GEOHYDROLOGY AND SUSCEPTIBILITY OF COLDWATER SPRING AND JACKSONVILLE FAULT AREAS TO SURFACE CONTAMINATION IN CALHOUN COUNTY, ALABAMA

By John C. Scott, Wiley F. Harris, and Riley H. Cobb

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CONVERSION FACTORS

For use of readers who prefer to use metric (International System) units, conversion factors for inch-pound units used in this report are listed below:

Multiply inch-pound unit	by	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Flow	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
gallon per minute (gal/min)	0.0630	liter per second (L/s)
million gallon per day (Mgal/d)	0.0438	cubic meter per second (m^3/s)
million gallon per day per square mile [$(Mgal/d)/mi^2$]	1,460	cubic meter per day per square kilometer [$(m^3/s)/km^2$]
	Temperature	
degrees Celsius (°C)	$°F = 9/5°C + 32$	degrees Fahrenheit

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 "Mean Sea Level of 1929."

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ABSTRACT

Coldwater Spring is the primary source of water supply for the city of Anniston, Fort McClellan, Anniston Ordinance Depot, and several smaller towns and suburban areas in the Anniston area, Calhoun County, Alabama. The total estimated population served by the spring is about 70,000. The spring is one of the largest in Alabama, having an average discharge of 31.2 million gallons per day.

The Coldwater Spring aquifer system consists of fractured limestone, dolomite, and quartzite of Cambrian and Ordovician ages. Some shale and clay units probably separate the water-bearing units in some areas. These rocks have been complexly folded and faulted to the extent that all the aquifers in the recharge area of Coldwater Spring probably are interconnected hydraulically.

The potentiometric surface map of the study area indicates that the recharge area for the aquifer system that supplies Coldwater Spring consists of about 23 square miles, however, unit recharge values of over 20 inches per year appear to be unrealistic. Base-flow (dry-weather) data for streams indicate that a recharge area of about 90 square miles is needed to support the average discharge of 31.2 million gallons per day for the spring. Additional recharge may be derived from outside the recharge area delineated from the potentiometric map because the limited number and shallow depth of most wells may not accurately define the potentiometric surface. Movement of ground water to the spring may be occurring along the Jacksonville Fault but cannot be defined because of the limitations of the available data.

On the basis of a recharge area of 90 square miles, ground water protection measures should be extended from Coldwater Spring northeastward to the town of Jacksonville. Other springs used for public supply in this area also would benefit from the protection measures.

The parts of the recharge area that are most susceptible to contamination from the surface are the flat to gently rolling terrains underlain by limestone, dolomite, and quartzite. A mantle of residuum has developed on the carbonate rocks. The residuum is moderately to highly permeable, and is a primary avenue of recharge to the aquifer system. About three-fourths of the recharge area depicted by the potentiometric map appears to be susceptible to contamination from the surface.

INTRODUCTION

Coldwater Spring is the primary source of water supply for the city of Anniston, Fort McClellan, Anniston Ordinance Depot, and several smaller towns and suburban areas in the Anniston area, Calhoun County, Alabama (plate 1). The total estimated population served by the spring is about 70,000. The spring is one of the largest in Alabama, having an average discharge of 31.2 Mgal/d (million gallons per day).

The Alabama Department of Environmental Management (ADEM) is developing a comprehensive ground-water protection program in response to the U.S. Environmental Protection Agency's (EPA) Ground-Water Protection Strategy. As a part of this strategy, ADEM will formulate plans to protect all "Class I and II" aquifers and recharge areas in Alabama. "Class I and II" aquifers, as defined by EPA, are special ground-water reservoirs that are highly vulnerable to contamination and are irreplaceable in that no reasonable alternate source of drinking water is available to substantial populations or the aquifer provides base flow for a particularly sensitive ecological system (U.S. Environmental Protection Agency, 1984). Protection of the aquifers will begin by ADEM encouraging local zoning actions and more stringent regulation of activities occurring in "Class I and II" aquifer recharge areas.

The aquifer that supplies Coldwater Spring has been designated a "Class I" aquifer by EPA. Information on the geohydrology and recharge area of the Coldwater Spring aquifer system is required for ADEM to intelligently evaluate the effect of regulations and to develop a ground-water protection strategy. The U.S. Geological Survey has been requested by ADEM to delineate and describe the aquifer system that supplies Coldwater Spring.

Location and Extent of the Area

The Coldwater Spring aquifer system is in eastern Calhoun County (fig. 1). The area studied to determine the extent of the spring system extends from the southern boundary of the county, northward and northeastward through Anniston and Jacksonville to Piedmont, and includes most of central and eastern Calhoun County. The extent of the study area is shown on plate 1.

Purpose and Scope

The purpose of this report is to describe the geohydrology of the Coldwater Spring and Jacksonville Fault areas, to delineate the recharge area for Coldwater Spring, and to delineate parts of the recharge area that are susceptible to contamination from the surface. Reports on the geohydrology of Calhoun County provided about 50 percent of the data needed to evaluate the aquifer system. Additional data were collected for about 140 wells and springs in selected areas of Calhoun County. Water-level data were used to construct a potentiometric map, from which an attempt was made to delineate the approximate boundary of the aquifer flow system.

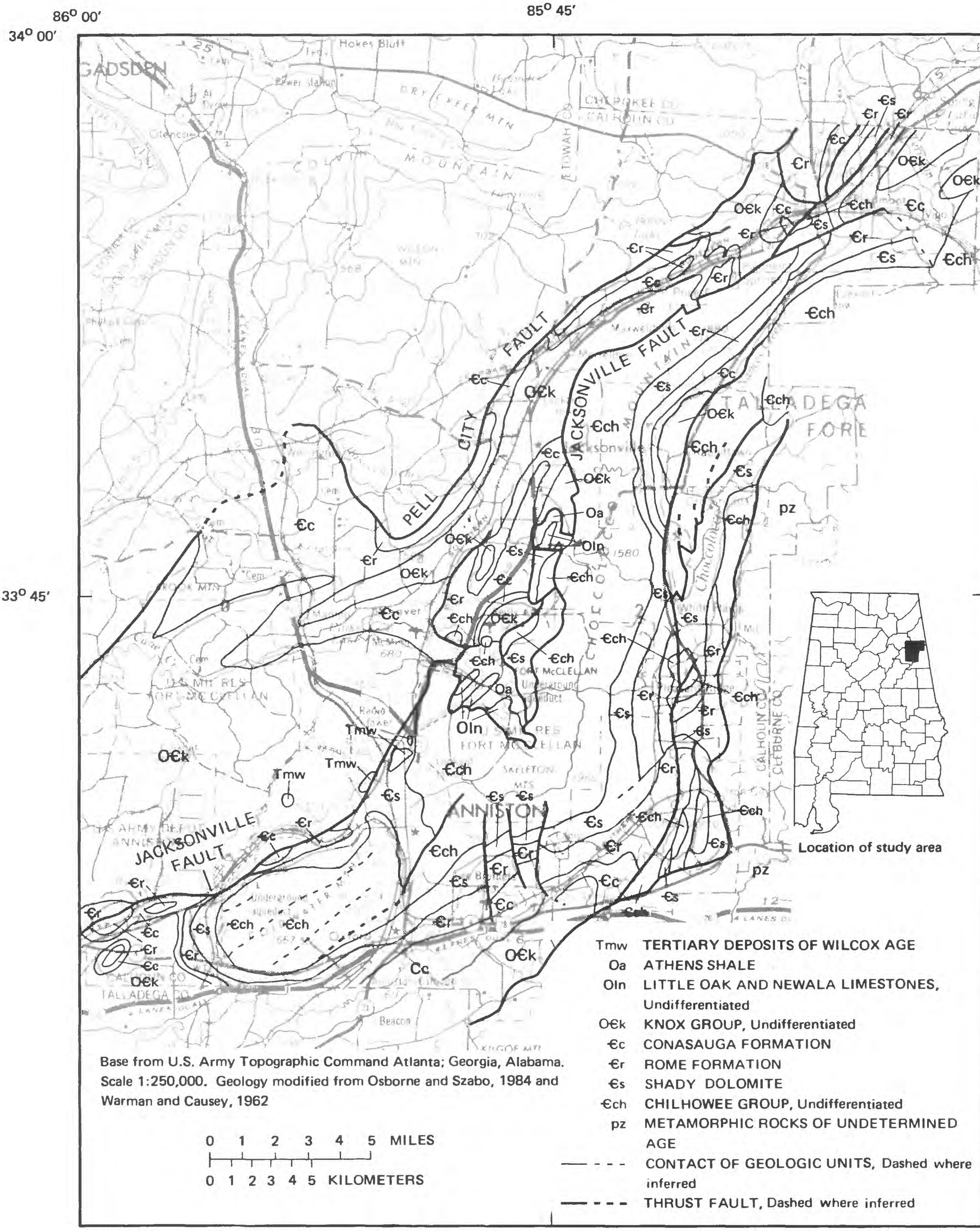


Figure 1.--Generalized geology of the area of study.

History of Coldwater Spring

The Anniston Water Supply Company purchased Coldwater Spring and 240 acres of surrounding property in 1889 to expand the water system for the city of Anniston. Two steam-driven, 3 Mgal/d pumps were installed at the spring, and a 20-inch diameter cast-iron pipeline was installed from Coldwater Spring to Anniston. This system was placed in operation in 1890 and was sufficient for Anniston's needs for nearly 50 years.

The pumping station was converted from steam to electricity in 1913. The system was sold in 1913 to the Alabama Water Company, and about 1926 was sold to the Federal Water Service Corporation. In 1935, after 15 years of court litigation (Warman and Causey, 1962), the city of Anniston bought the water system. Coldwater Spring currently supplies the cities of Anniston, Blue Mountain, and Oxford, military installations at Fort McClellan and Anniston Ordinance Depot, and several suburban areas.

Previous Investigations

Numerous reports describe the availability and quality of ground water in the area. The geology of Calhoun County is described in Geological Survey of Alabama Special Report 14 (Adams and others, 1926). W.D. Johnston, Jr. (1933) made a reconnaissance of ground water in northern Alabama in 1928-29, and obtained data for 46 wells and 22 springs in Calhoun County. A data report published by the Geological Survey of Alabama includes records for 850 wells and 149 springs in Calhoun County (Warman and others, 1960), and a detailed report that describes the ground-water resources of the county was prepared by Warman and Causey (1962). Geological Survey of Alabama Circular 117 describes the stratigraphy and structure of rocks in the vicinity of the Jacksonville Fault in eastern Calhoun County (Osborne and Szabo, 1984).

Physical Setting

The study area is in the Alabama Valley and Ridge section of the Valley and Ridge physiographic province (Fenneman, 1938). The topography of the study area is characterized by flat to gently-rolling northeastward trending valleys paralleled by ridges and mountains. Maximum local relief in the area is about 1,500 feet. The highest points are at an altitude of about 2,100 feet above sea level along the crest of Choccolocco Mountain. The surface altitude at Coldwater Spring is about 590 feet above sea level.

The study area is drained by tributaries of the Coosa River (Harkins, 1965). Eastern and southern parts of the area are drained southeastward by Choccolocco Creek; the west central part is drained westward by Cane and Tallaseehatchee (formerly Tallahatchee) Creeks; and the northern part is drained by Terrapin Creek. Numerous springs sustain the dry-weather flow of the streams.

Calhoun County has a moist temperate climate. The mean annual precipitation of about 52 inches is fairly well distributed throughout the year. The heaviest rainfall normally occurs in winter and spring, March being the wettest month. Thunderstorms generally are most frequent in the summer, but may occur in any month of the year. The driest month usually is October.

The average annual temperature at Anniston is about 62 °F. Temperature extremes recorded by the National Weather Service are -5 °F and 106 °F (National Climatic Data Center, 1984).

Acknowledgments

Acknowledgment is made to the residents of Calhoun County who furnished information on wells and springs, use of water, and other significant data. Mr. John Borden, Waterworks Manager for the city of Anniston, Mr. Ron Grant, Environmental Coordinator for Anniston Ordinance Depot, and Mr. Bill Pittman, Environmental Coordinator for Fort McClellan also provided valuable assistance to the study. The authors also express appreciation to Mr. Ralph C. Heath, U.S. Geological Survey, (Ret.), and Mr. John V. Brahana, U.S. Geological Survey, Nashville, Tenn., who provided useful information on the geohydrology of the Valley and Ridge province in the Southeastern United States.

GENERAL GEOLOGY OF THE AREA

The Coldwater Spring study area is underlain mainly by sedimentary and slightly metamorphosed sedimentary rocks of Paleozoic age (fig. 1). These rocks strike generally northeastward, but have been complexly folded and faulted. Fluvial deposits, identified as Tertiary age by R. W. Brown (Cloud and Brown, 1944) overlie Paleozoic formations in some parts of the study area.

Stratigraphy

Consolidated rocks in the study area range in age from Cambrian to Ordovician. Fluvial deposits and residuum overlie these rocks in some areas. Cambrian rocks, from oldest to youngest, include the Chilhowee Group, Shady Dolomite, Rome Formation, Conasauga Formation, and the lower part of the Knox Group (Osborne and Szabo, 1984).

The Chilhowee Group includes the Weisner and Wilson Ridge Formations, and crops out southeast of the Jacksonville Fault. The Chilhowee Group consists of about 1,100 feet of quartzite, sandstone, conglomerate, shale, and mudstone (Osborne and Szabo, 1984). The Shady Dolomite of Cambrian age overlies the Chilhowee Group and consists of 500 to 1,000 feet of sandy dolostone and dolomitic limestone. The Rome Formation of Cambrian age overlies the Shady Dolomite and consists of about 1,000 feet of mudstone, shaley mudstone, and shale. The Conasauga Formation of Middle and Late Cambrian age overlies the Rome Formation and consists of 100 to 500 feet of mudstone and shale with interbeds of limestone and siltstone. Throughout the outcrop area, the Conasauga is covered by a mantle of dark-red residual clay and chert boulders that is as much as 100 feet thick (Warman and Causey, 1962). The Knox Group of Cambrian and Ordovician ages overlies the Conasauga Formation and includes the Copper Ridge and Chepultepec Dolomites. The thickness of the dolomites is estimated to be about 2,000 feet (Osborne and Szabo, 1984).

The Newala and Little Oak Limestones of Ordovician age overlie the Knox Group. These two formations were mapped as a unit by Osborne and Szabo (1984). The Newala Limestone consists of light to medium gray, thick-bedded micritic limestone, dolomitic limestone, and dolomite. The Little Oak Limestone consists of medium to dark gray, thin to thick-bedded argillaceous fossiliferous limestone. The combined thickness of these units is about 300 to 400 feet. The Athens Shale of Late Ordovician age consists of dark gray to black, shale and shaley mudstone. The Athens is about 200 to 300 feet thick in the study area.

Carbonate rocks in the study area are deeply weathered, and a mantle of residuum (in-place decomposed bedrock) has developed on the outcrops. The residuum, which consists of residual clay and chert boulders and fragments, generally ranges in thickness from 30 to 100 feet. Sinkholes and depressions have developed on the surface of the residuum in some areas, particularly where the Knox Group crops out. The residuum appears to be moderately permeable and highly permeable where sinkholes and depressions have formed (Schalla and others, 1984).

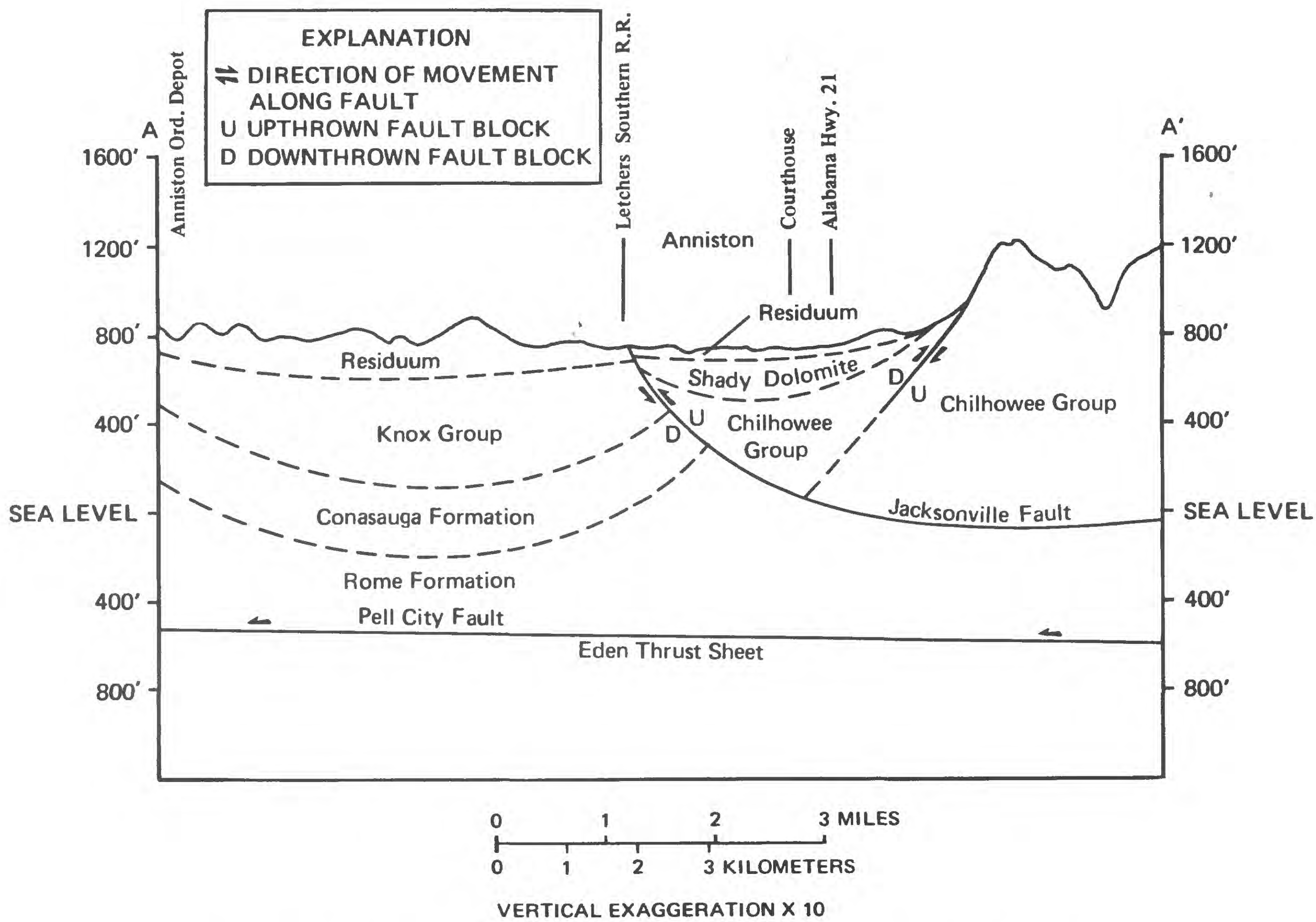


Figure 2.--Generalized subsurface section from Anniston Ordinance Depot to the vicinity of Golden Springs. Line of section shown on plate 1.

Fluvial deposits overlie Paleozoic Formations in several parts of the study area. These deposits consist of gravel, sand, silt, and clay and are as much as 100 feet thick (Warman and Causey, 1962). Some of these deposits have been identified as Tertiary age on the basis of fossil plants; others are probably of Quaternary age.

Structure

Geologic formations in the study area have been extensively folded into northeastward-trending synclines and anticlines complicated by thrust faults that have a general northeastward-trending strike and a southeastward dip. Choccolocco and Coldwater Mountains are anticlinal structures (fig. 2). The Jacksonville Fault is an extensive thrust fault that trends northeastward from the vicinity of Coldwater Spring through Anniston and Jacksonville to Piedmont in the northeastern corner of Calhoun County (plate 1).

The Jacksonville Fault and related faults in the area apparently have a significant effect on the movement of ground water. Warman and Causey (1963) point out that the fault plane of the Jacksonville Fault probably is a conduit for ground-water movement, and that ground water moves southwestward through carbonate rocks parallel to the fault. They also note that all large, low-variability springs in Calhoun County are near the trace of thrust faults.

HYDROLOGY

The aquifer system in the study area includes fractured and weathered zones in the Chilhowee Group and solution cavities in the Shady Dolomite, Conasauga Formation, Knox Group, and Newala and Little Oak Limestones. In areas where faulting has not displaced formations, aquifers in each formation are probably separated to some extent by shale, clay, and other confining beds. However, in the study area movement along the Jacksonville Fault and other associated faults has juxtaposed the aquifers so that they are all hydraulically interconnected.

Recharge to the aquifer system is derived from rainfall. Average rainfall for the area is about 52 inches per year. Part of the precipitation runs off to surface streams, part is evaporated or transpired by plants, and part infiltrates into and percolates through the soil and weathered mantle to the aquifer system.

Movement of Ground Water

The movement of ground water in Calhoun County generally is controlled by topography and the transmissivity and geologic structure of the formations. A picture of the direction of ground-water movement can be obtained by mapping water levels in wells and drawing contour lines of equal potentiometric head as indicated by the water levels. Ground-water flow is perpendicular to the contours so one can picture the flow by following the contours "down-hill" or from high potentiometric head to low potentiometric head. The slope of the potentiometric surface of the aquifer system roughly follows the topographic surface where the potentiometric highs coincide with the mountains and ridges in the area and the potentiometric lows coincide with the axes of the valleys (plate 1). Therefore, ground-water movement is generally from mountains and ridges to valleys.

Ground-water movement on the northwestern slope of Coldwater Mountain and the western slope of Choccolocco Mountain is northwestward and westward to Anniston Valley. Ground-water movement along a range of low rolling ridges to the west of Anniston is southward to the valley area and then to the discharge point at Coldwater Spring. Ground-water movement outside of the Coldwater Spring recharge area generally is toward Choccolocco, Cane, and Tallaseehatchee Creeks.

Field investigation of springs on Choccolocco Mountain indicates that these springs are discharging from a perched water table. Therefore, contour lines for the potentiometric map were not extended to these sites.

Recharge Area

No previous investigation has mapped the potentiometric surface of the ground-water system in the study area to attempt to define the recharge area for Coldwater Spring. Approximately 140 wells and springs were measured to determine the potentiometric surface in the area. The recharge area for Coldwater Spring, determined from the potentiometric map and surface drainage, appears to be about 23 mi^2 (see plate 1). The apparent boundary of the recharge area for the Coldwater Spring aquifer system generally follows the topographic highs along Coldwater Mountain and the tops of low rolling hills of the Knox Group northwest of Coldwater Mountain. This area consists of steep mountain slopes, a relatively flat valley and gently- to moderately-rolling hills. The valley and the rolling hills are underlain by cavernous carbonate rocks on which a thick residual mantle has developed. Sinkholes and land subsidence are common, especially on the rolling hills.

The average discharge of Coldwater Spring, based on the period 1957-83, is 31.2 Mgal/d and the minimum discharge is 23.5 Mgal/d. By using a recharge area of 23 mi^2, the unit recharge to the spring would be about 1.36 (Mgal/d)/mi^2 or 28 in/yr for average flow and 1 (Mgal/d)/mi^2 or 21 in/yr for the minimum flow. These values appear to be unrealistically high when compared to unit recharge values for most aquifers. It is felt that the complex geology in the area may prevent defining the entire recharge area of Coldwater Spring from the available data. The following arguments are presented to support the conclusion that the recharge area defined by the potentiometric map is a shallow flow system that supplies only part of the flow to Coldwater Spring and that the faulting in the area probably connects Coldwater Spring to a deeper flow system that cannot be defined from the available data.

To verify recharge rates to the aquifer system in the area, the unit recharge rates for streams in the study area were compared to that of Coldwater Spring. Dry-weather flow of streams is considered to be a fairly reliable estimate of ground-water recharge if pumpage from the stream basins is minimal. Pumpage from wells in the recharge area for the spring is estimated to be less than 1 Mgal/d; therefore, the assumption can be made that the discharge from the spring is approximately equal to recharge to the Coldwater Spring aquifer system.

A common streamflow characteristic used to estimate recharge is the 7-day 2-year low flow which is the minimum average flow that is maintained for a 7-day period, on an average, every 2 years. This characteristic is commonly referred to as the 7-day Q_2. These discharges may be converted to discharge per square mile by dividing the discharge by drainage area when the streamflow was measured. The 7-day Q_2 of streams in the study area, converted to $(Mgal/d)/mi^2$, range from 0.077 to 0.457 and averages 0.232 (Hayes, 1978). The estimated low 7-day Q_2 per square mile for the study area determined from a regression equation (Bingham, 1979) is about 0.3 $(Mgal/d)/mi^2$.

The 7-day Q_2 for Coldwater Spring, based on the periods of record 1944-47 and 1957-73 is about 27 Mgal/d. Assuming an average recharge rate of 0.3 $(Mgal/d)/mi^2$, a recharge area of about 90 mi^2 would be required to sustain a discharge of 27 Mgal/d. Based on the highest 7-day Q_2 reported for streams in the area (0.457 $[Mgal/d]/mi^2$), a recharge area of about 59 mi^2 would be required to sustain the 7-day Q_2 discharge of the spring.

Considering these hydrologic relations, the recharge area shown on Plate 1 is not large enough to sustain the discharge of Coldwater Spring. The Jacksonville Fault and other faults in the eastern part of Calhoun County apparently have a significant effect on the storage and movement of ground water. Warman and Causey (1962) state that "the thrust faults form the principal reservoirs and conduits along which ground water from deep or distant sources reaches the surface. This is indicated by: the location of springs along the faults, their relatively uniform discharges and high yields, which are larger than would be expected if they were recharged locally." Based on this concept, a large part of the water discharging at Coldwater Spring is probably derived from recharge that moves along the Jacksonville Fault and associated faults from the Anniston-Fort McClellan-Jacksonville areas.

Variability of Discharge of Coldwater Spring

The variability of spring discharge may be expressed quantitatively as a ratio of the range in discharge to the average discharge (Meinzer, 1923, p. 53-54):

$$V = 100\ (a-b)/c$$

where V is the variability, in percent,
a is the maximum discharge,
b is the minimum discharge, and
c is the average discharge.

The seasonal variation in discharge for limestone springs is characteristically very large. However, Coldwater Spring has a low variability of discharge when compared to two other large springs in Alabama, which supports the argument for a "deep" flow system for the spring. The three largest springs in northern Alabama are Tuscumbia Spring in Colbert County, Big Spring in Madison County, and Coldwater Spring. Tuscumbia Spring and Big Spring both flow from relatively shallow solution channels in the Tuscumbia Limestone of Mississippian age. The variability of Tuscumbia Spring is about 200 percent and the variability of Big Spring is about 180 percent (Warman and Causey, 1962). On the basis of data for the period of record 1957-83, the variability of Coldwater Spring is calculated to be about 60 percent. The low variability of Coldwater Spring helps substantiate that its source remains constant and is not severely affected by seasonal variations in aquifer storage.

Turbidity in Springs

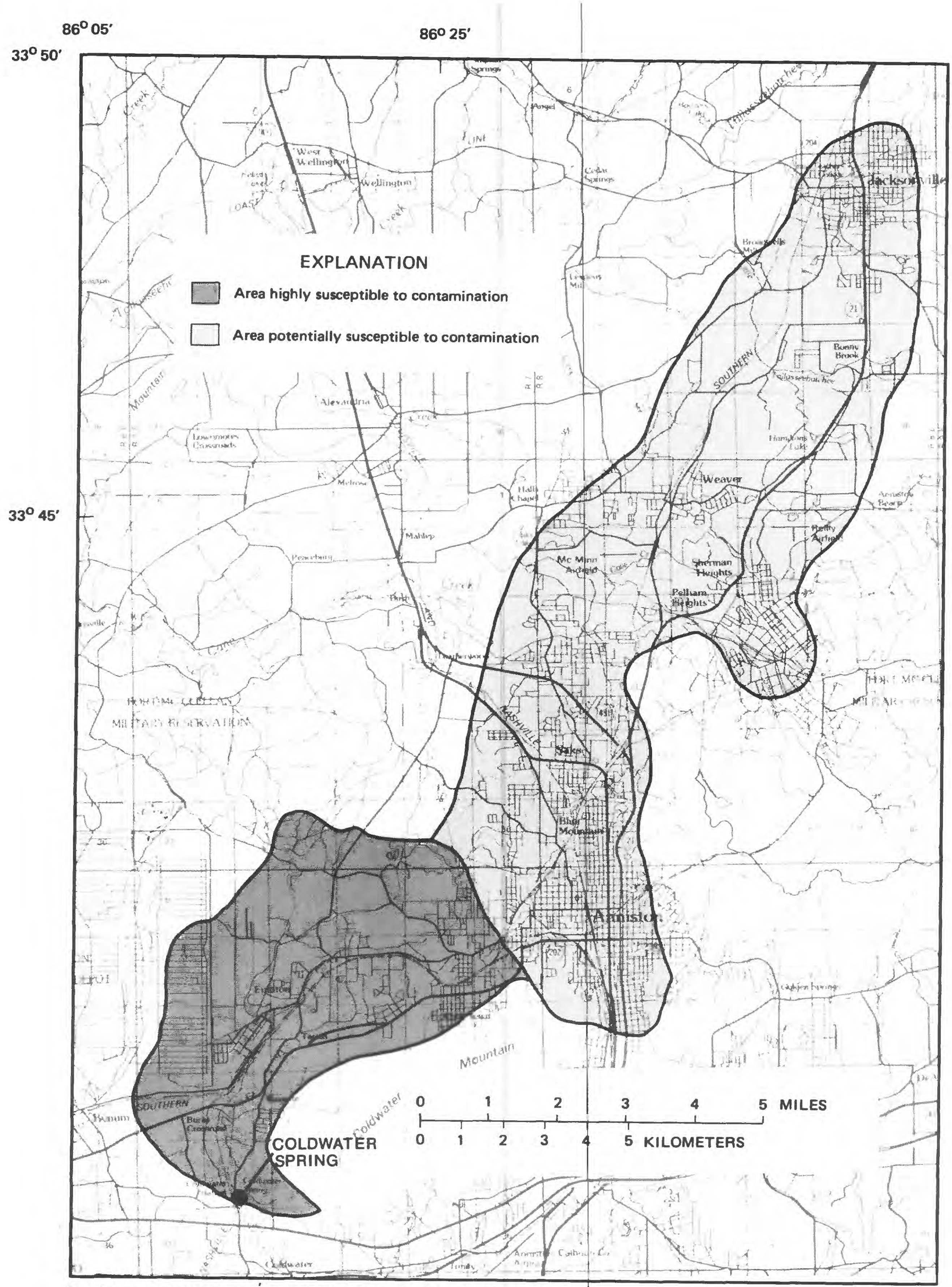
Another factor in confirming that Coldwater Spring does not receive water exclusively from local recharge is its lack of turbidity. Water discharging from carbonate-rock springs in northern Alabama commonly becomes turbid after large rainstorms. The turbid water is caused by runoff during rainstorms that infiltrates rapidly from the surface to the aquifer. Mr. John Borden, Anniston Waterworks Manager, reports that during the past 24 years water in Coldwater Spring has never been noticeably turbid, and during recent years when Anniston was analyzing the water for turbidity, it has never exceeded 0.2 turbidity unit (Oral commun., October 1985). The absence of turbidity in water discharging from the spring supports the concept that the spring is discharging water from a remote area.

SUSCEPTIBILITY TO CONTAMINATION FROM THE SURFACE

The potential for contamination of the Coldwater Spring aquifer system is related to land slopes in the recharge area and the stratigraphy and structure of geologic formations that underlie the recharge area. The southern part of the recharge area, which consists of the northwestern slope of Coldwater Mountain, is steep and is underlain by quartzite, sandstone, and shale of the Chilhowee Group. Beds in the Chilhowee Group dip northwestward along the mountain slope. Because of the steep mountain slope and the relatively low permeability of the underlying rocks, this area is not considered to be susceptible to contamination.

The Jacksonville Fault trends southwestward along the valley that parallels Coldwater Mountain. The Shady Dolomite and Rome and Conasauga Formations crop out southeast of the fault. The Knox Group crops out northwest of the fault (fig. 1). The Shady Dolomite, Conasauga Formation, and Knox Group consist mainly of cavernous carbonate rocks on which a thick mantle of residuum has developed. Because of the faulting and thick residual mantle, this area is highly susceptible to contamination.

The northern part of the recharge area (plate 1 and fig. 3) is underlain by the Knox Group. The terrain in this area consists of ridges and hills dissected by tributary streams. A thick mantle of residuum has developed on the Knox Group. Lithologic logs of observation wells recently installed in the vicinity of Anniston Ordinance Depot (records furnished by ADEM) indicate that the residuum is more than 200 ft thick at some places. Sinkholes and



Based from U.S. Geological Survey 1:100,000, Anniston, Ala.-Ga., 1979

Figure 3.--Areas susceptible to contamination from the surface.

depressions on the land surface are common in this area. Because of the thick residual mantle, the numerous sinkholes, and the cavernous carbonate rock beneath the residuum, this area also is highly susceptible to contamination.

As previously discussed, the recharge area defined from the potentiometric surface for the Coldwater Spring aquifer system shown on plate 1 is not large enough to sustain the discharge of Coldwater Spring. A large amount of recharge probably moves parallel to the Jacksonville Fault to the spring from the Anniston-Fort McClellan area and some recharge may originate from the Jacksonville area. The more-permeable parts of this additional area are shown as being potentially susceptible to contamination because recharge in this area may discharge at Coldwater Spring (fig. 3). The more-permeable part of the delineated recharge area should be regarded as potentially susceptible to contamination because of its proximity to the spring.

NEED FOR ADDITIONAL STUDIES

To provide conservative coverage for the protection of Coldwater Spring, it would be desirable for an area of approximately 90 mi^2 to be included as being in its recharge area. Ground-water protection measures could be extended from Coldwater Spring to the town of Jacksonville. Other springs used for public water supply in this area also would benefit from the protection measures.

The discrepancy between the streamflow analysis and potentiometric surface in defining the recharge area for Coldwater Spring could be that most wells used in mapping the potentiometric surface were less than 200 feet deep. The potentiometric surface probably depicts a "shallow" flow system that provides some water to Coldwater Spring but does not provide the total flow. However, the funds needed to attempt a drilling program to define the total flow system would be excessive owing to the complex geologic setting when anisotropic conditions are present. Chemical analyses of the springs in the area could provide relatively inexpensive methods of determining whether all the springs in the area derived water from the same source or whether the smaller springs have a different chemical character that indicate a different source of water. Alkalinities of the water can indicate relative residence time in the aquifers. Isotopic analyses can date water, thereby giving actual residence times that can be compared with flow paths determined from drainage areas. These methods would help determine whether Coldwater Spring was unique in its chemical character, and would give an indication of another deep or remote source of recharge.

SUMMARY AND CONCLUSIONS

The Coldwater Spring aquifer system consists of Cambrian and Ordovician limestone and dolomite, and Cambrian quartzite. Folding and faulting in the area has resulted in a geologically complex aquifer system. Available geologic and hydrologic data indicate that all the aquifers in the recharge area for Coldwater Spring may be hydraulically interconnected.

The potentiometric surface map of the study area indicates that the recharge area for the aquifer system that supplies Coldwater Spring consists of about 23 mi^2; however, unit recharge values of over 20 inches per year appear to be unrealistic. Base-flow (dry-weather) data for streams indicate that a recharge area of about 90 mi^2 is needed to support the average discharge of 31.2 Mgal/d for the spring. Additional recharge may be derived from outside the recharge area delineated from the potentiometric map because the limited number and shallow depth of most wells may not define the total flow to the spring. Movement of ground water to the spring may be occurring along the Jacksonville Fault, but cannot be defined because of the limitations of the available data.

The areas within the recharge area of Coldwater Spring that are most susceptible to contamination from the surface include flat to gently-rolling terrains underlain by cavernous limestone and dolomite, and fractured quartzite. A mantle of unconsolidated residuum has developed on the carbonate rocks. The residuum is moderately to highly permeable, and is an avenue of recharge to the aquifer system.

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Table 1.--Records of wells and springs in the Coldwater Spring area

NOTE:
Well numbers correspond to those shown in figure 2.
Geographic coordinate number: lat (ddmmss) long (dddmmss) sequential no. (xx).
Type: Spg, spring; D, drilled well; Du, dug well.
Depth of well and water level: Reported depth and water levels given in feet and tenths.
Water-bearing units: €ch, Chilhowee Group, undifferentiated; €s, Shady Dolomite; €r, Rome Formation; €c, Conasauga Formation; O€k, Knox Group, undifferentiated; Oln, Little Oak and Newala Limestones; Oa, Athens Shale.

Altitude: Determined by aneroid barometer or topographic maps.
Method of lift: C, cylinder; F, flows; J, jet; N, none; S, submergible; T, turbine.
Use of water: D, domestic; I, industrial; O, observation; P, public supply; R, recreation; S, stock; U, unused.
GSA no.: Number assigned to site in Geological Survey of Alabama report.

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
1	335632085332201	Joe Smith	Spg	------	--	--	€c	675	----	07-22-85	F	D	GSA no. A-29 Estimated flow 180 gal/min
2	335626085342101	Warren Estate	Spg	------	--	--	O€k	663	----	07-22-85	F	U	GSA no. A-21 Estimated flow 130 gal/min
3	335651085352701	Frank Stewart	Spg	------	--	--	€r	654	----	07-22-85	F	S	GSA no. A-28 Estimated flow 450 gal/min. Wall around spring
4	335652085353401	C. L. Smart	Spg	------	--	--	€r	654	----	07-22-85	F	S	GSA no. A-27 Estimated flow 130 gal/min
5	335517085371701	City of Piedmont	Spg	------	--	--	€c	684	----	07-18-85	F	R	GSA no. I-14 Estimated flow 220 gal/min. Formerly used as public water supply
6	335529085353701	U.S. Government	D	Adams & Massey Drillers	120.8	6	O€k	684	11.6	07-18-85	N	O	GSA no. I-33 Former observation well USGS CAL-3
7	335502085332801	Bethel Methodist Church	D	Rogers Well Drillers	64	6	O€k	709	33.9	07-18-85	J	D	GSA no. I-6

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
8	335503085350501	Lester Wade	D	Hancock Well Drillers	95	6	€c	702	23.5	07-18-85	J	D	GSA no. I-18
9	335346085371801	George Miller	D	------	138	6	€ch	743	51.2	07-24-85	N	U	GSA no. I-28
10	335416085362201	W.T. Morgan	Spg	------	--	--	€s	681	----	07-24-85	F	U	GSA no. I-31 Estimated flow 30 gal/min
11	335436085385801	City of Piedmont	Spg	------	--	--	€c	745	----	07-22-85	F	U	Estimated flow 130 gal/min
12	335433085384001	Thomas Ford	D	Rogers Well Drillers	110	6	O€k	823	81.7	07-23-85	J	D	GSA no. H-8
13	335358085401901	George R. Ingram	D	------	93	6	€c	808	21.5	07-23-85	S	D	GSA no. H-13 6 in. casing to 16 ft; none below
14	335300085423701	W.M. Matthews	D	Carl Pace	59.2	6	€c	690	22.9	07-23-85	J	D	GSA no. H-25
15	335242085431501	Wellborn Estate	Spg	------	--	--	O€k	700	----	07-18-85	F	D	GSA no. H-22 Also known as Wellborn Spring. Estimated flow 450 gal/min
16	335225085413901	Joe H. Garett	D	Rogers Well Drillers	100	6	€c	736	27.9	07-23-85	J	D	GSA no. H-27 6 in. casing to 25 ft; none below
17	335322085410401	City of Piedmont	D	Odom Well Drillers	265	4	€c	785	64.0	07-23-85	N	O	Observation well for landfill
18	335211085384301	James Ponder	D	Steele	92	6	O€k	725	37.3	07-24-85	J	D	Supplies household
19	335122085392901	Gerald Willis	D	Hancock	68.7	6	€c	760	19.0	08-15-85	N	U	GSA no. H-35

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
20	335046085400301	Robert Lusk	Spg	------	--	--	Ꞓr	780	----	08-15-85	F	U	GSA no. K-44 Estimated flow 40 gal/min
21	335025085403201	Sparks Roberts	Spg	------	--	--	Ꞓr	790	----	08-15-85	F	D	GSA no. K-45 Also known as Roberts Spring. Estimated flow 300 gal/min
22	335031085413801	C.C. Gothard	D	Rogers Well Drillers	92	6	Ꞓr	861	49.3	08-15-85	J	D	GSA no. K-5 6 in. casing to 92 ft; none below
23	334958085415801	George Watkins	D	Rogers Well Drillers		6	Ꞓr	884	79.5	08-15-85	C	U	GSA no. K-7
24	334941085414201	D.K. Upshaw	D	Charles Austin	96	6	Ꞓc	841	47.9	08-15-85	N	U	GSA no. K-8
25	334939085414301	M.D. Barnwell	D	Rogers Well Drillers	162	6	Ꞓc	841	59.2	08-15-85	N	U	GSA no. K-9
26	334850085390201	Mary Brown	Spg	------	--	--	Ꞓs	807	----	08-16-85	F	U	GSA no. K-47 Estimated flow 10 gal/min
27	334836085393601	Talladega National Forest	Spg	------	--	--	Ꞓch	940	----	08-16-85	F	U	GSA no. K-48 Also known as Browns Spring. Estimated flow 1/4 gal/min
28	334847085413201	C.B. Snider	D	Roscoe Shipman	106	6	OꞒk	862	86.5	08-16-85	N	U	GSA no. K-18
29	334848085433001		Spg	------	--	--	OꞒk	1230	----	08-22-85	F	U	Estimated flow 1/4 gal/min

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
30	334757085385201	H.B. Brown	Spg	------	--	--	€s	737	----	08-16-85	F	D	GSA no. K-53 Estimated flow 130 gal/min
31	334725085391501	L.L. Stephens	D	Odom Well Drillers	107	6	€ch	790	49.0	08-21-85	S	D	Supplies household
32	334753085393201	H.F. Watson	Spg	------	--	--	€s	725	----	08-21-85	F	U	GSA no. K-52 Estimated flow 130 gal/min. Known as Watson Field Spring. Flows from fracture
33	334807085400001	P.W. Easterwood	D	Charles Austin	75	6	€s	786	38.3	08-16-85	N	U	GSA no. K-2
34	334748085395901	H.F. Watson	Spg	------	--	--	€s	728	----	08-21-85	F	U	GSA no. K-51 Also known as Watson House Spring. Estimated flow 30 gal/min
35	334809085410201	Dan Henderson	D	Charles Austin	90	6	€ch	834	14.2	08-15-85	J	D	GSA no. K-24 Water contains iron
36	334807085423101	A.C. Shelton	Du	------	28.4	36	€ch	911	15.1	08-16-85	N	U	GSA no. K-22
37	334806085425001	A.C. Shelton	Spg	------	--	--	€ch	997	----	08-21-85	F	U	GSA no. K-50 Estimated flow 130 gal/min
38	334702085390901	J.T. Martin	D	Carl Pace	96	6	€ch	779	44.0	08-21-85	N	U	GSA no. K-32 Well developed in fault zone
39	334701085401801	G.F. Hall	D	F.O. Pugh	105	6	€s	796	55.3	08-21-85	N	U	GSA no. K-34

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
40	334643085442101	Whites Gap Baptist Church	D	------	78.3	6	€ch	834	42.7	08-16-85	N	U	GSA no. K-38
41	334642085444601	Mrs. Kaylor Currie	D	------	108	6	Oa	791	37.9	08-20-85	J	U	GSA no. L-42
42	334537085404501	J.J. Orsborn	D	Carl Pace	138	6	€ch	767	81.1	08-21-85	N	U	GSA no. K-42 6 in. casing to 136 ft; none below
43	334614085413301	Troy A. Hutto	D	F.O. Pugh	95	6	€ch	740	25.3	08-21-85	J	D	GSA no. K-41 6 in. casing to 80 ft; none below
44	334556085430401	Girl Scouts of America	Spg	------	--	--	€ch	1140	----	08-21-85	F	P	GSA no. K-56 Supplies Girl Scout Camp. Estimated flow 20 gal/min
45	334522085412301	D.H. Batson	D	Charles Austin	43	6	€r	718	15.4	08-21-85	N	U	GSA no. T-8 6 in. casing to 43 ft; none below. Driller's log in files of U.S. Geological Survey
46	335108085484101	Emmie Boozer	D	Charles Austin	52.3	6	O€k	645	18.9	07-15-85	N	U	GSA no. G-48
47	335058085513401	Town of Alexandria	Spg	------	--	--	Oln	580	----	07-10-85	F,T	P	GSA no. F-68 Also known as Seven Springs. Calhoun County Water Authority measured flow 2000 gal/min
48	335052085452501	City of Jacksonville	Spg	------	--	--	O€k	627	----	07-15-85	F,T	P	GSA no. L-1 Also known as Germania Springs. Estimated flow 2000 gal/min

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
49	334928085460801	U.S. Government	D	Adams & Massey	196	6	O€k	662	34.5	07-18-85	N	O	GSA no. L-73 Observation well U.S. Geological Survey CAL-2
50	334851085455201	City of Jacksonville	Spg	------	--	--	O€k	651	----	07-15-85	F,T	P	GSA no. L-21 Also known as Big Spring. Water supply for city of Jacksonville. Estimated flow 900 gal/min
51	334813085455701	City of Jacksonville	D	McCarty Drilling Construction	95	6	O€k	675	14.2	07-15-85	N	U	GSA no. L-74 6 in. casing to 34.5 ft. Test well #7
52	334742085514301	Post Oak Baptist Church	Spg	------	--	--	€r	603	----	07-17-85	F	U	GSA no. M-127 Estimated flow 7 gal/min
53	334654085460801	E.L. Rivers	D	Roscoe Shipman	72.6	6	€c	711	48.0	08-20-85	J	D	GSA no. L-50 6 in. casing to 70 ft
54	334602085453901	Greenleaf Estate	Spg	------	--	--	€s	730	----	08-20-85	F	U	GSA no. L-66 Estimated flow 950 gal/min
55	334601085481601	Doug Ervin	D	------	250	6	€c	680	11.0	07-09-85	J	D	Supplies household
56	334628085495101	Terry Key	Du		14	36	€c	588	10.2	07-17-85	N	U	
57	334533085455301	H.L. Huddleston	D	------	--	--	€r	805	82.7	08-20-85	J	D	GSA no. S-1 Supplies household
58	334509085491401	Town of Weaver	D	Carl Pace	409	8	€c	719	----	----	T	P	GSA no. S-8 Supplies Weaver, Ala. system; not measured; well in use

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
59	335219085534801	Read Estate	Spg	------	--	--	Oln	531	----	07-17-81	F	U	GSA no. F-42 Also known as Read's Mill Spring. Estimated flow 3000 gal/min
60	334603085530901	Herman Broome	D	Carl Pace	94	6	€c	567	12.1	07-17-85	J	D	GSA no. M-108 6 in. casing to 12 ft; none below
61	334444085560801	U.S. Army	D	------	--	6	€c	600	31.0	07-11-85	S	D	Loran Field Training Site
62	334333085540101	U.S. Army	D	------	--	6	O€k	605	22.8	07-11-85	S	D	Alabama National Guard Site
63	334336085571501	U.S. Army	Spg	------	--	--	O€k	568	----	07-11-85	F	U	GSA no. Q-32 Estimated flow 200 gal/min. Also known as Willett Spring
64	334137085525401	T.G. Gaston	D	Clyde Hurst	104	6	O€k	684	38.5	07-24-85	J	D	GSA no. R-41 6 in. casing to 41 ft; none below
65	334029085544901	Shirley Fahl	D	Abernathy Well Drillers	104	6	O€k	731	33.3	07-24-85	J	D	GSA no. R-42
66	334036085550601	City of Anniston	D	Graves Drilling	129	4	O€k	770	69.9	07-26-85	N	O	Monitor well no. 1. City of Anniston landfill
67	334036085551001	City of Anniston	D	Odom Drilling Company	236	6	O€k	785	123.2	07-26-85	S	D	Supply well. City of Anniston landfill
68	334024085582601	U.S. Army	D	------	--	4		720	20.0	08-15-85	N	O	Well 2-2
69	334006085550401	City of Anniston	D		93	4	O€k	785	63.0	07-26-85	N	O	Monitor well no. 2. City of Anniston landfill

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
70	334005085551901	City of Anniston	D	------	100	4	OCk	840	----	07-26-85	N	O	Monitor well no. 3. City of Anniston landfill. Well dry at 100 ft below land surface
71	333943085544101	Robert Free	Du	------	44	42	OCk	680	14.5	07-24-85	N	U	
72	333921085560101	U.S. Army	D	------		2	OCk	660	25.5	07-31-85	N	O	Sinkhole monitor well. Anniston Ordinance Depot
73	333822085551701	U.S. Army	D	Pittsburgh Testing Lab	33	2	Cc	640	7.8	07-31-85	N	O	Monitor well 82B10 Anniston Ordinance Depot
74	333828085555001	U.S. Army	D	Pittsburgh Testing Lab	149	6	OCk	680	21.3	07-31-85	N	O	Monitor well 81B07 Anniston Ordinance Depot
75	333802085552001	U.S. Army	D	Bowser Morner Testing Lab	85.3	4	Cc	617	15.6	07-31-85	N	O	Monitor well 81B18 Anniston Ordinance Depot
76	333753085555201	U.S. Army	D	Bowser Morner Testing Lab	21.3	2	Cc	630	14.0	07-31-85	N	O	Monitor well 81B22 Anniston Ordinance Depot
77	333741085553801	U.S. Army	D	Bowser Morner Testing Lab	70	4	Cc	625	26.6	07-31-85	N	O	Monitor well 81B32 Anniston Ordinance Depot
78	333737085554701	U.S. Army	D	------	118	2	Cc	700	98.9	07-31-85	N	O	Monitor well 83B01 Anniston Ordinance Depot
79	334453085465201	U.S. Army	D	------	--	6	Cr	720	3.7	07-10-85	S	P	Reilly Lake Fort McClellan

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
80	334456085484001	Town of Weaver	D	H.W. Peerson	300	8	Cr	778	----	07-09-85	T	U	GSA no. S-6 Abandoned Weaver Ala. well; not measured; no access for tape
81	334447085494801	Town of Weaver	D	Graves Well Drillers	125	12	Cc	720	----	07-09-85	T	P	Supplies Weaver, Ala. system. Not measured. Well in use
82	334442085462201	U.S. Army	D	Alabama Geological Survey	155	6	OCk	760	32.8	07-19-85	N	O	CH 4 in GSA Circular 117
83	334437085462901	U.S. Army	D	------	53	6	OCk	775	36.0	08-20-85	N	U	Fort McClellan Range 30
84	334423085470701	U.S. Army	D	------	42	--	OCk	780	30.0	08-20-85	N	O	Monitor well. Fort McClellan landfill upgrade well
85	334425085472301	U.S. Army	D	------	34	2	Cr	740	17.2	08-20-85	N	O	Monitor well. Fort McClellan landfill downgrade well
86	334416085473001	U.S. Army	D	------	34	2	Cr	740	9.0	08-20-85	N	O	Monitor well abandoned Fort McClellan
87	334435085491901	Ray McMinn	D	Carl Pace	95	6	Cc	711	----	08-02-85	S	P	GSA no. S-12 Supplies trailer park. Not measured
88	334431085492101	Ray McMinn	D	Odom Well Drillers	230	6	Cc	680	19.1	08-02-85	S	S	
89	334433085520701	C.G. Thompson	D	Abernathy Well Drillers	154.5	6	Cc	662	52.0	07-17-85	J	D	GSA no. R-28 6 IN. Casing to 40 ft; none below

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
90	334218085491701	U.S. Government	D	McCarty Drilling Construction	122	6	O€k	732	41.9	07-08-85	N	O	GSA no. S-22 Former U.S. Geological Survey observation well CAL-1
91	334258085515501	Emmett Carrol	D	------	--	6	O€k	670	64.1	07-24-85	S	P	Supplies nightclub
92	334002085511001	Union Foundry	D	Carl Pace	595	8	€r	714	----	07-24-85	T	I	GSA no. W-1 Supplies cooling water. Cased to 560 ft
93	333934085512901	FMC Corporation	D	Carl Pace	288	8	€r	729	----	07-24-85	T	I	GSA no. W-2 Supplies cooling water
94	333915085514301	FMC Corporation	D	------	239	8	€s	748	97.3	07-24-85	S	I	Supplies cooling water
95	333912085511801	Monsanto Corporation	D	------	962	8	€s	760	----	08-21-85	T	I	Supplies cooling water
96	333857085495001	Samson Cordage Works	D	Carl Pace	390	8	€s	671	6.7	07-25-85	T	U	GSA no. V-4 Well not used for many years
97	333838085471401	Annie Garrett	Du	------	30	42	€s	815	14.3	07-25-85	N	U	
98	333834085471301	Dr. Stone	Spg	------	--	--	€s	780	----	07-25-85	N	U	GSA no. V-66 Also known as Golden spring. Water contains iron. No detectable flow
99	333925085452101	Camp Lee United Methodist Church	Spg	------	--	--	O€k	960	----	07-25-85	F	R	GSA no. V-63 Supplies lake at Camp Lee. Estimated flow 1 gal/min

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
100	334406085425801	U.S. Army	D	------	--	4	Ꞓr	735	31.0	07-10-85	S	D	Supplies training Site B-44
101	334137085402801		Spg	------	--	--	Ꞓr	700	----	08-21-85	F	U	GSA no. T-32 Estimated flow 80 gal/min
102	333934085421301	G.L. Johnson	D	Bright	263	6	Ꞓr	679	15.7	08-21-85	J	D	GSA no. U-12 Supplies store and home
103	333918085444301	Camp Lee United Methodist Church	D	Carl Pace	65	6	Ꞓs	850	6.7	07-25-85	S	P	Supplies Camp Lee
104	333916085444701	Camp Lee United Methodist Church	Spg	------	--	--	Ꞓs	840	----	07-25-85	F	U	Estimated flow 3 gal/min
105	333902085430001	Harmony Baptist Church	D	Walters Drilling Company	104	6	Ꞓr	689	59.9	08-21-85	N	U	GSA no. U-27 6 in. casing to 100 ft; none below
106	333854085400301	Spring Valley Foods	D	Adams & Massey Drillers	190	6	Ꞓs	750	----	08-21-85	S	P	Supplies procesing plant. Well no. 2
107	333853085400401	Spring Valley Foods	D	Adams & Massey Drillers	201	6	Ꞓs	760	60.8	08-21-85	S	P	Supplies procesing plant. Well no. 1
108	333709085453401	H. Cunningham	Du	------	34.5	42	Ꞓc	659	20.4	07-30-85	N	U	
109	333706085473901	Lee Brass Company	D	Bhate Engineers	78	2	Ꞓch	685	65.1	07-30-85	N	O	Monitor well no. 11
110	333654085481401	MR. Ambrose	D	Bryant	100.6	6	Ꞓch	640	26.0	07-25-85	J	U	GSA no. V-27 6 in. casing to 100 ft

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
111	333629085450501	J.A. Dobson	D	Odom Well Drillers	126	6	O€k	680	62.1	07-30-85	J	D	Supplies home
112	333631085472201	H.G. Davis	Spg	------	--	--	€c	622	----	08-01-85	F	U	GSA no. V-45 Estimated flow 1100 gal/min
113	333636085485601	City of Oxford	Spg	------	--	--	€s	611	----	07-31-85	F	R	GSA no. V-46 Supplies Oxford Lake. Estimated flow 1100 gal/min
114	333613085500601	Collateral Insurance Agency Company	Spg	------	--	--	€s	605	----	07-25-85	F	U	GSA no. V-48 Estimated flow 450 gal/min
115	333615085501101	Collateral Insurance Agency Company	Du	------	25	42	€s	623	18.6	07-31-85	N	U	
116	333603085504401	W.H. McClean	D	Dingler	80	6	€ch	660	41.2	08-01-85	S	P	Supplies Don Lee Trailer Park
117	333509085460701	W.H. Newsome, Jr.	D	Clyde Hurst	160	6	O€k	680	47.5	07-30-85	S	U	
118	333526085463501	Mrs. Albert Hubbard	D	Clyde Hurst	65	6	O€k	636	23.2	08-01-85	J	D	Supplies home
119	333525085463601	Mrs. Albert Hubbard	Du	------	35.7	42	O€k	636	12.3	08-01-85	N	U	GSA no. V-55
120	333526085520901	J. Higginbothan	D	------	110	6	€r	630	28.4	08-01-85	S	D	Supplies home

Table 1.--Records of wells and springs in the Coldwater Spring area--Continued

Well or spring number	Geographic coordinate number	Owner	Type	Drilled by	Well depth (feet)	Well diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Water level (feet)	Date of measurement	Method of lift	Water use	Remarks
121	333503085460601	W.H. Newsome, Jr.	Du	------	30	36	O€k	643	15.3	07-30-85	N	U	GSA no. V-58
122	333709085551801	Erma Wilkins	Du	------	29	42	€ch	680	11.4	08-01-85	N	U	
123	333611085525901	Ted Fink	D	------	--	6	€ch	800	23.8	08-01-85	J	D	
124	333614085553301	City of Anniston	D	------	90	--	€ch	597.4	9.0	09-18-85	N	O	CH. 1. Observation well at Coldwater Spring
125	333613085553001	City of Anniston	D	------	79	2	€s	591.9	4.4	09-18-85	N	O	CH. 2. Observation well at Coldwater Spring
126	333610085553301	City of Anniston	Spg	------	--	--	€s	590	----	----	F,T	P	GSA no. W-12 Supplies city of Anniston. USGS gaging station. Also known as Coldwater Spring
127	333601085564701	W.K. Didby	D	Morris Green	180	6	€r	621	38.2	08-22-85	S	D	GSA no. W-14
128	333509085541401	City of Oxford	D	Graves Well	342	6	€r	600	18.6	08-01-85	N	U	Test well no. 5
129	333537085553501	Metric Conductors Inc.	D	Adams & Massey Drillers	350	12	€s	592	----	08-22-85	T	I	GSA no. W-20 12 in. casing to 60 ft; none below. Supplies cooling water