

HYDROGEOLOGIC DATA FOR CARROLL COUNTY, ARKANSAS

By J.V. Brahana, Valarie A. Leidy, John Lindt, and S.A. Hodge

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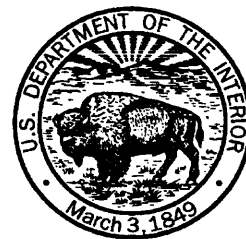
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CONVERSION FACTORS AND VERTICAL DATUM

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
square mile (mi ²)	2.590	square kilometer
foot (ft)	0.3048	meter
gallon (gal)	3.785	liter
gallon per minute (gal/min)	0.06309	liter per second

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

$$^{\circ}\text{F} = 1.8 \times ^{\circ}\text{C} + 32$$

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

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ABSTRACT

This report is a compilation of existing and new hydrogeologic data for Carroll County, Arkansas. Data presented include water levels and water quality from selected wells; discharge and water quality from selected springs; geologic and geophysical data relevant to defining a hydrogeologic framework; and surface aspects of selected karst features. Water-quality data include (1) major constituents and properties, (2) trace constituents, and (3) nutrients, microorganisms, and miscellaneous constituents.

INTRODUCTION

Carroll County, with a total area of 634 mi², is located in north-central Arkansas, bordered by Missouri on the north, Benton County on the west, Newton and Madison Counties on the south, and Boone County on the east (fig. 1). Ground water from wells and springs represents an important resource in Carroll County, providing water for domestic, stock, recreation, and public supplies. Public water supplies currently (1992) using ground water are Davis Water System, Mundell Heights Waterworks, Holiday Island Waterworks, Green Forest Waterworks, Sylvan Shores Water System, Reavis Water System, and Sooter Water System (T.W. Holland, U.S. Geological Survey, written commun., 1992; Will Schell, Schell Drilling Company, oral commun., 1992). In the last several years, several ground-water supplies were replaced by surface water from Beaver Reservoir supplied by the Carroll-Boone Water District (Will Schell, Schell Drilling Company, oral commun., 1992).

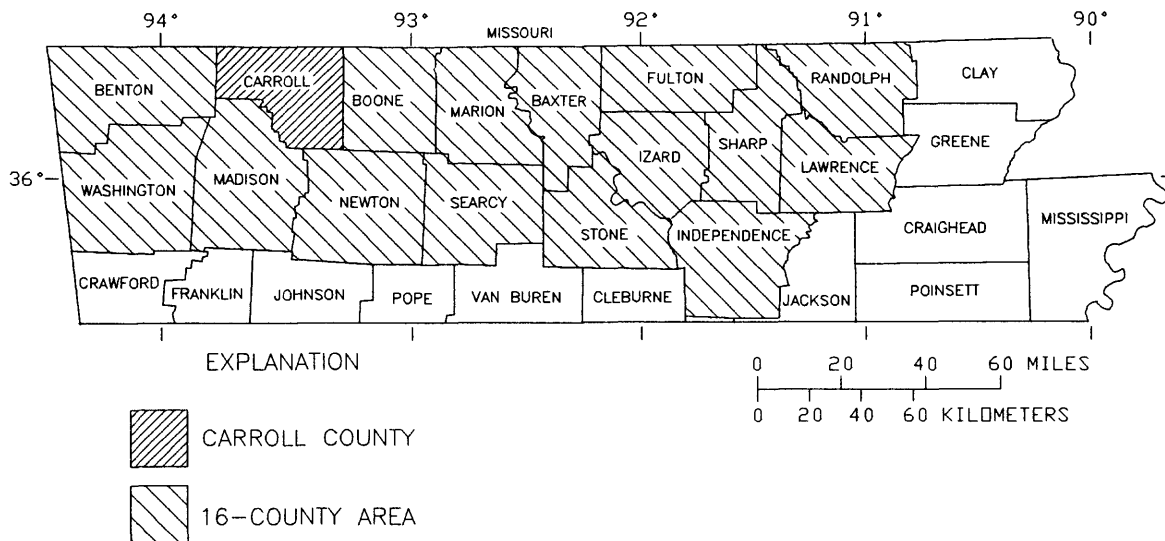


Figure 1.--Location of Carroll County and the 16-county area of northern Arkansas.

Recent population growth in Carroll County has resulted in numerous changes in land use, many of which may affect the ground-water resources. In the last 10 years, population has increased about 15 percent, from 16,203 in 1970 (Fowlkes and others, 1981) to 18,654 in 1990 (Santi, 1990). The economic base of the county is also expanding. Historically, beef cattle production, small industry, and business were the primary agricultural sources of income (Fowlkes and others, 1981). Recently, tourism and poultry production are becoming more important. Chicken and turkey broiler production is expected to increase, which could have a significant effect on ground-water quality.

Objective and Scope

The objective of this report is to present a compilation of hydrogeologic data for Carroll County, Arkansas, that can be used to better define and manage the ground-water resources. Prior to this compilation, existing data were scattered through numerous published and unpublished sources, many of which had limited distribution and were difficult to acquire. In anticipation of a needed data base that can be readily accessed and easily used, the Arkansas Soil and Water Conservation Commission and the U.S. Geological Survey entered into a cooperative agreement to compile existing data for a 16-county area of northern Arkansas (fig. 1), and to collect additional data where few data exist. This report is the second in a series of county reports. Hydrogeologic data for Boone County were published in 1991. Carroll County was chosen because it has more existing data than most of the nearby counties and its hydrogeology encompasses most conditions found in the 16-county area. Subsequent reports will present data from the remaining 14 counties.

This report is restricted to basic ground-water data, and no interpretations or explanations are included. The types of data in this report are: information about wells and springs from which data or samples were collected, ground-water levels, spring discharge measurements, water-quality analyses for wells and springs, and surface aspects of selected karst features. In addition, published references with geophysical log and geologic log descriptions necessary for understanding the hydrogeologic framework are included in the report.

The data presented herein have been selected from verifiable sources, including published reports, unpublished records from the files of the U.S. Geological Survey, and new data collected specifically for this study. Hydrogeologic data from sources outside the U.S. Geological Survey generally have not been included in the accompanying tables. However, reference to these original documents, many of which contain data tables, is included in the Previous Investigations and Selected References sections that follow.

Previous Investigations

Purdue and Miser (1916) described ground water in a cursory manner in their geologic folio of Harrison-Eureka Springs. A short list of water-well depths and estimated yields was compiled by the Arkansas Geological Commission, as were major springs (Branner, 1937a; 1937b). Caplan (1957) provided structural interpretation of an area that included Carroll County, thereby refining understanding of the hydrogeologic framework. Lamonds and Stephens (1969) presented hydrogeologic data from northern Arkansas, including Carroll County, in a reconnaissance report of the Ozark Plateau Province; Lamonds (1972) interpreted these data in a hydrologic atlas. MacDonald and others (1975) conducted a ground-water inventory that focused on the deeper aquifers of northern Arkansas, specifically the Roubidoux, Gasconade, and Van Buren Formations. Ogden and others (1979) published a preliminary description of rural use of the aquifers in Boone, Carroll, and Madison Counties based on driller's lithologic logs from water wells.

In addition to the studies mentioned, the U.S. Geological Survey, in cooperation with the Arkansas Geological Commission and other local, State, and Federal agencies, has collected ground-water data from Carroll County that are part of a statewide data base. Some of these data have not been published previously; many have been published in annual basic-data reports for the entire State. All are in computerized data bases of the U.S. Geological Survey (GWSI, WATSTORE), and may be accessed using U.S. Geological Survey retrieval programs.

Acknowledgments

The authors would like to thank the U.S. Soil Conservation Service, Carroll County Conservation District, for their assistance in this project. Will Schell provided valuable information about ground water and wells in the county, and we gratefully acknowledge the sharing of this extensive information. In addition, the authors are grateful to those property owners throughout the county who allowed sampling and measuring of their wells and springs.

DATA COMPILATION AND COLLECTION

As described previously, historic hydrogeologic data were compiled by the U.S. Geological Survey as part of an ongoing program to assess the water resources of Arkansas. These data were collected using standard procedures (Carter and Davidian, 1968; Garber and Koopman, 1968; Keys and MacCary, 1971) and were entered into the data bases of the U.S. Geological Survey.

This historic data base was supplemented by new data collected specifically for this study. Potential data-collection sites were identified by personnel of the U.S. Soil Conservation Service in Carroll County. Each site was field located by U.S. Geological Survey personnel, specific data requirements were assessed, and the site was ranked with respect to its effectiveness in filling data gaps, both areally and stratigraphically. Field verification and data collection at appropriate sites by U.S. Geological Survey personnel completed this data-collection phase.

Descriptive data for the wells in Carroll County have been compiled in table 1 (tables 1 through 8 are located at end of report). As an aid to locating ground-water sites, the locations of 7.5-minute topographic quadrangles in the county are shown in figure 2. The local well-numbering system, which uses the township-range-section method of locating wells, has been included as an aid to those readers who may need to locate data on maps of varying scales (fig. 3). The local well number has been the most commonly used location identifier in previous studies in Carroll County. This identification method is also applied to the location of springs.

This report uses a site number, a one- to three-digit number whose general location is shown on figure 4; specific locations of wells can be determined from either the local well number or the site ID (table 1), the first 13 digits of which represent the latitude and longitude of the well. Sequential site numbers were assigned arbitrarily at the start of this project to all wells and springs that could potentially be included in this report. Those sites for which data could not be verified were omitted from subsequent tables and maps, and their site numbers were not reassigned, which resulted in gaps in site numbers on tables and figures. Corresponding data for selected springs are compiled in table 2. Locations for springs are shown on figure 5. Springs in the vicinity of Eureka Springs are shown on figure 6.

Water-level data from wells in Carroll County are given in table 3, along with supplemental data listing date of the measurement and the deepest hydrogeologic unit to which the well is open. Discharge data from individual springs are summarized in table 4.

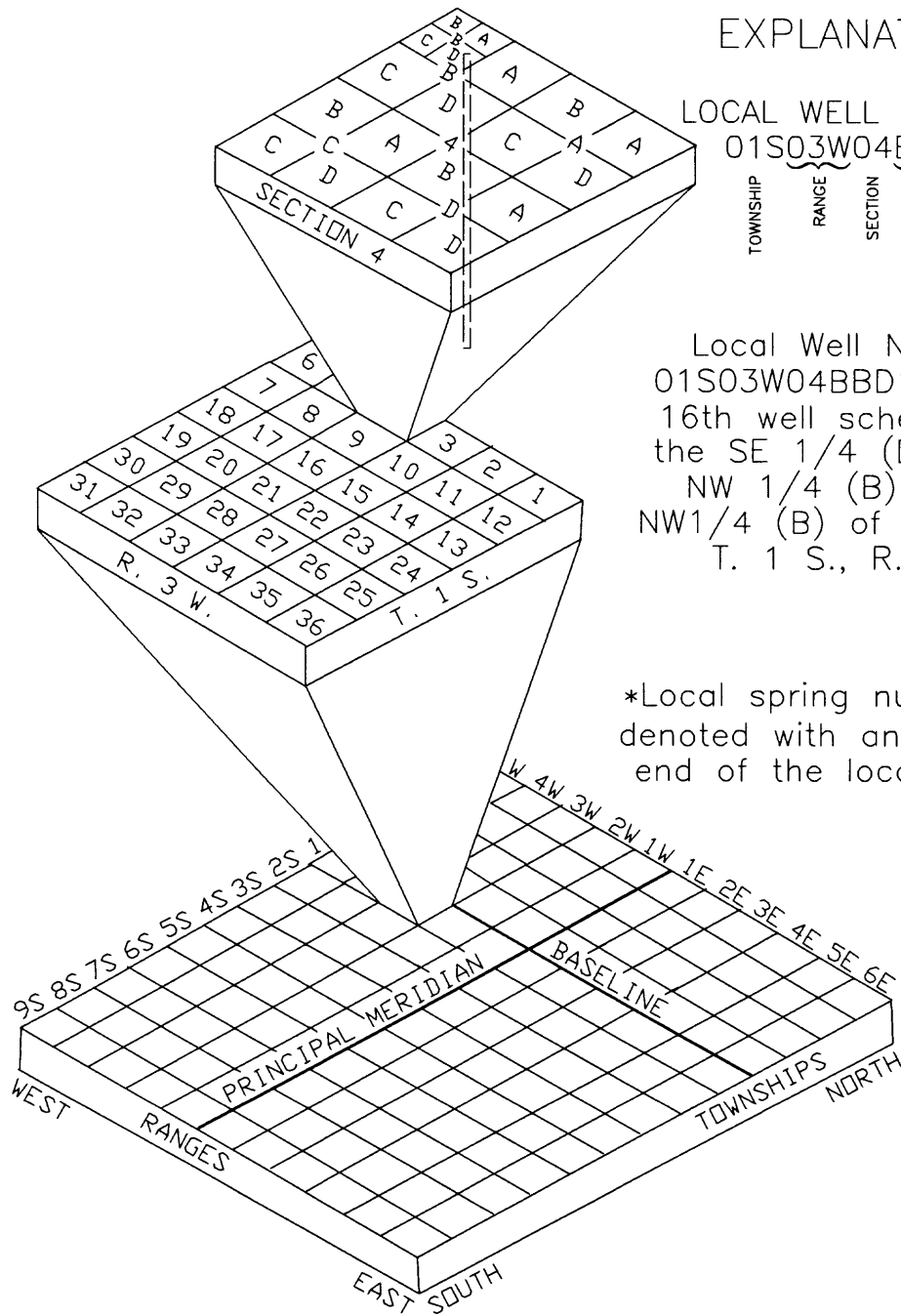
Analyses of ground-water samples were provided by laboratories of the U.S. Geological Survey in Arvada, Colorado; Doraville, Georgia; Ocala, Florida; and Reston, Virginia. Samples were collected, treated, and analyzed using established procedures (Wershaw and others, 1987; Britton and Greeson, 1987; Skougstad and others, 1979; Friedman and Erdmann, 1982; Claassen, 1982). Temperature, pH, and alkalinity (table 5) were determined in the field using established field procedures (Stevens and others, 1975; Wood, 1976).

Ion chromatography was used to determine the major anions. Trace-constituent concentrations (table 6) were determined by using inductively coupled plasma atomic emission spectroscopy (ICP). Nutrients, microorganisms, and miscellaneous constituents in water from selected wells and springs are summarized in table 7.

Most of the analytical values are in standard reporting units such as milligrams per liter or micrograms per liter. These data are stored in the U.S. Geological Survey's WATSTORE data base, and may be accessed using Geological Survey retrieval programs.

Well locations for tables 1, 3, 5, 6, and 7 are shown in figure 4, and spring locations for tables 2, 4, 5, 6, and 7 are shown on figures 5 and 6. Selected karst features in Carroll County are summarized in table 8, and their locations are shown on figure 7.

Temporal variation of water levels in selected wells in Carroll County are shown in figure 8. Periodic measurements of the depth to water in these wells were obtained from December 1990 through August 1992.



EXPLANATION

LOCAL WELL NUMBER:
01S03W04BBD16

TOWNSHIP
RANGE
SECTION
1/4 1/4 1/4

Local Well Number:
01S03W04BBD16 is the
16th well scheduled in
the SE 1/4 (D) of the
NW 1/4 (B) of the
NW 1/4 (B) of section 4,
T. 1 S., R. 3 W.

*Local spring numbers are
denoted with an SP at the
end of the local number.

Figure 3.--Local well-numbering system.

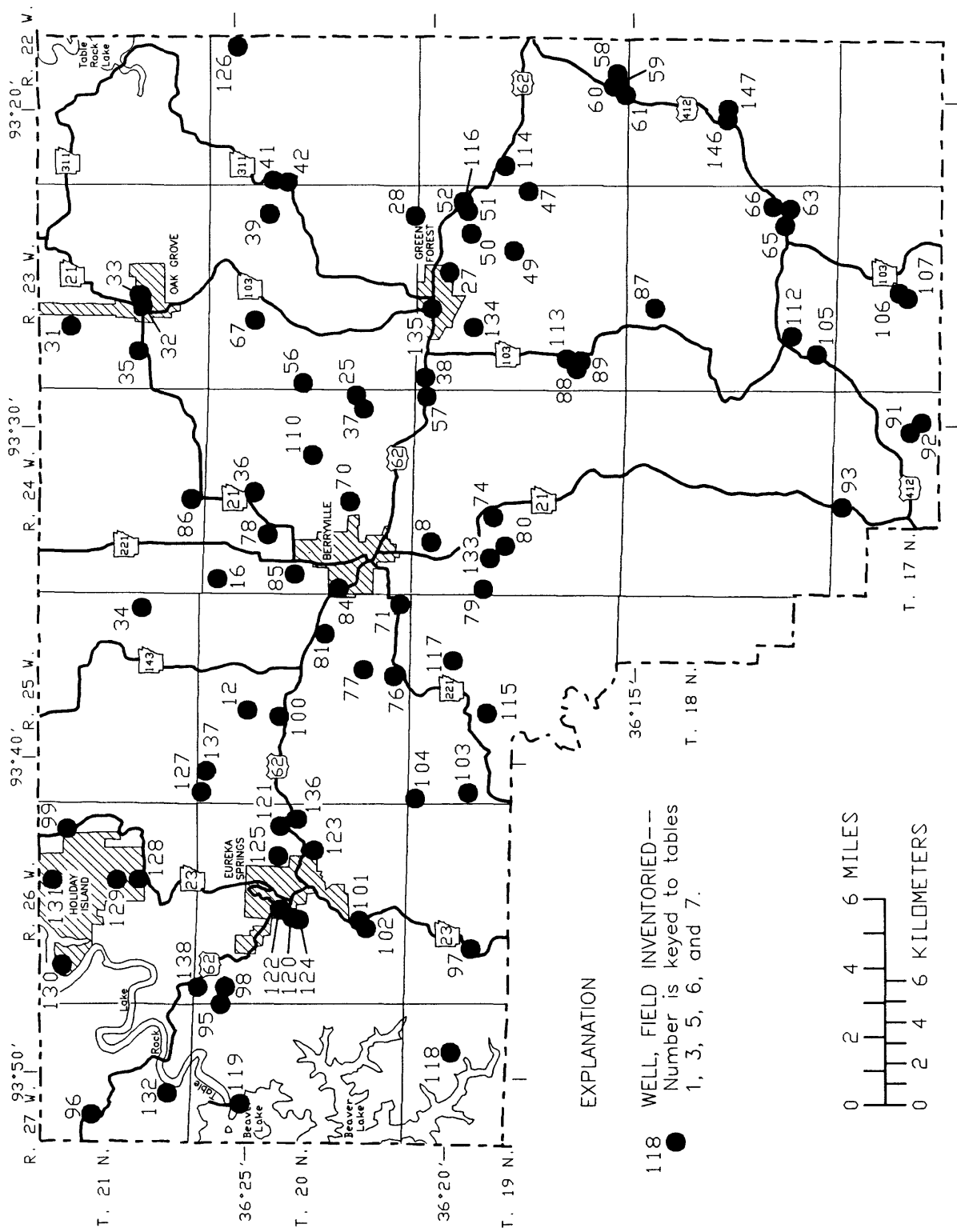


Figure 4.--Locations of wells in Carroll County, Arkansas, for which hydrogeologic data are available.

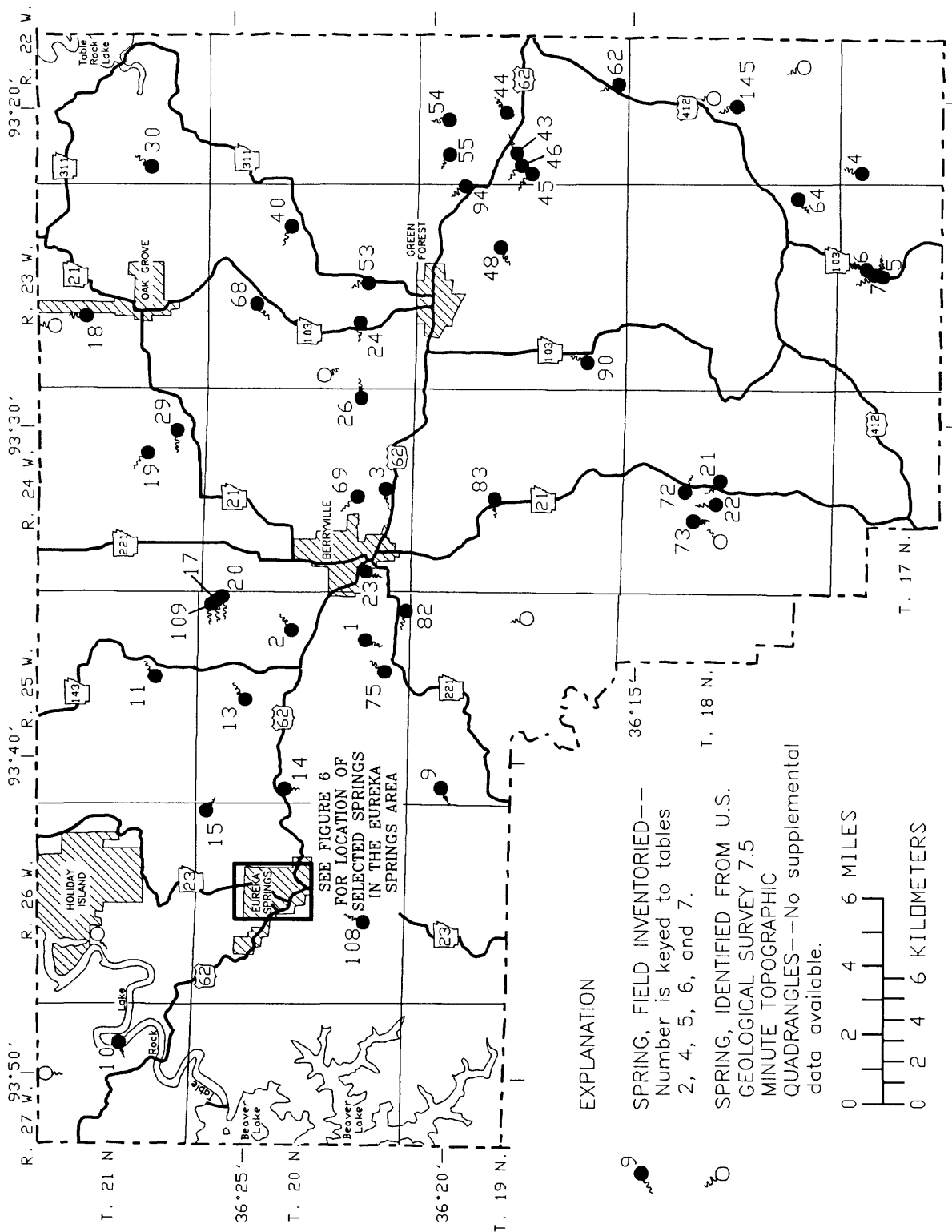
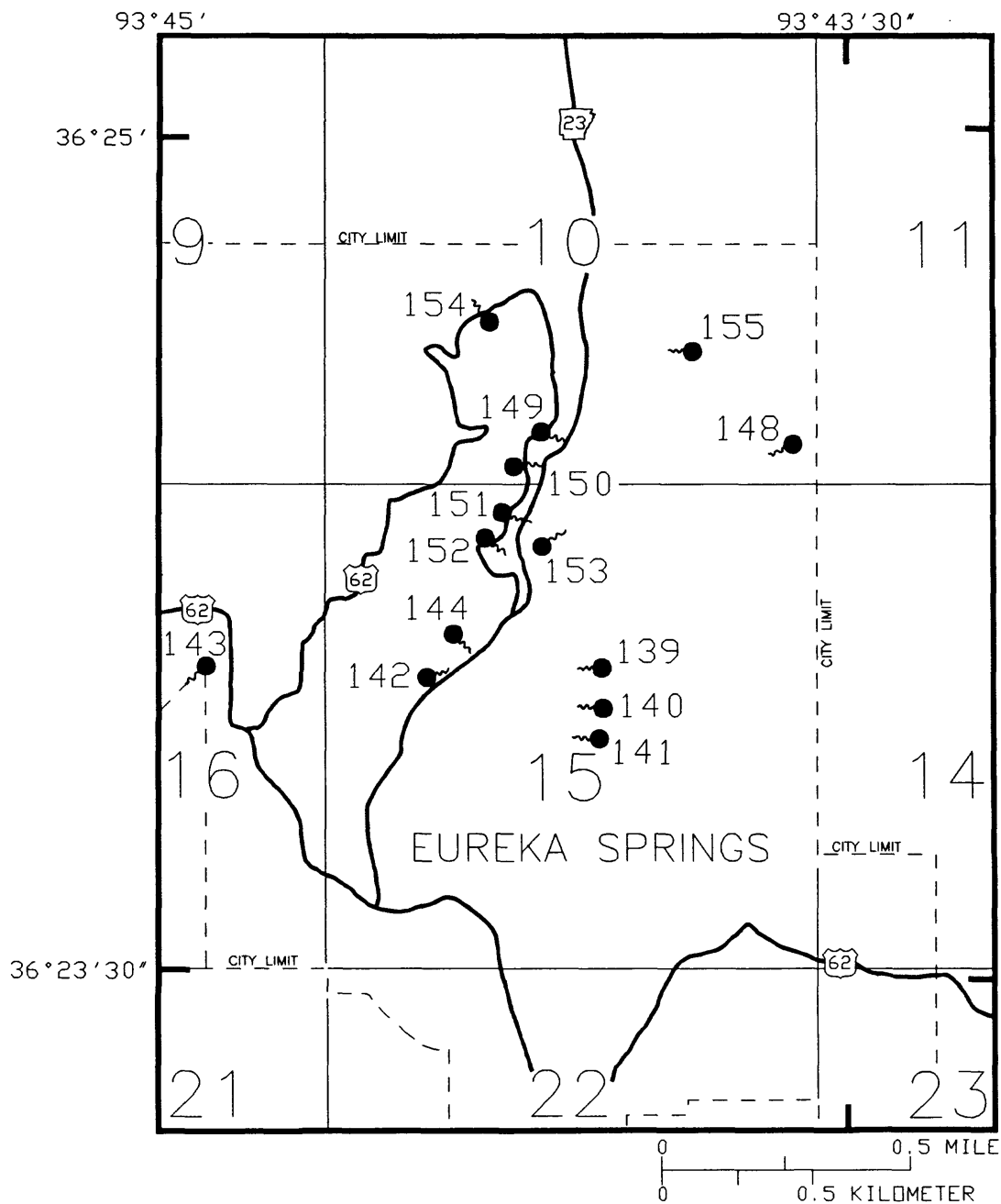


Figure 5.--Locations of selected springs in Carroll County, Arkansas.



EXPLANATION

148 ● SPRING, FIELD INVENTORIED--
 Number is keyed to tables
 2, 4, 5, 6, and 7.

15 SECTION NUMBER--Section in
 T. 20 N. and R. 26 W.

Figure 6.--Locations of selected springs in the vicinity
 of Eureka Springs, Arkansas.

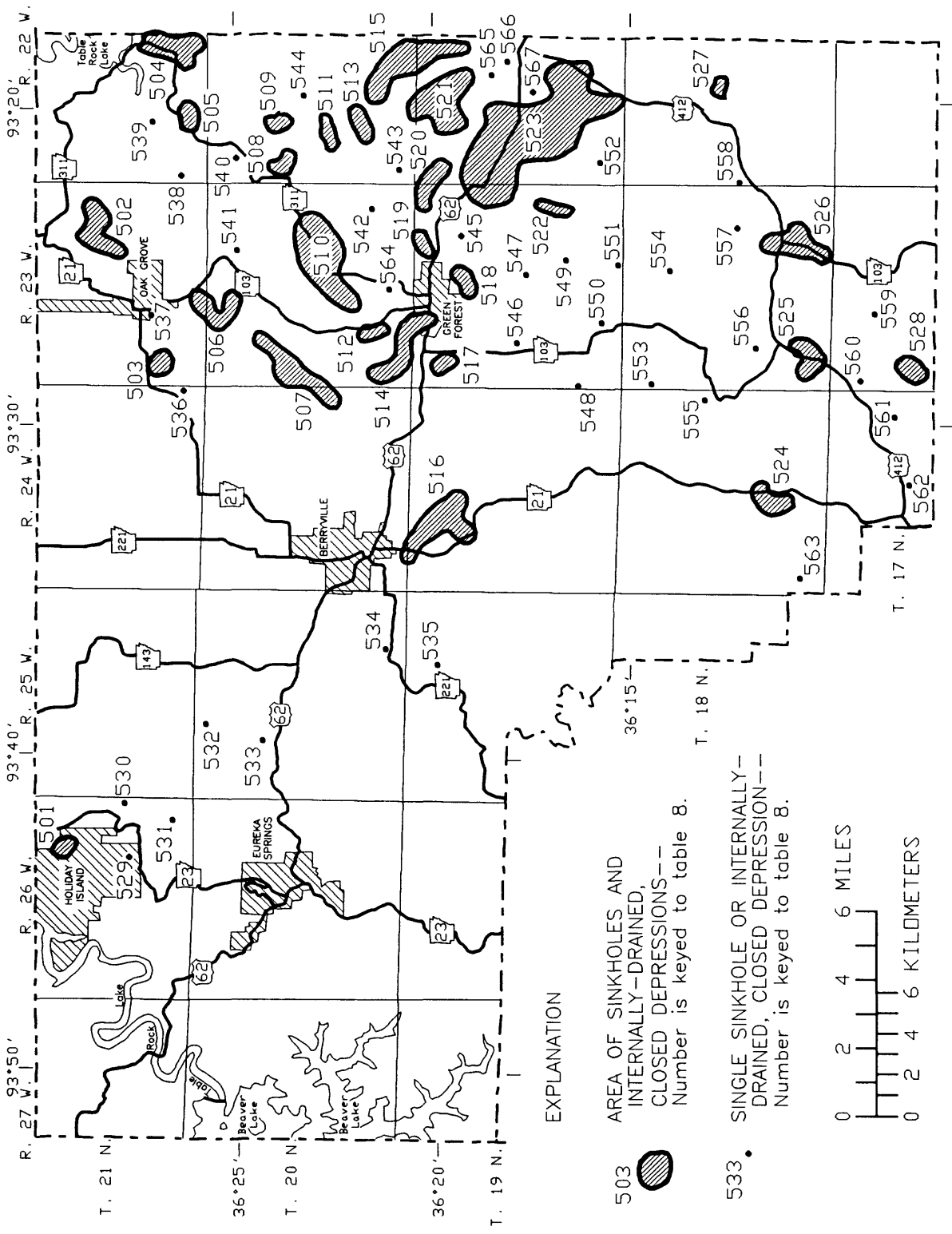


Figure 7.--General areas of sinkholes and internally-drained, closed depressions identified on 7.5-minute topographic quadrangle maps of Carroll County, Arkansas.

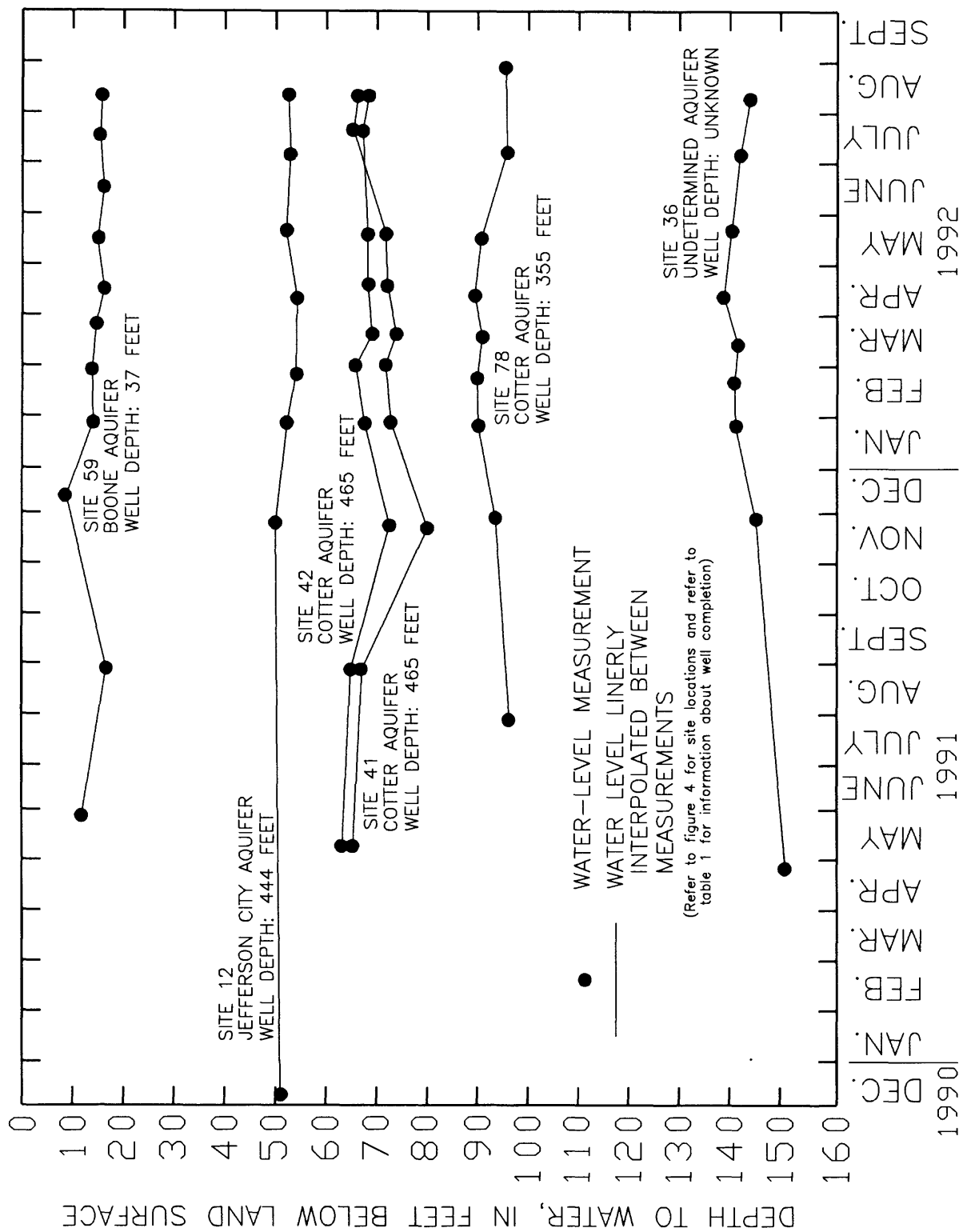


Figure 8.--Temporal variation of water levels in selected wells in Carroll County, Arkansas.

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Table 1.--Description of selected wells for which hydrogeologic data are available, Carroll County, Arkansas

[33]BSVL, Batesville Sandstone; 330B00N, Boone Formation; 364EVRN, Everton Formation; 367CTTR, Cotter Dolomite; 368JFRC, Jefferson City Dolomite; 367RBDX, Roubidoux Formation; 367GNTR, Gunter Sandstone Member of the Van Buren Formation; 371POTS, Potosi Dolomite; H, domestic; U, unused; S, stock; I, irrigation; R, recreation; P, public supply; WL, water-level; measurements: QM, water-quality analysis; 1, well located and identified during this study; 2, unpublished U.S. Geological Survey records; --, not determined;

SITE NO.	SITE NAME	LOCAL WELL NO.	SITE ID	7 1/2 MINUTE TOPOGRAPHIC QUADRANGLE	WATER BEARING FORMATION	TOP OF OPEN VAL (FEET BELOW SURFACE)	BOTTOM OF OPEN INTERVAL (FEET BELOW SURFACE)	WELL-DEPTH (FEET)	WATER LAND SURFACE USE	DATA AVAIL-ABILITY	SOURCE OF DATA
8	KENNETH CLARK	19N24W05ADD1	362016093325701	BERRYVILLE	367CTTR	--	--	955	F	WL, QW	1
12	BILL MCCALL	20N25W09ACA1	362454093382401	EUREKA SPRINGS	368JFRC	--	--	444	U	WL	1
16	LONNIE WILLIAMS	20N24W06CCA1	362534093342601	GRANDVIEW	367CTTR	--	--	312	H	WL	1
25	DIMPLE HEARD	20N24W25AAC1	362210093284401	GREEN FOREST	367CTTR	--	--	60	--	WL	1
27	JAMES JACOB	19N23W03CDA1	361941093245701	GREEN FOREST	331BSVL	--	--	17	S	WL	1
28	LARRY WEEK	20N23W35DDD1	362032093231501	GREEN FOREST	--	--	--	--	S	WL	1
31	WAYNE HARNES	21N23W17AAB1	362919093263401	BLUE EYE	367CTTR	--	--	480	H	WL, QW	1
32	WILLARD STANDLER	21N23W28ABC1	362723093255301	BLUE EYE	367CTTR	--	--	553	H	WL	1
33	WILLARD STANDLER	21N23W28AAC1	36272209325701	BLUE EYE	330B00N	--	--	60	U	WL	1
34	BUDDY DAVIDSON	21N25W25DBB1	362722093352001	GRANDVIEW	368JFRC	--	--	505	S	WL, QW	1
35	ARNOLD HUMBREAD	21N23W29BBD1	362726093271701	BLUE EYE	367CTTR	--	--	181	H	WL	1
36	BOB SUMMERS	20N24W10BCB1	362449093314201	GRANDVIEW	--	--	--	--	H	WL	1
37	MILO ROBINETTE	20N24W25CAA1	362156093290801	GREEN FOREST	--	--	--	--	H	WL	1
38	JESSIE SHALLEY	19N23W06BDA1	362021093280701	GREEN FOREST	367CTTR	--	--	712	H	WL	1
39	JIMMY BISHOP	20N23W12CCB1	362411093231001	BLUE EYE	367CTTR	--	--	220	H	WL, QW	1
41	JIMMY DAVIS	20N22W07CCC1	362401093220701	DENVER	367CTTR	--	--	465	H	WL	1
42	JIMMY DAVIS	20N22W18BBB1	362351093220701	DENVER	367CTTR	--	--	465	H	WL	1
47	BEN RATZLOFF	19N23W24AAB1	36174809322001	ALPENA	330B00N	--	--	9	U	WL	1
48	LARRY HARP	19N23W14CCB1	361806093241701	GREEN FOREST	331BSVL	--	--	17	U	WL	1
50	HAROLD LOGAN	19N23W11ACB1	361920093234201	GREEN FOREST	364EVRN	--	--	355	U	WL	1
51	BEN RATZLOFF	19N23W12BBD1	361925093225801	GREEN FOREST	--	--	--	--	U	WL	1
52	BEN RATZLOFF	19N23W12BBD2	361928093225501	GREEN FOREST	--	--	--	--	U	WL	1
56	R. J. HOLLAND	20N23W18CBA1	362337093282101	BLUE EYE	367CTTR	--	--	420	H	WL	1
57	BUSTER POWELL	19N24W01ADA1	362021093283901	GREEN FOREST	367CTTR	--	--	185	H	WL	1
58	LONNIE USERY	19N22W34BCB1	361544093185501	ALPENA	--	--	--	--	H	WL, QW	1
59	BOBBY ANDREWS	19N22W33ADB1	361545093190801	ALPENA	330B00N	--	--	37	U	WL	1
60	BOB ANDREWS	19N22W33ACB1	361547093190801	ALPENA	--	--	--	--	U	WL	1
61	DAVID FULTZ DAIRY	19N22W33CDA1	361517093193801	ALPENA	367CTTR	--	--	450	H	WL	1
63	COY HUFF	18N23W25CDB1	361110093230901	OSAGE	--	--	--	--	U	WL	1
65	COY HUFF	18N23W26DAA1	361118093233901	OSAGE	367CTTR ¹	--	--	680	H	WL, QW	1
66	KENNY HUFF	18N23W25BDB1	361132093230001	OSAGE	--	--	--	--	H	WL	1
67	ARNOLD CHANEY	20N23W08ADD1	362443093262501	BLUE EYE	368JFRC	--	--	750	H	WL	1
70	DAN THORP	20N24W28AAD1	362213093315301	BERRYVILLE	368JFRC	--	--	800	H	WL	1
71	TIM ROBERTS	20N25W36DDB1	362053093350701	BERRYVILLE	367CTTR	--	--	465	S	WL	1
74	BILL ALLRED	19N24W16BAC1	3618470933323201	BERRYVILLE	--	--	--	--	P	WL	1
76	WAYNE RICHARDSON	20N25W34DBA1	3621110933372001	BERRYVILLE	367CTTR	--	--	333	H	WL	1
77	NEIL MARTIN	20N25W27DDB1	362146093371201	BERRYVILLE	--	--	--	--	I	WL	1
78	GENERAL YOUNGBLOOD	20N24W08DDD1	362413093325701	GRANDVIEW	367CTTR	--	--	355	H	WL	1
79	ROY PATTY	19N24W18BBB1	361857093344801	BERRYVILLE	368JFRC	--	--	555	S	WL	1
80	DON CARY	19N24W17DCD1	361808093331301	BERRYVILLE	368JFRC	--	--	520	H	WL	1

Table 1.--Description of selected wells for which hydrogeologic data are available, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	LOCAL WELL NO.	SITE ID	7 1/2 MINUTE TOPOGRAPHIC QUADRANGLE	WATER BEARING FORMATION	TOP OF OPEN INTER-VAL (FEET BELOW SURFACE)		BOTTOM OF OPEN INTERVAL (FEET BELOW SURFACE)		WELL DEPTH (FEET)	DATA AVAILABILITY	SOURCE OF DATA
						BELOW LAND SURFACE	BELOW LAND SURFACE	LAND SURFACE	USE			
87	LLOYD GIBSON	20N25W23DAA1	362254093360001	GRANDVIEW	--	--	--	--	H	1	WL	1
84	CHARLIE GARNER	20N24W19CCB1	362238093344801	GRANDVIEW	367CTTR	--	--	180	U	1	WL	1
85	FAIR GROUND	21N24W18BD1	362335093341501	GRANDVIEW	--	--	--	--	H	1	WL	1
86	BOB SUMMERS	21N24W33CAD1	362607093314701	GRANDVIEW	--	--	--	--	F	1	WL	1
87	HOWARD COLLINS	18N23W04CDA1	361436093260301	OSAGE	367RBDX	--	1,032	--	F	1	WL,OW	1
88	RUSTY BUTLER	19N23W30DAB1	361634093274501	GREEN FOREST	367CTTF	--	130	--	F	1	WL	1
89	RUSTY BUTLER	19N23W30DAD1	361633093274001	GREEN FOREST	368JFRC	--	800	--	S	1	WL	1
90	KENNETH ESSLINGER	17N24W14AB1	360821093300301	MARBLE	330B00N	--	205	--	F	1	WL,OW	1
92	KENNETH ESSLINGER	17N24W13BC1	360758093294601	OSAGE	330B00N	--	45	--	F	1	WL	1
93	JOY SHACKELFORD	17N24W04ADB1	360958093321301	MARBLE	367CTTF	--	455	--	F	1	WL	1
95	CLIFFORD BOETTNER	20N26W06CCC1	362520093473701	BEAVER	367CTTR	--	360	--	F	1	OW	1
96	PAT SCHMIDT	21N27W21ACA1	362840093511301	BEAVER	367CTTR	--	200	--	F	1	WL	1
97	COUNTRY HOUSE BED & BREAKFAST	19N26W08DAC1	361924093455001	SANDSTONE	367CTTR	--	650	--	F	1	WL	1
98	SNOOPER'S NOOK ANTIQUES	20N26W06DDB1	362525093465401	BEAVER	368JFRC	--	900	--	F	1	WL	1
99	PAUL FARNELL	21N26W13BCC1	362912093421701	EUREKA SPRINGS	368JFRC	--	485	--	F	1	WL	1
100	BOB FEAGINS	20N25W16BCC1	362356093384801	EUREKA SPRINGS	367CTTR	--	200	--	F	1	WL	1
101	RUSSELL CLAY	20N26W2DCB1	362154093450701	SANDSTONE MTN.	367CTTR	--	834	--	H	1	WL	1
102	RUSSELL CLAY	20N26W28CDD1	362153093450901	SANDSTONE MTN.	367RBDX	--	1,500	--	H	1	WL	1
103	ALAN HALL	19N25W07CDC1	361917093410301	ROCKHOUSE	367CTTR	--	507	--	H	1	WL	1
104	J. CHRIS HENNIG	20N25W31BAB1	362032093411601	ROCKHOUSE	367CTTR	--	65	--	F	1	WL	1
105	BILL HARPER	18N23W32BCC1	361040093273801	OSAGE	367CTTR	--	530	--	F	1	WL	1
106	ROBERT FRITZ	17N23W09DAC1	360834093254101	OSAGE	367CTTR	--	900	--	F	1	WL	1
107	PAUL WAGNER	17N23W09DDC1	360824093254301	OSAGE	367CTTF	--	955	--	F	1	WL	1
110	FRANK DAVIS	20N24W23BBA1	362315093303001	GRANDVIEW	367CTTR	--	285	--	L	1	WL	1
112	CLIFTON H. PHILLIPS	18N23W29ACD1	361124093265401	OSAGE	330B00N	--	208	--	F	1	WL	2
113	ORMALD WATSON	19N23W29BCC1	361642093273401	GREEN FOREST	331BSVL	--	100	--	F	2	WL	2
114	RALPH BANTA	19N22W18DAB1	361811093212501	ALPENA	330B00N	160	488	870	F	2	WL	2
115	HUGH LIEDTKE	19N25W16BDA1	361852093384401	ROCKHOUSE	367RBDX	21	824	824	F	2	WL	2
116	NORRIS RILEY	19N23W12BAB1	361925093230201	ALPENA	330B00N	--	78	--	H	2	WL	2
117	RICHARD HATTENHAUP	19N25W11BBB1	361947093365901	BERRYVILLE	367CTTR	373	944	944	H	2	WL	2
118	GILBERT RIVERA	19N27W11BBC1	362000093492301	--	367RBDX	--	1,148	--	H	2	WL	2
119	US-CE	20N27W10BCC1	362501093504601	BEAVER	367RBDX	82	870	870	R	2	WL	2
120	--	20N26W16DCD1	362341093445701	EUREKA SPRINGS	367GNTR	--	1,385	--	U	2	WL	2
121	MURIEL SCHMIDT	20N26W13CAA1	362354093420701	EUREKA SPRINGS	367RBDX	147	1,029	1,029	H	2	WL	2
122	EUREKA SPRINGS CITY	20N26W16DAA1	362355093444601	EUREKA SPRINGS	367RBDX	408	1,418	1,418	P	2	WL	2
123	EUREKA SPRINGS CITY	20N26W23ACA1	362312093425201	EUREKA SPRINGS	371POTS	--	1,713	--	P	2	WL,OW	2
124	EUREKA SPRINGS CITY	20N26W16DCA1	362338093445701	EUREKA SPRINGS	367GNTR	500	1,322	1,332	P	2	WL,OW	2
125	PAUL GRIESENAUER	20N26W14BAD1	362409093430101	EUREKA SPRINGS	367RBDX	500	1,026	1,026	P	2	WL	2
126	DEWAYNE TIPTON	20N22W03DDA1	362500093175001	DENVER	367CTTR	--	400	--	H	2	OW	2
127	V. R. SOLBERY	20N25W06BBA1	362603093410901	EUREKA SPRINGS	368JFRC	240	898	898	H	2	WL	2

Table 1.--Description of selected wells for which hydrogeologic data are available, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	LOCAL WELL NO.	SITE ID	7 1/2 MINUTE TOPOGRAPHIC QUADRANGLE	WATER BEARING FORMATION	OPEN INTER-VAL (FEET BELOW SURFACE)	TOP OF INTER-VAL (FEET BELOW SURFACE)	BOTTOM OF OPEN INTER-VAL (FEET BELOW SURFACE)	WELL DEPTH (FEET BELOW LAND SURFACE)	DATA AVAILABILITY	SOURCE OF DATA
128	HOLIDAY ISLAND	21N26W27ADA1	3627390933434901	EUREKA SPRINGS	367GNTR	515	1,800	1,800	1,800	W	2
129	HOLIDAY ISLAND	21N26W22DDC1	3627570933434601	EUREKA SPRINGS	367RBDX	500	1,184	1,184	1,184	W	2
130	HOLIDAY ISLAND	21N26W17BCC1	362920093463801	BEAVER	367RBDX	500	1,058	1,058	1,058	W,OW	2
131	HOLIDAY ISLAND	21N26W15BAA1	362937093441101	EUREKA SPRINGS	367GNTR	500	1,122	1,122	1,122	W,OW	2
132	D.G. WARD	21N27W34BAA1	362708093502901	BEAVER	367RBDY	20	901	901	901	W	2
133	WILL J. SCHELL	19N24W17BBC1	361847093335901	BERRYVILLE	367RBDX	20	1,314	1,314	1,314	W	2
134	GREEN FOREST CITY	19N23W08ADC1	361912093263301	GREEN FOREST	367GNTR	--	2,300	2,300	2,300	W	2
135	GREEN FOREST CITY	19N23W04BAC1	362013093260301	GREEN FOREST	367RBDX	--	1,587	1,587	1,587	W,OW	2
136	DR. R.A. ETHERINGTON	20N26W13CAD1	362344093415701	EUREKA SPRINGS	367RBDX	98	923	923	923	W	2
137	REV. JOHN WYATT	20N25W06AAC1	362556093402601	EUREKA SPRINGS	368JFRC	200	984	984	984	W	2
138	ROGER A. ANDERSON	20N26W06ABD1	362610093470501	BEAVER	367RBDY	65	990	990	990	W	2
146	MURL MALONE	18N22W17DAA1	361259093200901	OSAGE NE	330B00N	--	16	16	16	W	1
147	MURL MALONE	18N22W16CBB1	361255093203001	OSAGE NE	330B00N	--	29	29	29	W	1

* A discrepancy exists between well depth and interpreted water-bearing formation with water quality.

Table 2.-Description of selected springs in Carroll County, Arkansas

[331BSVL, Batesville Sandstone; 330B00N, Boone Formation; 367CTTR, Cotter Dolomite; P, public supply; S, stock; U, unused; R, recreation; H, domestic; WD, discharge measurement; QW, water-quality analyses; 1, spring located and identified during this study; 2, Lamonds (1972); --, not determined]

SITE NO.	SPRING NAME	LOCAL SPRING NO.	SITE ID	1/2 MINUTE TOPOGRAPHIC QUADRANGLE	STRATI-GRAPHIC HORIZON OF SPRING ORIFICE	WATER USE	DATA AVAIL-ABILITY	SOURCE OF DATA
1	BUNCH SPRING	20N25W26DBD1SP	362156093361701	BERRYVILLE	367CTTR	P	WD, QW	1
2	K. HAMM SPRING	20N25W14DAC1SP	362340093360601	GRANDVIEW	367CTTR	S	WD	1
3	R.C. CHANEY SPRING	20N24W34BBC1SP	362122093314801	BERRYVILLE	367CTTR	S	WD	1
4	UNKNOWN	17N22W06BDA1SP	3609400933214501	OSAGE NE	330B00N	S	--	1
5	YOUNGBLOOD SPRING	17N23W10BCA1SP	3609150933245901	OSAGE	330B00N	S	--	1
6	VERDA DOTSON SPRING	17N23W03CDA1SP	3608550933251601	OSAGE	330B00N	S	WD	1
7	VERDA DOTSON SPRING	17N23W10BAB1SP	3609060933250701	OSAGE	330B00N	U	--	1
9	WINONA SPRING	19N25W06CDD1SP	3619570933405101	ROCK HOUSE	330B00N	U	WD, QW	1
10	BLUE SPRING	21N27W26AAD1SP	3627520933484401	BEAVER	367CTTR	R	WD	1, 2
11	MOORE SPRING	21N25W27CDD1SP	3626580933373801	EUREKA SPRINGS	367CTTR	S	--	1
13	BILL MCCALL SPRING	20N25W09ACA1SP	3624510933382201	EUREKA SPRINGS	367CTTR	U	--	1
14	BOB MCCALL SPRING	20N25W18CDA1SP	3623530933410201	EUREKA SPRINGS	330B00N	U	--	1
15	BILL MCCALL SPRING	20N26W01ADD1SP	3625440933412301	EUREKA SPRINGS	330B00N	S	--	1
17	JOHNSON SPRING	20N25W01ACD1SP	3625380933350901	GRANDVIEW	367CTTR	S	WD	1
18	HALE SPRING	21N23W17DDA1SP	3628390933262901	BLUE EYE	330B00N	-	WD, QW	1
19	WOOD SPRING	21N24W26BCB1SP	3627220933303701	GRANDVIEW	367CTTR	-	--	1
20	JOHNSON SPRING	20N25W01ADD1SP	3625360933345801	GRANDVIEW	367CTTR	S	--	1
21	MCWILLIAMS SPRING	18N24W15CDD1SP	361307093314201	MARBLE	330B00N	H	WD	1
22	FLOYD SPRING	18N24W16ADA1SP	361323093320201	MARBLE	330B00N	H	WD	1
23	BERRYVILLE SPRING	20N24W30DBA1SP	3622000933341001	BERRYVILLE	367CTTR	S	WD	1
24	STAFFORD SPRING	20N23W29ABB1SP	3622170933264101	GREEN FOREST	330B00N	P	--	1
26	BRASWELL SPRING	20N24W25AAD1SP	3622120933284301	GREEN FOREST	367CTTR	S	WD	1
29	J.P. RILEY SPRING	21N24W35ABB1SP	3626430933295801	BLUE EYE	367CTTR	H	WD	1
30	STAINS SPRING	21W22W30BAB1SP	3627280933215001	DENVER	330B00N	H	--	1
40	BISHOP SPRING	20N23W14ABA1SP	3623570933233201	BLUE EYE	330B00N	S	--	1
43	BASIN SPRING	19N22W18DDB1SP	3617580933212001	ALPENA	331BSVL	H	WD	1
44	PATTY SPRING	19N22W17AAD1SP	3618290933193501	ALPENA	330B00N	H	--	1
45	TANYARD SPRING	19N22W19BAA1SP	3617490933214401	ALPENA	331BSVL	H	--	1
46	BULL SPRING	19N22W18DCC1SP	3617540933213701	ALPENA	331BSVL	S	--	1
48	HARP SPRING	19N23W14BBB1SP	3618400933241401	GREEN FOREST	330B00N	S	WD	1
53	ROGERS SPRING	20N23W27BCC1SP	3621570933251701	GREEN FOREST	331BSVL	H	--	1
54	ANDERSON SPRING	19N22W06DDA1SP	3619460933210501	ALPENA	330B00N	S	--	1
55	UNKNOWN	19N22W06DDD1SP	3619390933211001	ALPENA	330B00N	S	--	1
62	FULTZ SPRING	19N22W33ADB1SP	3615320933191301	ALPENA	330B00N	--	--	1
64	COY HUFF SPRING	18N23W25CDA1SP	3610580933225501	OSAGE	330B00N	S	WD, QW	1
68	CHANEY SPRING	20N23W09BAA1SP	3624510933260101	BLUE EYE	330B00N	S	--	1
69	THORP SPRING	20N24W28AAD1SP	3622140933315001	BERRYVILLE	367CTTR	U	--	1
72	WILSON SPRING	18N24W10CAB1SP	361403093313601	MARBLE	330B00N	H	WD	1
73	HALFIELD SPRING	18N24W09CDC1SP	3613450933323901	MARBLE	330B00N	H	WD	1
75	RICHARDSON SPRING	20N25W34ABD1SP	3621290933372001	BERRYVILLE	367CTTR	H	--	1
82	ROBERTS SPRING	20N25W36DCB1SP	3620510933352401	BERRYVILLE	367CTTR	S	WD	1
83	ARMER SPRING	19N24W16AAC1SP	3618440933320201	BERRYVILLE	367CTTR	S	--	1
90	BUTLER SPRING	19N23W30DCD1SP	3616160933275501	GREEN FOREST	367CTTR	S	WD, QW	1
94	REEVES SPRING	19N23W12ADD1SP	3619120933221701	ALPENA	330B00N	U	WD, QW	1
108	CLAY SPRING	20N26W28CDD1SP	3621490933450901	SANDSTONE MNI	330B00N	U	--	1
109	JOHNSON SPRING	20N25W01ACB1SP	3625410933351501	GRANDVIEW	367CTTR	S	WD	1
139	ONYX SPRING	20N26W15ACB1SP	3624020933440101	EUREKA SPRINGS	330B00N	U	--	1
140	CARRY NATION SPRING	20N26W15ACC1SP	3623580933440201	EUREKA SPRINGS	330B00N	U	--	1
141	LITTLE EUREKA SPRINGS	20N26W15DBB1SP	3623550933440201	EUREKA SPRINGS	330B00N	U	--	1
142	CALIFF SPRING	20N26W15BCD1SP	3624020933442501	EUREKA SPRINGS	330B00N	U	--	1
143	JOHNSON SPRING	20N26W16ADC1SP	3624030933444401	EUREKA SPRINGS	330B00N	U	--	1
144	BASIN SPRING	20N26W15BDB1SP	3624070933442101	EUREKA SPRINGS	330B00N	P	--	1
145	MALONE SPRING	18N22W16CDD1SP	3612460933195301	OSAGE NE	330B00N	U	WD	1
148	MYSTIC SPRING	20N26W10DDD1SP	3624270933433601	EUREKA SPRINGS	330B00N	U	--	1
149	CRESCENT SPRING	20N26W10CDA1SP	3624290933441001	EUREKA SPRINGS	330B00N	U	--	1
150	CONGRESS SPRING	20N26W10CDC1SP	3624250933441201	EUREKA SPRINGS	330B00N	U	--	1
151	HARDING SPRING	20N26W15BAB1SP	3624190933441501	EUREKA SPRINGS	330B00N	U	--	1
152	SWEET SPRING	20N26W15BAB2SP	3624170933441701	EUREKA SPRINGS	330B00N	U	--	1
153	CADD SPRING	20N26W15BAA1SP	3624160933440901	EUREKA SPRINGS	367CTTR	U	--	1
154	GROTIO SPRING	20N26W10CAC1SP	3624400933441601	EUREKA SPRINGS	330B00N	U	--	1
155	MAGNETIC SPRING	20N26W10DAC1SP	3624370933435001	EUREKA SPRINGS	367CTTR	U	--	1

Table 3.--Water-level data from wells, Carroll County, Arkansas

[331BSVL, Batesville Sandstone; 330B00N, Boone Formation; 364EVRN, Everton Formation; 367CTTR, Cotter Dolomite; 368JFRC, Jefferson City Dolomite; 367RBDX, Roubidoux Formation; 367GNTR, Gunter Sandstone Member of the Van Buren Formation; 371POTS, Potosi Dolomite; --, not identified]

SITE NO.	SITE NAME	ALTITUDE OF LAND SURFACE (FEET ABOVE SEA LEVEL)	DEPTH TO WATER (FEET BELOW LAND SURFACE)	ALTITUDE OF WATER LEVEL (FEET ABOVE SEA LEVEL)	DATE WATER LEVEL MEASURED	WATER-BEARING FORMATION
8	KENNETH CLARK	1,155	10.53	1,144.47	11-14-90	367CTTR
			30.75	1,124.25	08-23-91	
			9.59	1,145.41	09-26-91	
			11.40	1,143.60	11-26-91	
			7.10	1,147.90	01-21-92	
			7.15	1,147.85	02-19-92	
			7.50	1,147.50	03-26-92	
			8.00	1,147.00	04-16-92	
			15.85	1,139.15	05-21-92	
			24.50	1,130.50	07-07-92	
12	BILL McCALL	1,060	16.25	1,138.75	08-13-92	368JFRC
			51.10	1,008.90	12-06-90	
			50.00	1,010.00	11-21-91	
			51.90	1,008.10	01-20-92	
			54.10	1,005.90	02-19-92	
			53.40	1,006.60	04-16-92	
			52.00	1,008.00	05-26-92	
25	DIMPLE HEARD	1,280	20.34	1,259.66	03-12-91	367CTTR
			4.00	1,336.00	12-10-91	
			3.80	1,336.20	01-20-92	
			3.90	1,336.10	02-27-92	
			52.10	1,007.90	08-13-92	
27	JAMES JACOB	1,340	6.60	1,333.40	03-21-91	331BSVL
			3.80	1,336.20	01-20-92	
			3.90	1,336.10	02-27-92	
28	LARRY MEEK	1,340	293.90	1,046.10	03-21-91	--
31	WAYNE HARNESS	1,260	137.80	1,122.20	04-16-91	367CTTR
			144.00	1,116.00	08-21-91	
			143.08	1,116.92	09-24-91	
			142.50	1,117.50	12-05-91	
			142.50	1,117.50	01-20-92	
			135.90	1,124.10	02-18-92	
			136.60	1,123.40	03-17-92	
			135.16	1,124.84	04-09-92	
			136.50	1,123.50	05-14-92	
			138.40	1,121.60	07-23-92	
			137.80	1,122.20	08-11-92	
			62.45	1,277.55	04-16-91	
			64.55	1,275.45	08-21-91	
33	WILLARD STANDLER	1,310	31.20	1,278.80	04-16-91	330B00N
			34.37	1,275.63	08-21-91	
34	BUDDY DAVIDSON	1,060	80.05	979.95	04-23-91	368JFRC
			99.97	960.03	08-21-91	
			105.46	954.54	09-24-91	
			81.25	978.75	12-05-91	
			86.25	973.75	01-20-92	
			87.10	972.90	02-18-92	
			88.15	971.85	03-17-92	
			81.70	978.30	04-09-92	
			89.60	970.40	05-14-92	
			97.75	962.25	07-07-92	
			94.30	965.70	08-11-92	
			120.00	1,190.00	04-23-91	
			35	ARNOLD HUMBREAD	1,310	
146.45	1,158.55	11-26-91				
36	BOB SUMMERS	1,305	142.50	1,162.50	01-20-92	--
			142.00	1,163.00	02-18-92	
			142.10	1,162.90	03-17-92	
			138.60	1,166.40	04-09-92	
			140.20	1,164.80	05-21-92	
			142.30	1,162.70	07-07-92	

Table 3.--Water level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTITUDE	DEPTH	ALTITUDE	DATE	WATER-BEARING FORMATION
		OF LAND SURFACE (FEET ABOVE SEA LEVEL)	TO WATER SURFACE (FEET BELOW LAND SURFACE)	OF WATER LEVEL (FEET ABOVE SEA LEVEL)	WATER LEVEL MEASURED	
37	MILLO ROBINETTE	1,345	143.80	1,161.20	08-11-92	
38	JESSIE SMALIEY	1,380	63.80	1,281.20	04-29-91	--
			62.40	1,317.60	05-02-91	367CTTR
			61.00	1,319.00	12-10-91	
			37.90	1,342.10	01-20-92	
			36.30	1,343.70	02-27-92	
			37.40	1,342.60	03-17-92	
			39.65	1,340.35	04-14-92	
			39.10	1,340.90	05-14-92	
			40.80	1,339.20	07-23-92	
39	JIMMY BISHOP	1,255	69.50	1,310.50	08-11-92	
			97.00	1,158.00	05-07-91	367CTTR
			124.00	1,131.00	08-21-91	
			83.85	1,171.15	11-19-91	
			81.35	1,173.65	01-20-92	
			85.85	1,169.15	02-27-92	
			86.25	1,168.75	03-17-92	
			87.15	1,167.85	04-14-92	
			86.65	1,168.35	05-14-92	
			87.10	1,167.90	07-23-92	
41	JIMMY DAVIS	1,240	84.55	1,170.45	08-11-92	
			64.50	1,175.50	05-07-91	367CTTR
			66.40	1,173.60	08-21-91	
			79.80	1,160.20	11-19-91	
			73.90	1,166.10	01-20-92	
			71.60	1,168.40	02-27-92	
			74.40	1,165.60	03-17-92	
			72.00	1,168.00	04-14-92	
			71.50	1,168.50	05-14-92	
			65.40	1,174.60	07-23-92	
42	JIMMY DAVIS	1,240	66.50	1,173.50	08-11-92	
			63.50	1,176.50	05-07-91	367CTTR
			65.80	1,174.20	08-21-91	
			72.90	1,167.10	11-19-91	
			68.20	1,171.80	01-20-92	
			66.10	1,173.90	02-27-92	
			69.05	1,170.95	03-17-92	
			68.00	1,172.00	04-14-92	
			68.20	1,171.80	05-14-92	
			66.30	1,173.70	07-23-92	
47	BEN RATZLOFF	1,290	68.10	1,171.90	08-11-92	
49	LARRY HARP	1,360	13.00	1,277.00	05-07-91	330B00N
50	HAROLD LOGAN	1,240	3.00	1,357.00	05-09-91	331BSVL
51	BEN RATZLOFF	1,120	91.60	1,148.40	05-09-91	364EVRN
			8.30	1,111.70	05-09-91	--
52	BEN RATZLOFF	1,170	40.80	1,129.10	05-09-91	--
56	R.J. HOLLAND	1,480	134.05	1,345.95	05-15-91	367CTTR
57	BUSTER POWELL	1,420	12.30	1,407.70	05-22-91	367CTTR
58	LONNIE USERY	1,790	34.90	1,755.10	05-28-91	--
			37.55	1,752.45	08-23-91	
			37.36	1,752.64	09-25-91	
			36.20	1,753.80	12-10-91	
			36.00	1,754.00	01-26-92	
			35.90	1,754.10	02-27-92	
			36.80	1,753.20	03-26-92	
			36.60	1,753.40	04-14-92	
			36.25	1,753.75	05-14-92	
			37.00	1,753.00	07-16-92	
			36.70	1,753.30	08-11-92	
59	BOBBY ANDREWS	1,180	11.40	1,168.60	05-28-91	330B00N
			16.32	1,163.68	08-23-91	
			8.30	1,171.70	12-10-91	
			13.06	1,166.94	01-21-92	
			13.05	1,166.95	02-27-92	
			15.25	1,164.75	04-14-92	

Table 3.--Water-level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTIITUDE	DEPTH	ALTIITUDE	DATE	WATER-BEARING FORMATION
		OF LAND SURFACE (FEET ABOVE SEA LEVEL)	TO WATER (FEET BELOW LAND SURFACE)	OF WATER LEVEL (FEET ABOVE SEA LEVEL)	WATER LEVEL MEASURED	
			14.70	1,165.30	05-14-92	
			15.10	1,164.90	06-16-92	
			13.65	1,166.35	06-26-92	
			14.80	1,165.20	07-16-92	
			15.00	1,165.00	08-11-92	
60	BOB ANDREWS	1,170	8.90	1,161.10	05-28-91	--
61	DAVID FULTZ DAIRY	1,260	22.30	1,237.70	05-28-91	367CTTR
63	COY HUFF	1,380	30.70	1,349.30	05-29-91	--
			36.40	1,343.60	08-22-91	
65	COY HUFF	1,510	82.00	1,428.00	05-29-91	367CTTR
			93.00	1,417.00	08-22-91	
			89.15	1,420.85	09-25-91	
			84.40	1,425.60	12-10-91	
			86.40	1,423.60	01-21-92	
			86.50	1,423.50	01-27-92	
			85.90	1,424.10	03-26-92	
			86.60	1,423.40	04-14-92	
			79.90	1,430.10	05-26-92	
			77.10	1,432.90	07-16-92	
			80.45	1,429.55	08-11-92	
66	KENNY HUFF	1,380	51.25	1,328.75	05-29-91	--
			48.05	1,331.95	12-10-91	
			43.90	1,336.10	01-21-92	
			41.45	1,338.55	02-27-92	
			42.10	1,337.90	03-26-92	
			42.20	1,337.80	04-14-92	
			41.60	1,338.40	05-26-92	
			44.20	1,335.80	07-16-92	
			42.25	1,337.75	08-11-92	
67	ARNOLD CHANEY	1,260	77.20	1,182.80	06-25-91	368JFRC
70	DAN THORP	1,280	55.00	1,225.00	06-25-91	368JFRC
71	TIM ROBERTS	1,155	72.20	1,082.80	07-11-91	367CTTR
			73.40	1,081.60	08-21-91	
			73.40	1,081.60	08-21-91	
74	BILL ALLRED	1,220	98.00	1,122.00	07-18-91	--
76	WAYNE RICHARDSON	1,160	101.90	1,058.10	07-23-91	367CTTR
			107.11	1,052.89	08-19-91	
			107.19	1,052.81	08-21-91	
			94.00	1,066.00	11-26-91	
			86.30	1,073.70	01-20-92	
			88.10	1,071.90	02-27-92	
			86.30	1,073.70	03-17-92	
			84.70	1,075.30	04-16-92	
			86.45	1,073.55	05-21-92	
			80.40	1,079.60	07-07-92	
			85.30	1,074.70	08-13-92	
77	NEIL MARTIN	1,080	10.40	1,069.60	07-23-91	--
			14.20	1,065.80	08-21-91	
78	GENERAL YOUNGBLOOD	1,240	96.50	1,143.50	07-23-91	367CTTR
			94.90	1,145.10	11-26-91	
			91.10	1,148.90	01-20-92	
			90.50	1,149.50	02-18-92	
			90.80	1,149.20	03-17-92	
			89.90	1,150.10	04-09-92	
			91.00	1,149.00	05-21-92	
			96.10	1,143.90	07-07-92	
			95.30	1,144.70	08-30-92	
79	ROY PATTY	1,215	79.60	1,135.40	07-25-91	368JFRC
			77.10	1,137.90	11-26-91	
			74.50	1,140.50	01-20-92	
			76.20	1,138.80	02-27-92	
			76.10	1,138.90	03-17-92	
			76.70	1,138.30	04-16-92	
			77.50	1,137.50	05-21-92	
			76.40	1,138.60	07-07-92	

Table 3.--Water level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTITUDE OF LAND SURFACE (FEET ABOVE SEA LEVEL)	DEPTH TO WATER (FEET BELOW LAND SURFACE)	ALTITUDE OF WATER LEVEL (FEET ABOVE SEA LEVEL)	DATE WATER LEVEL MEASURED	WATER-BEARING FORMATION
80	DON CARY	1,380	77.15	1,137.85	08-13-92	368JFRC
81	LLOYD GIBSON	1,235	131.00	1,249.00	07-30-91	--
84	CHARLIE GARNER	1,245	62.90	1,172.10	07-30-91	367CTTR
85	FAIR GROUND	1,225	87.00	1,158.00	08-08-91	--
			97.20	1,127.80	08-14-91	
86	BOB SUMMERS	1,250	39.00	1,211.00	08-13-91	--
87	HOWARD COLLINS	1,310	72.00	1,238.00	08-15-91	367RBDX
			79.87	1,230.13	08-22-91	
			79.81	1,230.19	09-26-91	
			68.00	1,242.00	12-10-91	
			71.70	1,238.30	01-26-92	
			72.10	1,237.90	02-27-92	
			72.90	1,237.10	03-26-92	
			77.80	1,232.20	04-14-92	
			78.10	1,231.90	05-26-92	
			73.70	1,236.30	07-16-92	
88	RUSY BUTLER	1,280	76.60	1,233.40	08-11-92	367CTTR
			63.50	1,216.50	08-15-91	
89	RUSY BUTLER	1,265	54.10	1,225.90	08-22-91	368JFRC
			59.60	1,205.40	08-15-91	
			55.10	1,209.90	08-22-91	
			53.60	1,211.40	12-10-91	
			54.10	1,210.90	01-21-92	
			53.90	1,211.10	02-27-92	
			54.00	1,211.00	03-26-92	
			55.60	1,209.40	04-14-92	
			53.55	1,211.45	05-26-92	
			54.65	1,210.35	07-16-92	
91	KENNETH ESSLINGER	1,480	56.20	1,208.80	08-11-92	330BOON
			132.02	1,347.98	08-22-91	
			132.70	1,347.30	09-25-91	
			36.50	1,443.50	12-10-91	
			79.42	1,400.58	01-21-92	
			73.50	1,406.50	02-27-92	
			79.65	1,400.35	03-26-92	
			84.40	1,395.60	04-14-92	
			55.80	1,424.20	05-26-92	
			76.50	1,403.50	07-16-92	
92	KENNETH ESSLINGER	1,490	97.20	1,382.80	08-11-92	330BOON
			29.43	1,460.57	08-22-91	
93	JOY SHACKELFORD	1,337	19.77	1,317.23	08-22-91	367CTTR
99	PAUL FARWELL	1,180	46.05	1,133.95	07-21-92	368JFRC
100	E.E. DICKS	1,170	32.14	1,137.86	07-21-92	367CTTR
104	J. CHRIS HENNIG	1,230	24.24	1,205.76	07-22-92	367CTTR
105	BILL HARPER	1,740	162.60	1,577.40	07-28-92	367CTTR
110	FRANK DAVIS	1,425	75.50	1,349.50	05-22-91	367CTTR
112	CLIFTON H. PHILLIPS	1,680	139.08	1,540.92	06-14-62	330BOON
			125.04	1,554.96	10-25-62	
			120.31	1,559.69	05-08-63	
114	RALPH BANTA	1,320	196.70	1,123.30	06-07-67	330BOON
116	NORRIS RILEY	1,160	40.85	1,119.15	11-17-61	330BOON
			40.08	1,119.92	02-08-62	
			40.26	1,119.74	03-08-62	
			40.16	1,119.84	04-04-62	
			39.27	1,120.73	05-09-62	
			40.38	1,119.62	06-15-62	
			40.93	1,119.07	07-25-62	
			40.98	1,119.02	08-29-62	
			40.13	1,119.87	09-28-62	
			40.03	1,119.97	10-25-62	
			40.33	1,119.67	11-29-62	
			40.78	1,119.22	12-13-62	
			40.33	1,119.67	01-08-63	
			40.57	1,119.43	02-19-63	
			40.76	1,119.24	05-08-63	

Table 3. --Water-level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTITUDE	DEPTH	ALTITUDE	DATE	WATER-BEARING FORMATION				
		OF LAND SURFACE (FEET ABOVE SEA LEVEL)	TO WATER (FEET BELOW LAND SURFACE)	OF WATER LEVEL (FEET ABOVE SEA LEVEL)	WATER LEVEL MEASURED					
117	RICHARD HATTENHAUR	1,662	553.00	1,109.00	08-06-76	367CTTR				
118	GILBERT RIVERA	1,400	208.58	1,191.42	04-10-75	367RBDX				
119	US-CE	1,172	77.85	1,094.15	05-14-73	367RBDX				
121	MURIEL SCHMIDT	1,525	391.56	1,133.44	01-29-75	367RBDX				
122	EUREKA SPRINGS CITY	1,400	273.00	1,127.00	07-06-72	367RBDX				
123	EUREKA SPRINGS CITY	1,296	306.15	989.85	08-26-76	371POTS				
			342.75	953.25	05-25-77					
			392.55	903.45	05-03-78					
			429.63	866.37	04-17-79					
			470.40	825.60	03-26-80					
			464.00	832.00	04-23-81					
			432.35	863.65	05-11-82					
			454.44	841.56	04-25-83					
			287.43	1,008.57	04-04-84					
			278.23	1,017.77	04-08-85					
			274.31	1,021.69	04-14-86					
			274.68	1,021.32	04-08-87					
			272.10	1,023.90	05-06-88					
			274.88	1,021.12	05-11-89					
			276.20	1,019.80	03-28-90					
			124	EUREKA SPRINGS CITY	1,199.60		177.65	1,021.95	08-25-66	367GNTR
							197.80	1,001.80	11-02-66	
200.77	998.83	02-15-67								
201.80	997.80	06-07-67								
473.00	726.60	11-10-71								
418.00	781.60	10-14-72								
392.00	807.60	11-29-73								
445.00	754.60	11-26-74								
417.82	781.78	05-25-75								
404.00	795.60	12-02-75								
424.44	775.16	05-03-78								
408.58	791.02	04-17-79								
438.30	761.30	03-26-80								
440.00	759.60	04-23-81								
208.75	990.85	05-20-81								
207.91	991.69	06-10-82								
208.58	991.02	04-25-83								
139.68	1,059.92	04-04-84								
124.58	1,075.02	04-08-85								
188.19	1,011.41	04-15-86								
124.51	1,075.09	04-08-87								
185.62	1,013.98	05-04-88								
124.25	1,075.35	05-11-89								
125.82	1,073.78	03-28-90								
125	PAUL GRIESENAUER	1,520	452.10	1,067.90	03-31-77	367RBDX				
			127	V.R. SOLBERY	1,550		133.60	1,416.40	06-20-68	368JFRC
			128	HOLIDAY ISLAND	1,520		520.00	1,000.00	07-07-72	367GNTR
			129	HOLIDAY ISLAND	1,500		146.00	1,354.00	06-30-77	367RBDX
			130	HOLIDAY ISLAND	1,010		86.40	923.60	11-19-70	367RBDX
			110.77	899.23	11-10-71					
			117.19	892.81	10-19-72					
			121.19	888.81	11-29-73					
			121.19	888.81	11-26-74					
			128.00	882.00	12-03-75					
			106.50	903.50	05-23-77					
			92.13	917.87	07-03-78					
			96.87	913.13	04-17-79					
			96.75	913.25	03-26-80					
			105.00	905.00	04-23-81					
			89.13	920.87	05-11-82					
			136.14	873.86	04-25-83					
			143.07	866.93	04-04-84					
			134.10	875.90	04-08-85					
			89.28	920.72	04-15-86					
			90.87	919.13	04-08-87					

Table 3.--Water-level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTITUDE OF LAND SURFACE (FEET ABOVE SEA LEVEL)	DEPTH TO WATER (FEET BELOW LAND SURFACE)	ALTITUDE OF WATER LEVEL (FEET ABOVE SEA LEVEL)	DATE WATER LEVEL MEASURED	WATER-BEARING FORMATION
131	HOLIDAY ISLAND	1,102	86.75	923.25	04-19-88	367GNTR
			97.39	912.61	05-11-89	
			85.68	924.32	03-28-90	
			136.44	965.56	11-19-70	
			128.50	973.50	11-10-71	
			139.20	962.80	10-19-72	
			133.17	968.83	11-29-73	
			137.29	964.71	11-26-74	
			134.72	967.28	12-03-75	
			110.47	991.53	05-25-77	
			93.68	1,008.32	05-03-78	
			98.56	1,003.44	04-17-79	
			113.32	988.68	03-26-80	
			112.80	989.20	04-23-81	
			99.72	1,002.28	05-11-82	
			141.94	960.06	05-04-83	
			143.16	958.84	04-04-84	
133.97	968.03	04-08-85				
145.50	956.50	04-15-86				
145.22	956.78	04-08-87				
132	D.G. WARD	1,300	146.85	955.15	05-06-88	367RBDX
			151.07	950.93	05-11-89	
			145.59	956.41	03-28-90	
133	WILL J. SCHELL	1,410	313.20	986.80	11-09-76	367RBDX
			263.55	1,146.45	09-25-79	367RBDX
134	GREEN FOREST CITY	1,325	275.74	1,049.26	02-15-67	367GNTR
			279.99	1,045.01	06-07-67	
			278.50	1,046.50	05-22-68	
			267.58	1,057.42	11-10-71	
			270.71	1,054.29	10-18-72	
			221.88	1,103.12	11-28-73	
			225.26	1,099.74	11-25-74	
			228.80	1,096.20	12-03-75	
			232.17	1,092.83	05-24-77	
			224.66	1,100.34	05-03-78	
			229.08	1,095.92	04-03-79	
			241.98	1,083.02	03-26-80	
			207.40	1,117.60	04-23-81	
			246.43	1,078.57	05-11-82	
			314.80	1,010.20	04-25-83	
			330.75	994.25	04-04-84	
			319.78	1,005.22	04-08-85	
259.67	1,065.33	04-14-86				
135	GREEN FOREST CITY	1,350	241.23	1,083.77	04-08-87	367RBDX
			185.87	1,164.13	08-25-66	
			193.85	1,156.15	11-02-66	
			196.92	1,153.08	02-15-67	
			202.67	1,147.33	06-07-67	
			178.90	1,171.10	05-22-68	
			272.89	1,077.11	11-05-69	
			246.98	1,103.02	11-10-71	
			248.35	1,101.65	10-18-72	
			235.15	1,114.85	11-28-73	
			239.61	1,110.39	11-25-74	
			244.97	1,105.03	12-03-75	
			247.67	1,102.33	05-24-77	
			236.20	1,113.80	05-03-78	
			238.69	1,111.31	04-03-79	
			246.39	1,103.61	03-26-80	
			241.90	1,108.10	05-20-81	
249.52	1,100.48	05-11-82				
234.30	1,115.70	04-25-83				
245.00	1,105.00	04-04-84				
226.35	1,123.65	04-08-85				
238.30	1,111.70	04-14-86				

Table 3.--Water-level data from wells, Carroll County, Arkansas--Continued

SITE NO.	SITE NAME	ALTITUDE OF LAND SURFACE (FEET ABOVE SEA LEVEL)	DEPTH TO WATER (FEET BELOW LAND SURFACE)	ALTITUDE OF WATER LEVEL (FEET ABOVE SEA LEVEL)	DATE WATER LEVEL MEASURED	WATER-BEARING FORMATION
			244.50	1,105.50	05-05-88	
			257.79	1,092.21	05-11-89	
			250.17	1,099.83	03-28-90	
136	DR. R.A. ETHERINGTON	1,525	381.50	1,143.50	07-28-75	367RBDX
137	REV. JOHN WYATT	1,480	462.00	1,018.00	03-09-77	368JFRC
138	ROGER A. ANDERSON	1,460	451.00	1,009.00	03-08-77	367RBDX
146	MURL MALONE	1,360	15.42	1,345.00	05-27-92	330B00N
			15.29	1,345.00	06-03-92	
			15.43	1,345.00	07-13-92	
			15.47	1,345.00	08-25-92	
147	MURL MALONE	1,360	26.98	1,333.00	07-13-92	330B00N

Table 4. - Discharge data from springs, Carroll County, Arkansas

[C, current meter; E, estimated; V, volumetric; 331BSVL, Batesville Sandstone; 330B00N, Boone Formation; 367CTTR, Cotter Dolomite; <, less than]

SITE NO.	NAME OF SPRING	ALTITUDE OF LAND SURFACE (FEET ABOVE SEA LEVEL)	DISCHARGE (GALLONS PER MINUTE)	DATE DISCHARGE MEASURED	METHOD OF DISCHARGE MEASUREMENT	STRATI-GRAPHIC HORIZON OF SPRING ORIFICE
1	BUNCH SPRING	1,065	180	10-29-90	C	367CTTR
			100	08-23-91	E	367CTTR
2	K. HAMM SPRING	1,145	10	10-29-90	E	367CTTR
			110	06-10-92	E	367CTTR
3	R.L. CHANEY SPRING	1,230	50	10-29-90	E	367CTTR
6	VERDA DOTSON SPRING	1,400	1,200	11-06-90	C	330B00N
9	WINONA SPRING	1,320	0.9	09-26-91	V	330B00N
10	BLUE SPRING	920	4,600	06-29-51	C	367CTTR
			3,000	04-06-54	C	
			410	09-01-54	C	
			2,900	08-06-57	C	
			4,900	06-12-58	C	
			1,800	10-23-58	C	
			1,800	08-11-59	C	
			1,100	09-24-59	C	
			2,500	08-24-60	C	
			1,600	09-14-60	C	
			1,600	10-13-60	C	
			3,500	07-12-61	C	
			5,700	09-13-61	C	
			2,600	11-01-61	C	
			5,800	05-22-62	C	
			3,400	06-20-62	C	
			1,900	07-19-62	C	
			1,300	08-14-62	C	
			3,700	04-18-63	C	
			1,300	07-30-63	C	
			1,000	12-09-65	C	
			1,900	08-01-68	C	
			1,200	09-03-87	C	
			1,100	08-25-88	C	
			930	10-06-88	C	
17	JOHNSON SPRING	1,090	3.1	08-21-91	E	367CTTR
18	HALE SPRING	1,180	480	08-21-91	C	330B00N
21	MCWILLIAMS SPRING	1,370	10	08-22-91	E	330B00N
22	FLOYD SPRING	1,370	.1	02-21-91	E	330B00N
23	BERRYVILLE SPRING	1,178	28	08-22-91	E	367CTTR
26	BRASWELL SPRING	1,260	50	03-12-91	E	367CTTR
29	J.P. RILEY SPRING	1,200	2.6	08-21-91	E	367CTTR
43	BASIN SPRING	1,300	13	05-07-91	E	331BSVL
48	HARP SPRING	1,310	<.1	07-09-92	E	330B00N
64	COY HUFF SPRING	1,360	280	08-22-91	C	330B00N
72	WILSON SPRING	1,390	.1	08-22-91	E	330B00N
73	HALFIELD SPRING	1,380	.2	07-15-91	E	330B00N
82	ROBERTS SPRING	1,090	0	08-22-91	E	367CTTR
90	BUTLER SPRING	1,200	150	08-22-91	E	367CTTR
94	REEVES SPRING	1,130	3,000	08-23-91	C	330B00N
109	JOHNSON SPRING	1,070	3.1	08-21-91	E	367CTTR
145	MALONE SPRING	1,340	350	05-12-92	C	330B00N

Table 5. Concentrations of major constituents and properties

[μ S/cm, microsiemens per centimeter at 25 degrees Celsius; $^{\circ}$ C, degrees Celsius; mg/L, milligrams per

SITE NO.	SITE NAME	LOCAL WELL NO.	DATE	SPECIFIC CONDUCTANCE (μ S/cm)	PH (STANDARD UNITS)	TEMPERATURE WATER ($^{\circ}$ C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS TOTAL (mg/L as CaCO ₃)
1	BUNCH SPRING	20N25W26DBD1SP	09-26-91	478	7.2	15.0	2	270
8	KENNETH CLARK	19N24W05ADD1	09-26-91	402	7.6	15.5	1	220
9	WINONA SPRING	19N25W06CDD1SP	09-26-91	163	7.8	14.0	2	89
18	HALE SPRING	21N23W17DDA1SP	09-24-91	369	7.2	14.0	2	170
31	WAYNE HARNESS	21N23W17AAB1	09-24-91	428	7.4	15.5	5	230
34	BUDDY DAVIDSON	21N25W25ACC1	09-24-91	498	7.9	16.5	1	260
39	JIMMY BISHOP	20N23W12CCB1	09-24-91	435	7.5	16.5	--	--
58	LONNIE USERY	19N22W34BCB1	09-25-91	521	7.2	15.5	2	260
64	COY HUFF SPRING	18N23W25CDA1SP	09-25-91	358	7.2	16.0	5	180
65	COY HUFF	18N23W26DAA1	09-25-91	677	7.0	16.0	2	370
87	HOWARD COLLINS	18N23W04CDA1	09-26-91	407	7.5	16.0	2	220
90	BUTLER SPRING	19N23W30DCD1SP	09-26-91	405	7.3	16.5	--	--
91	KENNETH ESSLINGER	17N24W14AAB1	09-25-91	406	7.4	15.5	2	220
94	REEVES SPRING	19N23W12ADD1SP	09-23-91	568	6.9	17.0	25	180
95	CLIFFORD BOETTNER	20N26W06CCC1	09-27-91	718	7.2	16.0	--	--
123	EUREKA SPRINGS CITY	20N26W23ACA1	09-01-76	--	8.4	--	--	140
124	EUREKA SPRINGS CITY	20N26W16DCA1	07-28-54	--	--	--	--	170
			09-01-75	--	8.2	--	--	150
126	DEWAYNE TIPTON	20N22W03DDA1	06-20-87	478	7.5	22.0	--	220
			09-17-87	480	7.0	17.0	--	220
130	HOLIDAY ISLAND	21N26W17BCC1	08-01-76	--	8.3	--	--	280
131	HOLIDAY ISLAND	21N26W15BAA1	08-02-73	--	--	--	5	230
			08-01-76	--	8.4	--	--	230
135	GREEN FOREST CITY	19N23W04BAC1	03-01-65	--	--	--	1	250

in water from selected wells and springs in Carroll County, Arkansas

liter; --, not determined; <, signifies concentration is below detection limit of the value specified]

HARD- NESS NONCARB (mg/L as CaCO3)	CALCIUM DIS- SOLVED (mg/L as Ca)	MAGNE- SIUM, DIS- SOLVED (mg/L as Mg)	SODIUM, DIS- SOLVED (mg/L as Na)	POTAS- SIUM, DIS- SOLVED (mg/L as K)	ALKA- LITY FIELD (mg/L as CaCO3)	SULFATE DIS- SOLVED (mg/L as SO4)	CHLO- RIDE, DIS- SOLVED (mg/L as Cl)	FLUO- RIDE, DIS- SOLVED (mg/L as F)	SILICA, DIS- SOLVED (mg/L as SiO2)	SOLIDS, RESIDUE AT 180 °C DIS- SOLVED (mg/L)	SITE NO.
--	56	31	3.8	1.8	--	12	8.4	0.10	9.6	--	1
--	49	24	1.3	1.5	--	12	.30	.10	8.8	--	8
--	32	2.1	1.4	.60	--	2.5	1.6	< .10	7.9	--	9
--	60	5.2	5.4	.90	--	1.9	12	< .10	10	--	18
--	53	24	9.6	1.4	--	12	4.9	.50	8.5	--	31
--	58	29	1.6	1.9	--	22	.40	.20	8.4	--	34
--	--	--	--	--	--	--	--	--	--	--	39
--	98	4.5	3.0	.80	--	6.4	5.9	< .10	9.9	--	58
--	70	2.3	3.9	1.5	--	10	8.3	< .10	9.3	--	64
--	140	5.8	6.3	1.2	--	12	46	.10	8.2	--	65
--	48	25	1.8	1.2	--	13	2.7	.10	8.9	--	87
--	--	--	--	--	--	--	--	--	--	--	90
--	85	.72	1.5	.30	--	1.7	3.8	< .10	9.5	--	91
--	67	3.7	42	11	--	60	37	.10	10	--	94
--	--	--	--	--	--	--	--	--	--	--	95
--	27	19	3.0	--	--	16	3.5	.20	--	--	123
--	--	--	--	--	--	24	2.2	--	--	--	124
--	34	16	2.0	--	--	18	4.0	.20	--	--	--
--	59	18	6.1	3.5	192	17	6.0	--	--	--	126
--	58	19	6.4	3.9	202	17	8.7	--	--	--	--
--	58	34	2.0	--	--	11	2.8	.20	--	337	130
9	--	--	--	--	--	11	2.8	.20	--	--	131
--	48	27	2.0	--	--	11	2.8	.20	--	--	--
12	54	28	--	--	--	32	10	.25	--	--	135

Table 6.--Concentrations of trace constituents in water from
 µg/L, micrograms per liter; <, signifies concentration is below

SITE NO.	SITE NAME	LOCAL WELL NO.	DATE	ALUM- INUM, DIS- SOLVED (µg/L as Al)	ARSENIC DIS- SOLVED (µg/L as As)	BARIUM, DIS- SOLVED (µg/L as Ba)	BERYL- LIUM, DIS- SOLVED (µg/L as Be)	CADMIUM DIS- SOLVED (µg/L as Cd)	CHRO- MIUM, DIS- SOLVED (µg/L as Cr)
1	BUNCH SPRING	20N25W260BD1SP	09-26-91	<10	<1	42	<0.5	<1.0	<1
8	KENNETH CLARK	19N24W05ADD1	09-26-91	<10	<1	7	<.5	<1.0	<1
9	WINONA SPRING	19N25W06CDD1SP	09-26-91	10	<1	16	<.5	<1.0	<1
18	HALE SPRING	21N23W17DDA1SP	09-24-91	10	<1	28	<.5	<1.0	1
31	WAYNE HARNESS	21N23W17AAB1	09-24-91	20	2	17	<.5	<1.0	<1
34	BUDDY DAVIDSON	21N25W25ACC1	09-24-91	10	<1	23	<.5	<1.0	<1
58	LONNIE USERY	19N22W34BCB1	09-25-91	20	<1	26	<.5	<1.0	<1
64	COY HUFF SPRING	18N23W25CDA1SP	09-25-91	20	<1	43	<.5	<1.0	<1
65	COY HUFF	18N23W26DAA1	09-25-91	20	<1	51	<.5	<1.0	<1
87	HOWARD COLLINS	18N23W04CDA1	09-26-91	10	<1	10	<.5	<1.0	<1
91	KENNETH ESSLINGER	17N24W14AAB1	09-25-91	10	<1	21	<.5	<1.0	<1
94	REEVES SPRING	19N23W12ADD1SP	09-23-91	20	<1	46	<.5	<1.0	<1
126	DEWAYNE TIPTON	20N22W03DDA1	06-20-87	--	--	--	--	<.6	--
			09-17-87	--	--	--	--	1.0	--
131	HOLIDAY ISLAND	21N26W15BAA1	08-02-73	200	--	--	--	--	10

selected wells and springs in Carroll County, Arkansas

detection limit of the value specified; - , not determined]

COPPER DIS- SOLVED (µg/L as Cu)	IRON, DIS- SOLVED (µg/l as Fe)	LEAD, DIS- SOLVED (µg/L as Pb)	MERCURY DIS- SOLVED (µg/L as Hg)	MOLYB- DENUM, DIS- SOLVED (µg/L as Mo)	NICKEL, DIS- SOLVED (µg/L as Ni)	SELE- NIUM, DIS- SOLVED (µg/L as Se)	SILVER, DIS- SOLVED (µg/L as Ag)	STRON- TIUM, DIS- SOLVED (µg/L as Sr)	VANA- DIUM, DIS- SOLVED (µg/L as V)	ZINC, DIS- SOLVED (µg/L as Zn)	SITE NO.
<1	<3	<1	0.1	<1	<1	<1	<1.0	46	<1	10	1
<1	31	<1	.1	9	<1	<1	<1.0	45	<1	14	8
<1	<3	<1	.1	<1	<1	<1	<1.0	24	<1	3	9
<1	6	<1	.1	<1	<1	<1	<1.0	32	<1	16	18
<1	97	<1	.1	<1	<1	<1	<1.0	260	<1	510	31
<1	39	<1	.1	1	<1	<1	<1.0	48	<1	180	34
2	10	<1	.1	<1	<1	<1	<1.0	74	<1	9	58
<1	6	<1	.1	<1	<1	<1	<1.0	64	<1	5	64
1	9	1	.1	1	<1	<1	<1.0	170	<1	59	65
3	10	<1	.1	6	<1	<1	<1.0	69	<1	46	87
2	6	<1	.1	<1	<1	<1	<1.0	38	<1	210	91
3	13	<1	.1	<1	2	<1	<1.0	79	2	10	94
<3	4	10	--	--	<6	--	--	--	--	630	126
<2	8	<2	--	--	<5	--	--	--	--	290	
100	--	10	1.0	--	--	--	10	--	--	100	131

Table 7.--Concentration of nutrients and microorganisms in water from selected wells and springs in Carroll County, Arkansas

[mg/L, milligrams per liter; cols., colonies; mL, milliliters; <, signifies concentration is below detection limit of the value specified; --, not determined; K, plate count outside ideal range]

SITE NO.	SITE NAME	LOCAL WELL NO.	DATE	NITRO-GEN, AMMONIA DIS-SOLVED (mg/L as N)	NITRO-GEN, NO ₂ +NO ₃ DIS-SOLVED (mg/L as N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (mg/L as P)	COLI-FORM, FECAL, MF AGAR (cols. per 100 mL)	STREP-TOCOCCI, FECAL, KF AGAR (cols. per 100 mL)
1	BUNCH SPRING	20N25W26DBD1SP	09-26-91	0.010	1.20	0.020	63	1,000
8	KENNEIH CLARK	19N24W05ADD1	09-26-91	.020	< .050	<0.010	0	0
9	WINONA SPRING	19N25W06CDD1SP	09-26-91	< .010	< .050	<0.010	0	82
18	HALE SPRING	21N23W17DDA1SP	09-24-91	< .010	2.00	0.020	22	190
23	BERRYVILLE SPRING	20N24W30DBA1SP	09-27-91	--	--	--	110	51
31	WAYNE HARNESS	21N23W17AAB1	09-24-91	< .010	.290	<0.010	0	0
34	BUDDY DAVIDSON	21N25W25ACC1	09-24-91	.010	< .050	<0.010	0	0
39	JIMMY BISHOP	20N23W12CCB1	09-24-91	--	--	--	0	0
58	LONNIE USERY	19N22W34BCB1	09-25-91	.010	2.90	<0.010	0	0
64	COY HUFF SPRING	18N23W25CDA1SP	09-25-91	< .010	1.40	<0.010	K61	240
65	COY HUFF	18N23W26DAA1	09-25-91	.010	.880	<0.010	0	150
87	HOWARD COLLINS	18N23W04CDA1	09-26-91	< .010	< .050	<0.010	0	0
90	BUTLER SPRING	19N23W30DCD1SP	09-26-91	--	--	--	130	140
91	KENNETH ESSLINGER	17N24W14AAB1	09-25-91	< .010	.820	<0.010	0	0
94	REEVES SPRING	19N23W12ADD1SP	09-23-91	< .010	7.20	0.540	K1,000	K7,300
95	CLIFFORD BOETNER	20N26W06CCC1	09-27-91	--	--	--	0	7
126	DEWAYNE IPTON	20N22W03DDA1	06-20-87	.050	--	0.010	0	1
			09-17-87	.100	--	0.010	0	2

Table 8. -- Identification of general areas of sinkholes and internally-drained, closed depressions identifiable on 7.5-minute topographic quadrangle maps in Carroll County, Arkansas

Site number	General areas of occurrence	7 1/2 minute topographic quadrangle	Geologic formation in which depression occurs	Altitude of bottom of depression (feet above sea level)	Number of closed depressions
501	T21N R26W section 14	Eureka Springs	Cotter Dolomite	1,180	1
502	T21N R23W sections 13,14,15,22,23	Blue Eye	Boone Formation	1,080-1,180	4
503	T21N R23W section 30	Blue Eye	Boone Formation	1,320-1,340	4
504	T21N R22W sections 34,27	Denver	Boone Formation	1,140-1,260	7
505	T21N R22W section 32	Denver	Boone Formation	1,160	2
506	T21N R23W section 33 T20N R23W sections 4,5	Blue Eye	Boone Formation	1,240-1,260	3
507	T20N R24W sections 13,24 T20N R23W sections 7,8,17,18,19	Blue Eye	Boone Formation	1,280-1,440	5
508	T20N R22W sections 7,18	Denver	Boone Formation	1,220-1,240	3
509	T20N R22W sections 8,17	Denver	Boone Formation	1,140-1,180	2
510	T20N R23W sections 14,15,21,22,23,28	Blue Eye, Green Forest	Batesville Sandstone	1,260-1,330	11
511	T20N R22W section 20	Denver	Boone Formation	1,100-1,180	3
512	T20N R23W section 29	Green Forest	Batesville Sandstone	1,220-1,320	2
513	T20N R23W section 29	Alpena	Boone Formation	1,200-1,280	2
514	T20N R23W sections 30,31,32 T19N R23W section 5	Green Forest	Batesville Sandstone	1,280-1,360	5
515	T20N R22W sections 27,28,29,33,34 T19N R22W sections 10,3	Alpena	Boone Formation	1,120-1,300	11
516	T19N R24W sections 4,5,8,9	Berryville	Cotter Dolomite	1,120-1,220	5
517	T19N R23W section 6	Green Forest	Boone Formation	1,400	2
518	T19N R23W sections 9, 10	Green Forest	Batesville Sandstone	1,280-1,320	3
519	T19N R23W sections 2,3	Green Forest	Batesville Sandstone	1,300-1,330	2
520	T19N R22W section 6 T19N R23W section 1	Green Forest, Alpena	Boone Formation	1,240-1,260	3
521	T20N R22W section 33 T19N R22W sections 4,5,8,10	Alpena	Boone Formation	1,200-1,320	12
522	T19N R23W sections 24,25	Green Forest	Batesville Sandstone	1,320-1,340	2
523	T19N R23W sections 12,13 T19N R22W sections 7,8,16,17,18,19,20 22,27,28,29,33	Alpena Green Forest	Batesville Sandstone	1,220-1,500	59
524	T18N R24W sections 27,28	Marble	Boone Formation	1,440-1,700	3
525	T18N R23W sections 31,32	Osage	Batesville Sandstone	1,600-1,920	3
526	T18N R23W sections 26,34,35	Osage	Boone Formation	1,320-1,560	4
527	T18N R22W section 16	Osage NE	Batesville Sandstone	1,460	2
528	T17N R23W section 18	Osage	Batesville Sandstone	1,560-1,600	2
529	T21N R26W section 26	Eureka Springs	Boone Formation	1,520	1
530	T21N R26W section 25	Eureka Springs	Boone Formation	1,520	1
531	T21N R26W section 36	Eureka Springs	Boone Formation	1,200	1
532	T20N R25W section 4	Eureka Springs	Cotter Dolomite	1,140	1
533	T20N R25W section 8	Eureka Springs	Cotter Dolomite	1,140	1

Table 8.--Identification of general areas of sinkholes and internally-drained, closed depressions identifiable on 7.5-minute topographic quadrangle maps in Carroll County, Arkansas--Continued

Site number	General areas of occurrence	7 1/2 minute topographic quadrangle	Geologic formation in which depression occurs	Altitude of bottom of depression (feet above sea level)	Number of closed depressions
534	T20N R25W section 35	Rockhouse	Cotter Dolomite	1,160	1
535	T19N R25W section 3	Rockhouse	Boone Formation	1,660	1
536	T21N R24W section 36	Blue Eye	Boone Formation	1,340	1
537	T21N R23W section 28	Blue Eye	Boone Formation	1,350	1
538	T21N R22W section 31	Denver	Boone Formation	1,140	1
539	T21N R22W section 29	Denver	Boone Formation	1,120	1
540	T20N R22W section 6	Denver	Boone Formation	1,180	1
541	T20N R23W section 3	Blue Eye	Boone Formation	1,140	1
542	T20N R23W section 25	Green Forest	Boone Formation	1,200	1
543	T20N R22W section 31	Alpena	Boone Formation	1,160	1
544	T20N R22W section 16	Denver	Boone Formation	1,120	1
545	T19N R23W section 11	Green Forest	Batesville Sandstone	1,220	1
546	T19N R23W section 17	Green Forest	Boone Formation	1,560	1
547	T19N R23W section 22	Green Forest	Batesville Sandstone	1,320	1
548	T19N R23W section 30	Green Forest	Cotter Dolomite	1,350	1
549	T19N R23W section 27	Green Forest	Batesville Sandstone	1,850	1
550	T19N R23W section 32	Green Forest	Cotter Dolomite	1,300	1
551	T19N R23W section 34	Green Forest	Boone Formation	1,900	1
552	T19N R22W section 31	Alpena	Batesville Sandstone	1,980	1
553	T18N R23W section 6	Osage	Batesville Sandstone	1,660	1
554	T18N R23W section 10	Osage	Boone Formation	1,420	1
555	T18N R24W section 13	Osage	Boone Formation	1,560	1
556	T18N R23W section 20	Osage	Boone Formation	1,800	1
557	T18N R23W section 23	Osage	Batesville Sandstone	1,720	1
558	T18N R22W section 19	Osage NE	Boone Formation	1,560	1
559	T17N R23W section 9	Osage	Atoka Formation	2,000	1
560	T17N R23W section 6	Osage	Boone Formation	1,620	1
561	T17N R24W section 12	Osage	Batesville Sandstone	1,700	1
562	T17N R24W section 15	Marble	Batesville Sandstone	1,340	1
563	T18N R24W section 31	Marble	Boone Formation	1,360	1
564	T20N R23W section 33	Green Forest	Batesville Sandstone	1,360	1
565	T19N R22W section 15	Alpena	Boone Formation	1,280	1
566	T19N R22W section 15	Alpena	Boone Formation	1,180	1
567	T19N R22W section 21	Alpena	Batesville Sandstone	1,280	1