was too old to even contain anthropogenic surface contaminants. Tritium was detected in water from only 1 of the 10 wells. Tritium in that well was detected at a concentration of 0.6 atoms per 10^{18} hydrogen atoms indicating a lack of young ground water in these 10 public-supply wells. Water in at least nine of the public-supply wells was probably too old (greater than 50 years) to carry contamination from the surface.

Stable Isotopes

The hydrogen and oxygen isotopes in water were used in this study to help determine the source of ground water currently being pumped from the deep Tertiary aquifers. The important stable isotopes of the water molecule in stable-isotope hydrology are hydrogen (^{1}H), deuterium (^{2}H), oxygen-16 (^{16}O), and oxygen-18 (^{18}O). The occurrences of ^{2}H and ^{18}O are rare compared to the occurrences of ^{1}H and ^{16}O. The isotopic compositions of stable isotopes ^{2}H and ^{18}O are expressed in permil units, or parts per thousand, as a deviation of the isotopic ratio relative to a reference standard, by using the delta notation (δ):

$$\delta = [(R\text{sample})/(R\text{reference}) - 1] \times 1,000,$$

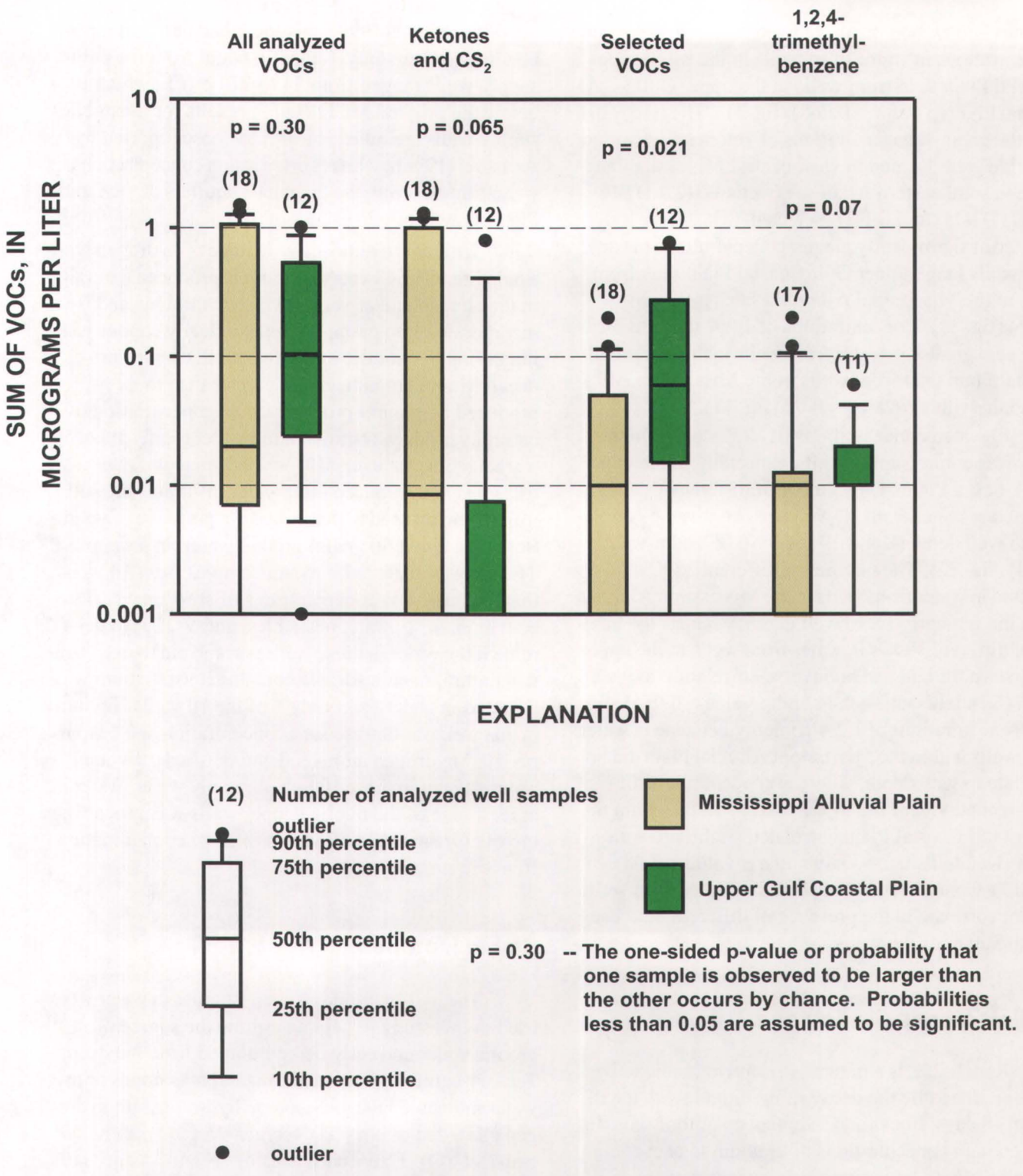

Figure 11. Sum of volatile organic compound concentrations (VOCs) in water from public-supply wells, by physiographic setting, Mississippi Embayment Study Unit, 1996. [Selected VOCs are all detected VOCs excluding ketones and carbon disulfide.]

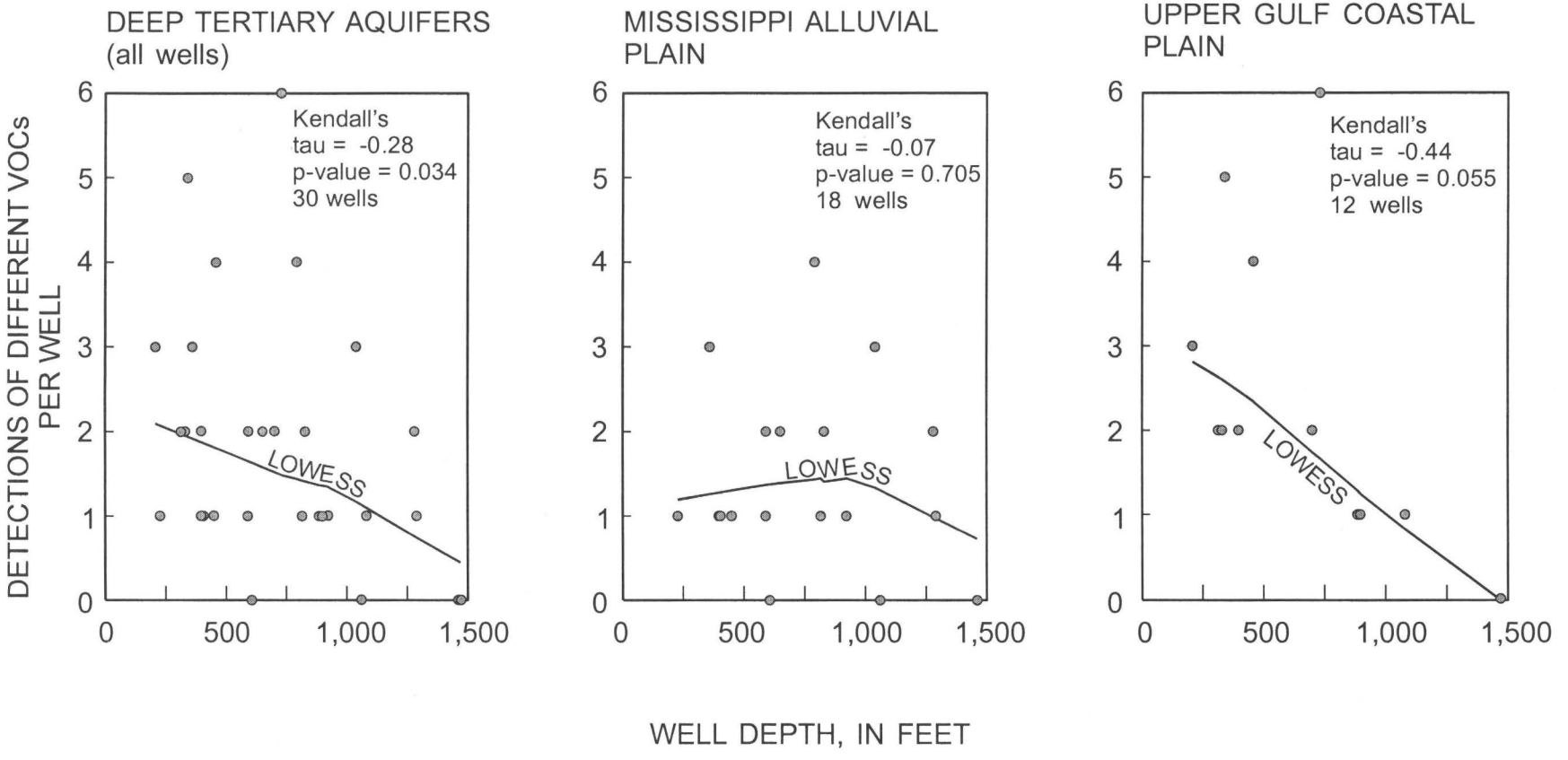

Figure 12. Relation of number of detections of different volatile organic compounds (VOCs) in water from public-supply wells with well depth, by physiographic setting, Mississippi Embayment Study Unit, 1996.

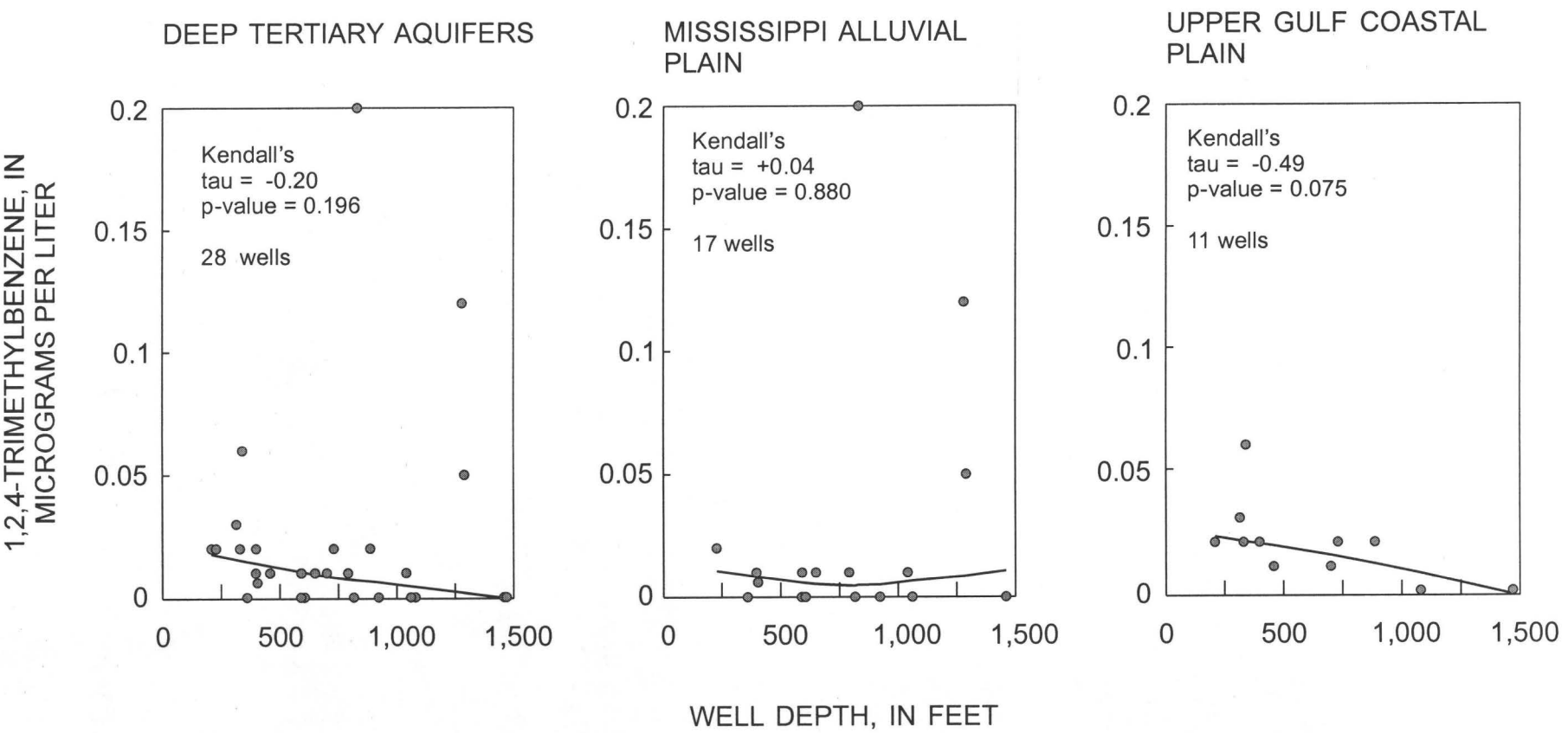

Figure 13. Relation of 1,2,4-trimethylbenzene concentrations in water from public-supply wells with well depth, by physiographic setting, Mississippi Embayment Study Unit, 1996.

where R is the measured isotopic ratio. The delta symbol in this report is followed by the heavier isotope of the isotopic pair $^2H/^1H$ or $^{18}O/^{16}O$. Permil values in this report are presented relative to the standardized reference compound, Vienna Standard Mean Ocean Water (VSMOW) (Coplen, 1994). The more enriched a water sample is with ^2H or ^{18}O, the greater the permil value will be for that water sample. Modern ocean water usually has δ^2H and $\delta^{18}O$ values close to zero, relative to VSMOW. Most precipitation and ground-water samples have negative δ^2H and $\delta^{18}O$ values, relative to VSMOW.

A long-standing question is whether or not remnant precipitation from the last ice age is still present in the deep Tertiary aquifers. Estimates of $\delta^{18}O$ values of precipitation within the deep Tertiary aquifers study area during the last ice age are uncertain but may have been as much as 10 permil lower than present day precipitation (Fairbridge, 1964; and Gonthier, 1989).

Stable hydrogen and oxygen isotopes in samples from 17 wells were analyzed. The isotopic composition of water samples from all 17 wells was similar to the expected isotopic composition of modern precipitation in the study area. In water from wells, δ^2H values ranged from -20 to -38 permil, and $\delta^{18}O$ values ranged from -3.5 to -6.2 permil. δ^2H and $\delta^{18}O$ values of water from wells were covariant having a linear regression line of $\delta^2H = 6.85\ \delta^{18}O + 6.51$ (R-squared = 0.93) similar to the meteoric water line by Gonthier (1989) for southeastern Louisiana (fig. 14). The isotopic composition of water from wells in the deep Tertiary aquifers became more depleted in ^2H and ^{18}O from the south to north, similar to the pattern for isotopic composition of precipitation reported by Taylor and Margaritz (1978). The water samples that were most depleted in ^2H and ^{18}O were from wells in or near southeastern Missouri, in the north-central part of the study area. No evidence from this study indicates that remnant precipitation from the last ice age—being depleted in ^2H and ^{18}O compared to present-day precipitation—is still present in the deep Tertiary aquifer system.

SUITABILITY FOR DRINKING PURPOSES

The most significant finding of the deep Tertiary aquifers study is that water from the public-supply wells is suitable for drinking purposes. Concentrations of all constituents that could adversely affect water quality—including concentrations of nutrients, pesticides, radon, and VOCs—were below MCLs. Public-supply wells are deep enough to avoid significantly elevated concentrations of nitrite plus nitrate. Generally, concentrations of nitrite plus nitrate are elevated primarily near land surface (Rupert, 1994). Minimal evidence in the deep Tertiary aquifers study indicated that concentrations of nitrite plus nitrate are not elevated as shallow as 208 ft below the land surface, the depth of the shallowest well.

PROBABLE PATH OF SURFACE-CONTAMINANT MIGRATION

Surface contaminants are more likely to migrate along local flow paths to wells in the upper Gulf Coastal Plain than to wells in the Misissippi Alluvial Plain. Comparisons of water quality and its relation to land use and well depth within the different physiographic settings provide insight into the probable path of surface-contaminant migration. Ground-water chemistry is different between the two physiographic settings supporting the fact that a significant component of the ground-water flow in the deep Tertiary aquifers is from the aquifer outcrops in the upper Gulf Coastal Plain to the public-supply wells. Freeze and Cherry (1979) note dissolved-oxygen concentrations and Eh values in ground water decrease with age, and ground water often becomes enriched in anoxic components such as dissolved iron, hydrogen sulfide, and ammonia. Water from wells in the Mississippi Alluvial Plain had higher concentrations of anoxic components, such as dissolved iron, hydrogen sulfide, and ammonia, than water from wells in the upper Gulf Coastal Plain. This indicates that water from wells in the Mississippi Alluvial Plain is probably more removed from its recharge area than water from wells in the upper Gulf Coastal Plain.

Surface contaminants can potentially migrate to the wells along the ground-water flow path. Three possible ground-water flow paths are (1) from the aquifer outcrops in the upper Gulf Coastal Plain towards the wells; (2) from the land surface immediately surrounding the wells towards the wells; and (3) down the annulus of the wells. The complete migration of surface contaminants from the outcrops of the upper Gulf Coastal Plain to the well screens is unlikely based on estimated travel times of hundreds to thousands of years. If the migration path is from the land surface immediately surrounding the wells directly to the wells throughout the study area, then the presence of surface contaminants in water from all wells might correlate to

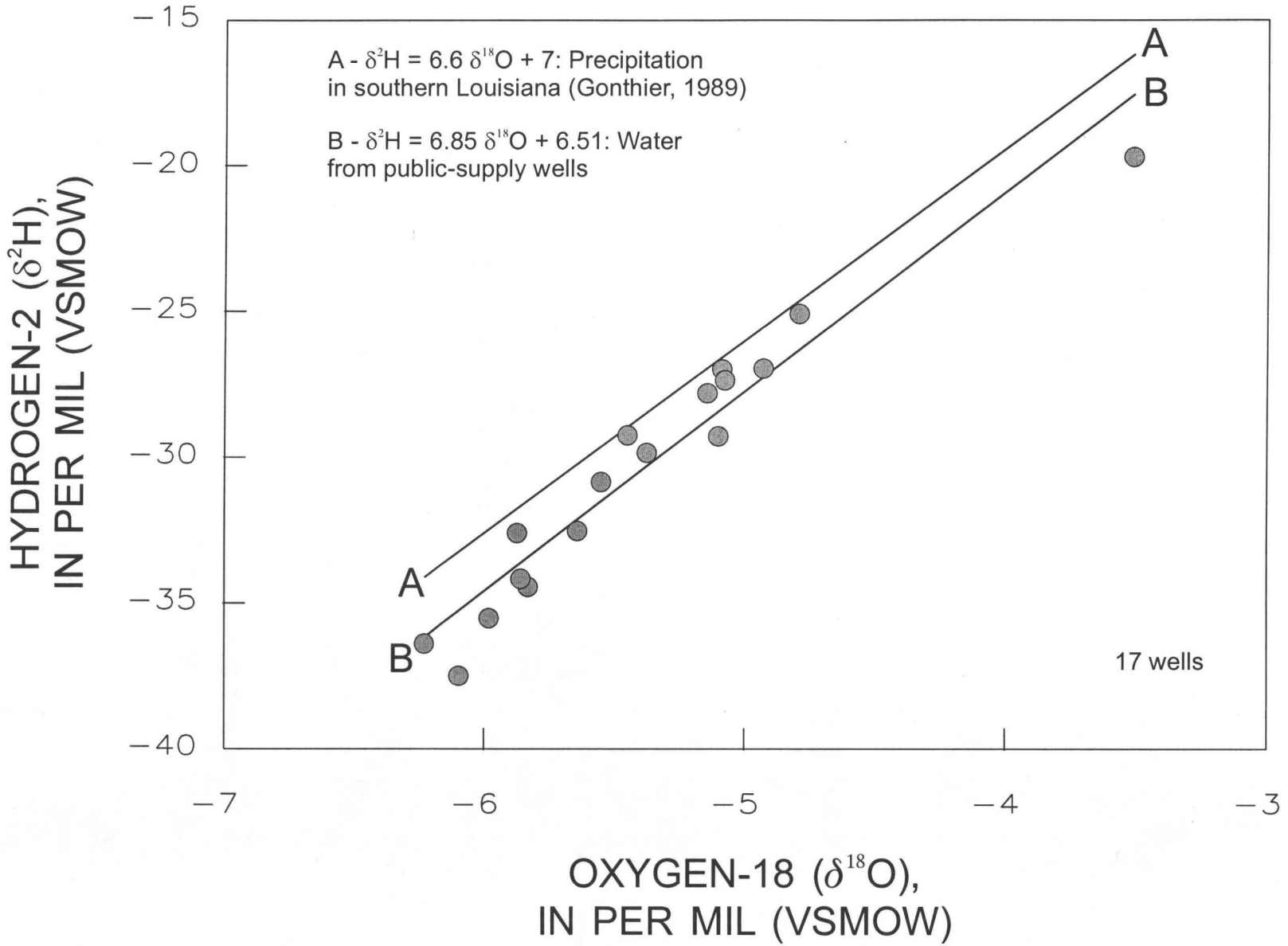

Figure 14. Relation of relative hydrogen isotope ratios with oxygen isotope ratios in water from public-supply wells, Mississippi Embayment Study Unit, 1996, compared to precipitation. [Trend of precipitation in southeastern Louisiana (A) is compared to trend of water from public-supply wells (B). VSMOW is Vienna Standard Mean Ocean Water.]

the amount of land use within 500 m; however, the presence of surface contaminants did not correlate to land use within that area. Surface contaminants were mostly present in the shallowest wells. It may be possible that the presence of surface contaminants in the shallowest wells is associated with the type of land use within 500 m, but there are insufficient data to establish this.

The absence of detectable concentrations of tritium indicates that much of the water produced by 10 public-supply wells is probably more than about 50 years old; however, water samples from 26 public-supply wells had detections of VOCs, indicating likely contamination of the water within the last 50 years. Six wells had low concentrations of some VOCs in the absence of tritium. There are three possible explanations for detecting VOCs but not tritium in samples. (1) VOCs detected in water with no tritium may have entered the ground-water system more than 50 years prior to the collection of the sample, but it is unlikely that VOCs in a ground-water flow system could remain detectable after 50 years because of degradation and dilution. (2) A small amount of young water with high concentrations of surface contaminants may have travelled along preferential pathways (such as a well annulus) to the well screen. The small amount of very young water might not have high enough concentrations of tritium to be detected in the tritium analysis but might still contribute enough VOCs to the old water to cause some VOCs to be present in low, but measurable concentrations in water samples. (3) VOC detections may have come from other extraneous sources.

Ground water in the upper Gulf Coastal Plain may be more susceptible to surface contamination than ground water in the Mississippi Alluvial Plain. Water from wells in the upper Gulf Coastal Plain had greater concentrations of surface contaminants—such as selected VOCs and nitrite plus nitrate—and a larger number of different VOCs detected in water than wells in the Mississippi Alluvial Plain. Surface contaminants were detected more often and correlated better to well depth in water from the upper Gulf Coastal Plain than in water from the Mississippi Alluvial Plain. More different VOCs were present—including carbon disulfide and ketones—in water from wells in the upper Gulf Coastal Plain than in water from wells in the Mississippi Alluvial Plain; thus, surface contaminants are more likely to migrate along local flow paths to wells in the upper Gulf Coastal Plain than to wells in the Mississippi Alluvial Plain.

SUMMARY

In 1991, the U.S.Geological Survey began implementation of the National Water-Quality Assessment Program to provide a consistent description of the Nation's ground- and surface-water resources. The Mississippi Embayment Study Unit is one of 16 NAWQA study units that began in 1994. Ground water is the primary source of drinking water for most of the population within the Mississippi Embayment Study Unit. Most communities in the study area use water from the deep Tertiary aquifers in the Claiborne and Wilcox Groups. Hence, the quality of water in these aquifers is of interest.

The deep Tertiary aquifers study area is 39,200 mi^2 and includes parts of eastern Arkansas, western Kentucky, northeastern Louisiana, northwestern Mississippi, southeastern Missouri, and western Tennessee. The deep Tertiary aquifers study area lies entirely within the Coastal Plain Province which includes 24,500 mi^2 of the Mississippi Alluvial Plain and 14,700 mi^2 of the upper Gulf Coastal Plain. Eighteen of the wells included in the study were located in the Mississippi Alluvial Plain, and 12 were located in the upper Gulf Coastal Plain.

The study unit is approximately situated in the northern part of the Mississippi Embayment which is a geologic structural trough that contains the deep Tertiary aquifers. The geologic formations are usually sands and clays that generally dip towards the axis of the Mississippi Embayment. Thick sand layers in these formations are aquifers that provide a vast ground-water resource to the region, whereas the clay layers function as confining units that impede the interchange of water between these aquifers.

Land use in the deep Tertiary aquifers study area is mostly agriculture (69 percent), with some forest (26 percent), surface water (3 percent), and urban (2 percent). Annual pesticide application on agricultural land within the Mississippi Embayment Study Unit was estimated to be about 40.7 million lb or about 2 lb/acre.

Water samples were collected during April and May 1996 from 30 public-supply wells screened in the deep Tertiary aquifers. Water samples were analyzed for temperature, pH, specific conductance, dissolved oxygen, alkalinity, major ions, nutrients, 88 pesticides, 87 volatile organic compounds, radioisotopes, and stable isotopes. Ancillary information, such as land use within 50 and 500 m of each well, date of well installation, well depth, and well pumpage, also was collected. Wells locations are primarily in an urban setting.

Sixteen wells had a sodium bicarbonate type water; 11 wells had a calcium-magnesium bicarbonate type water; 3 wells had a mixture of sodium bicarbonate and sodium chloride type water. Concentrations of almost all constituents were less in ground-water samples with elevated concentrations of dissolved oxygen (0.1 mg/L or greater) than in ground-water samples with almost no dissolved oxygen (less than 0.1 mg/L). The three exceptions were nitrate, pesticides, and most VOCs which were in greater concentrations in ground-water samples with elevated dissolved-oxygen concentrations compared to ground-water samples with almost no dissolved oxygen. Those constituents that appear to increase with increasing dissolved oxygen concentrations most likely originated as anthropogenic contaminants from the surface.

Nutrients were present at low concentrations in water from wells within the deep Tertiary aquifers. The highest nutrient concentration found in ground-water samples from this study was 3.8 mg/L of nitrite plus nitrate nitrogen which is less than half the MCL of 10 mg/L for drinking water. Pesticides were detected in water from only 1 of the 29 sampled wells. Water from the shallowest well in the study had a concentration of bromacil, an herbicide, of 0.16 µg/L and desethylatrazine, a metabolite of the herbicide atrazine, of 0.004 µg/L.

VOC concentrations were below drinking-water standards, generally by a few orders of magnitude. Fifteen VOCs were detected in water from the public-supply wells. Samples from 26 of the 30 public-supply wells had at least one VOC detected. The most frequently detected VOC was 1,2,4-trimethylbenzene, which was detected in water from 68 percent of the wells. Other VOCs detected were carbon disulfide in 33 percent of the wells, methyl ethyl ketone in 24 percent of the wells, chloroform in 17 percent of the wells, chloromethane in 10 percent of the wells, and m- and p-xylene and tetrachloroethene each in 7 percent of the wells. Acetone, methyl isobutyl ketone, ethylbenzene, o-xylene, methylene chloride, diisopropylether, trichloroethene, and dichlorobromomethane were each detected once in sampled wells. A maximum of six VOCs was found in one sample.

Radon in water from the public-supply wells ranged from 54 to 270 pCi/L. Tritium was detected in water from only 1 of 10 wells. The ^{2}H and ^{18}O concentrations in water from wells were similar to the ^{2}H and ^{18}O concentrations of precipitation in the study area. No evidence from this study indicates that remnant precipitation from the last ice age—being depleted in ^{2}H and ^{18}O compared to present-day precipitation—is still present in the deep Tertiary aquifer system.

The most significant finding of the deep Tertiary aquifers study was that water from the public-supply wells was suitable for drinking purposes. Concentrations of all constituents that could adversely affect water quality—including concentrations of nutrients, pesticides, radon, and VOCs—were below MCLs. Public-supply wells were deep enough to avoid significantly elevated concentrations of nitrite plus nitrate, pesticides, and VOCs.

Evidence suggests that wells in the upper Gulf Coastal Plain may be more susceptible to surface contamination than wells in the Mississippi Alluvial Plain. Water from wells in the upper Gulf Coastal Plain had greater concentrations of surface contaminants—such as the number of detections of VOCs in water, selected VOCs, and nitrite plus nitrate—than wells in the Mississippi Alluvial Plain. Surface contaminants were detected more often and correlated better to well depth in the upper Gulf Coastal Plain than in the Mississippi Alluvial Plain.

Surface contaminants most likely migrate along local flow paths either from the area immediately surrounding the well towards the well screen or down the well annulus. Surface contaminants are more likely to migrate along these local flow paths to wells in the upper Gulf Coastal Plain than to wells in the Mississippi Alluvial Plain.

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Appendix 1. Water-quality data for samples from public-supply wells, spring 1996, Mississippi Embayment, NAWQA

Table 1-1. Field measurements and other sampling information of water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA [ODOR: 0, no odor reported; 1, weak odor reported; 2, strong odor reported]

STATION NUMBER	DATE	TIME	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN) (72004)	TEMPERATURE WATER (DEG C) (00010)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPECIFIC CONDUCTANCE (US/CM) (00095)	OXYGEN, DISSOLVED (MG/L) (00300)	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICARBONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	REPORTED HYDROGEN SULFIDE ODOR
DT01 323805091555201	04-09-96	1300	60	24.5	8.9	1450	<.1	289	353	1
DT02 331406091303301	04-08-96	1400	60	20.0	6.5	375	.9	168	205	1
DT03 335643091511701	05-20-96	1000	60	26.5	8.0	203	<.1	101	123	0
DT04 343246091582302	05-21-96	1000	60	19.5	6.7	518	<.1	254	310	0
DT05 344124091183801	04-22-96	1200	>60	19.5	7.4	894	<.1	261	318	0
DTO5 344122091183601	04-22-96	1200	>60	--	--	--	--	--	--	--
DT06 355108090422902	05-13-96	1300	60	16.0	6.2	217	4.0	53	65	0
DT07 353328090432401	04-24-96	1200	60	17.0	7.4	507	.3	224	273	0
DT08 345011090474901	04-23-96	1500	60	19.0	7.6	1390	<.1	320	390	0
DT09 340232090445201	04-15-96	1300	60	25.5	8.5	686	.2	294	359	1
DT10 333914091002901	04-11-96	1000	60	21.0	8.9	359	.0	150	183	2
DT11 325438090521601	04-10-96	1000	60	26.0	8.7	698	.4	350	427	1
DT12 331111090283701	04-10-96	1500	60	23.0	7.6	289	.1	125	153	0
DT13 335623090201801	04-17-96	1400	60	22.5	7.8	471	<.1	227	277	0
DT14 343243090384201	04-23-96	1000	>60	19.5	7.4	930	<.1	379	462	0
DT15 353153090252201	05-15-96	1000	60	23.5	7.7	190	<.1	103	126	2
DT16 355606090152601	05-14-96	1500	60	22.5	7.0	181	<.1	77	94	2
DT17 365242089350601	04-30-96	1000	>60	15.5	--	347	<.1	111	135	0
DT18 355848089542201	05-14-96	1000	60	24.5	6.5	161	<.1	85	104	2
DT19 352034089534501	05-07-96	1400	>60	23.0	6.8	179	<.1	102	124	0
DT20 345814089584801	05-08-96	1400	>60	17.5	6.0	89	2.7	39	48	0
DT21 341020090080501	04-18-96	1000	60	21.5	8.8	619	<.1	310	378	0
DT22 333030090105101	04-16-96	1000	>60	21.5	8.4	320	<.1	157	192	0
DT23 341915089561101	04-17-96	1000	60	24.0	8.6	352	<.1	170	207	0
DT24 344614089264701	05-08-96	1000	>60	17.0	5.8	146	7.4	21	26	0
DT25 350500089481801	05-06-96	1400	>60	17.0	6.0	68	3.5	28	34	0
DT26 354444089314401	05-07-96	0900	>60	18.0	6.4	226	<.1	111	135	0
DT27 355437089144301	05-02-96	1200	>60	17.0	6.2	121	<.1	58	71	0
DT28 361709088423501	05-01-96	1400	>60	16.0	--	33	6.4	16	20	0
DT29 362552089032001	05-01-96	0900	60	18.5	--	111	<.1	55	67	0
DT30 365535089205301	04-30-96	1500	>60	16.0	--	271	<.1	--	E177	0

E - Estimated value calculated from lab alkalinity

Table 1-2. Major inorganic constituents analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA [ANC UNFLTRD TIT 4.5; Alkalinity of an unfiltered sample by titrating to a pH of 4.5]

STATION NUMBER	DATE	TIME	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	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)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
DT01 323805091555201	04-09-96	1300	822	1470	8.7	382	310	1.1	.23	1.3	19
DT02 331406091303301	04-08-96	1400	231	374	6.5	183	31	35	8.9	1.6	2200
DT03 335643091511701	05-20-96	1000	133	204	8.0	102	42	2.5	.79	2.9	43
DT04 343246091582302	05-21-96	1000	294	491	6.7	242	17	62	15	2.7	8100
DT05 344124091183801	04-22-96	1200	482	846	7.4	245	150	24	6.0	7.5	880
DT06 355108090422902	05-13-96	1300	133	214	6.3	66	14	17	7.4	.60	3.0
DT07 353328090432401	04-24-96	1200	296	503	7.5	237	14	63	21	.90	27
DT08 345011090474901	04-23-96	1500	750	1390	7.7	349	270	26	6.5	4.4	450
DT09 340232090445201	04-15-96	1300	422	696	8.3	315	160	.21	.070	1.0	44
DT10 333914091002901	04-11-96	1000	202	365	8.7	160	81	.26	.080	.70	14
DT11 325438090521601	04-10-96	1000	426	697	8.9	364	170	.24	.070	.80	11
DT12 331111090283701	04-10-96	1500	198	291	7.9	146	67	.93	.14	1.4	78
DT13 335623090201801	04-17-96	1400	298	476	8.0	236	110	.43	.18	1.9	130
DT14 343243090384201	04-23-96	1000	531	915	7.5	405	180	26	6.7	6.1	1100
DT15 353153090252201	05-15-96	1000	117	189	7.9	95	43	1.2	.37	1.2	270
DT16 355606090152601	05-14-96	1500	114	177	7.1	82	34	3.4	1.1	2.4	1500
DT17 365242089350601	04-30-96	1000	160	267	7.5	122	6.0	36	7.4	1.0	1400
DT18 355848089542201	05-14-96	1000	101	149	6.7	65	23	5.1	1.5	3.6	3100
DT19 352034089534501	05-07-96	1400	119	177	7.0	88	39	1.6	.62	1.4	1200
DT20 345814089584801	05-08-96	1400	50	89	6.0	37	8.1	6.0	2.2	.70	8.0
DT21 341020090080501	04-18-96	1000	362	626	8.5	315	150	1.1	.32	1.5	25
DT22 333030090105101	04-16-96	1000	190	322	8.5	165	79	.43	.12	1.3	9.0
DT23 341915089561101	04-17-96	1000	202	356	8.5	175	84	.74	.18	.80	8.0
DT24 344614089264701	05-08-96	1000	97	147	6.1	23	10	9.4	3.4	2.1	3.0
DT25 350500089481801	05-06-96	1400	54	70	6.2	28	6.0	4.6	1.8	.60	<3.0
DT26 354444089314401	05-07-96	0900	116	215	6.5	106	6.9	18	9.4	1.9	6100
DT27 355437089144301	05-02-96	1200	74	121	6.4	59	5.6	10	4.9	1.5	320
DT28 361709088423501	05-01-96	1400	27	36	5.8	14	3.3	1.7	.67	.30	8.0
DT29 362552089032001	05-01-96	0900	64	113	6.2	52	5.7	10	3.8	1.1	560
DT30 365535089205301	04-30-96	1500	195	341	7.2	150	8.7	44	10	2.0	1700

Table 1-3. Major inorganic constituents of water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

	STATION NUMBER	DATE	TIME	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)
DT01	323805091555201	04-09-96	1300	<1.0	12	240	.40	.70	1.3
DT02	331406091303301	04-08-96	1400	410	32	11	<.10	.20	.15
DT03	335643091511701	05-20-96	1000	16	15	1.4	4.0	.20	.010
DT04	343246091582302	05-21-96	1000	410	16	16	.20	.10	.16
DT05	344124091183801	04-22-96	1200	17	12	130	<.10	.20	.96
DT06	355108090422902	05-13-96	1300	<1.0	26	9.2	18	<.10	.10
DT07	353328090432401	04-24-96	1200	130	43	5.3	30	.20	.060
DT08	345011090474901	04-23-96	1500	33	14	230	.10	.50	.51
DT09	340232090445201	04-15-96	1300	<1.0	30	39	1.0	.40	.14
DT10	333914091002901	04-11-96	1000	<1.0	11	20	.30	.30	.11
DT11	325438090521601	04-10-96	1000	<1.0	13	16	.40	.50	.060
DT12	331111090283701	04-10-96	1500	5.0	37	1.6	8.5	.10	.020
DT13	335623090201801	04-17-96	1400	9.0	41	15	.30	.20	.080
DT14	343243090384201	04-23-96	1000	39	16	66	<.10	.20	.39
DT15	353153090252201	05-15-96	1000	9.0	10	2.1	2.9	.10	.030
DT16	355606090152601	05-14-96	1500	55	10	1.7	7.6	.10	.050
DT17	365242089350601	04-30-96	1000	230	21	4.3	10	.20	.030
DT18	355848089542201	05-14-96	1000	74	11	2.4	8.8	.10	.040
DT19	352034089534501	05-07-96	1400	37	12	.60	5.2	.10	.040
DT20	345814089584801	05-08-96	1400	<1.0	16	3.9	2.4	<.10	.050
DT21	341020090080501	04-18-96	1000	6.0	12	17	.40	.30	.10
DT22	333030090105101	04-16-96	1000	<1.0	15	1.9	6.3	.20	.030
DT23	341915089561101	04-17-96	1000	6.0	12	10	.30	.10	.070
DT24	344614089264701	05-08-96	1000	<1.0	14	11	12	<.10	.040
DT25	350500089481801	05-06-96	1400	<1.0	12	3.1	1.8	<.10	.040
DT26	354444089314401	05-07-96	0900	120	10	1.8	2.1	.20	.030
DT27	355437089144301	05-02-96	1200	260	12	1.8	2.4	<.10	.030
DT28	361709088423501	05-01-96	1400	<1.0	13	1.1	1.1	<.10	.020
DT29	362552089032001	05-01-96	0900	9.0	9.7	1.5	2.1	<.10	.030
DT30	365535089205301	04-30-96	1500	250	15	7.1	19	.30	.040

Table 1-4. Nutrients and dissolved carbon analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

	STATION NUMBER	DATE	TIME	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)
DT01	323805091555201	04-09-96	1300	<.010	<.050	.780	.80	.560	.610	2.2
DT02	331406091303301	04-08-96	1400	<.010	<.050	.530	.50	.610	.600	4.1
DT03	335643091511701	05-20-96	1000	<.010	<.050	.300	.40	.190	.210	.20
DT04	343246091582302	05-21-96	1000	.020	<.050	.330	.30	.360	--	1.6
DT05	344124091183801	04-22-96	1200	<.010	<.050	1.40	1.4	.130	.110	2.2
DT06	355108090422902	05-13-96	1300	<.010	1.80	<.015	<.20	.020	.030	.30
DT07	353328090432401	04-24-96	1200	<.010	.360	<.015	<.20	.190	.200	.40
DT08	345011090474901	04-23-96	1500	<.010	<.050	1.20	1.1	.170	.180	1.7
DT09	340232090445201	04-15-96	1300	<.010	<.050	.410	.50	.790	.840	2.8
DT10	333914091002901	04-11-96	1000	<.010	<.050	.390	.50	.330	.320	2.0
DT11	325438090521601	04-10-96	1000	<.010	.120	.470	.60	.390	.420	3.3
DT12	331111090283701	04-10-96	1500	<.010	<.050	.250	.30	.100	.100	.30
DT13	335623090201801	04-17-96	1400	<.010	.120	.580	.70	.380	.400	.60
DT14	343243090384201	04-23-96	1000	<.010	<.050	1.80	1.7	.050	.040	1.4
DT15	353153090252201	05-15-96	1000	<.010	.050	.260	.20	.270	.260	.30
DT16	355606090152601	05-14-96	1500	<.010	.060	.280	<.20	.200	.190	.20
DT17	365242089350601	04-30-96	1000	<.010	<.050	.100	<.20	.210	.210	1.0
DT18	355848089542201	05-14-96	1000	<.010	.050	.190	<.20	.160	.090	.20
DT19	352034089534501	05-07-96	1400	<.010	.060	.180	<.20	.310	.180	<.10
DT20	345814089584801	05-08-96	1400	<.010	.160	.030	<.20	.020	.020	5.7
DT21	341020090080501	04-18-96	1000	<.010	.110	.740	.90	.460	.470	2.1
DT22	333030090105101	04-16-96	1000	<.010	.090	.440	.50	.320	.310	.80
DT23	341915089561101	04-17-96	1000	<.010	.120	.280	.30	.350	.370	.90
DT24	344614089264701	05-08-96	1000	<.010	3.80	.040	<.20	<.010	<.010	5.7
DT25	350500089481801	05-06-96	1400	<.010	.090	<.015	<.20	<.010	<.010	.20
DT26	354444089314401	05-07-96	0900	<.010	.060	.050	<.20	.140	<.010	.30
DT27	355437089144301	05-02-96	1200	<.010	<.050	.040	<.20	<.010	<.010	.20
DT28	361709088423501	05-01-96	1400	<.010	.100	.030	<.20	<.010	<.010	.20
DT29	362552089032001	05-01-96	0900	<.010	<.050	.040	<.20	<.010	.010	.20
DT30	365535089205301	04-30-96	1500	<.010	<.050	.120	<.20	.100	.110	.80

Table 1-5. Radio- and stable isotopes analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

	STATION NUMBER	DATE	TIME	TRITIUM TOTAL (PCI/L) (07000)	RADON 222 TOTAL (PCI/L) (82303)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)
DT01	323805091555201	04-09-96	1300	--	100	-4.93	-26.9
DT02	331406091303301	04-08-96	1400	--	62	-3.51	-19.7
DT03	335643091511701	05-20-96	1000	--	130	-5.87	-32.6
DT04	343246091582302	05-21-96	1000	--	78	--	--
DT05	344124091183801	04-22-96	1200	<1.0	98	--	--
DTO5	344122091183601	04-22-96	1200	--	--	-5.10	-29.2
DT07	353328090432401	04-24-96	1200	--	270	-5.64	-32.5
DT08	345011090474901	04-23-96	1500	--	73	--	--
DT09	340232090445201	04-15-96	1300	--	78	-5.09	-27.0
DT10	333914091002901	04-11-96	1000	--	170	--	--
DT11	325438090521601	04-10-96	1000	--	78	-4.79	-25.1
DT12	331111090283701	04-10-96	1500	--	91	-5.14	-27.8
DT13	335623090201801	04-17-96	1400	<1.0	84	--	--
DT14	343243090384201	04-23-96	1000	<1.0	84	-5.08	-27.3
DT15	353153090252201	05-15-96	1000	--	89	-5.83	-34.4
DT16	355606090152601	05-14-96	1500	<1.0	73	--	--
DT17	365242089350601	04-30-96	1000	--	89	-6.10	-37.5
DT18	355848089542201	05-14-96	1000	<1.0	54	-6.23	-36.4
DT19	352034089534501	05-07-96	1400	2.0	97	--	--
DT20	345814089584801	05-08-96	1400	--	91	--	--
DT21	341020090080501	04-18-96	1000	<1.0	150	--	--
DT22	333030090105101	04-16-96	1000	--	86	--	--
DT23	341915089561101	04-17-96	1000	<1.0	87	-5.55	-30.8
DT24	344614089264701	05-08-96	1000	--	130	-5.45	-29.2
DT25	350500089481801	05-06-96	1400	--	75	-5.37	-29.8
DT26	354444089314401	05-07-96	0900	--	72	--	--
DT27	355437089144301	05-02-96	1200	--	110	--	--
DT28	361709088423501	05-01-96	1400	--	80	-5.86	-34.2
DT29	362552089032001	05-01-96	0900	<1.0	78	--	--
DT30	365535089205301	04-30-96	1500	<1.0	130	-5.98	-35.3

Table 1-6. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA

STATION	NUMBER	DATE	TIME	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BEN-BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	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)
DT01	323805091555201	04-09-96	1300	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT02	331406091303301	04-08-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT03	335643091511701	05-20-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT04	343246091582302	05-21-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT05	344124091183801	04-22-96	1200	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT06	355108090422902	05-13-96	1300	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT07	353328090432401	04-24-96	1200	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT08	345011090474901	04-23-96	1500	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT09	340232090445201	04-15-96	1300	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT10	333914091002901	04-11-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT11	325438090521601	04-10-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT12	331111090283701	04-10-96	1500	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT13	335623090201801	04-17-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT14	343243090384201	04-23-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT17	365242089350601	04-30-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT18	355848089542201	05-14-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT19	352034089534501	05-07-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT20	345814089584801	05-08-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT21	341020090080501	04-18-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT22	333030090105101	04-16-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT23	341915089561101	04-17-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT24	344614089264701	05-08-96	1000	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT25	350500089481801	05-06-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT26	354444089314401	05-07-96	0900	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT27	355437089144301	05-02-96	1200	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT28	361709088423501	05-01-96	1400	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT29	362552089032001	05-01-96	0900	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT30	365535089205301	04-30-96	1500	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002

Table 1-7. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	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)	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)
DT01	323805091555201	04-09-96	1300	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT02	331406091303301	04-08-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT03	335643091511701	05-20-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT04	343246091582302	05-21-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT05	344124091183801	04-22-96	1200	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT06	355108090422902	05-13-96	1300	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT07	353328090432401	04-24-96	1200	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT08	345011090474901	04-23-96	1500	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT09	340232090445201	04-15-96	1300	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT10	333914091002901	04-11-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT11	325438090521601	04-10-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT12	331111090283701	04-10-96	1500	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT13	335623090201801	04-17-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT14	343243090384201	04-23-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT17	365242089350601	04-30-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT18	355848089542201	05-14-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT19	352034089534501	05-07-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT20	345814089584801	05-08-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT21	341020090080501	04-18-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT22	333030090105101	04-16-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT23	341915089561101	04-17-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT24	344614089264701	05-08-96	1000	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT25	350500089481801	05-06-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT26	354444089314401	05-07-96	0900	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT27	355437089144301	05-02-96	1200	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT28	361709088423501	05-01-96	1400	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT29	362552089032001	05-01-96	0900	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT30	365535089205301	04-30-96	1500	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004

Table 1-8. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	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)	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)
DT01	323805091555201	04-09-96	1300	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT02	331406091303301	04-08-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT03	335643091511701	05-20-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT04	343246091582302	05-21-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT05	344124091183801	04-22-96	1200	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT06	355108090422902	05-13-96	1300	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT07	353328090432401	04-24-96	1200	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT08	345011090474901	04-23-96	1500	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT09	340232090445201	04-15-96	1300	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT10	333914091002901	04-11-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT11	325438090521601	04-10-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT12	331111090283701	04-10-96	1500	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT13	335623090201801	04-17-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT14	343243090384201	04-23-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT17	365242089350601	04-30-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT18	355848089542201	05-14-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT19	352034089534501	05-07-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT20	345814089584801	05-08-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT21	341020090080501	04-18-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT22	333030090105101	04-16-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT23	341915089561101	04-17-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT24	344614089264701	05-08-96	1000	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT25	350500089481801	05-06-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT26	354444089314401	05-07-96	0900	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT27	355437089144301	05-02-96	1200	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT28	361709088423501	05-01-96	1400	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT29	362552089032001	05-01-96	0900	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT30	365535089205301	04-30-96	1500	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004

Table 1-9. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
DT01	323805091555201	04-09-96	1300	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT02	331406091303301	04-08-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT03	335643091511701	05-20-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT04	343246091582302	05-21-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT05	344124091183801	04-22-96	1200	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT06	355108090422902	05-13-96	1300	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT07	353328090432401	04-24-96	1200	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT08	345011090474901	04-23-96	1500	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT09	340232090445201	04-15-96	1300	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT10	333914091002901	04-11-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT11	325438090521601	04-10-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT12	331111090283701	04-10-96	1500	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT13	335623090201801	04-17-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT14	343243090384201	04-23-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT17	365242089350601	04-30-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT18	355848089542201	05-14-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT19	352034089534501	05-07-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT20	345814089584801	05-08-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT21	341020090080501	04-18-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT22	333030090105101	04-16-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT23	341915089561101	04-17-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT24	344614089264701	05-08-96	1000	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT25	350500089481801	05-06-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT26	354444089314401	05-07-96	0900	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT27	355437089144301	05-02-96	1200	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT28	361709088423501	05-01-96	1400	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT29	362552089032001	05-01-96	0900	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT30	365535089205301	04-30-96	1500	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005

Table 1-10. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	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)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)
DT01	323805091555201	04-09-96	1300	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT02	331406091303301	04-08-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT03	335643091511701	05-20-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT04	343246091582302	05-21-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT05	344124091183801	04-22-96	1200	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT06	355108090422902	05-13-96	1300	<0.010	<0.007	<0.002	<0.001	<0.002	E0.004	<0.001	<0.003	<0.003
DT07	353328090432401	04-24-96	1200	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT08	345011090474901	04-23-96	1500	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT09	340232090445201	04-15-96	1300	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT10	333914091002901	04-11-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT11	325438090521601	04-10-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT12	331111090283701	04-10-96	1500	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT13	335623090201801	04-17-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT14	343243090384201	04-23-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT17	365242089350601	04-30-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT18	355848089542201	05-14-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT19	352034089534501	05-07-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT20	345814089584801	05-08-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT21	341020090080501	04-18-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT22	333030090105101	04-16-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT23	341915089561101	04-17-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT24	344614089264701	05-08-96	1000	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT25	350500089481801	05-06-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT26	354444089314401	05-07-96	0900	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT27	355437089144301	05-02-96	1200	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT28	361709088423501	05-01-96	1400	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT29	362552089032001	05-01-96	0900	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT30	365535089205301	04-30-96	1500	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003

E - Estimated value.

Table 1-11. Pesticides analyzed by GC/MS (NWQL SC2010) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	DIAZ-INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U GF, REC PERCENT (91064)	SAMPLE VOLUME SCHED-ULE 2010 (ML) (99857)	SET NUMBER SCHED-ULE 2010 (NO.) (99819)
DT01	323805091555201	04-09-96	1300	<0.013	<0.002	100	100	109	826	3023
DT02	331406091303301	04-08-96	1400	<0.013	<0.002	100	100	112	900	3023
DT03	335643091511701	05-20-96	1000	<0.013	<0.002	124	107	123	884	3135
DT04	343246091582302	05-21-96	1000	<0.013	<0.002	116	93.6	125	943	3135
DT05	344124091183801	04-22-96	1200	<0.013	<0.002	100	100	112	813	3038
DT06	355108090422902	05-13-96	1300	<0.013	<0.002	96.1	85.0	98.0	925	3126
DT07	353328090432401	04-24-96	1200	<0.013	<0.002	100	100	119	877	3076
DT08	345011090474901	04-23-96	1500	<0.013	<0.002	0	0	0	909	3038
DT09	340232090445201	04-15-96	1300	<0.013	<0.002	100	100	113	934	3023
DT10	333914091002901	04-11-96	1000	<0.013	<0.002	100	100	105	877	3023
DT11	325438090521601	04-10-96	1000	<0.013	<0.002	100	100	108	909	3023
DT12	331111090283701	04-10-96	1500	<0.013	<0.002	90.0	90.0	112	833	3023
DT13	335623090201801	04-17-96	1400	<0.013	<0.002	100	100	116	877	3033
DT14	343243090384201	04-23-96	1000	<0.013	<0.002	100	90.0	121	900	3047
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.013	<0.002	97.6	88.6	104	847	3126
DT17	365242089350601	04-30-96	1000	<0.013	<0.002	100	100	113	917	3076
DT18	355848089542201	05-14-96	1000	<0.013	<0.002	117	99.4	114	934	3135
DT19	352034089534501	05-07-96	1400	<0.013	<0.002	92.7	94.0	103	833	3099
DT20	345814089584801	05-08-96	1400	<0.013	<0.002	96.1	97.8	115	900	3108
DT21	341020090080501	04-18-96	1000	<0.013	<0.002	100	100	109	862	3033
DT22	333030090105101	04-16-96	1000	<0.013	<0.002	100	100	116	925	3033
DT23	341915089561101	04-17-96	1000	<0.013	<0.002	100	100	115	826	3033
DT24	344614089264701	05-08-96	1000	<0.013	<0.002	94.6	98.0	111	793	3108
DT25	350500089481801	05-06-96	1400	<0.013	<0.002	93.6	96.8	106	854	3108
DT26	354444089314401	05-07-96	0900	<0.013	<0.002	95.0	95.3	112	934	3108
DT27	355437089144301	05-02-96	1200	<0.013	<0.002	100	100	108	1000	3076
DT28	361709088423501	05-01-96	1400	<0.013	<0.002	100	100	109	854	3076
DT29	362552089032001	05-01-96	0900	<0.013	<0.002	91.7	95.1	106	884	3089
DT30	365535089205301	04-30-96	1500	<0.013	<0.002	100	90.0	113	840	3076

Table 1-12. Pesticides analyzed by HPLC/UV (NWQL SC2051) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA

STATION	NUMBER	DATE	TIME	2,4,5-T DIS-SOLVED (UG/L) (39742)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	ACIFL-UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	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)	BENTA-ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)
DT01	323805091555201	04-09-96	1300	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT02	331406091303301	04-08-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT03	335643091511701	05-20-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT04	343246091582302	05-21-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT05	344124091183801	04-22-96	1200	<0.035	<0.035	<0.035	<0.035	<0.016	--	--	<0.014	<0.035
DT06	355108090422902	05-13-96	1300	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	0.160
DT07	353328090432401	04-24-96	1200	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT08	345011090474901	04-23-96	1500	<0.035	<0.035	<0.035	<0.035	<0.016	--	--	<0.014	<0.035
DT09	340232090445201	04-15-96	1300	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT10	333914091002901	04-11-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT11	325438090521601	04-10-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT12	331111090283701	04-10-96	1500	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT13	335623090201801	04-17-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT14	343243090384201	04-23-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	--	--	<0.014	<0.035
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT17	365242089350601	04-30-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT18	355848089542201	05-14-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT19	352034089534501	05-07-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT20	345814089584801	05-08-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT21	341020090080501	04-18-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT22	333030090105101	04-16-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT23	341915089561101	04-17-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT24	344614089264701	05-08-96	1000	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT25	350500089481801	05-06-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT26	354444089314401	05-07-96	0900	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT27	355437089144301	05-02-96	1200	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT28	361709088423501	05-01-96	1400	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT29	362552089032001	05-01-96	0900	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT30	365535089205301	04-30-96	1500	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035

Table 1-13. Pesticides analyzed by HPLC/UV (NWQL SC2051) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	BROMOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	CARBARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CARBOFURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	3HYDRXY CARBOFURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORAMBEN, WATER, FLTRD, GF 0.7U REC (UG/L) (49307)	CHLOROTHALONIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CLOPYRALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	DACTHAL MONOACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)
DT01	323805091555201	04-09-96	1300	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT02	331406091303301	04-08-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT03	335643091511701	05-20-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT04	343246091582302	05-21-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT05	344124091183801	04-22-96	1200	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT06	355108090422902	05-13-96	1300	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT07	353328090432401	04-24-96	1200	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT08	345011090474901	04-23-96	1500	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT09	340232090445201	04-15-96	1300	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT10	333914091002901	04-11-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT11	325438090521601	04-10-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT12	331111090283701	04-10-96	1500	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT13	335623090201801	04-17-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT14	343243090384201	04-23-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT17	365242089350601	04-30-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT18	355848089542201	05-14-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT19	352034089534501	05-07-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT20	345814089584801	05-08-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT21	341020090080501	04-18-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT22	333030090105101	04-16-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT23	341915089561101	04-17-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT24	344614089264701	05-08-96	1000	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT25	350500089481801	05-06-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT26	354444089314401	05-07-96	0900	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT27	355437089144301	05-02-96	1200	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT28	361709088423501	05-01-96	1400	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT29	362552089032001	05-01-96	0900	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT30	365535089205301	04-30-96	1500	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035

Table 1-14. Pesticides analyzed by HPLC/UV (NWQL SC2051) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

	STATION NUMBER	DATE	TIME	DICHLOBENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLORPROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	ESFENVALERATE, WAT,FLT GF 0.7U REC (UG/L) (49298)	FENURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUOMETURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)
DT01	323805091555201	04-09-96	1300	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT02	331406091303301	04-08-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT03	335643091511701	05-20-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT04	343246091582302	05-21-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT05	344124091183801	04-22-96	1200	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT06	355108090422902	05-13-96	1300	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT07	353328090432401	04-24-96	1200	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT08	345011090474901	04-23-96	1500	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT09	340232090445201	04-15-96	1300	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT10	333914091002901	04-11-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT11	325438090521601	04-10-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT12	331111090283701	04-10-96	1500	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT13	335623090201801	04-17-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT14	343243090384201	04-23-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT17	365242089350601	04-30-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT18	355848089542201	05-14-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT19	352034089534501	05-07-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT20	345814089584801	05-08-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT21	341020090080501	04-18-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT22	333030090105101	04-16-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT23	341915089561101	04-17-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT24	344614089264701	05-08-96	1000	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT25	350500089481801	05-06-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT26	354444089314401	05-07-96	0900	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT27	355437089144301	05-02-96	1200	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT28	361709088423501	05-01-96	1400	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT29	362552089032001	05-01-96	0900	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT30	365535089205301	04-30-96	1500	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018

Table 1-15. Pesticides analyzed by HPLC/UV (NWQL SC2051) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	NEB-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	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)
DT01	323805091555201	04-09-96	1300	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT02	331406091303301	04-08-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT03	335643091511701	05-20-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT04	343246091582302	05-21-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT05	344124091183801	04-22-96	1200	<0.050	<0.035	<0.026	--	<0.007	<0.015	<0.024	<0.019	--
DT06	355108090422902	05-13-96	1300	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT07	353328090432401	04-24-96	1200	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT08	345011090474901	04-23-96	1500	<0.050	<0.035	<0.026	--	<0.007	<0.015	<0.024	<0.019	--
DT09	340232090445201	04-15-96	1300	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT10	333914091002901	04-11-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT11	325438090521601	04-10-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT12	331111090283701	04-10-96	1500	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT13	335623090201801	04-17-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT14	343243090384201	04-23-96	1000	<0.050	<0.035	<0.026	--	<0.007	<0.015	<0.024	<0.019	--
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT17	365242089350601	04-30-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT18	355848089542201	05-14-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT19	352034089534501	05-07-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT20	345814089584801	05-08-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT21	341020090080501	04-18-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT22	333030090105101	04-16-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT23	341915089561101	04-17-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT24	344614089264701	05-08-96	1000	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT25	350500089481801	05-06-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT26	354444089314401	05-07-96	0900	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT27	355437089144301	05-02-96	1200	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT28	361709088423501	05-01-96	1400	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT29	362552089032001	05-01-96	0900	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT30	365535089205301	04-30-96	1500	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018

Table 1-16. Pesticides analyzed by HPLC/UV (NWQL SC2051) in water samples from public-supply wells, Spring 1996, Mississippi Embayment NAWQA (continued)

STATION	NUMBER	DATE	TIME	PICLORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PROPHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROPOXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DISSOLVED (UG/L) (39762)	TRICLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	BDMC, SURROG, WATER, UNFLTRD REC PERCENT (99835)	SAMPLE VOLUME, SCHEDULE 2051 (ML) (99847)	SET NUMBER SCHEDULE 2051 (NO.) (99821)
DT01	323805091555201	04-09-96	1300	<0.050	<0.035	<0.035	<0.021	<0.050	87.0	866	3018
DT02	331406091303301	04-08-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	99.0	888	3018
DT03	335643091511701	05-20-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	78.0	878	3133
DT04	343246091582302	05-21-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	85.0	948	3133
DT05	344124091183801	04-22-96	1200	<0.050	<0.035	<0.035	<0.021	<0.050	80.0	977	3042
DT06	355108090422902	05-13-96	1300	<0.050	<0.035	<0.035	<0.021	<0.050	190	841	3133
DT07	353328090432401	04-24-96	1200	<0.050	<0.035	<0.035	<0.021	<0.050	E151	904	3061
DT08	345011090474901	04-23-96	1500	<0.050	<0.035	<0.035	<0.021	<0.050	87.0	890	3042
DT09	340232090445201	04-15-96	1300	<0.050	<0.035	<0.035	<0.021	<0.050	86.0	863	3018
DT10	333914091002901	04-11-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	95.0	896	3018
DT11	325438090521601	04-10-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	100	970	3018
DT12	331111090283701	04-10-96	1500	<0.050	<0.035	<0.035	<0.021	<0.050	88.0	853	3018
DT13	335623090201801	04-17-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	110	857	3028
DT14	343243090384201	04-23-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	109	921	3042
DT15	353153090252201	05-15-96	1000	--	--	--	--	--	--	--	--
DT16	355606090152601	05-14-96	1500	<0.050	<0.035	<0.035	<0.021	<0.050	105	836	3133
DT17	365242089350601	04-30-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	E156	856	3085
DT18	355848089542201	05-14-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	110	866	3133
DT19	352034089534501	05-07-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	107	764	3111
DT20	345814089584801	05-08-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	111	839	3111
DT21	341020090080501	04-18-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	110	864	3028
DT22	333030090105101	04-16-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	E87.0	904	3028
DT23	341915089561101	04-17-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	115	892	3028
DT24	344614089264701	05-08-96	1000	<0.050	<0.035	<0.035	<0.021	<0.050	116	850	3111
DT25	350500089481801	05-06-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	E105	883	3111
DT26	354444089314401	05-07-96	0900	<0.050	<0.035	<0.035	<0.021	<0.050	120	881	3111
DT27	355437089144301	05-02-96	1200	<0.050	<0.035	<0.035	<0.021	<0.050	E92.0	930	3085
DT28	361709088423501	05-01-96	1400	<0.050	<0.035	<0.035	<0.021	<0.050	E92.0	847	3085
DT29	362552089032001	05-01-96	0900	<0.050	<0.035	<0.035	<0.021	<0.050	E91.0	912	3085
DT30	365535089205301	04-30-96	1500	<0.050	<0.035	<0.035	<0.021	<0.050	E115	797	3085

E - Estimated value.

Table 1-17. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

STATION	NUMBER	DATE	TIME	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	VINYL CHLO-RIDE TOTAL (UG/L) (39175)	METHYL-BROMIDE TOTAL (UG/L) (34413)	CHLORO-ETHANE TOTAL (UG/L) (34311)	BROMO-ETHENE WATER UNFLTRD RECOVER (UG/L) (50002)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L) (34488)	ETHER ETHYL-WATER UNFLTRD RECOVER (UG/L) (81576)	ACRO-LEIN TOTAL (UG/L) (34210)
DT01	323805091555201	04-09-96	1259	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT02	331406091303301	04-08-96	1359	<0.200	E0.080	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT03	335643091511701	05-20-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	V0.050	<0.100	<2.00
DT04	343246091582302	05-21-96	0959	<0.200	E0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT05	344124091183801	04-22-96	1159	<0.200	V0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT06	355108090422902	05-13-96	1259	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT07	353328090432401	04-24-96	1159	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT08	345011090474901	04-23-96	1459	<0.200	V0.040	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT09	340232090445201	04-15-96	1259	<0.200	V0.030	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT10	333914091002901	04-11-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT11	325438090521601	04-10-96	0959	<0.200	V0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT12	331111090283701	04-10-96	1459	<0.200	V0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT13	335623090201801	04-17-96	1359	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT14	343243090384201	04-23-96	0959	<0.200	V0.030	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT15	353153090252201	05-15-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT16	355606090152601	05-14-96	1459	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT17	365242089350601	04-30-96	0959	<0.200	V0.040	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT18	355848089542201	05-14-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT19	352034089534501	05-07-96	1359	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT20	345814089584801	05-08-96	1359	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT21	341020090080501	04-18-96	0959	<0.200	V0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT22	333030090105101	04-16-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT23	341915089561101	04-17-96	0959	<0.200	V0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT24	344614089264701	05-08-96	0959	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT25	350500089481801	05-06-96	1359	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT26	354444089314401	05-07-96	0859	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT27	355437089144301	05-02-96	1159	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT28	361709088423501	05-01-96	1359	<0.200	V0.010	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT29	362552089032001	05-01-96	0859	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT30	365535089205301	04-30-96	1459	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00

E - Estimated value.
V - Evidence indicates that detection came from an extraneous source.

Table 1-18. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	1,1-DICHLOROETHYLENE TOTAL (UG/L) (34501)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	ACETONE WATER WHOLE TOTAL (UG/L) (81552)	METHYL IODIDE WATER UNFLTRD RECOVER (UG/L) (77424)	CARBON DI. SULFIDE WATER WHOLE TOTAL (UG/L) (77041)	PROPENE 3-CHLORO- WATER UNFLTRD RECOVER (UG/L) (78109)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	ACRYLONITRILE TOTAL (UG/L) (34215)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)
DT01	323805091555201	04-09-96	1259	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT02	331406091303301	04-08-96	1359	<0.100	<0.050	<5.00	<0.050	E0.020	<0.100	<0.100	<2.00	<0.050
DT03	335643091511701	05-20-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	V0.250	<2.00	<0.050
DT04	343246091582302	05-21-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT05	344124091183801	04-22-96	1159	<0.100	<0.050	<5.00	<0.050	E0.010	<0.100	<0.100	<2.00	<0.050
DT06	355108090422902	05-13-96	1259	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT07	353328090432401	04-24-96	1159	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT08	345011090474901	04-23-96	1459	<0.100	<0.050	<5.00	<0.050	E0.010	<0.100	<0.100	<2.00	<0.050
DT09	340232090445201	04-15-96	1259	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT10	333914091002901	04-11-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT11	325438090521601	04-10-96	0959	<0.100	<0.050	<5.00	<0.050	E0.050	<0.100	<0.100	<2.00	<0.050
DT12	331111090283701	04-10-96	1459	<0.100	<0.050	E0.30	<0.050	E0.030	<0.100	<0.100	<2.00	<0.050
DT13	335623090201801	04-17-96	1359	<0.100	<0.050	<5.00	<0.050	E0.020	<0.100	<0.100	<2.00	<0.050
DT14	343243090384201	04-23-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT15	353153090252201	05-15-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT16	355606090152601	05-14-96	1459	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT17	365242089350601	04-30-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT18	355848089542201	05-14-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT19	352034089534501	05-07-96	1359	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT20	345814089584801	05-08-96	1359	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT21	341020090080501	04-18-96	0959	<0.100	<0.050	<5.00	<0.050	E0.007	<0.100	<0.100	<2.00	<0.050
DT22	333030090105101	04-16-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT23	341915089561101	04-17-96	0959	<0.100	<0.050	<5.00	<0.050	E0.007	<0.100	<0.100	<2.00	<0.050
DT24	344614089264701	05-08-96	0959	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT25	350500089481801	05-06-96	1359	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT26	354444089314401	05-07-96	0859	<0.100	<0.050	<5.00	<0.050	E0.040	<0.100	<0.100	<2.00	<0.050
DT27	355437089144301	05-02-96	1159	<0.100	<0.050	<5.00	<0.050	E0.008	<0.100	<0.100	<2.00	<0.050
DT28	361709088423501	05-01-96	1359	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT29	362552089032001	05-01-96	0859	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT30	365535089205301	04-30-96	1459	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050

E - Estimated value.

Table 1-19. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	ACETATE VINYL WATER UNFLTRD RECOVER (UG/L) (77057)	DI-ISO-PROPYL-ETHER, WATER, UNFLTRD RECOVER (UG/L) (81577)	ETHER TERT-BUTYL ETHYL-UNFLTRD RECOVER (UG/L) (50004)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	CIS-1,2 -DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	METHYL-ETHYL-KETONE WATER WHOLE TOTAL (UG/L) (81595)	METHYL ACRY-LATE WATER UNFLTRD RECOVER (UG/L) (49991)
DT01	323805091555201	04-09-96	1259	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	E0.80	<2.00
DT02	331406091303301	04-08-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	1.00	<2.00
DT03	335643091511701	05-20-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT04	343246091582302	05-21-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	V1.30	<2.00
DT05	344124091183801	04-22-96	1159	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT06	355108090422902	05-13-96	1259	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT07	353328090432401	04-24-96	1159	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT08	345011090474901	04-23-96	1459	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT09	340232090445201	04-15-96	1259	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	1.20	<2.00
DT10	333914091002901	04-11-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	E0.50	<2.00
DT11	325438090521601	04-10-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	1.00	<2.00
DT12	331111090283701	04-10-96	1459	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	E0.80	<2.00
DT13	335623090201801	04-17-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT14	343243090384201	04-23-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT15	353153090252201	05-15-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT16	355606090152601	05-14-96	1459	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT17	365242089350601	04-30-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT18	355848089542201	05-14-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT19	352034089534501	05-07-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT20	345814089584801	05-08-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT21	341020090080501	04-18-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT22	333030090105101	04-16-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	1.30	<2.00
DT23	341915089561101	04-17-96	0959	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT24	344614089264701	05-08-96	0959	<0.100	<0.050	<5.00	0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT25	350500089481801	05-06-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT26	354444089314401	05-07-96	0859	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT27	355437089144301	05-02-96	1159	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT28	361709088423501	05-01-96	1359	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT29	362552089032001	05-01-96	0859	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT30	365535089205301	04-30-96	1459	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00

E - Estimated value.
V - Evidence indicates that detection came from an extraneous source.

Table 1-20. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	METHANE BROMO CHLORO- WAT UNFLTRD REC (UG/L) (77297)	METH- ACRYLO- NITRITE WATER UNFLTRD RECOVER (UG/L) (81593)	FURAN TETRA- HYDRO- WATER UNFLTRD RECOVER (UG/L) (81607)	CHLORO- FORM TOTAL (UG/L) (32106)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L) (34506)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L) (32102)	1,1-DI CHLORO- PRO- PENE, WAT, WH TOTAL (UG/L) (77168)	BENZENE TOTAL (UG/L) (34030)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L) (32103)
DT01	323805091555201	04-09-96	1259	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT02	331406091303301	04-08-96	1359	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT03	335643091511701	05-20-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT04	343246091582302	05-21-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT05	344124091183801	04-22-96	1159	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT06	355108090422902	05-13-96	1259	<0.100	<2.00	<5.00	0.110	<0.050	<0.050	<0.050	<0.050	<0.050
DT07	353328090432401	04-24-96	1159	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT08	345011090474901	04-23-96	1459	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT09	340232090445201	04-15-96	1259	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT10	333914091002901	04-11-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT11	325438090521601	04-10-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT12	331111090283701	04-10-96	1459	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT13	335623090201801	04-17-96	1359	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT14	343243090384201	04-23-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT15	353153090252201	05-15-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT16	355606090152601	05-14-96	1459	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT17	365242089350601	04-30-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT18	355848089542201	05-14-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT19	352034089534501	05-07-96	1359	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT20	345814089584801	05-08-96	1359	<0.100	<2.00	<5.00	0.560	<0.050	<0.050	<0.050	<0.050	<0.050
DT21	341020090080501	04-18-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT22	333030090105101	04-16-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT23	341915089561101	04-17-96	0959	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT24	344614089264701	05-08-96	0959	<0.100	<2.00	<5.00	E0.020	<0.050	<0.050	<0.050	<0.050	<0.050
DT25	350500089481801	05-06-96	1359	<0.100	<2.00	<5.00	E0.040	<0.050	<0.050	<0.050	<0.050	<0.050
DT26	354444089314401	05-07-96	0859	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT27	355437089144301	05-02-96	1159	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT28	361709088423501	05-01-96	1359	<0.100	<2.00	<5.00	E0.030	<0.050	<0.050	<0.050	<0.050	<0.050
DT29	362552089032001	05-01-96	0859	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT30	365535089205301	04-30-96	1459	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

E - Estimated value.

Table 1-21. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	ETHER TERT-PENTYL METHYL-UNFLTRD RECOVER (UG/L) (50005)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L) (39180)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)	METHAC-RYLATE METHYL WATER UNFLTRD RECOVER (UG/L) (81597)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	METHYL-ISO-BUTYL-KETONE WAT.WH. TOTAL (UG/L) (78133)	TOLUENE TOTAL (UG/L) (34010)
DT01	323805091555201	04-09-96	1259	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT02	331406091303301	04-08-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT03	335643091511701	05-20-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	V0.500	V0.100
DT04	343246091582302	05-21-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	V0.500	V0.110
DT05	344124091183801	04-22-96	1159	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT06	355108090422902	05-13-96	1259	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT07	353328090432401	04-24-96	1159	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT08	345011090474901	04-23-96	1459	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT09	340232090445201	04-15-96	1259	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT10	333914091002901	04-11-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT11	325438090521601	04-10-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT12	331111090283701	04-10-96	1459	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT13	335623090201801	04-17-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT14	343243090384201	04-23-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT15	353153090252201	05-15-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT16	355606090152601	05-14-96	1459	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT17	365242089350601	04-30-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT18	355848089542201	05-14-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT19	352034089534501	05-07-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT20	345814089584801	05-08-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	E0.020	<0.100	<5.00	<0.050
DT21	341020090080501	04-18-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT22	333030090105101	04-16-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT23	341915089561101	04-17-96	0959	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT24	344614089264701	05-08-96	0959	<0.100	E0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT25	350500089481801	05-06-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT26	354444089314401	05-07-96	0859	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	E0.200	<0.050
DT27	355437089144301	05-02-96	1159	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT28	361709088423501	05-01-96	1359	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT29	362552089032001	05-01-96	0859	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT30	365535089205301	04-30-96	1459	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050

E - Estimated value.
V - Evidence indicates that detection came from an extraneous source.

Table 1-22. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)	METHAC-RYLATE ETHYL-WATER UNFLTRD RECOVER (UG/L) (73570)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L) (34511)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2-HEXA-NONE WATER WHOLE TOTAL (UG/L) (77103)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	CHLORO-BENZENE TOTAL (UG/L) (34301)
DT01	323805091555201	04-09-96	1259	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT02	331406091303301	04-08-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT03	335643091511701	05-20-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT04	343246091582302	05-21-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT05	344124091183801	04-22-96	1159	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT06	355108090422902	05-13-96	1259	<0.100	<1.00	<0.100	E0.009	<0.050	<5.00	<0.100	<0.100	<0.050
DT07	353328090432401	04-24-96	1159	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT08	345011090474901	04-23-96	1459	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT09	340232090445201	04-15-96	1259	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT10	333914091002901	04-11-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT11	325438090521601	04-10-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT12	331111090283701	04-10-96	1459	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT13	335623090201801	04-17-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT14	343243090384201	04-23-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT15	353153090252201	05-15-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT16	355606090152601	05-14-96	1459	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT17	365242089350601	04-30-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT18	355848089542201	05-14-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT19	352034089534501	05-07-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT20	345814089584801	05-08-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT21	341020090080501	04-18-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT22	333030090105101	04-16-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT23	341915089561101	04-17-96	0959	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT24	344614089264701	05-08-96	0959	<0.100	<1.00	<0.100	0.180	<0.050	<5.00	<0.100	<0.100	<0.050
DT25	350500089481801	05-06-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT26	354444089314401	05-07-96	0859	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT27	355437089144301	05-02-96	1159	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT28	361709088423501	05-01-96	1359	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT29	362552089032001	05-01-96	0859	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT30	365535089205301	04-30-96	1459	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050

E - Estimated value.

Table 1-23. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L) (77562)	ETHYL-BENZENE TOTAL (UG/L) (34371)	META/ PARA-XYLENE WATER UNFLTRD REC (UG/L) (85795)	O-XYLENE WATER WHOLE TOTAL (UG/L) (77135)	STYRENE TOTAL (UG/L) (77128)	BROMO-FORM TOTAL (UG/L) (32104)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L) (34516)
DT01	323805091555201	04-09-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT02	331406091303301	04-08-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT03	335643091511701	05-20-96	0959	<0.050	<0.050	<0.050	<0.050	V0.020	<0.200	<0.050	<0.050	<0.100
DT04	343246091582302	05-21-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT05	344124091183801	04-22-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT06	355108090422902	05-13-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT07	353328090432401	04-24-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT08	345011090474901	04-23-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT09	340232090445201	04-15-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT10	333914091002901	04-11-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT11	325438090521601	04-10-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT12	331111090283701	04-10-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT13	335623090201801	04-17-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT14	343243090384201	04-23-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT15	353153090252201	05-15-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT16	355606090152601	05-14-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT17	365242089350601	04-30-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT18	355848089542201	05-14-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT19	352034089534501	05-07-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT20	345814089584801	05-08-96	1359	<0.050	<0.050	E0.070	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT21	341020090080501	04-18-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT22	333030090105101	04-16-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT23	341915089561101	04-17-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT24	344614089264701	05-08-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT25	350500089481801	05-06-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT26	354444089314401	05-07-96	0859	<0.050	0.160	0.430	0.160	<0.050	<0.200	<0.050	<0.050	<0.100
DT27	355437089144301	05-02-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT28	361709088423501	05-01-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT29	362552089032001	05-01-96	0859	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT30	365535089205301	04-30-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100

E - Estimated value.
V - Evidence indicates that detection came from an extraneous source.

Table 1-24. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	123-TRI CHLORO- PROPANE WATER WHOLE TOTAL (UG/L) (77443)	2BUTENE TRANS-1 4-DI- CHLORO UNFLTRD RECOVER (UG/L) (73547)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	O- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	TOLUENE O-ETHYL WATER UNFLTRD RECOVER (UG/L) (77220)	BENZENE TERT- BUTYL- WATER UNFLTRD REC (UG/L) (77353)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)
DT01	323805091555201	04-09-96	1259	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT02	331406091303301	04-08-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT03	335643091511701	05-20-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	V0.030	<0.050	V5.20
DT04	343246091582302	05-21-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	V2.50
DT05	344124091183801	04-22-96	1159	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT06	355108090422902	05-13-96	1259	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT07	353328090432401	04-24-96	1159	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT08	345011090474901	04-23-96	1459	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT09	340232090445201	04-15-96	1259	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.120
DT10	333914091002901	04-11-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT11	325438090521601	04-10-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT12	331111090283701	04-10-96	1459	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT13	335623090201801	04-17-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT14	343243090384201	04-23-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT15	353153090252201	05-15-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.050
DT16	355606090152601	05-14-96	1459	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT17	365242089350601	04-30-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT18	355848089542201	05-14-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT19	352034089534501	05-07-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT20	345814089584801	05-08-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.010
DT21	341020090080501	04-18-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT22	333030090105101	04-16-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.200
DT23	341915089561101	04-17-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT24	344614089264701	05-08-96	0959	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.060
DT25	350500089481801	05-06-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.030
DT26	354444089314401	05-07-96	0859	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT27	355437089144301	05-02-96	1159	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT28	361709088423501	05-01-96	1359	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT29	362552089032001	05-01-96	0859	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT30	365535089205301	04-30-96	1459	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.006

E - Estimated value.
V - Evidence indicates that detection came from an extraneous source.

Table 1-25. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

	STATION NUMBER	DATE	TIME	BENZENE SEC BUTYL- WATER UNFLTRD REC (UG/L) (77350)	BENZENE 1,3-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34566)	P-ISO- PROPYL- TOLUENE WATER WHOLE REC (UG/L) (77356)	BENZENE 1,4-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34571)	BENZENE 123-TRI METHYL- WATER UNFLTRD RECOVER (UG/L) (77221)	BENZENE O-DI- CHLORO- WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	ETHANE HEXA- CHLORO- WATER UNFLTRD RECOVER (UG/L) (34396)	DIBROMO CHLORO- PROPANE WATER WHOLE TOT.REC (UG/L) (82625)
DT01	323805091555201	04-09-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT02	331406091303301	04-08-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT03	335643091511701	05-20-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT04	343246091582302	05-21-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT05	344124091183801	04-22-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT06	355108090422902	05-13-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT07	353328090432401	04-24-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT08	345011090474901	04-23-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT09	340232090445201	04-15-96	1259	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT10	333914091002901	04-11-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT11	325438090521601	04-10-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT12	331111090283701	04-10-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT13	335623090201801	04-17-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT14	343243090384201	04-23-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT15	353153090252201	05-15-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT16	355606090152601	05-14-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT17	365242089350601	04-30-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT18	355848089542201	05-14-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT19	352034089534501	05-07-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT20	345814089584801	05-08-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT21	341020090080501	04-18-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT22	333030090105101	04-16-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT23	341915089561101	04-17-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT24	344614089264701	05-08-96	0959	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT25	350500089481801	05-06-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT26	354444089314401	05-07-96	0859	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT27	355437089144301	05-02-96	1159	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT28	361709088423501	05-01-96	1359	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT29	362552089032001	05-01-96	0859	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT30	365535089205301	04-30-96	1459	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500

Table 1-26. Volatile organic compounds analyzed in water samples from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	ISO-DURENE WATER UNFLTRD RECOVER (UG/L) (50000)	PREH-NITENE WATER UNFLTRD RECOVER (UG/L) (49999)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L) (39702)	NAPHTH-ALENE TOTAL (UG/L) (34696)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L) (77613)
DT01	323805091555201	04-09-96	1259	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT02	331406091303301	04-08-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT03	335643091511701	05-20-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT04	343246091582302	05-21-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT05	344124091183801	04-22-96	1159	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT06	355108090422902	05-13-96	1259	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT07	353328090432401	04-24-96	1159	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT08	345011090474901	04-23-96	1459	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT09	340232090445201	04-15-96	1259	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT10	333914091002901	04-11-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT11	325438090521601	04-10-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT12	331111090283701	04-10-96	1459	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT13	335623090201801	04-17-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT14	343243090384201	04-23-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT15	353153090252201	05-15-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT16	355606090152601	05-14-96	1459	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT17	365242089350601	04-30-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT18	355848089542201	05-14-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT19	352034089534501	05-07-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT20	345814089584801	05-08-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT21	341020090080501	04-18-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT22	333030090105101	04-16-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT23	341915089561101	04-17-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT24	344614089264701	05-08-96	0959	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT25	350500089481801	05-06-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT26	354444089314401	05-07-96	0859	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT27	355437089144301	05-02-96	1159	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT28	361709088423501	05-01-96	1359	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT29	362552089032001	05-01-96	0859	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
DT30	365535089205301	04-30-96	1459	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

Appendix 2. Quality-assurance data of water samples from public-supply wells, spring 1996, Mississippi Embayment, NAWQA

Table 2-1. Quality-assurance data for major inorganic constituents analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	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)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
DT03	335643091511701	05-21-96	1006	Eq.Blk	7	2	7.4	1.3	<.20	.16	<.010	<.10	3.0
DT06	355108090422902	05-13-96	1301	Replca	129	219	6.3	66	14	17	7.4	.60	<3.0
DT08	345011090474901	04-24-96	0906	Eq.Blk	<1	3	7.7	1.5	<.20	.030	<.010	<.10	3.0
DT29	362552089032001	05-01-96	0901	Replca	64	111	6.2	52	5.7	10	3.8	1.0	560
		05-02-96	1006	Eq.Blk	8	3	8.4	1.7	<.20	<.020	<.010	<.10	<3.0
DARK	344459092235201	03-25-96	1006	Eq.Blk	<1	2	6.7	1.2	<.20	<.020	<.010	<.10	<3.0

Eq.Blk - Equipment blank.
Replca - Replicate sample.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-2. Quality-assurance data for major inorganic contituents analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)
DT03	335643091511701	05-21-96	1006	Eq.Blk	<1.0	.040	<.10	<.10	.10	<.010
DT06	355108090422902	05-13-96	1301	Replca	<1.0	26	9.1	18	<.10	.10
DT08	345011090474901	04-24-96	0906	Eq.Blk	<1.0	.010	<.10	<.10	<.10	<.010
DT29	362552089032001	05-01-96	0901	Replca	9.0	9.7	1.7	2.0	<.10	.030
		05-02-96	1006	Eq.Blk	<1.0	<.010	<.10	<.10	<.10	<.010
DARK	344459092235201	03-25-96	1006	Eq.Blk	<1.0	.010	<.10	<.10	<.10	<.010

Eq.Blk - Equipment blank.
Replca - Replicate sample.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-3. Quality-assurance data for nutrients, dissolved organic carbon, and radon-222 analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

STATION NUMBER	DATE	TIME	QA SAMPLE TYPE	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	RADON 222 TOTAL (PCI/L) (82303)
DT03 335643091511701	05-21-96	1005	Eq.Blk	<.010	<.050	<.015	<.20	<.010	<.010	.30	--
	05-21-96	1007	Sr.Blk	--	--	--	--	--	--	.30	--
	05-21-96	1014	Sr.Blk	<.010	.050	.020	<.20	<.010	<.010	--	--
DT06 355108090422902	05-13-96	1301	Replca	<.010	1.80	<.015	<.20	.030	.030	.30	--
DT08 345011090474901	04-24-96	0905	Eq.Blk	<.010	<.050	<.015	<.20	<.010	<.010	1.1	--
	04-24-96	0907	Sr.Blk	--	--	--	--	--	--	.40	--
	04-24-96	0914	Sr.Blk	<.010	<.050	<.015	<.20	<.010	<.010	--	--
DT10 333914091002901	04-11-96	1001	Replca	--	--	--	--	--	--	--	180
DT14 343243090384201	04-23-96	1001	Replca	--	--	--	--	--	--	--	86
DT29 362552089032001	05-01-96	0901	Replca	<.010	<.050	.040	<.20	<.010	.010	.30	--
	05-02-96	1005	Eq.Blk	<.010	<.050	.030	<.20	<.010	<.010	.50	--
	05-02-96	1007	Sr.Blk	--	--	--	--	--	--	.30	--
	05-02-96	1014	Sr.Blk	<.010	<.050	.030	<.20	<.010	.010	--	--
DT30 365535089205301	04-30-96	1501	Replca	--	--	--	--	--	--	--	140
DARK 344459092235201	03-25-96	1005	Eq.Blk	<.010	.050	<.015	<.20	.010	<.010	.40	--
	03-25-96	1007	Sr.Blk	--	--	--	--	--	--	.40	--
	03-25-96	1014	Sr.Blk	<.010	<.050	<.015	<.20	<.010	<.010	--	--

Eq.Blk - Equipment blank.
Sr.Blk - Source solution blank.
Replca - Replicate sample.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-4. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	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)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT10	333914091002901	04-11-96	1002	FS2051	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	E0.002	<0.006	<0.002
		04-11-96	1003	FS2010	0.120	0.100	0.120	0.100	0.110	0.120	0.110	0.067	0.110
DT24	344614089264701	05-08-96	1002	FS2010	0.120	0.120	0.110	0.110	0.120	0.140	0.120	0.085	0.110
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	<0.006	<0.002
DT30	365535089205301	04-30-96	1502	FS2010	0.140	0.130	0.120	0.110	0.130	0.160	0.120	0.081	0.130
		04-30-96	1503	FS2051	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	E0.002	<0.006	<0.002
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.002	<0.001	<0.002	<0.002	<0.004	<0.004	<0.002	E0.001	<0.002

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-5. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	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)	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)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT10	333914091002901	04-11-96	1002	FS2051	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
		04-11-96	1003	FS2010	0.110	0.085	0.032	0.096	0.150	0.120	0.110	0.100	0.110
DT24	344614089264701	05-08-96	1002	FS2010	0.110	0.110	0.110	0.110	0.120	0.120	0.110	0.110	0.110
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DT30	365535089205301	04-30-96	1502	FS2010	0.110	0.100	0.120	0.110	0.150	0.130	0.120	0.110	0.130
		04-30-96	1503	FS2051	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.001	<0.003	<0.017	<0.002	<0.004	<0.003	<0.003	<0.002	<0.004

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-6. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	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)	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)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT10	333914091002901	04-11-96	1002	FS2051	0.530	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
		04-11-96	1003	FS2010	0.055	0.081	0.130	0.100	0.110	0.110	0.140	0.120	0.100
DT24	344614089264701	05-08-96	1002	FS2010	0.120	0.130	0.130	0.100	0.120	0.120	0.120	0.120	0.120
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DT30	365535089205301	04-30-96	1502	FS2010	0.130	0.150	0.150	0.130	0.110	0.130	0.150	0.130	0.120
		04-30-96	1503	FS2051	0.990	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.002	<0.005	<0.002	<0.004	<0.004	<0.003	<0.004	<0.006	<0.004

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-7. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT10	333914091002901	04-11-96	1002	FS2051	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
		04-11-96	1003	FS2010	0.100	0.018	0.042	0.110	0.120	0.120	0.130	0.062	0.100
DT24	344614089264701	05-08-96	1002	FS2010	0.110	0.029	0.100	0.130	0.110	0.120	0.130	0.110	0.120
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DT30	365535089205301	04-30-96	1502	FS2010	0.120	0.031	0.120	0.140	0.130	0.130	0.140	0.110	0.130
		04-30-96	1503	FS2051	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.004	<0.005	<0.002	<0.018	<0.003	<0.007	<0.004	<0.013	<0.005

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-8. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME		TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	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)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT10	333914091002901	04-11-96	1002	FS2051	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	E1.10	E1.30
		04-11-96	1003	FS2010	0.170	E0.110	0.120	0.120	0.120	E0.057	E0.100	E0.150	E0.150
DT24	344614089264701	05-08-96	1002	FS2010	0.150	E0.130	0.130	0.120	0.110	E0.063	E0.099	E0.210	E0.190
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003
DT30	365535089205301	04-30-96	1502	FS2010	0.170	E0.120	0.150	0.130	0.130	E0.072	E0.130	E0.200	E0.170
		04-30-96	1503	FS2051	<0.010	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	E1.40	E1.30
DARK	344459092235201	03-25-96	1005	Eq.Blk	E0.005	<0.007	<0.002	<0.001	<0.002	<0.002	<0.001	<0.003	<0.003

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-9. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	DIAZ-INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U GF, REC PERCENT (91064)	SAMPLE VOLUME SCHED-ULE 2010 (ML) (99857)	SET NUMBER SCHED-ULE 2010 (NO.) (99819)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.013	<0.002	121	110	122	961	3135
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.013	<0.002	100	100	113	819	3076
DT10	333914091002901	04-11-96	1002	FS2051	<0.013	<0.002	100	100	103	862	3023
		04-11-96	1003	FS2010	0.077	0.110	100	100	102	862	3023
DT24	344614089264701	05-08-96	1002	FS2010	0.095	0.110	97.8	98.8	109	806	3108
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.013	<0.002	100	100	114	869	3076
DT30	365535089205301	04-30-96	1502	FS2010	0.130	0.120	100	100	118	826	3076
		04-30-96	1503	FS2051	<0.013	<0.002	100	100	107	847	3076
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.013	<0.002	100	100	119	781	2959

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-10. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION NUMBER	DATE	TIME	QA SAMPLE TYPE	2,4,5-T DIS-SOLVED (UG/L) (39742)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	ACIFL-UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	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)	BENTA-ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)
DT03 335643091511701	05-21-96	1005	Eq.Blk	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT08 345011090474901	04-24-96	0905	Eq.Blk	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT10 333914091002901	04-11-96	1002	FS2010	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
	04-11-96	1003	FS2051	1.10	1.10	0.700	0.440	--	--	E1.30	1.10	1.00
DT24 344614089264701	05-08-96	1002	FS2051	1.20	0.770	0.860	1.10	--	E0.400	E1.00	1.00	1.10
DT29 362552089032001	05-02-96	1005	Eq.Blk	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
DT30 365535089205301	04-30-96	1502	FS2010	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035
	04-30-96	1503	FS2051	0.420	0.410	0.540	--	--	E0.360	E1.20	--	0.940
DARK 344459092235201	03-25-96	1005	Eq.Blk	<0.035	<0.035	<0.035	<0.035	<0.016	<0.016	<0.021	<0.014	<0.035

E - Estimated values.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-11. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	BROMOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	CARBARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CARBOFURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	3HYDRXY CARBOFURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORAMBEN, WATER, FLTRD, GF 0.7U REC (UG/L) (49307)	CHLOROTHALONIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CLOPYRALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	DACTHAL MONOACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT10	333914091002901	04-11-96	1002	FS2010	<0.035	0.060	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
		04-11-96	1003	FS2051	1.10	0.600	0.910	0.430	--	E0.030	1.10	1.00	1.10
DT24	344614089264701	05-08-96	1002	FS2051	1.00	1.10	1.00	0.660	--	E0.190	1.00	1.00	1.00
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
DT30	365535089205301	04-30-96	1502	FS2010	<0.035	E0.060	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035
		04-30-96	1503	FS2051	0.580	0.500	0.880	0.650	0.330	E0.030	0.660	0.940	0.940
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.035	<0.008	<0.028	<0.014	<0.011	<0.035	<0.050	<0.017	<0.035

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-12. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	DICHLOBENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLORPROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	ESFENVALERATE, WAT,FLT GF 0.7U REC (UG/L) (49298)	FENURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUOMETURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT10	333914091002901	04-11-96	1002	FS2010	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	0.140
		04-11-96	1003	FS2051	E0.650	1.10	0.650	1.00	E0.910	E0.580	1.10	1.20	1.20
DT24	344614089264701	05-08-96	1002	FS2051	E0.720	0.970	0.980	1.10	E0.570	E0.530	1.10	E1.60	1.10
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018
DT30	365535089205301	04-30-96	1502	FS2010	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	E0.020
		04-30-96	1503	FS2051	E0.340	1.10	0.350	E0.710	E0.200	E0.090	0.930	1.20	0.230
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.020	<0.032	<0.035	<0.020	<0.035	<0.019	<0.013	<0.035	<0.018

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-13. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QA SAMPLE TYPE	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	NEB-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	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)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT10	333914091002901	04-11-96	1002	FS2010	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
		04-11-96	1003	FS2051	1.00	0.710	E0.650	E1.00	E0.030	1.30	1.10	--	E0.300
DT24	344614089264701	05-08-96	1002	FS2051	0.740	0.840	1.20	E1.10	<0.007	1.30	1.10	--	E0.940
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
DT30	365535089205301	04-30-96	1502	FS2010	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018
		04-30-96	1503	FS2051	0.680	0.940	E1.00	E0.920	<0.007	0.220	E0.920	E1.10	E0.760
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.050	<0.035	<0.026	<0.017	<0.007	<0.015	<0.024	<0.019	<0.018

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-14. Quality-assurance data for pesticides analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION NUMBER	DATE	TIME	QA SAMPLE TYPE	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO-POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS-SOLVED (UG/L) (39762)	TRI-CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	BDMC, SURROG, WATER, UNFLTRD REC PERCENT (99835)	SAMPLE VOLUME, SCHED-ULE 2051 (ML) (99847)	SET NUMBER SCHED-ULE 2051 (NO.) (99821)
DT03 335643091511701	05-21-96	1005	Eq.Blk	<0.050	<0.035	<0.035	<0.021	<0.050	87.0	817	3133
DT08 345011090474901	04-24-96	0905	Eq.Blk	<0.050	<0.035	<0.035	<0.021	<0.050	E157	735	3085
DT10 333914091002901	04-11-96	1002	FS2010	<0.050	<0.035	<0.035	<0.021	<0.050	96.0	876	3018
	04-11-96	1003	FS2051	1.20	--	0.940	0.970	0.820	103	840	3018
DT24 344614089264701	05-08-96	1002	FS2051	0.910	--	1.00	1.00	0.670	148	799	3111
DT29 362552089032001	05-02-96	1005	Eq.Blk	<0.050	<0.035	<0.035	<0.021	<0.050	E92.0	869	3085
DT30 365535089205301	04-30-96	1502	FS2010	<0.050	<0.035	<0.035	<0.021	<0.050	145	863	3085
	04-30-96	1503	FS2051	0.370	1.20	0.850	0.740	--	124	865	3085
DARK 344459092235201	03-25-96	1005	Eq.Blk	<0.050	<0.035	<0.035	<0.021	<0.050	89.0	873	2969

E - Estimated value.

Eq.Blk - Equipment blank.

FS2010 - Matrix spiked with SC2010 pesticides in the field.

FS2051 - Matrix spiked with SC2051 pesticides in the field.

DARK -- Parking lot at the Arkansas District of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-15. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	VINYL CHLO-RIDE TOTAL (UG/L) (39175)	METHYL-BROMIDE TOTAL (UG/L) (34413)	CHLORO-ETHANE TOTAL (UG/L) (34311)	BROMO-ETHENE WATER UNFLTRD RECOVER (UG/L) (50002)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L) (34488)	DI-ETHER ETHYL-WATER UNFLTRD RECOVER (UG/L) (81576)	ACRO-LEIN TOTAL (UG/L) (34210)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	E0.040	<0.100	<2.00
		05-20-96	1008	Tr.Blk	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.200	E0.030	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT10	333914091002901	04-11-96	1002	FS	<0.200	<0.200	2.80	<0.100	<0.100	<0.100	<0.100	3.00	<2.00
		04-11-96	1003	FS	<0.200	<0.200	3.00	<0.100	<0.100	<0.100	<0.100	2.80	<2.00
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT24	344614089264701	05-08-96	1002	FS	<0.200	<0.200	2.20	<0.100	<0.100	<0.100	<0.100	3.20	<2.00
		05-08-96	1003	FS	<0.200	<0.200	3.10	<0.100	<0.100	<0.100	<0.100	3.50	<2.00
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.200	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.00
DT30	365535089205301	04-30-96	1502	FS	<0.200	<0.200	2.90	<0.100	<0.100	<0.100	<0.100	3.50	<2.00
		04-30-96	1503	FS	<0.200	<0.200	2.50	<0.100	<0.100	<0.100	<0.100	3.40	<2.00
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<2.00

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-16. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	ACETONE WATER WHOLE TOTAL (UG/L) (81552)	METHYL IODIDE WATER UNFLTRD RECOVER (UG/L) (77424)	CARBON DI. SULFIDE WATER WHOLE TOTAL (UG/L) (77041)	PROPENE 3-CHLORO-WATER UNFLTRD RECOVER (UG/L) (78109)	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	ACRYLO-NITRILE TOTAL (UG/L) (34215)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L) (34546)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.100	<0.050	6.70	<0.050	<0.050	<0.100	0.110	<2.00	<0.050
		05-20-96	1008	Tr.Blk	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.100	<0.050	2.10	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT10	333914091002901	04-11-96	1002	FS	1.40	<0.050	1.80	<0.050	<0.050	<0.100	2.10	<2.00	E0.080
		04-11-96	1003	FS	1.70	<0.050	1.50	<0.050	<0.050	<0.100	2.30	<2.00	E0.090
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.100	<0.050	<5.00	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT24	344614089264701	05-08-96	1002	FS	1.90	<0.050	<5.00	<0.050	E0.003	<0.100	1.80	<2.00	E0.060
		05-08-96	1003	FS	2.20	<0.050	<5.00	<0.050	E0.002	<0.100	2.00	<2.00	E0.070
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.100	<0.050	1.60	<0.050	<0.050	<0.100	<0.100	<2.00	<0.050
DT30	365535089205301	04-30-96	1502	FS	2.20	<0.050	2.20	<0.050	<0.050	<0.100	1.80	<2.00	E0.060
		04-30-96	1503	FS	2.10	<0.050	1.90	<0.050	<0.050	<0.100	1.80	<2.00	E0.060
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	E1.84	E0.013	E0.091	<0.500	<0.200	<2.00	<0.200

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-17. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	ACETATE VINYL WATER UNFLTRD RECOVER (UG/L) (77057)	DI-ISO-PROPYL-ETHER, WATER, UNFLTRD RECOVER (UG/L) (81577)	ETHER TERT-BUTYL ETHYL-UNFLTRD RECOVER (UG/L) (50004)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	CIS-1,2 -DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	METHYL-ETHYL-KETONE WATER WHOLE TOTAL (UG/L) (81595)	METHYL ACRY-LATE WATER UNFLTRD RECOVER (UG/L) (49991)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	1.60	<2.00
		05-20-96	1008	Tr.Blk	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT10	333914091002901	04-11-96	1002	FS	1.80	<0.050	<5.00	<0.100	<0.100	<0.050	E0.040	15.2	<2.00
		04-11-96	1003	FS	1.70	<0.050	<5.00	<0.100	<0.100	<0.050	E0.050	13.5	<2.00
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	<5.00	<2.00
DT24	344614089264701	05-08-96	1002	FS	2.00	<0.050	<5.00	<0.100	<0.100	<0.050	E0.040	12.0	<2.00
		05-08-96	1003	FS	2.10	<0.050	<5.00	<0.100	<0.100	<0.050	E0.040	13.0	<2.00
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.100	<0.050	<5.00	<0.100	<0.100	<0.050	<0.050	E0.600	<2.00
DT30	365535089205301	04-30-96	1502	FS	2.10	<0.050	<5.00	<0.100	<0.100	<0.050	E0.030	13.1	<2.00
		04-30-96	1503	FS	2.10	<0.050	<5.00	<0.100	<0.100	<0.050	E0.030	13.8	<2.00
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00	<1.00

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-18. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	METHANE BROMO CHLORO- WAT UNFLTRD REC (UG/L) (77297)	METH- ACRYLO- NITRITE WATER UNFLTRD RECOVER (UG/L) (81593)	FURAN TETRA- HYDRO- WATER UNFLTRD RECOVER (UG/L) (81607)	CHLORO- FORM TOTAL (UG/L) (32106)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L) (34506)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L) (32102)	1,1-DI CHLORO- PRO- PENE, WAT, WH TOTAL (UG/L) (77168)	BENZENE TOTAL (UG/L) (34030)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L) (32103)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.100	<2.00	<5.00	E0.040	<0.050	<0.050	<0.050	<0.050	<0.050
		05-20-96	1008	Tr.Blk	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.100	<2.00	E0.500	E0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT10	333914091002901	04-11-96	1002	FS	<0.100	<2.00	<5.00	<0.050	1.30	1.30	<0.050	E0.063	1.60
		04-11-96	1003	FS	<0.100	<2.00	<5.00	<0.050	1.50	1.60	<0.050	E0.069	1.60
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.100	<2.00	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT24	344614089264701	05-08-96	1002	FS	<0.100	<2.00	<5.00	E0.030	1.90	2.10	<0.050	<0.050	2.00
		05-08-96	1003	FS	<0.100	<2.00	<5.00	E0.030	2.00	2.30	<0.050	E0.050	2.10
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.100	<2.00	E0.700	E0.040	<0.050	<0.050	<0.050	<0.050	<0.050
DT30	365535089205301	04-30-96	1502	FS	<0.100	<2.00	<5.00	<0.050	1.90	2.00	<0.050	<0.050	1.90
		04-30-96	1503	FS	<0.100	<2.00	<5.00	<0.050	1.90	2.00	<0.050	<0.050	2.00
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<1.00	<2.00	E0.056	<0.200	<0.200	<0.200	<0.200	<0.200

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-19. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	ETHER TERT-PENTYL METHYL-UNFLTRD RECOVER (UG/L) (50005)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L) (39180)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)	METHAC-RYLATE METHYL WATER UNFLTRD RECOVER (UG/L) (81597)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	METHYL-ISO-BUTYL-KETONE WAT.WH. TOTAL (UG/L) (78133)	TOLUENE TOTAL (UG/L) (34010)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	E0.500	0.180
		05-20-96	1008	Tr.Blk	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT10	333914091002901	04-11-96	1002	FS	<0.100	1.40	<0.050	<0.100	<1.00	1.50	<0.100	<5.00	E0.050
		04-11-96	1003	FS	<0.100	1.60	<0.050	<0.100	<1.00	1.60	<0.100	<5.00	E0.053
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT24	344614089264701	05-08-96	1002	FS	<0.100	2.10	<0.050	<0.100	<1.00	2.00	<0.100	<5.00	<0.050
		05-08-96	1003	FS	<0.100	2.20	<0.050	<0.100	<1.00	2.10	<0.100	<5.00	<0.050
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.100	<0.050	<0.050	<0.100	<1.00	<0.100	<0.100	<5.00	<0.050
DT30	365535089205301	04-30-96	1502	FS	<0.100	2.10	<0.050	<0.100	<1.00	1.90	<0.100	<5.00	<0.050
		04-30-96	1503	FS	<0.100	2.20	<0.050	<0.100	<1.00	2.00	<0.100	<5.00	<0.050
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	E0.029	<0.200	<1.00	E0.011	<0.200	<5.00	<0.200

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-20. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)	METHAC-RYLATE ETHYL-WATER UNFLTRD RECOVER (UG/L) (73570)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L) (34511)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2-HEXA-NONE WATER WHOLE TOTAL (UG/L) (77103)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	CHLORO-BENZENE TOTAL (UG/L) (34301)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
		05-20-96	1008	Tr.Blk	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	E0.009
DT10	333914091002901	04-11-96	1002	FS	<0.100	<1.00	<0.100	1.30	<0.050	<5.00	1.60	<0.100	<0.050
		04-11-96	1003	FS	<0.100	<1.00	<0.100	1.50	<0.050	<5.00	1.60	<0.100	E0.009
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	<0.050
DT24	344614089264701	05-08-96	1002	FS	<0.100	<1.00	<0.100	2.40	<0.050	<5.00	2.10	<0.100	<0.050
		05-08-96	1003	FS	<0.100	<1.00	<0.100	2.50	<0.050	<5.00	2.30	<0.100	<0.050
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.100	<1.00	<0.100	<0.050	<0.050	<5.00	<0.100	<0.100	E0.008
DT30	365535089205301	04-30-96	1502	FS	<0.100	<1.00	<0.100	2.10	<0.050	<5.00	1.90	<0.100	<0.050
		04-30-96	1503	FS	<0.100	<1.00	<0.100	2.00	<0.050	<5.00	1.90	<0.100	<0.050
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<1.00	<0.200	<0.200	<0.200	<5.00	<0.200	<0.200	E0.012

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-21. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

	NUMBER	DATE	TIME	QC SAMPLE TYPE	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L) (77562)	ETHYL-BENZENE TOTAL (UG/L) (34371)	META/PARA-XYLENE WATER UNFLTRD REC (UG/L) (85795)	O-XYLENE WATER WHOLE TOTAL (UG/L) (77135)	STYRENE TOTAL (UG/L) (77128)	BROMO-FORM TOTAL (UG/L) (32104)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L) (34516)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.050	<0.050	<0.050	<0.050	E0.030	<0.200	<0.050	<0.050	<0.100
		05-20-96	1008	Tr.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT10	333914091002901	04-11-96	1002	FS	<0.050	1.40	<0.050	<0.050	<0.050	1.70	<0.050	<0.050	<0.100
		04-11-96	1003	FS	<0.050	1.60	<0.050	<0.050	<0.050	1.60	<0.050	<0.050	<0.100
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT24	344614089264701	05-08-96	1002	FS	<0.050	2.00	<0.050	<0.050	<0.050	2.20	<0.050	<0.050	<0.100
		05-08-96	1003	FS	<0.050	2.10	<0.050	<0.050	<0.050	2.30	<0.050	<0.050	<0.100
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050	<0.050	<0.100
DT30	365535089205301	04-30-96	1502	FS	<0.050	2.10	<0.050	<0.050	<0.050	1.70	<0.050	<0.050	<0.100
		04-30-96	1503	FS	<0.050	2.10	<0.050	<0.050	<0.050	1.80	<0.050	<0.050	<0.100
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	<0.200	<0.200	E0.009	<0.200	<0.200	<0.200	<0.200

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-22. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L) (77443)	2BUTENE TRANS-1 4-DI-CHLORO UNFLTRD RECOVER (UG/L) (73547)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	TOLUENE O-ETHYL WATER UNFLTRD RECOVER (UG/L) (77220)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	E0.030	<0.050	6.80
		05-20-96	1008	Tr.Blk	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT10	333914091002901	04-11-96	1002	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.030
		04-11-96	1003	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT24	344614089264701	05-08-96	1002	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.070
		05-08-96	1003	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.030
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
DT30	365535089205301	04-30-96	1502	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
		04-30-96	1503	FS	<0.200	<5.00	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	E0.020
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<5.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-23. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION	NUMBER	DATE	TIME	QC SAMPLE TYPE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L) (77356)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 123-TRI METHYL-WATER UNFLTRD RECOVER (UG/L) (77221)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	ETHANE HEXA-CHLORO-WATER UNFLTRD RECOVER (UG/L) (34396)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)
DT03	335643091511701	05-21-96	1005	Eq.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
		05-20-96	1008	Tr.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT08	345011090474901	04-24-96	0905	Eq.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT10	333914091002901	04-11-96	1002	FS	<0.050	<0.050	<0.050	1.30	<0.050	<0.050	E0.020	<0.050	<0.500
		04-11-96	1003	FS	<0.050	<0.050	<0.050	1.40	<0.050	<0.050	E0.020	<0.050	<0.500
DT19	352034089534501	05-07-96	1408	Tr.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT24	344614089264701	05-08-96	1002	FS	<0.050	<0.050	<0.050	2.00	<0.050	<0.050	E0.010	<0.050	<0.500
		05-08-96	1003	FS	<0.050	<0.050	<0.050	2.10	<0.050	<0.050	E0.010	<0.050	<0.500
DT29	362552089032001	05-02-96	1005	Eq.Blk	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.500
DT30	365535089205301	04-30-96	1502	FS	<0.050	<0.050	<0.050	1.90	<0.050	<0.050	E0.010	<0.050	<0.500
		04-30-96	1503	FS	<0.050	<0.050	<0.050	1.90	<0.050	<0.050	E0.010	<0.050	<0.500
DARK	344459092235201	03-25-96	1005	Eq.Blk	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<1.00

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.

Table 2-24. Quality-assurance data for volatile organic compounds analyzed in water from public-supply wells, Spring 1996, Mississippi Embayment, NAWQA (continued)

STATION NUMBER	DATE	TIME	QC SAMPLE TYPE	ISO-DURENE WATER UNFLTRD RECOVER (UG/L) (50000)	PREH-NITENE WATER UNFLTRD RECOVER (UG/L) (49999)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L) (39702)	NAPHTH-ALENE TOTAL (UG/L) (34696)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L) (77613)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)
DT03 335643091511701	05-21-96	1005	Eq.Blk	<0.050	<0.050	<0.200	<0.200	E0.050	<0.200	104	100	96.0
	05-20-96	1008	Tr.Blk	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	102	100	92.0
DT08 345011090474901	04-24-96	0905	Eq.Blk	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	102	94.0	97.0
DT10 333914091002901	04-11-96	1002	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	107	98.0	93.0
	04-11-96	1003	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	98.0	97.0	91.0
DT19 352034089534501	05-07-96	1408	Tr.Blk	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	103	101	102
DT24 344614089264701	05-08-96	1002	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	97.0	96.0	97.0
	05-08-96	1003	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	101	99.0	99.0
DT29 362552089032001	05-02-96	1005	Eq.Blk	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	102	98.0	107
DT30 365535089205301	04-30-96	1502	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	94.0	96.0	91.0
	04-30-96	1503	FS	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	94.0	96.0	90.0
DARK 344459092235201	03-25-96	1005	Eq.Blk	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	109	100	109

E - Estimated value.

Eq.Blk - Equipment Blank.

Tr.Blk - Trip Blank

FS - Matrix spiked with a limited number of volatile organic compounds in the field.

DARK -- Parking lot at the Arkansas District office of the U.S. Geological Survey. This site was used to collect an equipment blank prior to the collection of ground-water samples.