GEOLOGICAL SURVEY OF ALABAMA

WALTER B. JONES, STATE GEOLOGIST

Information Series 21

GROUND-WATER RESOURCES OF AUTAUGA COUNTY, ALABAMA

A Reconnaissance Report

By John C. Scott

Prepared by the
United States Geological Survey
in cooperation with the
Geological Survey of Alabama

University, Alabama
1960

LETTER OF TRANSMITTAL

University, Alabama

November 7, 1960

Honorable John M. Patterson

Governor of Alabama

Montgomery, Alabama

Sir:

I have the honor to transmit herewith the manuscript of a report entitled "Ground-Water Resources of Autauga County, Alabama, A Reconnaissance Report" by John C. Scott, with the request that it be printed as Information Series 21 of the Geological Survey of Alabama.

Respectfully,

WALTER B. JONES

State Geologist

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ABSTRACT

Autauga County is in south-central Alabama and is bounded by Elmore, Montgomery, Lowndes, Dallas, and Chilton Counties. It has an area of 599 square miles and, in 1950, had a population of 18,186. The county is primarily rural, the only incorporated towns being Prattville, Autaugaville, and Billingsley.

The county is in the northern part of the Coastal Plain province and is divided physiographically into the Central Pine Belt and the flood plain of the Alabama River. The terrain is hilly, ranging in altitude from about 100 feet above sea level in the basin of the Alabama River in the south to almost 700 feet in the north.

The county is underlain by sedimentary deposits of Late Cretaceous age, which rest on a basement complex of pre-Cretaceous metamorphic and igneous rocks. The Late Cretaceous deposits consist of the Coker and the Gordo formations of the Tuscaloosa group, the Eutaw formation, and the Mooreville chalk of the Selma group. Terrace and alluvial deposits of Quaternary age overlie the Cretaceous rocks in and adjacent to the flood plains of the Alabama River and larger tributaries.

The chief sources of ground water are aquifers in the Coker, Gordo, and Eutaw formations. Water for domestic and stock use also is obtained from the terrace and alluvial deposits. Large quantities of ground water are used in the southern part of the county, where flowing wells are common, but only small quantities are used in other parts. Yields of 300 gpm (gallons per minute) or more can be obtained from wells in the Coker and Gordo formations. Sands in the Gordo and Eutaw formations tapped by a well near Autaugaville, based on a 24-hour pumping test, have a coefficient of transmissibility of about 18,000 gpd (gallons per day) per foot.

Ground water in Autauga County is generally soft and contains a relatively small amount of fluoride and sulfate. In some parts of the

county the water contains an objectionable amount of iron but is otherwise suitable for most uses. Water in the Eutaw formation in the extreme southwest corner of the county contains as much as 592 ppm (parts per million) chloride.

INTRODUCTION

Autauga County is in south-central Alabama and has an area of 599 square miles. It is bounded on the east by Elmore and Montgomery Counties, on the south by Lowndes County, on the west by Dallas County, and on the north by Chilton County (fig. 1). The county is primarily rural, the only incorporated towns being Prattville (the county seat), Billingsley, and Autaugaville. The population of the county is 18,186, according to the 1950 census, the eastern and southern parts of the county being the most thickly populated. The economy is mainly agricultural.

Prattville, known as the "Fountain City" because of the many flowing wells in the area, is the center of industry in the county. Industries in the Prattville area manufacture cottongins and parts, cloth, clothing, lumber, and poultry and pork products. One of the oldest cotton-gin factories in the United States has been in operation in the county for more than 100 years. Prattville is only a few miles from Montgomery and is becoming a residential and commercial suburb of that city.

Purpose and Scope of Investigation

The demand for ground water in Alabama has greatly increased during the past 20 years, and, in order to meet this increased demand, information on the occurrence, availability, movement, and chemical quality of ground water must be obtained. The U.S. Geological Survey, in cooperation with the Geological Survey of Alabama, is making reconnaissance ground-water investigations in counties where funds for more detailed studies are not available. These studies are designed to obtain, in a relatively short period of time, general information on ground water and its relation to the geology of an area. This report is the result of one of these investigations.

The ground-water investigation of Autauga County was begun in July 1958 and included the following:

1. An inventory of most drilled wells and selected dug wells and springs was made to determine their distribution and location, depth,

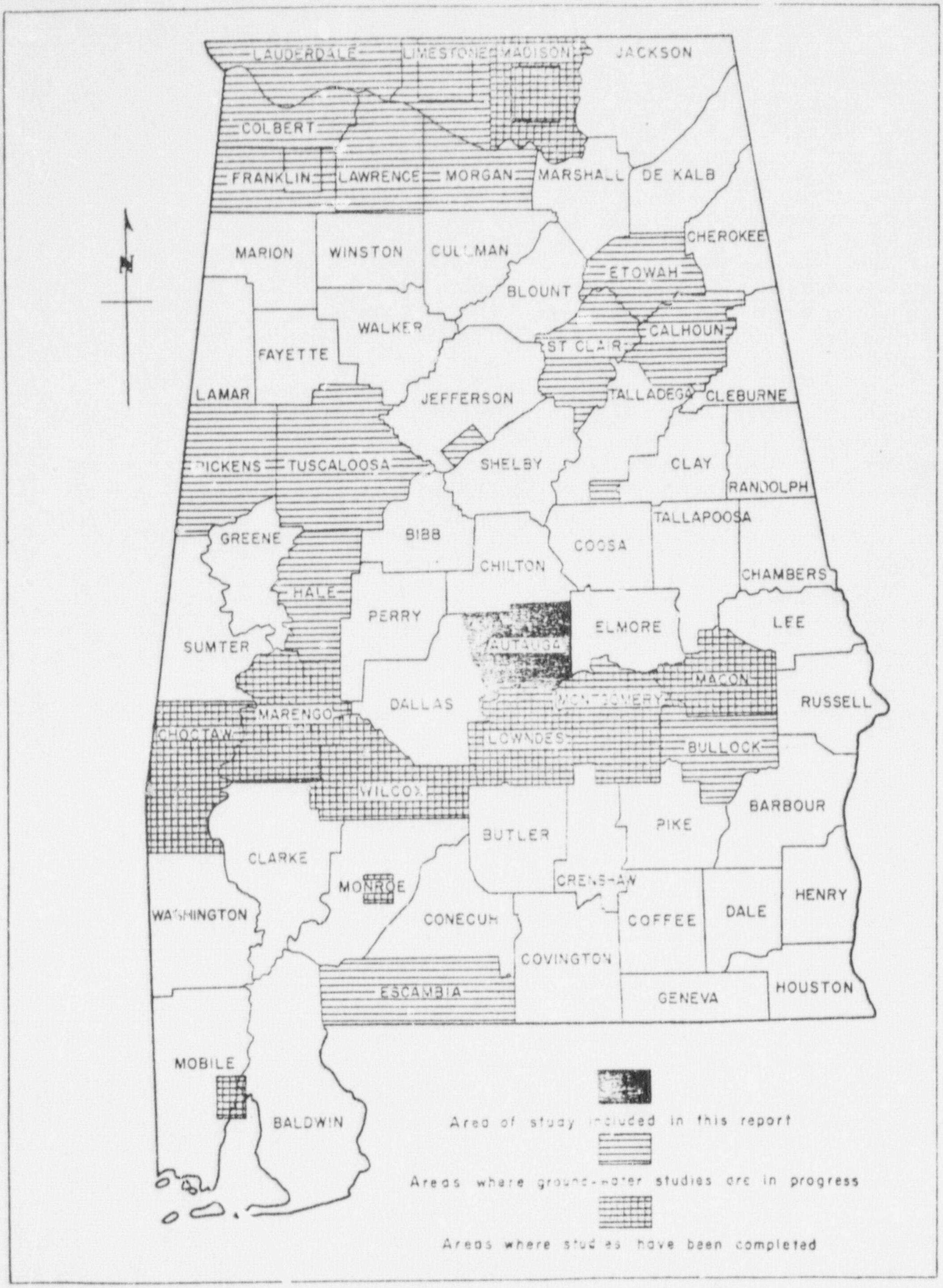


Figure 1.-Map of Alabama showing area studied and areas of other ground-water studies.

construction, yield, water level or artesian pressure, use, and the aquifer tapped by each.

Information was compiled for 337 wells and springs--7 of which tap the Coker formation, 229 the Gordo formation, 91 the Eutaw formation, 4 the terrace or alluvial deposits, and 6 tap more than one of these formations (table 1 and pl. 1).

2. Water levels were measured in wells, where possible, and maps of the piezometric surface of water in the Gordo and Eutaw formations were compiled (figs. 6 and 7). Water-level measurements were made in well R-18, which taps the Gordo formation, to determine seasonal fluctuations and water-level trends (fig. 5).

3. The chloride content and hardness of water samples from most wells inventoried were determined by field methods (table 1). Water samples from 10 selected wells also were collected for more comprehensive chemical analysis (table 2).

4. An aquifer test at the site of well P-25, owned by the Alabama State Conservation Department Nursery at Autaugaville, was made to determine the transmissibility coefficient of sands in the Gordo and Eutaw formations (fig. 8).

5. Data on water use and natural discharge were collected to estimate withdrawals of ground water and the amounts of water used and wasted by continuous discharge from flowing wells.

6. A geologic reconnaissance map was made to determine the distribution and character of geologic formations cropping out in the county (pl. 2). Two geologic sections were constructed to show the depth, thickness, and structure of the formations in the subsurface (pls. 3-4).

The work was under the direct supervision of W. J. Powell, district geologist of the Ground Water Branch of the Federal Survey in charge of ground-water investigations in Alabama.

Previous Investigations

Information on ground water in Autauga County was first published in 1907 in Geological Survey of Alabama Monograph 6, "The Underground Water Resources of Alabama," by E. A. Smith. Smith recorded depths, drillers' logs, construction, flows, and other information for 51 wells in the county.

Additional ground-water data were published in 1944 in "Ground-Water Resources of the Cretaceous Area of Alabama," by C. W. Carlston. The report includes information for 43 wells and a short summary of the geology and occurrence of ground water in the county. Some of the wells visited by Smith and Carlston were revisited during this study, and the information is included herein.

Publications describing the geology of Autauga County include Geological Survey of Alabama Special Report 14, "Geology of Alabama," by G. I. Adams, Charles Butts, L. W. Stephenson, and Wythe Cooke (1926); and Geological Survey of Alabama Bulletin 48, "Notes on Deposits of Selma and Ripley Age in Alabama," by Watson H. Monroe (1941). The reconnaissance geologic map in the present report (pl. 2) was prepared by the author and John G. Newton and was partly modified from an unpublished geologic map prepared by Louis C. Conant and D. H. Eargle.

A selected bibliography is appended to this report listing reports, maps, and charts that contain information on the geology and ground-water resources of Autauga County.

Well-Numbering System

The numbering of wells in Autauga County is based on the Federal land classification system. In this system each township, consisting of approximately 36 square miles in area, is divided into 36 sections numbered consecutively from 1 in the northeast corner to 36 in the southeast corner. Similarly, Autauga County is divided into townships, each assigned a letter in the same order that sections are numbered. Therefore, the letter A is assigned to the northeast township and the adjoining townships are designated alphabetically through W in the southwest township (fig. 2). The wells within a township are numbered consecutively, as are sections in a township; for example, in township A they are designated A-1, A-2, A-3, etc., and in township R, R-1, R-2, R-3, etc. (pl. 1).

Acknowledgments

The writer is grateful to the residents of Autauga County for supplying information on wells, use of water, and other data needed for the evaluation of the ground-water resources of the county. Special thanks are given to the Acme and Jet Drilling Cos., Montgomery, Ala.; Alex Stoudenmire Well and Supply Co., Prattville, Ala.; B. H. Clark, Au-

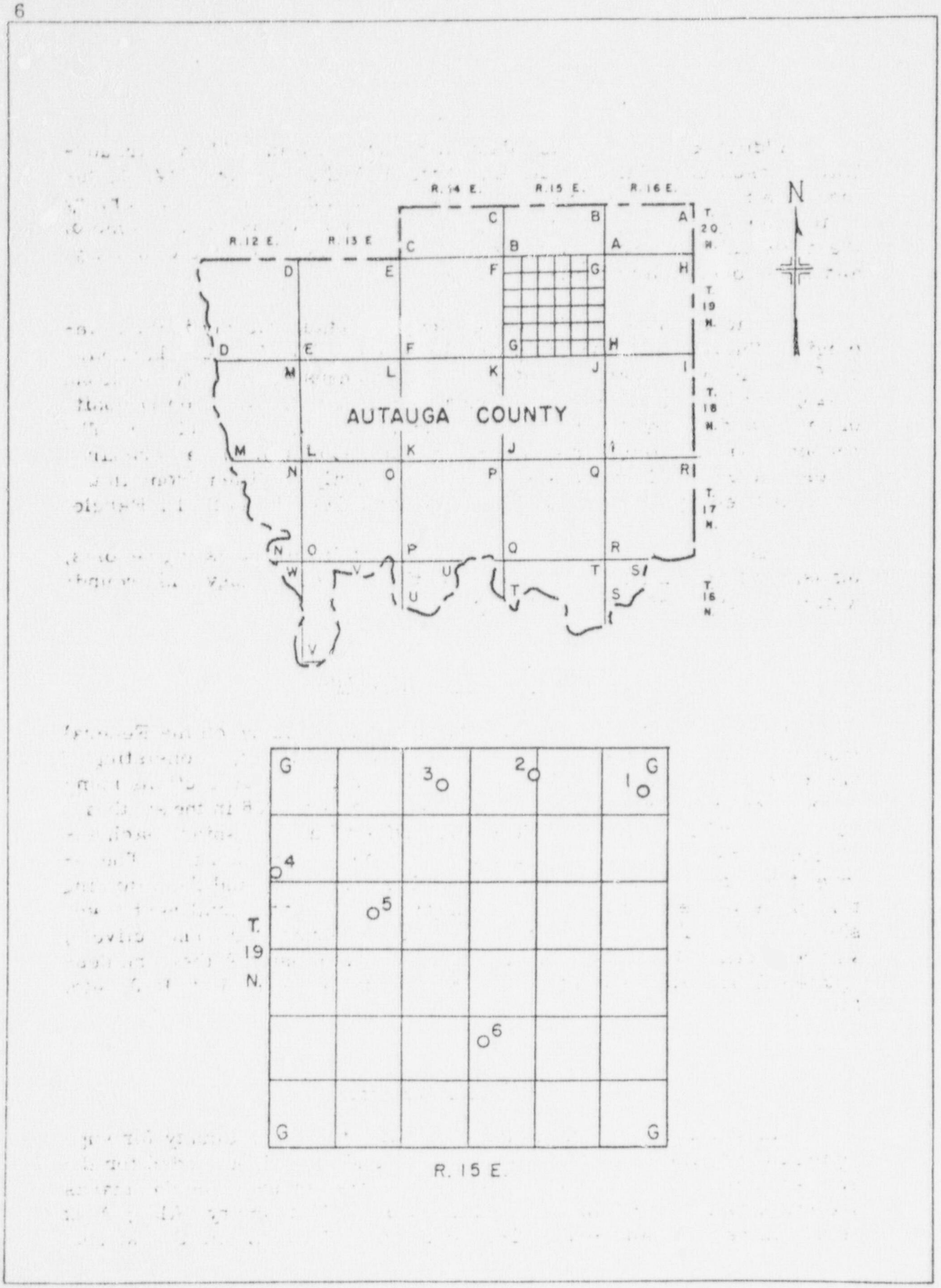


Figure 2.-Diagram showing well-numbering system used in Autauga County, Ala.

taugaville, Ala.; Brady Drilling Co., Selma, Ala.; and Layne-Central Co., Pensacola, Fla., for supplying drillers' logs and other information on wells and for their cooperation in collecting drill cuttings and obtaining electric logs of wells in the county.

Acknowledgment is made to Louis C. Conant for making available his field map, notes, and other data on the surface geology of northern Autauga County.

PHYSICAL FEATURES

Topography

Autauga County is in the northern part of the Coastal Plain physiographic province, and most of the county is in the area known as the Central Pine Belt of Alabama. The name "Fall Line Hills," in reference to the rugged hilly terrain and steep-faced canyons, also is used to describe this topography, which is developed on sand and clay beds in the Coker, Gordo, and Eutaw formations.

The northern part of the county is an area of moderate relief and ranges in altitude from 500 to 700 feet above sea level. Most streams originate in this part of the county and drain southward to the Alabama River. The terrain in the central and southern parts of the county is rugged, consisting of southward-trending ridges, which are as much as 300 feet above adjacent stream valleys. The central part of the county, the outcrop area for the lower part of the Eutaw formation, is especially rugged. Erosion in this area has formed canyons or gullies that have nearly vertical walls as much as 70 feet high.

The hilly terrain in the southern part of the county merges abruptly into the low terrace of the Alabama River. This terrace extends about 6 miles north of the present channel of the river in the vicinity of Forester and ranges in altitude from about 150 to 200 feet above mean sea level. Remnants of an older terrace of the river form high flat plains in the vicinities of Wadsworth, Mulberry, and Pine Level (pl. 2) and range in altitude from about 300 to 400 feet above sea level. Small remnants of this terrace also are found in other parts of the county.

Drainage

Autauga County is drained primarily southward to the Alabama River by Mulberry, Buck, Little Mulberry, Ivy, Beaver, Howard, Swift, Bear, Noland, Autauga, and Bridge Creeks and their tributaries. Mortar Creek drains the northeast corner of the county and discharges into the Coosa River just above its confluence with the Tallapoosa River in Elmore County. The Alabama River, which forms the southern boundary of Autauga County, flows southwestward and joins the Tombigbee River to form the Mobile River, which discharges into the Gulf of Mexico at Mobile. Most parts of the county are well drained except for a few swamp and marshland areas in the flood plain of the Alabama River.

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

Geologic formations exposed in Autauga County range in age from Late Cretaceous to Recent (pl. 2). They consist of sand, gravel, sandstone, clay, and chalk. These sedimentary rocks are underlain by crystalline rocks of undetermined age, which consist of schist, gneiss, and other metamorphic and igneous rocks.

The surface of the crystalline-rock complex is erosional and slopes south-southwestward. Formations of Late Cretaceous age strike west-northwestward, and dip gently south-southwestward. The Quaternary terrace deposits are alluvial in origin; they are nearly horizontal but have a slight dip toward their source, the Alabama River.

Pre-Cretaceous Rocks

Crystalline rocks of pre-Cretaceous age crop out a few miles north of Autauga County in Chilton County and underlie all of Autauga County at depths ranging from about 200 feet near the northern boundary of the county to about 1,500 feet in the southwest corner. These rocks, which are predominantly metamorphic, consist of schist, gneiss, quartzite, marble, and granite, and they form the basement complex on which beds of Cretaceous age were deposited. The erosional surface of the crystalline rocks slopes south-southwestward at 45 to 55 feet per mile in the subsurface of Autauga County. The rocks are generally dense and impermeable and yield only small quantities of water to wells. They are not a source of ground water in Autauga County.

Cretaceous System

Deposits of Late Cretaceous age cropping out in Autauga County consist, in ascending order, of the Coker and Gordo formations of the Tuscaloosa group, the Eutaw formation, and the Mooreville chalk. They strike west-northwestward and dip south-southwestward at about 30 to 45 feet per mile. Stratigraphic sections showing the thickness, character, and altitude of formations of Cretaceous age in the subsurface of Autauga County are shown on plates 3 and 4.

Tuscaloosa Group

The Tuscaloosa group overlies the eroded surface of pre-Cretaceous crystalline rocks and crops out in the northern and central parts of the county (pl. 2). The group is presently subdivided into two formations, the Coker at the bottom and the Gordo at the top, which have a combined thickness of about 900 feet. They consist of sand, gravel, clay, shale, and calcareous sandstone deposited under deltaic and shallow marine conditions.

Coker formation.--The Coker formation unconformably overlies the pre-Cretaceous rocks and crops out in the vicinities of Marbury and Billingsley in the northern part of the county. In Autauga County, the Coker consists of three separate lithologic units that have a maximum combined thickness of about 625 feet in the subsurface. The basal unit, consisting of beds of sand, gravel, boulders, and varicolored clay deposited under deltaic-type conditions, ranges in thickness from about 90 feet in the northern part of the county to about 150 feet in the southern part. The more permeable beds of this unit are a source of ground water in the northern and central parts of the county. Wells tapping this unit should yield from 10 to 100 gpm (gallons per minute).

The middle unit consists chiefly of beds of well-sorted sand, fissile clay, and calcareous sandstone of marine origin. It ranges in thickness from a few feet in the northern part of the county to about 400 feet in the southern part. It is a potential source of ground water in Autauga County, especially in the southern part where the sand beds are relatively thick and well sorted. Wells tapping these beds should yield 200 gpm or more.

The upper unit of the Coker formation, consisting of deltaic sand, gravel, and varicolored clay, is about 50 to 75 feet thick. The sand and gravel beds are generally poorly to moderately well sorted, and are a

source of moderate quantities of ground water in the county.

Gordo formation.--The Gordo formation unconformably overlies the Coker formation. The contact between the formations in the outcrop is generally marked by basal sand and gravel beds of the Gordo overlying varicolored sandy clay of the Coker. The Gordo ranges in thickness from about 115 feet in the outcrop to more than 250 feet in the subsurface in the southern part of the county. It consists of beds of sand, gravel, and varicolored clay of deltaic or nonmarine origin. The beds of sand and gravel are the principal source of water supply and yield 200 gpm or more to wells in most parts of Autauga County. Most of the flowing wells in the county tap the Gordo; flows range from less than 1 to about 30 gpm.

Eutaw Formation

The Eutaw formation unconformably overlies the Gordo formation and consists of gray to yellowish-brown glauconitic sand, sandy clay, and calcareous sandstone. It ranges in thickness from a few feet in the northern part of the county to about 400 feet in the southern part. The contact between the Gordo and the Eutaw formation is characterized by a fine- to coarse-grained slightly glauconitic sand of the Eutaw overlying varicolored sandy clay of the Gordo. Because of its considerable thickness and the dip slope of the topography in the area, the Eutaw crops out in most of Autauga County (pl. 2). It is a potential source of ground water in the central and southern parts of the county but has not been extensively developed. Wells yielding 300 gpm or more from sand beds in the Eutaw formation probably could be constructed in the southern part of the county.

Selma Group

Mooreville chalk.--The Mooreville chalk, the lower formation of the Selma group, unconformably overlies the Eutaw formation; it consists of light-gray to yellowish-orange chalk, calcareous silt, and fossiliferous calcareous sandstone and ranges in thickness from a few feet to about 100 feet in Autauga County. The lower part of the formation crops out in outliers or noses in the southern part of Autauga County, and these, for the most part, are capped by Quaternary terrace deposits. The Mooreville is extensively exposed in Lowndes County, immediately south of Autauga, where it forms the northern part of the physiographic division known as the Black Prairie or "Black Belt." The Mooreville

is dense and relatively impermeable and is not a source of ground water in Autauga County.

Quaternary System

Terrace and Alluvial Deposits

Terrace and alluvial deposits of Pleistocene to Recent age are present in and adjacent to the valleys of the Alabama River and the larger creeks. These deposits, consisting of yellowish-orange sand, gravel, silt, and clay, have a maximum thickness of about 50 feet. Remnants of an older terrace of the Alabama River are exposed in the vicinities of Pine Level, Wadsworth, Autaugaville, and Mulberry. The base of this terrace is as much as 350 feet above the present channel of the river. The base of the lowermost terrace is at an altitude of about 120 to 150 feet above sea level, or about 20 to 50 feet above the present river channel. Alluvial deposits of large creeks in the county range in thickness from about 5 to 30 feet. These deposits are most extensive in the valley of Mulberry Creek near the western boundary of the county. The low terrace deposits and the alluvial deposits are not differentiated on the geologic map (pl. 2).

The terrace and alluvial deposits are in most places very permeable, and would yield large quantities of water to wells in areas where they have a sufficient thickness of saturation. They supply water to wells and springs for domestic use in several parts of the county but have not been developed for large-capacity water supplies. Based on yields of wells constructed in similar deposits in Montgomery County (Powell and others, 1957, p. 15-16), yields of 300 gpm or more probably could be obtained from the terrace deposits in the valley of the Alabama River.

Sand and gravel from these deposits are used extensively as road aggregate and in the manufacture of concrete, asphalt, and related products.

GROUND WATER

Source

Ground water is the water that occurs in the earth's zone of saturation. The top of the saturated zone is called the water table, the po-

sition of which is shown by the level at which water stands in nonartesian wells. Ground water is derived from precipitation, and in Alabama the precipitation is principally rain. A part of the precipitation flows into streams and lakes as direct runoff, a part returns to the atmosphere through evaporation and transpiration, and a part seeps downward through the soil and rocks to become ground water.

Water seeping down through the soil first enters a zone of aeration (fig. 3), which lies between the land surface and the zone of saturation. A part of the water entering the zone of aeration is used to satisfy soil-moisture requirements, being held in this zone by molecular forces which counteract the force of gravity, and a part seeps to the water table and into the zone of saturation. All openings in the zone of saturation are filled with water, and it is the water from this zone that is discharged by wells and springs.

Occurrence and Storage

Ground water occupies pores, fractures, and solution openings in the rocks. The size, shape, and distribution of the openings control the storage and movement of ground water, and they vary considerably from place to place because of variations in rock types.

Porosity is the ratio, expressed as a percentage, of open space in a rock to its total volume. The porosity is influenced by the size, shape, and arrangement of constituent particles; by the degree of sorting, compaction, and cementation of the particles; and by the amount of fracturing, solution, and recrystallization of the rock after its formation.

The permeability of a rock is a measure of its capacity to transmit water. Permeability may be expressed as a coefficient that expresses the rate in gallons per day at which water will move through a cross section of a rock 1 foot square, under a hydraulic gradient of 1 to 1 (loss in head of 1 foot for each foot of travel of the water, whatever the direction of movement). Clay generally has a high porosity but a low permeability because its pore spaces, though numerous, are very small. Sand or gravel generally have a lower porosity than clay but a higher permeability because the open spaces are relatively large and interconnected. Permeable rocks through which ground water moves freely enough to supply wells are called aquifers.

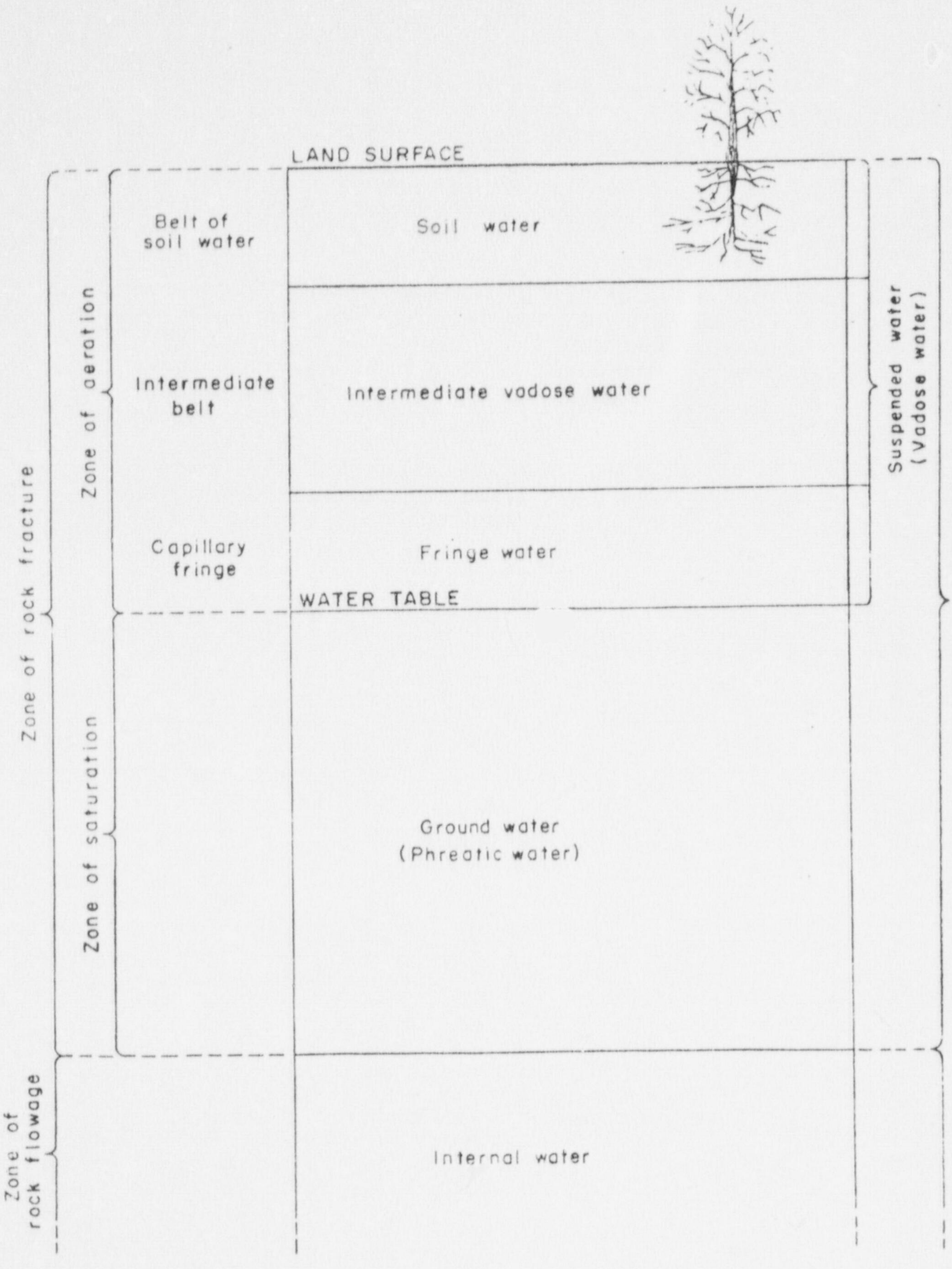


Figure 3.- Diagram showing divisions of subsurface water
(After O. E. Meinzer)

Water-Table and Artesian Conditions

The water table is defined as the upper surface of the zone of saturation, except where confined by a bed of clay or other relatively impermeable material.

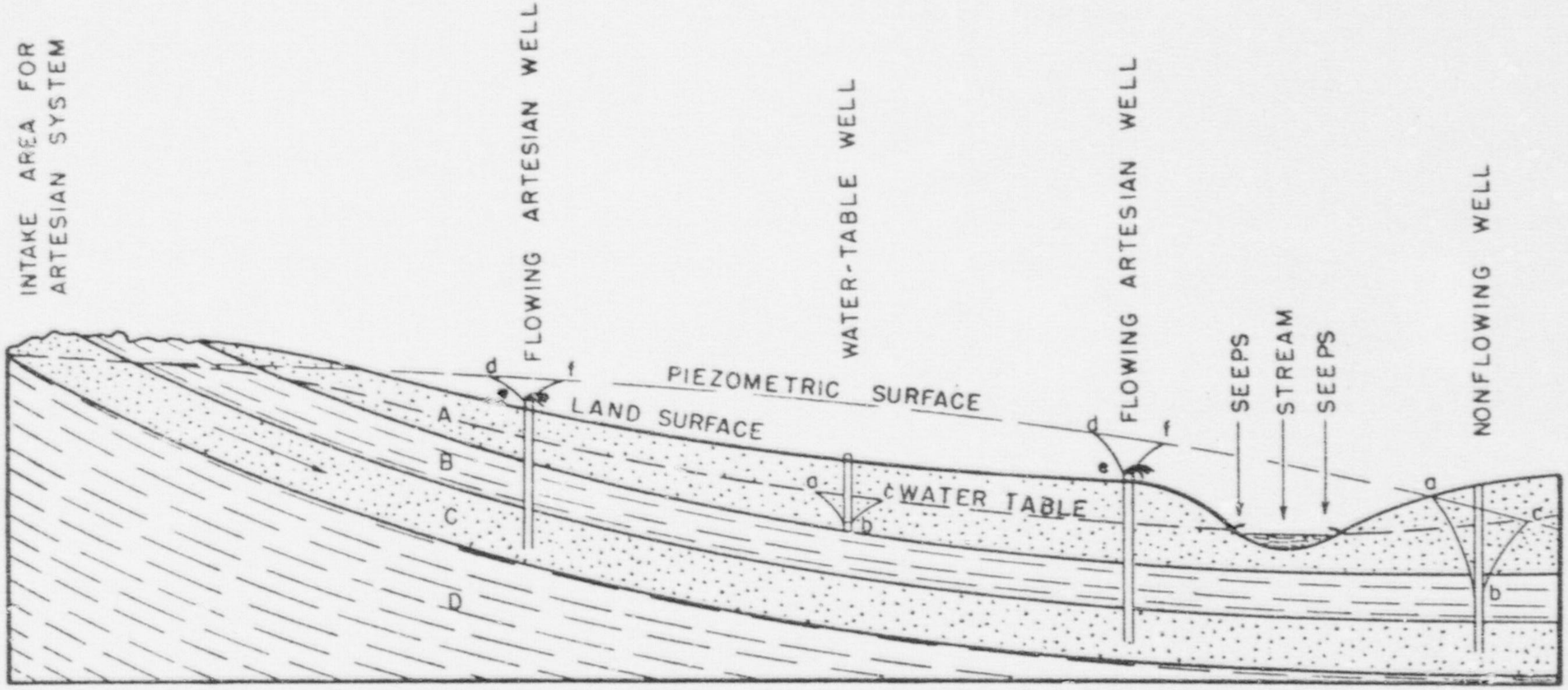
Unconfined water in the zone of saturation moves slowly through the rocks in a direction determined by the slope of the water table. The water table is not a level or stationary surface. Variations in its shape and elevation occur as a result of such factors as the permeability and structure of the rocks, topography, withdrawal of water from wells and springs, and variations in rainfall, which affect the rate of recharge.

The artesian-pressure surface marks the level to which water will rise in a tightly cased well that penetrates a confined or artesian aquifer. Both the water table and the artesian-pressure surface are referred to in this report as the piezometric surface, which was defined by Meinzer (1923b, p. 38) to be the imaginary surface that everywhere coincides with the static level of the water in the aquifer.

An artesian aquifer is generally confined above and below by relatively impermeable beds such as clay or shale (fig. 4). Water derived from rainfall and runoff seeps into the outcrop of the aquifer and percolates downgradient, where it is confined under hydrostatic pressure. This pressure is the result of the weight of the water in the aquifer and the weight of the overlying beds. Water in a well penetrating the confining layer will rise to a height equal to the hydrostatic head at that point in the aquifer. Such a well is referred to as artesian, whether or not it flows at the land surface.

Ground water is under both water-table and artesian conditions in Autauga County. Water-table conditions prevail in the areas of terrace and alluvial deposits and in the outcrop area of the Coker, Gordo, and Eutaw formations. Sand and gravel beds yield water to many shallow dug and driven wells in these areas.

Artesian conditions prevail in Autauga County downdip from the outcrops of the Gordo, Coker, and Eutaw formations, where water in beds of sand and gravel is confined by relatively impermeable beds of clay. Most of the flowing wells in the county are developed in the Coker and Gordo formations. Wells flow in areas of low elevation, such as the flood plain of the Alabama River and the valleys of the larger tributaries.



A. Permeable surficial material B. Upper confining bed C. Artesian aquifer D. Lower confining bed

abc Cone of depression caused by pumping a water-table or a nonflowing artesian well.

def Cone of depression caused by natural discharge from flowing artesian well.

Figure 4.— Schematic diagram showing artesian and water-table conditions.

Flowing wells are developed in the Eutaw formation in the vicinities of Prattville in the southeastern part of the county and Statesville in the southwestern part. Flows of wells in Autauga County range from less than 1 to about 30 gpm. The area of artesian flow is shown on plate 1.

Water-Level Fluctuations and Their Significance

Water-level fluctuations generally can be correlated with recharge or lack of recharge to ground-water reservoirs, withdrawals by pumping, flows from wells and springs, variations in atmospheric pressure, ocean and earth tides, and earthquakes.

Fluctuations of water levels in shallow wells in Autauga County are, for the most part, seasonal or cyclic and are related directly to precipitation. The water levels are highest in early spring because of the continuous and large amount of recharge from the heavy winter rains and the low evaporation rate. Water levels are generally lowest during late autumn or early winter. Normally the water table begins a gradual rise during the latter part of November and continues to rise until late February or March. Water levels decline throughout the summer except for intermittent rises caused by unusually heavy summer rains. Water levels in the shallow aquifers in the county have declined gradually for many years, and many dug wells have been deepened or replaced by deeper drilled wells during the past 10 years in order to obtain sufficient supplies of water.

The effect of precipitation on water levels in artesian wells developed in the Coker, Gordo, and Eutaw formations may lag from days to months. In some wells the water levels cannot be correlated directly with precipitation because the recharge effect is obscured by ground-water withdrawal or natural discharge during the lag period.

Periodic water-level measurements were made in well R-18, reportedly constructed in sand and gravel of the Gordo formation, at the farm of William E. Matthews near Prattville. Fluctuations in water level in this well during 1959 reflect recharge (fig. 5). Pumpage from nearby well R-19 also affects the water level in well R-18.

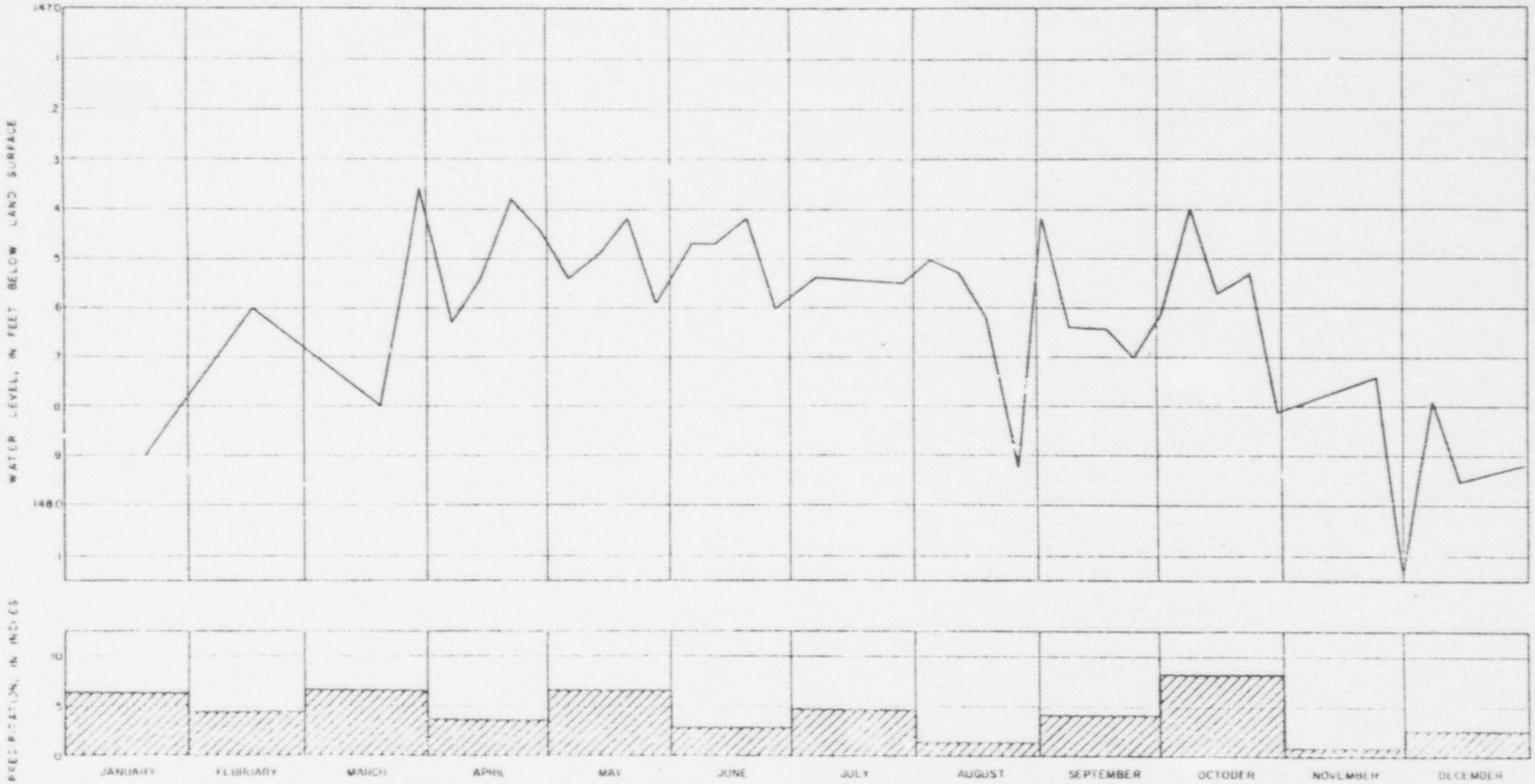


Figure 5.- Fluctuation of water level in well R-18 tapping the Gordo formation, and monthly precipitation at Prattville, Ala., 1959.

Movement and Discharge

Figures 6 and 7 are piezometric maps of water in the Gordo and Eutaw formations, respectively. They show by contour lines the general water levels in wells tapping these formations and direction of movement of ground water. The water moves from places where the piezometric surface is high toward places where it is low, in the direction of the steepest gradient, which is at right angles to the contours. The maps indicate that the altitude of the water surface is highest in the northern part of the county and that ground water in both formations moves generally southward and locally toward larger creek valleys in some parts of the county. The southward movement is generally parallel to the dip of the beds; the movement toward the creek valleys is caused by the increased hydraulic gradient in the vicinity of the creeks where they are incised into the aquifers, thereby creating effluent seepage from the formation into the stream. This seepage, common in Autauga County, is responsible for the continuous flow of some of the creeks during dry periods. The town of Jones, in the western part of the county, is famous for its many springs, which issue from the basal sand beds of the Eutaw formation that have been incised by Mulberry Creek. Clay beds in the underlying Gordo formation prevent the water from seeping downward.

Large quantities of ground water are discharged from aquifers in the county by flowing wells. Flowing wells can be constructed in many parts of the county, but they are concentrated in the vicinities of Prattville, Forester, Autaugaville, Statesville, and Jones. The combined discharge from all flowing wells in the county is estimated to be greater than 1 million gpd (gallons per day). Of this, it is estimated that almost 1 million gallons is wasted. This quantity of water would supply the city of Prattville, whose average daily ground-water use is about a million gallons.

Aquifer Tests

Much information on the behavior of wells and concerning the hydrologic properties of aquifers can be determined from aquifer tests. An aquifer test is made by measuring the rate of drawdown of the water level in a discharging well or in one or more observation wells. The discharge is maintained at a uniform rate for the duration of the test, which may extend for hours or days, depending on the geologic and hydrologic conditions. Ordinarily, the test is continued until the water level in the well is declining at a very slow rate. After the discharge

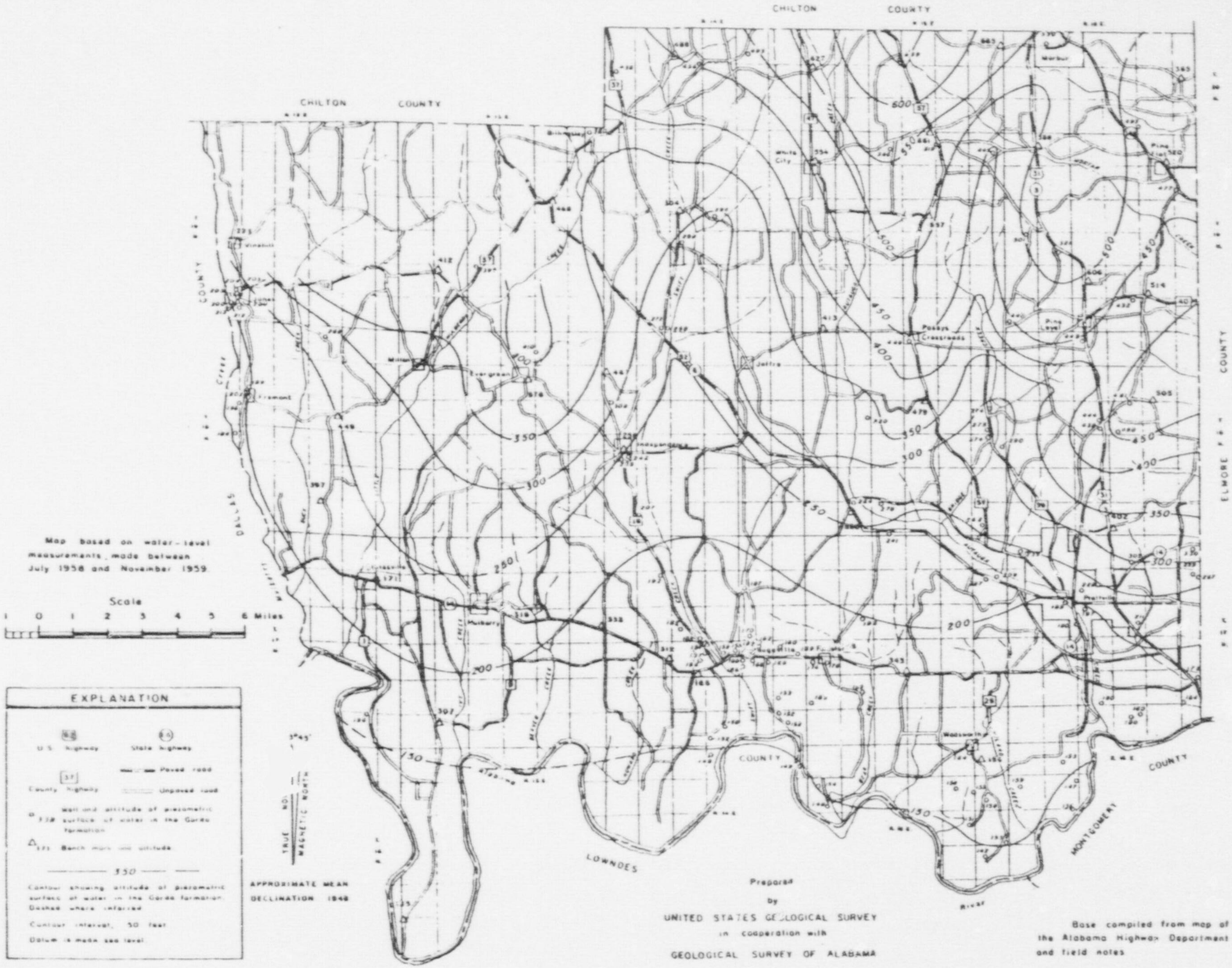


Figure 6.-Map of the piezometric surface of water in the Gordo formation, Autauga County, Ala.

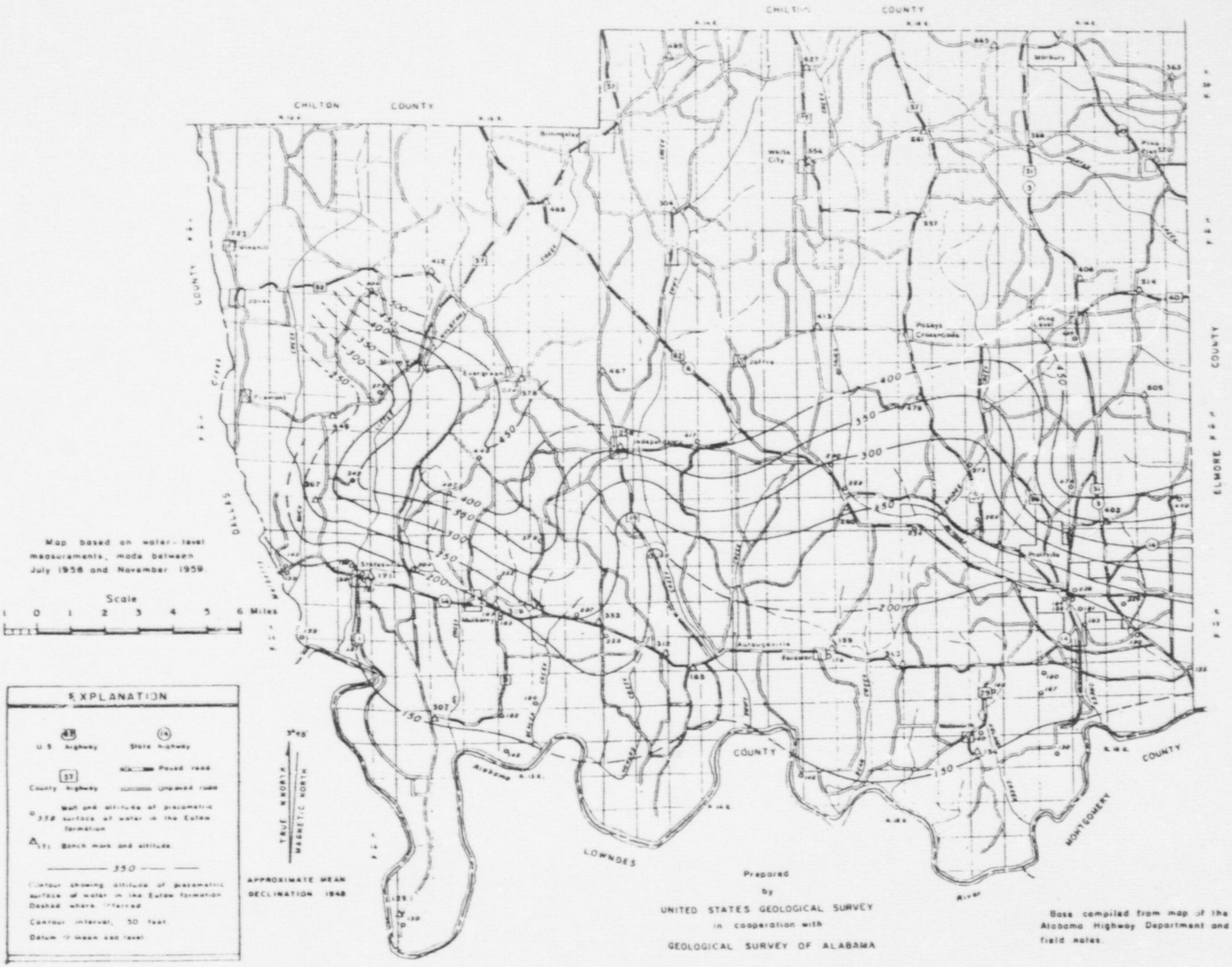


Figure 7.— Map of the piezometric surface of water in the Eutaw formation, Autauga County, Ala.

is stopped, water-level measurements are made in a similar manner to determine the rate of recovery. Information obtained from an aquifer test includes the specific capacity of the well and the coefficient of transmissibility of the producing aquifer. The specific capacity of a well is its rate of yield per unit measurement of drawdown and is commonly expressed in gallons per minute per foot of drawdown. The coefficient of transmissibility is usually expressed as the amount of water in gallons per day that moves through a strip of the aquifer 1 foot wide extending the full height of the aquifer under unit hydraulic gradient, or through a section of the aquifer 1 mile wide under a hydraulic gradient of 1 foot per mile.

An aquifer test was made on well P-25 at the Autaugaville State Nursery in March 1959. The well, tapping sands in the Gordo and Eutaw formations, was pumped at the rate of 220 gpm for 24 hours. Water levels were measured periodically during the test to determine the drawdown in the pumping well and nearby well P-26. Water levels were measured for 24 hours after the aquifer test to determine the rate of water-level recovery. The results of this test, shown on figure 8, indicate a specific capacity of 2.18 gpm per foot, and a coefficient of transmissibility of 18,000 gpd per foot.

Use of Water

Ground water in the county is used mainly for domestic and stock supplies, but in places it is used also for municipal, industrial, irrigation, and school supplies. The wells of largest capacity in the county are those owned by the city of Prattville (R-38 and R-40), the Autaugaville State Nursery (P-25 and P-26), and the Whittaker farm (R-53). The wells owned by the Autaugaville Nursery and the Whittaker farm are used for irrigation. The estimated maximum ground-water withdrawals for all purposes in 1959, in gallons per day, were as follows:

Domestic and stock	800,000
Rural schools	130,000
Irrigation	1,600,000
City of Prattville	1,250,000
Industrial	500,000
Natural flow from wells	1,000,000
Total	5,280,000

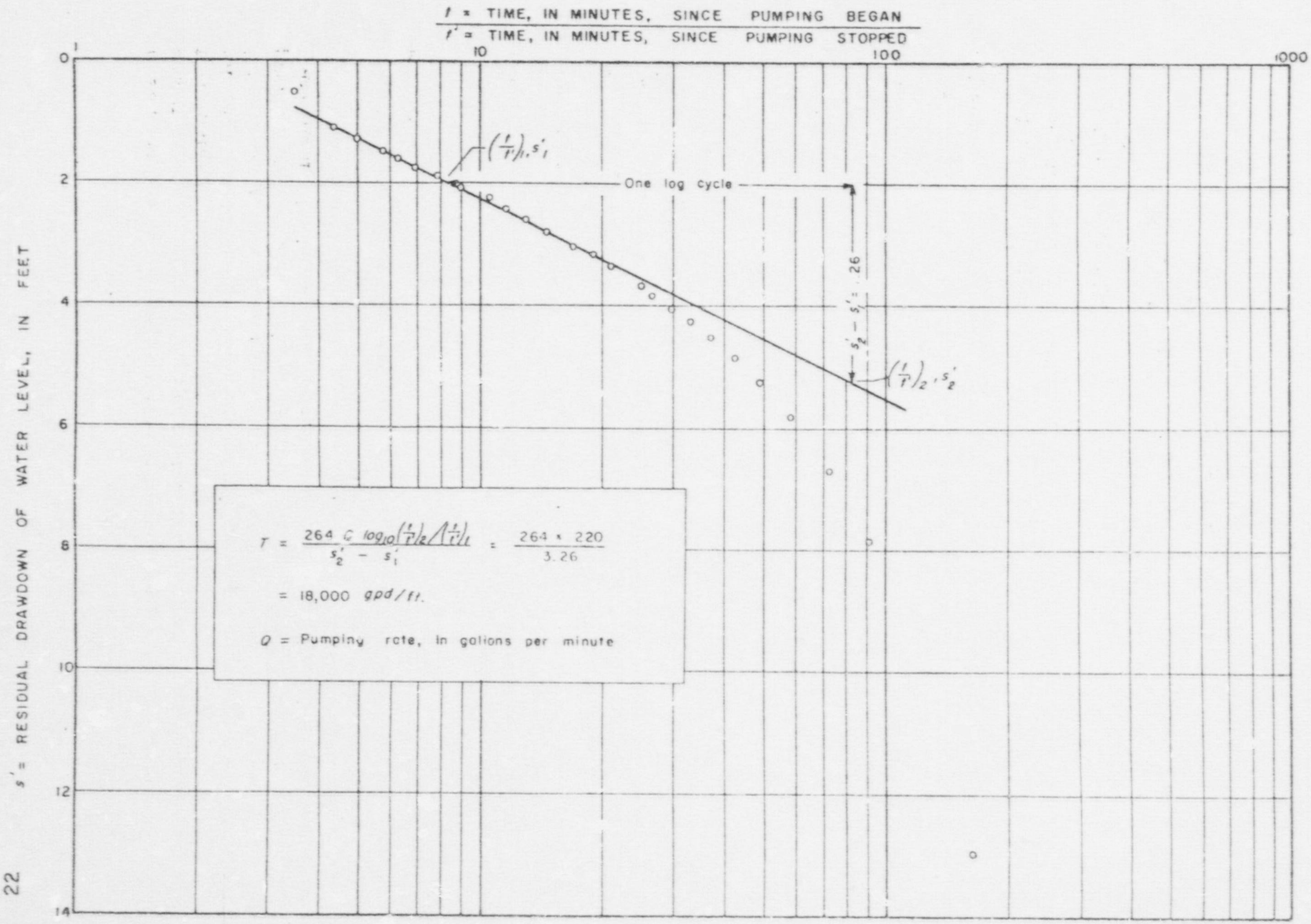


Figure 8.–Semilogarithmic plot of recovery data obtained from aquifer test at the site of well P-25.

QUALITY OF WATER

Water that falls as rain or snow contains only small quantities of dissolved mineral matter, but upon reaching the ground it begins to dissolve minerals from the soil and rocks. The amount and kind of minerals dissolved in ground water varies greatly from place to place, depending upon such factors as the amount and type of organic material in the soil, the type of rocks through or over which the water moves, the length of time the water is in contact with the soil and rocks, and the temperature of the water. Some rocks contain rather soluble salts, and, as a result, water passing through or over them will become highly mineralized. Other rocks contain relatively insoluble minerals, and the water passing through or over them will dissolve relatively small amounts of mineral matter. Nearly all ground water contains calcium because it is readily dissolved from deposits of limestone, gypsum, dolomite, and other calcareous rocks. Other constituents common in ground water are sodium, potassium, magnesium, iron, manganese, bicarbonate, sulfate, chloride, fluoride, nitrate, and silica.

The chemical character of water may restrict its use for municipal, industrial, domestic, or irrigation supplies. Water-quality tolerances beyond which water is not suitable for a particular purpose are not easily defined; however, water for municipal and domestic supplies should, insofar as possible, conform to the standards recommended by the United States Public Health Service (1946). According to these standards, iron and manganese together should not exceed 0.3 ppm (part per million); magnesium should not exceed 125 ppm; sulfate should not exceed 250 ppm; chloride should not exceed 250 ppm; fluoride must not exceed 1.5 ppm; and dissolved solids preferably should not exceed 500 ppm. If water conforming to these standards is not available, water containing dissolved solids of as much as 1,000 ppm may be used for public supply. Fluoride in drinking water in excess of 1.5 ppm may cause mottled enamel of children's teeth if the water is used during the period of calcification of the teeth--that is, roughly during the first 6 to 8 years of life (Dean and others, 1942). Excessive hardness is an undesirable quality of water for domestic and industrial use, because hard water increases soap consumption and deposits scale in pipes, heating equipment and boilers.

The hardness and chloride content of water from most wells inventoried were determined by field analysis (table 1). The results of more comprehensive chemical analysis of water from 12 selected wells and springs used for industrial, irrigation, school, and domestic supplies in Autauga County and for 2 nearby wells in Montgomery County

are given in table 2.

The analyses indicate that ground water of good quality can be obtained in most sections of the county. The chloride content of water from all aquifers is low except in the extreme southwest corner of the county, where water from the Eutaw formation contains as much as 592 ppm of chloride.

Locally, excessive amounts of iron are present in water in the Gordo and Eutaw formations. The analyses indicate that iron in water from the Gordo formation ranges from 0.01 to 0.32 ppm, and averages about 0.10 ppm; iron in water from the Eutaw formation ranges from 0.04 to 3.4 ppm; the median is about 0.12 ppm. The water sampling was insufficient to determine the iron content of water in the Coker formation and the alluvial and terrace deposits; however, based on well owners' reports of stained porcelain and clothing, the iron content is probably excessive in some areas.

Ground water in Autauga County is generally soft. Water from the Coker formation ranges in hardness from 5 to 94 ppm and averages about 50 ppm; water from the Gordo formation ranges from 2 to 132 ppm, and averages about 25 ppm; and water from the Eutaw formation ranges from 6 to 278 ppm, and averages about 50 ppm.

The fluoride content of water from all aquifers, except locally from the Eutaw, is low, ranging from 0.1 to 2.8 ppm and averaging about 0.3 ppm.

CONCLUSIONS

The results of the reconnaissance of ground water of Autauga County lead to the following conclusions:

1. Autauga County is underlain by sedimentary deposits of sand, gravel, calcareous sandstone, clay, and chalk ranging in age from Late Cretaceous to Recent. The Late Cretaceous deposits consist of the Coker and Gordo formations of the Tuscaloosa group, the Eutaw formation, and the Mooreville chalk of the Selma group. These formations dip south-southwestward at 30 to 45 feet per mile and have a combined thickness of more than 1,500 feet in the southwestern part of the county. Terrace and alluvial deposits of Pleistocene to Recent age are distributed in and adjacent to the flood plain of the Alabama River and its major tributaries. Remnants of river terrace deposits also are present in the

vicinities of Pine Level, Prattmont, Wadsworth, Autaugaville, and Mulberry.

2. The principal sources of ground water in the county are drilled or bored wells tapping sand and gravel beds in the Coker, Gordo, and Eutaw formations. These wells range in diameter from 2 to 16 inches and in depth from less than 100 feet to more than 800 feet. Wells tapping these formations flow in lowland areas of the county, and flows of 30 gpm or more can be obtained in some places. Pumped wells in many parts of the county may yield 300 gpm or more. Wells of greatest yields tap the Coker and Gordo formations. Moderate to large quantities of water also can be pumped from wells tapping the Eutaw formation and the terrace and alluvial deposits, where these deposits are saturated and are of sufficient thickness.

3. Ground water of good quality is available in almost all parts of the county. In some parts, the water contains objectionable amounts of iron. The highest concentrations of iron are in water from the Eutaw formation. The ground water is generally soft and contains only small amounts of chloride, fluoride, and sulfate.

SELECTED BIBLIOGRAPHY

Adams, G. I., Butts, Charles, Stephenson, L. W., and Cooke, Wythe, 1926, Geology of Alabama: Alabama Geol. Survey Spec. Rept. 14, 312 p.

Carlston, C. W., 1942, Fluoride in the ground water of the Cretaceous area of Alabama: Alabama Geol. Survey Bull. 52, 67 p.

__________ 1944, Ground-water resources of the Cretaceous area of Alabama: Alabama Geol. Survey Spec. Rept. 18, 203 p.

Dean, H. T., Arnold, F. A., Elvove, Elias, Johnston, D. C., and Short, E. M., 1942, Domestic water and dental caries: U.S. Public Health Service Repts., v. 57, no. 32, p. 1176-1177.

Eargle, D. H., 1950, Geologic map of the Selma group in eastern Alabama: U.S. Geol. Survey Oil and Gas Inv. Prelim. Map 105.

__________ 1955, Stratigraphy of the outcropping Cretaceous rocks of Georgia: U.S. Geol. Survey Bull. 1014, 101 p. [1956].

Fenneman, N. M., 1938, Physiography of eastern United States: New York and London, McGraw-Hill, 714 p.

Meinzer, O. E., 1923a, The occurrence of ground water in the United States, with a discussion of principles: U. S. Geol. Survey Water-Supply Paper 489, 321 p.

__________1923b, Outline of ground-water hydrology, with definitions: U.S. Geol. Survey Water-Supply Paper 494, 71 p.

Monroe, Watson H., 1941, Notes on deposits of Selma and Ripley age in Alabama: Alabama Geol. Survey Bull. 48, 150 p.

Powell, W. J., Reade, H. L., and Scott, J. C., 1957, Interim report on the geology and ground-water resources of Montgomery, Ala., and vicinity: Alabama Geol. Survey Inf. Ser. 3, 108 p.

Smith, E. A., 1907, The underground water resources of Alabama: Alabama Geol. Survey Mon. 6, 388 p.

U.S. Public Health Service, 1946, Drinking water standards: Public Health Service Repts., v. 61, p. 383-384.

TABLES

Table 1. --Records of wells and springs in Autauga County, Ala.

Well or spring No.: Numbers correspond to those in plate 1 and table 2; asterisk indicates chemical analysis given in table 2.
Type: Dr, drilled or bored; Dn, driven; Du, dug; S, spring.
Depth of well and water level: Reported depths below land surface are given in feet; measured depths are given in feet and tenths.
Water-bearing unit: Kck, Coker formation; Kg, Gordo formation; Ke, Eutaw formation; Qt, high terrace deposits; Qal, low terrace and alluvial deposits.

Altitude: Altitudes determined by aneroid barometer.
Method of lift: Cy, cylinder; J, jet; N, none; T, turbine; M, manual; Cf, centrifugal or shallow-well piston; F, flowing well.
Use of water: D, domestic; N, not used; O, observation; P, public supply; S, stock; Ind, industrial; Irr, irrigation.

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: Above (+) or below land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
A- 1	Harry J. Morrison	Alex Stoudenmire Well & Supply Co.	Dr	270	3	Kck	...	.....	.....	Cy	D	....	4	20	Casing: 3-in. from surface to 265 ft.; 1¼-in. screen from 265 to 270 ft.
A- 2	Mountain Top Cafe	....do......	Dr	275	4	Kck	...	.....	.....	Cy	D	....	4	30	Casing: 4-in. from surface to 270 ft.; 3-in. screen from 270 to 275 ft.
A- 3	Dominican Cloister of Saint Jude.	Acme Drilling Co.	Dr	320	4	Kck (?)	...	.....	.....	Cy	D	....	4	34	Casing: 4-in. from surface to 180 ft.; none below.
A- 4	....do........	Alex Stoudenmire Well & Supply Co.	Dr	97	4	Kg	597	67	1959	Cy	D	....	4	18	Casing: 4-in. from surface to 94 ft.; 3-in. screen from 94 to 97 ft.
*A- 5	Holy Ghost Mission School.	....do......	Dr	185	4	Kg (?)	...	.....	.....	T	P	....	1	8	Casing: 4-in. to 180 ft.; 3-in screen from 180 to 185 ft. Yield reported, 50 gpm in 1959.
A- 6	J. M. Luker Estate.	Austin Stoudenmire	Dr	465	4	Kck	...	.....	.....	Cy	N	....	....	....	
A- 7	A. D. Jones......	....do......	Dr	200	3	Kg (?)	...	.....	.....	M	D	69	4	56	
A- 8	J. S. Colver	Alex Stoudenmire Well & Supply Co.	Dr	220	3	Kg (?)	...	.....	.....	Cy	D	....	4	48	Casing: 3-in. from surface to 215 ft.; 1¼-in. screen from 215 to 220 ft.
A- 9	George Grant.....	Austin Stoudenmire	Dr	200	3	Kg (?)	...	.....	.....	Cy	D	....	4	64	
A-10	Marbury Baptist Church.	Alex Stoudenmire Well & Supply Co.	Dr	200	3	Kg (?)	...	.....	.....	Cy	D	....	4	60	Casing: 3-in. from surface to 195 ft.; 1¼-in. screen from 195 to 200 ft. Supplies church and 2 homes.
A-11	Marbury High School.	....	Dr	180	4	Kg (?)	...	.....	.....	T	P	....	4	40	Supplies 400 pupils.

A-12	Colon Wright	Alex Stoudenmire Well & Supply Co.	Dr	178	3	Kg	. . .	. . . . .	. . . . . .	Cy	D, S	. . .	4	38	Casing: 3-in. from surface to 175 ft.; $1\frac{1}{4}$-in. screen from 175 to 178 ft.
A-13	J. E. Varner	. . . .	Du	49.6	24	Kg	538	45.4	-13-59	J	D	. . .	11	20	Casing: 24-in. concrete tile to 49 ft.; none below.
B- 1	Pentecost School. . .	. . . .	Du	15.4	26	Kg	671	12.0	. . do . .	Cf	P	. . .	4	22	Casing: 26-in. concrete tile.
B- 2	G. O. Kelley	Alex Stoudenmire Well & Supply Co.	Dr	144	3	Kg	. . .	. . . . .	. . . . . .	Cy	D	. . .	4	14	Casing: 3-in. from surface to 141 ft.; $1\frac{1}{4}$-in. screen from 141 to 144 ft.
B- 3	J. A. Hooper	. . . . do	Dr	175	4	Kg	. . .	. . . . .	. . . . . .	Cy	S	. . .	4	16	Casing: 4-in. from surface to 170 ft.; 3-in. screen from 170 to 175 ft.
B- 4	B. B. Pearson	C. W. Dunlap. . .	Dr	180	4, 2	Kg	. . .	. . . . .	. . . . . .	Cy	D	. . .	4	22	
C- 1	Blinker Estate	. . . .	Du	80.9	26	Kg	571	76.0	7-15-59	M	D	66	4	26	
C- 2	J. D. Jones	. . . .	Du	[illegible].5	26	Kg	531	74.8	. . do . .	J	D, S	. . .	4	38	
C- 3	O. O. Weldon.	. . . .	Du	71.6	26	Kg	499	63.3	7-17-59	J	D, S	. . .	25	64	
D- 1	H. G. Herrod.	. . . .	Du	24	24	Qal	262	10	1959	Cf	D	. . .	4	20	Casing: 24-in. concrete tile to 20 ft.; none below.
D- 2	W. L. Willitte	. . . .	Du	39.6	24	Ke (?)	565	34.8	5-22-59	J	D, S	. . .	39	52	Supplies 2 homes and stock.
D- 3	Bethel Baptist Church.	. . . .	Du	27.8	24	Ke (?)	517	24.9	. . do . .	M	D	65	11	38	
D- 4	New Salem School . .	. . . .	Du	30	24	Ke	532	28	1959	J	P	65	11	28	Supplies 110 pupils.
D- 5	J. W. Thomas	R. A. Brady . . .	Dr	175	4, 2	Kg	200	+ 2	5- -59	F	D	68	11	16	Casing: 4-in. from surface to 60 ft.; 2-in. from surface to 165 ft.; none below. Estimated discharge, 15 gpm in 1959. Supplies 2 homes and irrigates garden.
D- 6	J. W. McCullough. .	Radford and Son .	Dr	174	4, 2	Kg	202	+ 1.5	. . do . .	F	D	65	11	20	Estimated discharge, 10 gpm in May 1959.
D- 7	Payton King	Alex Stoudenmire Well & Supply Co.	Dr	165	4, 2	Kg	202	+ 3	5- -59	F	D	66	11	38	Casing: 4-in. from surface to 20 ft.; 2-in. from surface to 160 ft.; 2-in. screen from 160 to 165 ft. Measured discharge, 1.2 gpm on 5-26-59.
*D- 8	D. M. Parker	Radford and Son .	Dr	180	4, 2	Kg	198	+ 2	. . do . .	F	D	66	2	8	Casing: 4-in. to 60 ft.; 2-in. from surface to 170 ft.; none below. Measured discharge, 8.6 gpm on 5-26-59.
D- 9	H. G. Reed	R. A. Brady . . .	Dr	150	4, 2	Kg (?)	201	+12	. . do . .	F	D	66	11	14	Casing: 4-in. to 40 ft.; 2-in. from surface to 140 ft.; none below. Measured discharge, 10 gpm on 5-22-59.
D-10	E. Epperson	. . . . do	Dr	150	4, 2	Kg (?)	200	+12	. . do . .	F	D	. . .	11	14	Measured discharge, 10 gpm on 5-22-59.
D-11	Southern Railroad . .	. . . . do	Dr	353	3	Kg	201	+ 2.5	. . do . .	F	D	68	11	106	Casing: 3-in. to 350 ft. Estimated discharge, 2 gpm on 5-26-59. See driller's log. Supplies 5 homes.

Table 1. --Records of wells and springs in Autauga County, Ala. --Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface (feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
D-12	J. H. Buckner	R. A. Brady . . .	Dr	480	4, 2	Kck (?)	206	+ 8.3	5-26-59	F	D	67.5	11	94	Casing: 4-in. to 100 ft.; 2-in. from 100 to 380 ft.; none below. Measured discharge, 1.3 gpm on 5-26-59.
D-13	Jones School	. . . .	S	. . . .	. . .	Ke	. . .	. . . .	. . . . . .	F	P	67	11	12	Measured discharge, 3.9 gpm on 5-26-59.
E- 1	W. F. Gilliland . . .	C. W. Dunlap. . .	Dr	90	3	Kg	. . .	. . . .	. . . . . .	J	D	. . .	4	18	Casing: 3-in. to 80 ft.; 2-in. screen from 80 to 90 ft. Supplies 3 homes.
E- 2	Sadie Campbell. . . .	. . . .	Du	61.0	30	Kg	415	54.8	9- 1-55	J	D	67	23	68	Casing: 30-in. concrete tile to 60 ft.
E- 3	W. F. Gilliland . . .	C. W. Dunlap. . .	Dr	60	2	Kg	. . .	. . . .	. . . . . .	J	D	. . .	4	18	Casing: 2-in. to 50 ft.; 2-in. screen from 50 to 60 ft.
E- 4	Transcontinental Gas Pipe Line.	Layne-Central Co.	Dr	364	16, 10	Kck	320	. . . .	. . . . . .	T	Ind	68	4	98	Casing: 16- and 10-in. to 304 ft.; 10-in. screen from 304 to 364 ft. Reported yield, 400 gpm in 1959. See sample and electric logs.
E- 5	E. E. Deason.	C. W. Dunlap. . .	Dr	73	3, 2	Kg	. . .	. . . .	. . . . . .	J	D	. . .	4	14	Supplies home and swimming pool.
E- 6	Clifton Turner	. . . .	Du	47.6	30	Kg	440	44.0	6-16-59	J	D, S	. . .	4	48	
F- 1	Billingsley High School.	. . . .	Dr	210	4	Kg (?)	. . .	. . . .	. . . . . .	T	P	. . .	4	22	Supplies 350 pupils.
F- 2	Percey Hill	Percey Hill	Du	22.5	24	Kg	312	17.6	6-16-59	J	D, S	. . .	4	38	Supplies home and chicken farm.
F- 3	R. G. Spigner	--Mims.	Du	41.1	24	Kg (?)	435	36.7	. . do . .	J	D, S	. . .	4	46	Casing: 24-in. concrete to 40 ft.
*F- 4	L. B. Burmeister. .	Bentley Clark. . .	Dr	120	3, 3/4	Kg	295	+ 3	6- -59	F	D	66	[illegible]	11	Measured discharge, 5.5 gpm on 6-16-59. Supplies several homes.
F- 5	E. E. Wyatt.	Alex Stoudenmire Well & Supply Co.	Dr	320	3, 2	Kg	270	+ 2.5	. . do . .	F	D	68.5	4	50	Casing: 3-in. to 40 ft.; 2-in. from surface to 250 ft.; none below. Estimated discharge, less than 1 gpm in June 1959.
F- 6	Campbell and Moseley Camp.	. . . . do	Dr	200	3	Kg	254	+ 4	. . do . .	F	D	66.5	4	36	Measured discharge, 6.0 gpm on 6-16-59.
G- 1	D. E. Thebo	. . . .	Dr	80	4	Kg	448	2	. . do . .	Cf	D, S	. . .	4	42	
G- 2	Marvin Harris	C. W. Dunlap. . .	Dr	155	4	Kg	637	118	7- -59	T	D	. . .	4	24	Casing: 4-in. to 143 ft.; 4-in. screen from 143 to 155 ft. Reported yield, 13 gpm in July 1959. Supplies home and heat-air conditioning system
G- 3	R. E. Nelson	. . . .	Du	48.5	30	Kg	606	39.6	6-22-59	J	D	. . .	25	48	

G- 4	N. R. Gillespie . . .	Alex Stoudenmire Well & Supply Co.	Dr	125	4	Kg (?)	. . .	. . . .	. . . . . .	T	D, S	. . .	. . . .	. . . .	Casing: 4-in. to 120 ft.; 2-in. screen from 120 to 125 ft.
G- 5	L. Huddleston	. . . .	Dr	200	4	Kg	. . .	. . . .	. . . . . .	J	D	. . .	4	22	
G- 6	J. M. Donovan	Alex Stoudenmire Well & Supply Co.	Dr	102	4	Kg	. . .	. . . .	. . . . . .	T	D	. . .	4	18	Casing: 4-in. to 92 ft.; 2-in. screen from 92 to 102 ft.
H- 1	J. F. Endress	. . . . do	Dr	148	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	4	28	
H- 2	Smith Lumber Co . .	. . . .	Dr	160	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	. . . .	. . . .	
H- 3	John J. Scott	Acme Drilling Co.	Dr	150	6	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	4	18	Casing: 6-in. to 130 ft.; 4-in. screen from 130 to 150 ft.
H- 4	R. P. Gibbons	Alex Stoudenmire Well & Supply Co.	Dr	[illegible]	4	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	4	26	Casing: 4-in. to 137 ft.
H- 5	J. O. Garrett.	. . . .	Du	52.6	24	Kg	514	37.2	6-26-59	J	D, S	. . .	. . . .	. . . .	
H- 6	Ruth M. Fleener. . .	H. W. Peerson. .	Dr	500	4	Kck	644	107	1946	Cy	D, S	. . .	4	20	Insufficient supply. Supplements supply for home and chicken farm. See driller's log.
H- 7	. . . . do	Alex Stoudenmire Well & Supply Co.	Dr	265	4	Kg (?)	. . .	. . . .	. . . . . .	Cy	D, S	. . .	4	18	Supplies home and 6,000 chickens.
H- 8	H. G. Hill	Jet Drilling Co . .	Dr	200	4	Kg	645	143.7	7- 6-59	Cy	N	. . .	. . . .	. . . .	Casing: 4-in. to 200 ft.; slotted from 150 to 200 ft.
H- 9	J. R. French	Alex Stoudenmire Well & Supply Co.	Dr	130	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	4	20	Casing: 3-in. to 126 ft.; 3-in. screen from 126 to 130 ft.
H-10	W. F. Cranmore . .	. . . . do	Dr	185	3	Kg	616	. . . .	. . . . . .	Cy	D	. . .	4	16	Casing: 3-in. to 175 ft.; 1¼-in. screen from 175 to 185 ft.
H-11	J. M. Phillips	. . . . do	Dr	165	3	Kg	610	. . . .	. . . . . .	Cy	D	. . .	4	14	Casing: 3-in. to 155 ft.; 1¼-in. screen from 155 to 165 ft.
H-12	Liberty Baptist Church.	. . . . do	Dr	155	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	. . . .	. . . .	Casing: 3-in. to 152 ft.; 1¼-in. screen from 152 to 155 ft.
H-13	Marvin C. Lee	James A. Stoudenmire.	Dr	147	4	Kg	616	95.2	7- 2-59	T	D	. . .	4	16	Supplies 2 homes.
H-14	Thomas D. Post . . .	Alex Stoudenmire Well & Supply Co.	Dr	135	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	4	12	Casing: 3-in. to 130 ft.; 1¼-in. screen from 130 to 135 ft.
H-15	Percy D. Roy	. . . . do	Dr	175	4	Kg	. . .	. . . .	. . . . . .	Cy	S	67	4	20	Casing: 4-in. to 145 ft.
H-16	Leon Boone	. . . . do	Dr	203	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	. . . .	. . . .	Casing: 3-in. to 200 ft.; 1¼-in. screen from 200 to 203 ft.

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: Above (+) or below land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
H-17	K. C. Hollon	....	Du	15.4	24	Kg	458	10.2	7- 8-59	J	D,S	...	4	20	
H-18	F. L. Wheat	....	Dr	200	4	Kg (?)	...	....	......	Cy	D	...	4	14	Supplies 3 homes.
H-19	Huffstutler-Walters Oil Co.	Alex Stoudenmire Well & Supply Co.	Dr	225	4	Kg	571	72.5	7- 2-59	T	D	..	4	18	Casing: 4-in. to 220 ft.; 3-in. screen from 220 to 225 ft. Supplies service station.
H-20	Clifford Bazzell	Bentley Clark	Dr	95	3	Kg	...	....	......	Cy	D	...	4	18	Casing: 3-in. to 92 ft.; $1\frac{1}{4}$-in. screen from 92 to 95 ft.
*H-21	Pine Level High School.	Alex Stoudenmire Well & Supply Co.	Dr	175	4	Kg	...	....	......	Cy	P	...	3	7	Casing: 4-in. to 165 ft.; 3-in. screen from 165 to 175 ft. Supplies 100 pupils.
H-22	Charles Ferguson	....do....	Dr	87	3	Kg	...	....	......	Cy	D	...	4	20	Casing: 3-in. to 82 ft.; $1\frac{1}{4}$-in. screen from 82 to 85 ft.
H-23	Percy D. Roy	C. W. Dunlap	Dr	165	4	Kg	535	102.9	7- 2-59	J	D,S	...	4	20	Casing: 4-in. to 160 ft.; 3-in. screen from 160 to 165 ft.
H-24	C. R. Cannon	Alex Stoudenmire Well & Supply Co.	Dr	165	3	Kg	...	....	......	Cy	D	...	4	16	Casing: 3-in. to 155 ft.; $1\frac{1}{4}$-in. screen from 155 to 165 ft.
I- 1	Sam Hunt	....	Dr	105	3	Kg	...	....	......	Cy	D	...	4	6	
I- 2	D. H. Roy	Alex Stoudenmire Well & Supply Co.	Dr	138	4	Kg	579	130	1959	Cy	D	...	18	22	Casing: 4-in. to 130 ft. Supplies 2 homes and store.
I- 3	E. L. Turner	....do....	Dr	145	4	Kg	...	....	......	Cy	D	...	11	12	Casing: 4-in. to 130 ft.; none below.
I- 4	J. D. Abbott	....	Du	21.5	30	Ke (?)	499	14.4	4-27-59	Cf	D	...	11	28	Supplies 2 homes. Well has been used for more than 60 years.
I- 5	H. R. Jones	Alex Stoudenmire Well & Supply Co.	Dr	110	4	Kg	...	....	......	Cy	S	...	11	10	Casing: 4-in. to 100 ft.; 3-in. screen from 100 to 110 ft. Supplies 9,000 chickens.
I- 6	....do....	....do....	Dr	80	3	Kg	...	....	......	Cy	D	...	11	16	Casing: 3-in. to 75 ft.; $1\frac{1}{4}$-in. screen from 75 to 80 ft.
I- 7	F. M. Tatum	....do....	Dr	140	4	Kg	...	....	......	Cy	D,S	...	11	54	Casing: 4-in. to 100 ft.; none below.
I- 8	T. H. Roy	....do....	Dr	140	4	Kg	...	....	......	M	N	...	....	....	Do.
I- 9	L. H. Hunt	....do....	Dr	160	3	Kg	500	....	......	Cy	D,S	...	11	6	

I-10	J. H. Nummy.	Alex Stoudenmire Well & Supply Co.	Dr	125	3	Kg	480	. . . .	. . . . . .	Cy	D	. . .	11	20	
I-11	H. A. Martin.	. . . . do	Dr	154	3	Kg	576	115	7- -59	Cy	D	. . .	4	16	Casing: 3-in. to 151 ft.; 1½-in. screen from 151 to 154 ft.
I-12	Alvin Ross.	. . . .	Dr	185	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	6	Casing: 3-in. to 90 ft.; none below.
I-13	Joe Nummy	Alex Stoudenmire Well & Supply Co.	Dr	210	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	11	6	
I-14	Robert H. Chesnutt .	. . . . do	Dr	175	3	Kg	530	40	4- -59	Cy	D	. . .	11	6	Casing: 3-in. to 165 ft.; 1½-in. screen from 165 to 175 ft. Supplies 2 homes and vegetable garden.
I-15	H. M. Boggs	. . . . do	Dr	220	3	Kg	624	180	. . do . .	Cy	D	. . .	11	8	Supplies pottery plant and home.
I-16	. . . . do	. . . . do	Dr	220	4	Kg	618	180	. . do . .	Cy	D	. . .	11	6	Casing: 4-in. to 200 ft.
I-17	R. T. Kirkland. . . .	. . . .	Dr	200	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	4	12	
I-18	L. C. Manning. . . .	Alex Stoudenmire Well & Supply Co.	Dr	175	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	10	Casing: 3-in. to 170 ft.; none below.
I-19	Deavers Truck Stop.	. . . .	Dr	200	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	10	Supplies cafe and service station.
I-20	Zeno Stringfellow . .	Jet Drilling Co . .	Dr	186	4, 3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	12	Casing: 4- and 3-in. to 186 ft.; lower 20 ft. slotted.
I-21	County Line Christian Church. .	Alex Stoudenmire Well & Supply Co.	Dr	150	3	Kg	540	. . . .	. . . . . .	Cy	D	. . .	11	16	
I-22	M. L. Livings	. . . . do	Dr	175	4	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	20	Casing: 4-in. to 165 ft.; 3-in. screen from 165 to 175 ft.
I-23	Robert Wright	. . . .	Du	62.0	24	Ke (?)	583	57.3	4-28-59	J	D	. . .	11	14	Casing: 24-in. concrete tile to 60 ft. Supplies 2 homes.
I-24	H. H. Adams	. . . .	Dr	200	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	20	
I-25	M. O. Hunt	. . . .	Du	63.3	30	Ke	530	56.1	4-28-59	J	D, S	. . .	46	32	Casing: 30-in. concrete tile to 60 ft.; none below.
I-26	Westwood Nursery .	James A. Stoudenmire.	Dr	167	4	Kg	. . .	. . . .	. . . . . .	J	D, Irr	. . .	11	12	Casing: 4-in. to 162 ft.; 3-in. screen from 162 to 167 ft. Supplies nursery and home.
I-27	Pleasant Hill Baptist Church.	Alex Stoudenmire Well & Supply Co.	Dr	112	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	25	12	Casing: 3-in. to 100 ft.; none below.
I-28	R. W. Carter.	. . . . do	Dr	177	3	Kg (?)	. . .	. . . .	. . . . . .	Cy	D	. . .	11	10	

Table 1. --Records of wells and springs in Autauga County, Ala. --Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: Above (+) or below land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
I-29	Earl M[illegible]	Alex Stoudenmire Well & Supply Co.	Dr	150	3	Ke (?)	...	....	......	Cy	D	...	11	8	
I-30	George Blackmon	....do......	Dr	165	3	Kg (?)	...	....	......	Cy	D	...	11	18	Casing: 3-in. to 160 ft.; 3-in. screen from 160 to 165 ft. Supplies nursery, swimming pool, and home.
I-31	S. E. Avery, Jr.	James A. Stoudenmire.	Dr	125	3	Ke (?)	...	....	......	Cy	D	...	18	132	Reported yield, 3 gpm in 1959. Supplies 8,000 chickens and home.
I-32	John S. Ray	....	Du	57.7	30	Ke	488	47.6	9-16-58	J	D	...	32	92	
I-33	D. L. Yarbrough	Alex Stoudenmire Well & Supply Co.	Dr	150	3	Kg (?)	...	....	......	Cy	D	69	18	110	
I-34	George Blackmon	....do......	Dr	146	4	Kg (?)	...	....	......	T	D	...	...	...	Casing: 4-in. to 139 ft.; 3-in. screen from 139 to 146 ft. Supplies nursery, swimming pool, and home.
J- 1	Camp Tuckabatchee.	Acme Drilling Co.	Dr	125	4	Kg	...	....	......	J	D	...	18	6	
J- 2	A. L. Donovan, Jr.	Alex Stoudenmire Well & Supply Co.	Dr	145	3	Kg	...	....	......	Cy	D	...	4	16	
J- 3	....do........	....do......	Dr	187	4	Kg	...	....	......	J	D	...	4	12	Supplies home and heat-air conditioning system.
J- 4	W. A. Th[illegible]rne	....do......	Dr	170	3	Kg	554	80	4- -59	Cy	D, S	...	11	12	Casing: 3-in. to 90 ft.; none below. Supplies 2 homes and stock.
J- 5	W. R. Lee.	....	Dr	182	3	Kg	548	100	.do..	Cy	D, S	...	18	8	Casing: 3-in. to 120 ft.; none below.
J- 6	Kingston School	....	Du	42	24	Kg (?)	...	....	......	J	D	...	11	14	Casing: 24-in. concrete tile to 40 ft.; none below.
J- 7	Mount Sinai School	....	Du	74.2	30	Ke (?)	504	69.0	4-29-59	M	P	67	11	20	Supplies 125 pupils.
J- 8	Bridge Creek Lodge	Alex Stoudenmire Well & Supply Co.	Dr	300	3	Kg	273	+ .5	.do..	F	D	66	4	4	Estimated discharge, 1 gpm on 4-29-59.
J- 9	Charles W. Jones	....	Dr	300	2	Kg	275	+ .5	.do..	Cf	D	...	11	6	Casing: 2-in. to 295 ft.; $1\frac{1}{4}$-in. screen from 295 to 300 ft.

J-10	Simuel Deramus . . .	Alex Stoudenmire Well & Supply Co.	Dr	160	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	11	6	Casing: 3-in. to 120 ft.; none below.
J-11	Goodson Estate. . . .	--Mims.	Du	40	24	Kg	355	34.5	4-29-59	M	D	. . .	. . . .	. . . .	
J-12	E. W. Murphree. . .	Alex Stoudenmire Well & Supply Co.	Dr	118	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	4	6	
J-13	Otto Jones	. . . . do	Dr	300	2	Kg	273	+ .8	5- 1-59	Cf	D	69	11	8	Estimated discharge, less than 1 gpm on 5-1-59.
J-14	G. M. Taylor.	. . . . do	Dr	130	3	Kg	306	16	5- -59	Cy	D	. . .	4	10	Casing: 3-in. to 125 ft.; 1½-in. screen from 125 to 130 ft.
J-15	Upchurch Estate . . .	. . . .	S	. . . .	. . .	Ke (?)	. . .	. . . .	. . . . . .	Cf	D	. . .	11	10	Supplies 4 homes.
J-16	J. F. Posey	. . . .	Du	36.0	30	Ke	305	31.7	4-29-59	M	D	. . .	. . . .	. . . .	
J-17	N. B. Reynolds . . .	. . . .	Dr	55	3	Ke	280	22	5- -59	Cf	D	. . .	11	10	Casing: 3-in. to 55 ft. Supplies 4 homes and trailer park.
J-18	Locust Bluff School.	. . . .	Du	31.1	30	Ke	316	26.5	5- 4-59	M	P	65	11	20	Supplies 45 pupils.
J-19	Cinderella Motel. . .	Alex Stoudenmire Well & Supply Co.	Dr	150	4	Kg	274	10	5- -59	Cy	P	67	11	8	Casing: 4-in. to 100 ft.; none below. Reported yield, 10 gpm in 1959. Supplies motel, cafe, and swimming pool.
J-20	D. B. Faulk.	. . . . do	Dr	100	3	Kg (?)	. . .	. . . .	. . . . . .	Cy	N	. . .	. . . .	. . . .	
J-21	Deramus Packing Co.	Austin Stoudenmire.	Dr	190	3	Kg	298	20	5- -59	Cy	Ind	. . .	4	22	Supplies meat-processing plant.
J-22	R. E. Miller	Alex Stoudenmire Well & Supply Co.	Dr	80	3	Ke (?)	. . .	. . . .	. . . . . .	Cy	S	. . .	. . . .	. . . .	
J-23	J. L. Horton	. . . . do	Dr	96	4	Kg	255	14.2	5- 4-59	J	P	. . .	4	6	Casing: 4-in. to 86 ft.; 1¼-in. screen from 86 to 96 ft. Reported yield, 30 gpm in May 1959. Supplies cafe, service station, and meat market.
J-24	K. L. McClande . . .	. . . .	Dr	77.0	3	Ke (?)	248	13.5	. do . .	Cf	D	. . .	4	20	Supplies service station and home.
J-25	T. W. Glenn	. . . .	Dr	200	4	Kg	320	58.4	5- 1-59	Cy	D, S	. . .	11	8	
K- 1	W. T. Carter.	Alex Stoudenmire Well & Supply Co.	Dr	165	3	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	11	12	
K- 2	. . . . do	. . . . do	Dr	125	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	11	8	
K- 3	Hardy Giles	--Smitherman . .	Du	141.0	30, 24	Kg (?)	473	134.5	5- 6-59	J	D	. . .	11	24	Casing: concrete tile and plaster curbing to 140 ft.

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface (feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
K- 4	M. D. Carter	....	Dr	200	3	Kg	...	....	......	Cy	D, S	...	11	6	
K- 5	L. R. Carter	L. R. Carter	Dr	48	2	Kg (?)	473	....	......	Cy	D, S	...	4	8	Casing: 2-in. to 45 ft.; 2-in. screen from 45 to 48 ft.
K- 6	Gaddis Realty Co	....	Dr	180	3	Kg	...	....	......	Cy	N	...	....	....	
K- 7	Dan Gissendanner	Bentley Clark	Dr	180	3	Kg	...	....	......	Cy	D	...	4	8	Casing: 3-in. to 180 ft.
K- 8	Mable Carter	Alex Stoudenmire Well & Supply Co.	Dr	189	3	Kg	...	....	......	Cy	D, S	...	11	8	Casing: 3-in. to 186 ft.; 1¼-in. screen from 186 to 189 ft.
K- 9	....do	....do	Dr	169	3	Kg	440	....	......	Cy	D	...	11	10	Casing: 3-in. to 166 ft.; 1¼-in. screen from 166 to 169 ft.
K-10	W. M. Deramus	....do	Dr	162	3	Kg	398	90	5- -59	Cy	D, S	...	11	8	Casing: 3-in. to 150 ft.; none below. Supplies home and 10,000 chickens.
K-11	W. M. Wyatt	Bentley Clark	Dr	290	2	Kg	255	9.1	5- 5-59	Cf	D	...	4	14	Casing: 2-in. to 280 ft.; none below.
K-12	C. R. Askin	....do	Dr	293	2	Kg	260	24.6	..do..	Cf	D	...	11	10	Do.
K-13	Friendship School	....	Du	77.2	30	Ke	490	73.0	..do..	J	P	...	11	6	Supplies 75 pupils.
K-14	Perry Oates	....	Dr	200	2	Kg	203	+4	5- -59	F	D, S	67	11	10	Measured static water level, 15.0 ft. above surface on 8-14-40; estimated static water level, 4 ft. above surface on 5-5-59. Measured discharge, 13.9 gpm on 8-14-40; estimated discharge, 10 gpm on 5-5-59.
L- 1	Smith Farm	Alex Stoudenmire Well & Supply Co.	Dr	160	3	Kg	...	....	......	Cy	D, S	...	11	18	Casing: 3-in. to 160 ft.
L- 2	W. L. Cole, Jr	C. W. Dunlap	Dr	200	2	Kg	475	65	5- -59	Cy	D	...	11	20	Casing: 2-in. to 195 ft.; 2-in. screen from 195 to 200 ft. Supplies 2 homes.
L- 3	J. A. Rainwater	Alex Stoudenmire Well & Supply Co.	Dr	220	3	Kg	...	....	......	Cy	D	...	4	14	Casing: 3-in. to 200 ft.; none below.
L- 4	....do	....do	Dr	150	4	Ke	564	90	5- -59	Cy	D, S	...	4	12	Casing: 4-in. to 145 ft.; 3-in. screen from 145 to 150 ft.
L- 5	J. T. Rainwater	....do	Dr	320	4	Kg	550	....	......	Cy	D, S	...	11	20	
L- 6	James F. Golson	....do	Dr	197	3	Kg	...	....	......	Cy	D, S	...	11	8	Supplies home and 10,000 chickens.

L- 7	J. A. Rainwater . . .	Alex Stoudenmire Well & Supply Co.	Dr	270	3	Kg	. . .	. . . .	. . . . . .	Cy	S	. . .	4	16	
L- 8	Winslow School. . . .	. . . .	Du	28.0	30	Ke	470	21.9	5-18-59	N	N	. . .	. . . .	. . . .	
L- 9	E. C. Daniels	. . . .	Du	37.2	24	Ke	440	33.0	5-21-59	J	D	. . .	11	26	Casing: 24-in. concrete tile to 36 ft.
M- 1	R. L. Walker.	. . . .	Du	69	24	Kg	331	63.3	. . do . .	J	D	. . .	11	18	Supplies 2 homes.
M- 2	J. T. Smedley	Radford and Son .	Dr	285	4	Kg	211	21.7	. . do . .	Cf	D	. . .	11	28	Casing: 4-in. to 280 ft.; 3-in. screen from 280 to 285 ft.
M- 3	Percy Chandler . . .	. . . .	Du	53.0	20	Ke	320	41.3	5-18-59	J	D	. . .	11	28	
M- 4	H. O. Smedley . . .	Radford and Son .	Dr	275	4	Kg	212	10	5- -59	J	D	. . .	11	22	Casing: 4-in. to 265 ft.; 3-in. screen from 265 to 275 ft.
M- 5	T. J. Fulford.	. . . . do	Dr	350	4	Kg	193	+ 3	. . do . .	F	D	67	11	26	Measured discharge, 17.6 gpm on 5-21-59. Supplies home and vegetable garden.
M- 6	J. H. Bruce.	. . . . do	Dr	310	2	Kg	180	+ 4	. . do . .	F	D, S	67	18	16	Casing: 2-in. to 305 ft.; 2-in. screen from 305 to 310 ft. Estimated discharge, 20 gpm on 5-21-59.
M- 7	D. L. Whetstone. . .	. . . .	Du	31.0	24	Ke	370	25.1	5-21-59	Cf	D, S	. . .	11	40	
N- 1	Sam Esco	Bentley Clark. . .	Dr	200	4	Ke	152	2.0	4-24-59	Cf	D	67	11	22	Measured discharge, 11.4 gpm on 4-24-59. Flows from discharge pipe 2.5 ft. below top of casing.
*N- 2	Rastus McLendon . .	. . . .	Dr	180	4	Ke	139	+ 4	4- -59	F	D, S	70	1	33	Measured discharge, 26.7 gpm on 4-24-59.
*N- 3	. . . . do	Cecil Radford. . .	Dr	150	4	Ke	138	+ 1	. . do . .	F	S	68	11	22	Estimated discharge, less than 1 gpm on 4-24-59; measured discharge, 19.8 gpm on 7-25-40.
N- 4	C. W. Johnson. . . .	. . . . do	Dr	155	4	Ke	156	+ .5	4-26-59	F	D	65	18	14	Measured discharge, 1.8 gpm on 4-26-59; measured discharge, 6.5 gpm on 7-25-40.
N- 5	. . . . do	. . . . do	Dr	155	4	Ke	162	.5	. . do . .	Cf	D	67	11	18	Measured static water level, 2.5 ft. above surface on 7-25-40; measured discharge, 4.4 gpm on 4-24-59 flowing from pipe 3 ft. below top of casing; measured discharge, 20.2 gpm on 7-25-40.
N- 6	C. A. Billingsley . .	Alex Stoudenmire Well & Supply Co.	Dr	201	3	Ke	130	+ 2.5	4-24-59	F	S	69.5	11	28	Casing: 3-in. to 42 ft.; none below. Measured discharge, 26.7 gpm on 4-24-59.
N- 7	Russell Wood.	Bentley Clark. . .	Dr	200	3	Ke	151	+ .3	6- 4-59	Cf	D, S	. . .	. . . .	. . . .	Casing: 3-in. to 40 ft.; none below.
N- 8	C. W. Johnson. . . .	. . . .	Dr	700	3, 2	Kg	142	+ 12	4- -59	F	D, S	. . .	11	20	
O- 1	Peyton Langford. . .	. . . .	Du	42.0	30	Ke	403	[illegible].3	4-15-59	J	D	. . .	18	30	
*O- 2	G. E. Treadwell. . .	E. H. Brady	Dr	300	4, 2	Ke	364	160	4- -59	Cy	D, S	. . .	2	27	Casing: 4-in. to 142 ft.; 2-in. from 142 to 276 ft.; 2-in. screen from 276 to 300 ft.

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface (feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
O- 3	H. T. Underwood Estate.	Austin Stoudenmire.	Dr	400	4	Ke (?)	310	....	......	Cy	D,S	...	25	20	Casing: 4-in. to 100 ft.; none below.
O- 4	A. C. Houston....	....do......	Dr	350	4	Ke	322	60	4- -59	Cy	D,S	...	25	34	Casing: 4-in. to 125 ft.; none below. Supplies 3 homes and stock.
O- 5	Della Whetstone...	....do......	Dr	350	3	Ke (?)	...	....	......	Cy	D	...	[illegible]	40	
O- 6	O. E. Golson.....	C. E. Golson...	Dr	360	3, 2½	Ke (?)	306	60	4- -59	J	D,S	...	11	18	Casing: 3- and 2½-in. to 350 ft.
O- 7	Joe K. Clifton....	....	Du	40	30	Ke	321	34	..do..	J	D,S	...	32	40	
O- 8	T. F. Gober.....	....	Dr	200	3	Ke	320	137.0	8-24-59	N	N	...	....	....	Well replaced by O-9.
O- 9	....do........	Watson Drilling Co.	Dr	350	4	Ke	320	137	8- -59	Cy	D	...	....	....	
O-10	W. E. Tyus......	Radford and Son.	Dr	400	3	Ke (?)	...	....	......	Cy	D,S	...	4	30	Casing: 3-in. to 100 ft.; none below.
O-11	A. C. Houston....	Alex Stoudenmire Well & Supply Co.	Dr	425	3	Ke	...	....	......	M	N	67	18	....	Do.
O-12	J. A. Lambert....	....	Dr	300	4	Ke	303	....	......	M	N	...	....	....	Casing: 4-in. to [illegible]0 ft.; none below. Abandoned because of highly mineralized water.
O-13	Bama River Ranch.	Watson Drilling Co.	Dr	280	4	Ke	...	....	......	Cy	D,S	...	4	48	
O-14	....do........	....do......	Dr	440	4	Ke	320	138	6- -59	Cy	D,S	...	4	90	Casing: 4-in. to 40 ft.; none below. See sample and electric logs.
O-15	G. D. Whetstone...	....	Dr	350	3	Ke (?)	150	+ 4	4- -59	F	S	67	11	28	
O-16	Bama River Ranch.	....	Dr	...	2	Ke (?)	139	0	..do..	F	S	[illegible]	11	34	Measured discharge, 2.5 gpm on 4-23-59.
*P- 1	J. B. Neighbors...	Alex Stoudenmire Well & Supply Co.	Dr	60	2	Ke	186	+ 3.6	3-18-59	F	S	66	1	12	Casing: 2-in. to 40 ft.; none below. Measured discharge, 1.0 gpm on 3-18-59.
P- 2	....do........	....do......	Dr	340	2	Kg	190	+ 2	3- -59	F	D,S	66.5	4	8	Measured discharge, 1.0 gpm on 3-18-59.
P- 3	Whitewater Lake...	....	Dr	260	2	Kg	185	+ 2	..do..	F	D	...	4	14	

P- 4	G. C. Youngerman .	. . . .	Dr	300	2	Kg	161	+ 9.0	3-19-59	F	D	68	11	6	Measured discharge, 3.0 gpm on 3-19-59.
P- 5	W. R. Thompson . .	. . . .	Dr	300	4, 3	Kg	168	+ 14	3- -59	F	D, S	66.5	4	6	
P- 6	W. P. Jones	Radford and Son .	Dr	330	4	Ke	325	90	4- -59	Cy	N	. . .	18	22	Casing: 4-in. to 220 ft.; none below. Well not in use because of caving and highly mineralized water.
P- 7	J. W. Plaster	Austin Stoudenmire.	Dr	175	3	Ke	295	. . . .	. . . . . .	J	D	. . .	18	14	
P- 8	Maryanne Whetstone	Alex Stoudenmire Well & Supply Co.	Dr	300	2	Kg	154	+ 8	3- -59	F	D	68	4	22	Measured discharge, 4.4 gpm on 3-19-59.
P- 9	Hicks Memorial School.	. . . .	Dr	300	2	Kg	. . .	. . . .	. . . . . .	F	P	. . .	. . . .	. . . .	Supplies 215 pupils.
P-10	. . . . do	. . . .	Dr	300	3	Kg	170	14	3- -59	J	P	. . .	. . . .	. . . .	Supplies 215 pupils. Reported to flow when not in use.
P-11	Clarence Golson . . .	Austin Stoudenmire.	Dr	390	2	Kg	152	+ 1.5	. . do . .	F	D, S	64	11	10	Estimated discharge, less than 1 gpm on 3-19-59.
P-12	Hamp Smith	Alex Stoudenmire Well & Supply Co.	Dr	320	2	Kg	148	+ 9	. . do . .	F	D	69	11	10	Casing: 2-in. to 320 ft.; lower 20 ft. perforated. Measured discharge, 5.1 gpm on 3-19-59.
P-13	Jones Brothers Gin Co.	Leonard Carter .	Dr	320	6	Kg	150	+ 2	. . do . .	F	D	68.5	4	10	Estimated discharge, 10 gpm on 3-19-59.
P-14	Autauga County Training School.	Austin Stoudenmire.	Dr	320	2	Kg	151	+ 4	. . do . .	F	P	69	4	12	Supplies 950 pupils.
P-15	R. G. Shanks	. . . .	Dr	300	2	Kg	159	+ 3	3- -59	F	D	67.5	11	14	Measured discharge, 1.0 gpm on 3-26-59. Supplies 2 homes.
P-16	G. C. Youngerman .	. . . .	Dr	275	$2\frac{1}{2}$	Kg	160	+ 25	3-19-59	F	D, S	68	11	12	Measured discharge, 5.5 gpm on 3-19-59.
*P-17	Crystal Lake Broom Co.	R. S. Thompson .	Dr	320	4, $1\frac{1}{2}$	Kg	150	+ 30	1940	F	Ind	68	1	8	Casing: 4-in. to 60 ft.; $1\frac{1}{2}$-in. from 60 to 320 ft. Measured discharge, 15.6 gpm on 8-17-40. Unable to measure head or discharge in 1959. Owner reported no decrease in head or discharge during past 30 years.
P-18	. . . . do	Hicks Brothers. .	Dr	290	4	Kg	148	+ 18	. . do . .	F	Ind	68	11	10	Estimated discharge, 15 gpm on 3-19-59. Owner reported no decrease in head or discharge during past 30 years.
P-19	Rufus Pierson	Bentley Clark. . .	Dr	350	$2\frac{1}{2}$	Kg	153	+ 15	3- -59	F	D	. . .	. . . .	. . . .	Estimated discharge, 30 gpm on 3-26-59.
P-20	Carl Stewart Estate.	. . . . do	Dr	330	2, $1\frac{1}{4}$	Kg	159	+ 12.5	3-26-59	F	D, S	68	11	10	Measured discharge, 10.0 gpm on 3-26-59.
P-21	R. G. Shanks	. . . .	Dr	320	2	Kg	158	+ 2	3- -59	F	D, S	66.5	11	10	Measured discharge, 1.1 gpm on 3-26-59.
P-22	G. C. Youngerman .	Alex Stoudenmire Well & Supply Co.	Dr	200	2	Kg	157	+ 2	2- -59	F	D	67	11	10	Measured static water level, 20.5 ft. above surface on 8-17-40. Measured discharge, 1.7 gpm on 2-18-59; 3.8 gpm on 8-17-40.
P-23	. . . . do	. . . .	Dr	350	2	Kg	149	+ 4.0	3-26-59	F	D, S	68	11	10	Measured discharge, 2.0 gpm on 3-26-59.

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: Above (+) or below land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
P-24	M. S. Murfee	....	Dr	300	2	Kg	142	+ 3.3	3- -59	F	S	69	11	10	Measured discharge, 8.2 gpm on 3-19-59.
P-25	Autaugaville State Nursery.	Layne-Central Co.	Dr	555	18, 8	Ke Kg	300	137.1	3- 3-59	T	Irr	70	11	24	Casing: 18-in. to 322 ft.; 8-in. from 262 to 555 ft.; 8-in. screen from 327 to 362 ft., and from 520 to 545 ft. Drawdown, 103 ft. after pumping 220 gpm for 24 hours. Irrigates tree nursery. See sample and driller's logs.
P-26	....do....	....do....	Dr	620	18, 8	Ke Kg	302	....	......	T	Irr	...	....	....	Known as well No. 2. Reported yield 450 gpm. See sample, driller's, and electric logs.
P-27	G. C. Youngerman	....	Dr	450	2, 3/4	Kg	157	+ 1	4- -59	F	S	68	11	24	Casing: 2- and 3/4-in. to 400 ft.; none below. Measured discharge, 1.7 gpm on 4-14-59.
P-28	L. D. Wright	Alex Stoudenmire Well & Supply Co.	Dr	425	2	Kg	146	+ 6	..do..	F	S	69	4	16	Casing: 2-in. to 400 ft.; none below. Measured discharge, 4.5 gpm on 4-14-59.
P-29	G. C. Youngerman	....	Dr	350	2	Kg	149	+ 2.5	3- -59	F	S	68	4	10	Casing: 2-in. to 300 ft.; none below. Estimated discharge, less than 1 gpm on 3-26-59.
P-30	J. C. Stewart Estate.	Alex Stoudenmire Well & Supply Co.	Dr	350	2	Kg	150	+ 2.5	3-26-59	F	D, S	68	4	14	Measured discharge, less than 1 gpm on 3-26-59.
Q- 1	Algie Walls	....	Du	40	24	Ke	...	....	......	J	D, S	...	18	32	
Q- 2	C. C. Norris	Alex Stoudenmire Well & Supply Co.	Dr	200	3	Kg	224	+ 3	1- -59	F	D	66	4	10	Supplies 2 homes.
Q- 3	Clifford Meeks	....do....	Dr	185	2	Kg	207	+ 2	..do..	F	D	66	4	6	Estimated discharge, 6 gpm on 1-22-59.
Q- 4	....do....	....do....	Dr	210	3	Kg	210	....	......	F	D	66	4	14	Estimated discharge, 10 gpm on 1-22-59. Supplies 2 homes and store.
Q- 5	Lamar Service Station.	....do....	Dr	210	4	Kg	205	....	......	F	D	67	11	16	Casing: 4-in. to 200 ft.; 3-in. screen from 200 to 210 ft. Estimated discharge, 20 gpm on 11-10-58. Supplies 3 homes and service station.
Q- 6	G. E. Davis, Jr.	....	Dr	185	4	Kg (?)	...	....	......	T	D, S	...	4	10	
Q- 7	Terry Walls	Austin Stoudenmire.	Dr	200	2½	Kg	176	+ 22	1- -59	F	D, S	67	11	12	Estimated discharge, 20 gpm. Supplies 3 homes and stock.

Q- 8	Terry Wills.	. . . .	Dr	200	2½	Kg (?)	. . .	. . . .	. . . . . .	F	N	. . .	. . . .	. . . .	
Q- 9	Hunter Vaughn, Jr. .	Austin Stouden-mire.	Dr	200	2½	Kg	157	. . . .	. . . . . .	F	D	67	4	12	Measured discharge, 18.5 gpm on 1-29-59. Well reported to have been flowing for more than 50 years.
Q-10	G. C. Youngerman .	Alex Stoudenmire Well & Supply Co.	Dr	260	2	Kg (?)	155	+ 12	2- -59	F	Irr	. . .	. . . .	. . . .	Casing: 2-in. to 260 ft.; lower 20 ft. perforated. Estimated discharge, 30 gpm on 2-18-59. Supplies water to lake which is used periodically for irrigation of crops and pastures.
Q-11	M. S. Murfee.	. . . .	Dr	250	2	Ke (?)	158	. . . .	. . . . . .	F	D, S	67	4	14	Measured discharge, 1.7 gpm on 2-18-59. Supplies 3 homes and stock.
Q-12	E. L. Clark.	Alex Stoudenmire Well & Supply Co.	Dr	290	2, 1¼	Kg	159	+ 15	2- -59	F	D	67	4	10	Casing: 2-in. to 60 ft.; 1¼-in. from surface to 290 ft.; lower 20 ft. perforated. Measured discharge, 9.6 gpm on 2-18-59. Supplies home and swimming pool.
Q-13	. . . . do	. . . . do	Dr	265	2, 1¼	Kg (?)	156	+ 12	. . do . .	F	D	67	4	18	Casing: 2-in. to 60 ft.; 1¼-in. from surface to 265 ft.; lower 20 ft. perforated. Measured discharge, 3.6 gpm on 2-18-59. Supplies home and store.
Q-14	M. S. Murfee.	James A. Stou-denmire.	Dr	225	2	Ke	161	+ 15	. . do . .	F	D	67	. . . .	. . . .	Casing: 2-in. to 225 ft.; lower 20 ft. perforated. Estimated discharge, 10 gpm on 2-18-59. Supplies home and swimming pool.
Q-15	. . . . do	. . . .	Dr	215	2	Ke	157	. . . .	. . . . . .	F	D	67	4	10	Casing: 2-in. to 215 ft.; lower 15 ft. perforated. Estimated discharge, 2 gpm on 2-18-59.
Q-16	C. C. Fonnville . . .	James A. Stou-denmire.	Dr	365	4	Kg (?)	343	. . . .	. . . . . .	Cy	D, S	. . .	11	108	
Q-17	L. E. Rogers.	Alex Stoudenmire Well & Supply Co.	Dr	60	3	Qt	179	10	2- -59	M	D	. . .	. . . .	. . . .	
Q-18	. . . . do	. . . .	Dr	250	3, 2	Ke	185	0	. . do . .	Cf	D, S	. . .	4	8	Casing: 3- and 2-in. to 200 ft.; none below.
Q-19	Paul L. Smith	. . . .	Du	24	36	Qal (?)	341	20	. . do . .	Cf	D, S	. . .	. . . .	. . . .	Reported static water level, 18 ft. below surface in August 1940.
Q-20	G. C. Youngerman .	. . . .	Dr	220	2	Ke	163	+ 2	. . do . .	F	D	67	11	6	Casing: 2-in. to 220 ft.; lower 20 ft. perforated. Measured discharge, 0.7 gpm on 2-18-59.
Q-21	. . . . do	. . . .	Dr	220	2	Ke	. . .	. . . .	. . . . . .	F	D	68	11	8	Casing: 2-in. to 220 ft.; lower 20 ft. perforated. Measured discharge, 14.1 gpm on 2-18-59. Supplies 2 homes.
Q-22	M. S. Morfee.	. . . .	Dr	225	1½	Ke	162	+ 3	2- -59	F	S	68	4	38	Measured discharge, 2.7 gpm on 2-18-58.
Q-23	. . . . do	. . . .	Dr	225	2, ½	Ke	. . .	. . . .	. . . . . .	F	S	67	11	14	Do.
Q-24	. . . . do	Alex Stoudenmire Well & Supply Co.	Dr	250	2	Ke	168	+ 4	2- -59	F	D, S	68	4	16	Casing: 2-in. to 250 ft.; lower 20 ft. perforated. Measured discharge, 9.6 gpm on 2-18-59. Supplies fish pond and stock.

Table 1. --Records of wells and springs in Autauga County, Ala. --Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: [illegible]) or [illegible] land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
Q-25	Alexander Oil Test No. 1.	Modern Drilling Co.	Dr	1,256	10	Ke Kg Kck	...	....	......	N	N	...	....	....	Test hole for oil. See sample, driller's, and electric logs.
*Q-26	W. B. Dominick...	....	Du	42	30	Qt	280	39	2- -59	J	D,S	...	4	10	
Q-27	Jerico Baptist Church.	Alex Stoudenmire Well & Supply Co.	Dr	250	3	Ke	157	+ 3	11- -58	F	D	68	....	....	Measured discharge, 12.0 gpm on 2-19-59.
R- 1	D. L. Yarbrough ..	....do......	Dr	150	3½	Kg	405	75	9- -58	Cy	D,S	...	11	132	
R- 2	D. M. Smith	....	Du	52	24	Ke (?)	...	....	......	Cy	D,S	...	39	184	Casing: 24-in. brick to 52 ft. Well has been in use since about 1830.
R- 3	W. E. Henderson ..	....	Dr	125	3	Ke (?)	...	....	......	Cy	D	...	11	46	
R- 4	H. M. Doster.....	....	Dr	135	3	Kg	...	....	......	N	N	...	....	....	
R- 5	Prattville Memorial Gardens.	Alex Stoudenmire Well & Supply Co.	Dr	154	6	Kg	360	55	9- -58	T	Irr	...	....	....	Casing: 6-in. to 142 ft.; 4-in. screen from 142 to 154 ft. See sample and driller's logs.
R- 6	Green Estate	....do......	Dr	162	4	Kg	...	....	......	Cy	D,S	...	11	32	Casing: 4-in. to 1[illegible] ft.; none below.
R- 7	Lee Estate.......	....do......	Dr	137	3	Kg (?)	...	....	......	Cy	D	...	11	18	Supplies 2 homes.
R- 8	C. R. Hull.......	....	Du	72	24	Ke	264	64.1	10- 9-59	N	N	...	....	....	
R- 9	J. J. Boone......	Alex Stoudenmire Well & Supply Co.	Dr	150	3	Ke (?)	...	....	......	Cy	D	...	11	22	
R-10	Frank Y. Ross....	....do......	Dr	225	4	Kg	337	98.5	11-13-59	T	D	...	4	24	Casing: 4-in. to 220 ft.; 3-in. screen from 220 to 225 ft.
R-11	Prattville Ice and Coal Co.	Acme Drilling Co.	Dr	218	8,6	Kg	...	....	......	T	Ind	...	4	20	Casing: 8-in. to 170 ft.; 6-in. from 157 to 177 ft.; 6-in. screen from 177 to 218 ft. Reported yield, 197 gpm in 1947. Reported to flow when not in use. See sample and driller's logs.
R-12	Gurney Manufacturing Co.	....do......	Dr	230	8	Kg	...	....	......	T	Ind	...	....	....	Reported yield, 200 gpm on 9-2-59. Supplies cotton mill.
R-13	....do........	Austin Stoudenmire.	Dr	175	2	Kg	186	+ 3	9- -59	F	D	67.5	....	....	

R-14	Malcolm Graham Estate.	. . . .	Dr	123	2	Kg (?)	228	0	9- -59	F	N	67	4	20	Measured discharge, 2.0 gpm on 9-2-59; 5.0 gpm on 10-29-04.
R-15	Prattville Elementary School.	. . . .	Dr	99	2	Ke	200	+ 5	. do . .	F	P	67	4	40	Casing: 2-in. to 70 ft.; none below. Measured static water level, 13 ft. above surface on 10-29-04. Measured discharge, 12 gpm on 10-29-04; estimated discharge, 5 gpm on 9-2-59. See driller's log.
R-16	G. E. Newton	James A. Stoudenmire.	Dr	189	6	Kg	. . .	. . . .	. . . . . .	T	Irr	. . .	11	22	Casing: 6-in. to 169 ft.; 4-in. screen from 169 to 189 ft. Supplies swimming pool and 2 lawns.
R-17	Winter Gardens Motel.	Alex Stoudenmire Well & Supply Co.	Dr	200	4	Kg	. . .	. . . .	. . . . . .	Cy	P	. . .	. . . .	. . . .	Supplies tourist court and restaurant.
R-18	William E. Matthews III.	. . . . do	Dr	186	5, 3	Kg	408	148.8	9-18-58	N	O	. . .	. . . .	. . . .	Observation well, 1959. Casing: 5- and 3-in. to 183 ft.; 3-in. screen from 183 to 186 ft.
R-19	. . . . do	Layne-Central Co.	Dr	225	8	Kg	406	139.2	9-22-58	T	D, S	. . .	. . . .	. . . .	Reported yield, 30 gpm in September 1958. Supplies home and stock.
R-20	. . . . do	Alex Stoudenmire Well & Supply Co.	Dr	200	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	. . . .	. . . .	Casing: 3-in. to 197 ft.; 3-in. screen from 197 to 200 ft.
R-21	Jennie Quinn Gresham.	Austin Stoudenmire.	Dr	164	3	Kg	. . .	. . . .	. . . . . .	Cy	D	. . .	18	120	
R-22	McQueen-Smith Farms.	James A. Stoudenmire.	Dr	186	5	Kg	. . .	. . . .	. . . . . .	Cy	D, S	68	11	104	Supplies 3 homes and dairy.
R-23	. . . . do	. . . .	Dr	200	5	Kg	. . .	. . . .	. . . . . .	Cy	N	. . .	. . . .	. . . .	
R-24	. . . . do	. . . .	Dr	185	4	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	18	128	Supplies several tenant homes and stock.
R-25	Jennie Quinn Gresham.	Owen Murphey . .	Dr	160	3	Kg (?)	. . .	. . . .	. . . . . .	Cy	D, S	. . .	18	114	Supplies several homes.
R-26	Standard Oil Co . . .	. . . .	Dr	141.0	3½	Ke	312	91.5	9-25-58	N	O	. . .	. . . .	. . . .	
R-27	Sunset Trailer Park	Acme Drilling Co.	Dr	185	5, 3	Kg (?)	289	77.7	10- 9-59	T	P	. . .	11	112	Casing: 5-in. to 105 ft.; 3-in. from 105 to 145 ft.; 3-in. screen from 145 to 185 ft. See driller's log.
R-28	Prattville Quick Freeze.	Alex Stoudenmire Well & Supply Co.	Dr	100	3	Ke (?)	190	. . . .	. . . . . .	F	Ind	66.5	11	22	Estimated discharge, 25 gpm on 10-28-58.
R-29	Prattville Swimming Pool.	Austin Stoudenmire.	Dr	300	3	Kg	189	+ 8.4	10-27-58	F	P	67	11	24	Measured static water level, 11.9 ft. above surface on 8-13-40. Measured discharge, 4.4 gpm on 8-13-40; estimated discharge, 4 gpm on 10-27-58.
R-30	. . . do	. . . . do	Dr	100	2	Ke	187	. . . .	. . . . . .	F	P	66	. . . .	. . . .	Measured static water level, 17.7 ft. above surface on 10-25-40. Measured discharge 4.9 gpm on 10-25-40; estimated discharge, 2 gpm on 9-21-59.

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface (feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
R-31	Prattville Swimming Pool.	Austin Stoudenmire.	Dr	100	4	Ke	187	....	....	F	P	66	....	....	Measured static water level, 8.5 ft. above surface on 8-13-40. Measured discharge, 5.0 gpm on 8-13-40; estimated discharge, 2 gpm on 9-21-59.
R-32	Stoudenmire Estate.	....	Dr	100	[illegible]	Ke	179	+ 2	11- -58	F	D	67	4	80	Estimated discharge, 2 gpm on 11-12-58.
R-33	Pilgrim Rest Baptist Church.	....	Dr	100	2½	Ke	179	+ 2	..do..	F	D	67	11	12	Measured discharge, 2.0 gpm on 9-21-59. Supplies several homes.
R-34	Henry Yarbrough ..	....	Dr	200	2	Kg	178	+ 2	..do..	F	D	67	4	14	Measured discharge, 1.8 gpm on 9-21-59. Supplies several homes and tourists.
R-35	Jerry Thomas	....	Dr	100	1	Ke	180	+ 3	..do..	F	D	66	4	18	Estimated discharge, 5 gpm on 11-12-58. Supplies several homes.
R-36	L. W. Speigner ...	L. E. Sarber ...	Dr	86	2	Ke	180	+ 4.3	9- 2-59	F	D	67	4	18	Measured discharge, 2.0 gpm on 9-2-59; 3.0 gpm on 10-29-04.
R-37	H. H. Thomas	....do......	Dr	100	2	Ke	180	+ 6	9- -59	F	D	66	....	....	Measured static water level, 30 ft. above surface on 10-29-04. Measured discharge, 2.0 gpm on 9-2-59; 10.0 gpm on 10-29-04.
R-38	City of Prattville ..	Layne-Central Co.	Dr	360	16, 8	Kg	178	7	6- -54	T	P	...	....	....	Known as city well 2. Casing: 16-in. to 306 ft.; 8-in. from 266 to 310 ft.; 8-in. screen from 310 to 355 ft., gravel-walled. Reported drawdown, 180 ft. after 8 hours pumping 402 gpm in June 1954. See driller's log.
R-39	....do........	Austin Stoudenmire.	Dr	350	6	Kg	180	....	....	T	N	...	....	....	Well abandoned because of insufficient supply.
*R-40	....do........	Layne-Central Co.	Dr	436	16, 8	Kg Kck	183	+ 15	7- -44	T	P	...	2	36	Known as city well 1. Casing: 16-in. to 315 ft.; 8-in. from 262 to 320 ft.; 8-in. screen from 320 to 340, 355 to 375, and 413 to 433 ft. Drawdown 62 ft. after 9 hours pumping 412 gpm in July 1944. See driller's log.
R-41	E. C. Knight	Alex Stoudenmire Well & Supply Co.	Dr	100	4, 2	Ke	250	60	9- -58	Cy	D	69	11	142	Casing: 4-in. to 80 ft.; 2-in. from 80 to 95 ft.; 2-in. screen from 95 to 100 ft. Supplies home and service station.
R-42	W. W. Pope......	....	Dr	90	3	Ke	...	....	....	Cy	D	...	11	128	Supplies home and service station.
R-43	Gulf State Oil Co ..	Acme Drilling Co.	Dr	175	4	Ke (?)	...	....	....	Cy	P	...	18	114	Casing: 4-in. to 130 ft.

R-44	Longview Trailer Court.	Alex Stoudenmire Well & Supply Co.	Dr	170	4	Ke	272	70	9- -58	T	P	. . .	18	144	Casing: 4-in. to 110 ft.; none below. Reported yield, 35 gpm in 1953. Supplies 20 to 30 home trailers.
R-45	John L. Moore	. . . . do	Dr	100	4	Ke	. . .	. . .	. . . . . .	J	D, S	. . .	18	142	
R-46	McQueen-Smith Farms.	. . . .	Dr	200	4	Kg (?)	. . .	. . . .	. . . . . .	Cy	N	. . .	. . . .	. . . .	
R-47	. . . . do	. . . .	Dr	[illegible]50	5	Ke	369	78.0	9-17-58	J	D, S	68	11	30	
R-48	Trammell Oil Co . .	Alex Stoudenmire Well & Supply Co.	Dr	130	2	Ke	175	19.8	9-24-58	Cf	D	. . .	11	140	Supplies home and service station.
R-49	Red Devil Service Station.	. . . . do	Dr	80	4	Ke	. . .	. . . .	. . . . . .	J	D	. . .	18	136	
R-50	Water Wheel Restaurant.	Austin Stoudenmire.	Dr	220	4	Kg	171	+ 1	9- -58	Cf	P	68.5	18	97	Measured static water level, 2.0 ft. above surface on 8-17-40. Estimated discharge, less than 1 gpm on 9-24-58.
R-51	McQueen-Smith Farms.	. . . .	Dr	200	2½	Kg	158	+ 6	. . do . .	F	S	68	11	100	Estimated discharge, 10 gpm on 9-17-58.
R-52	Prattville Experiment Station.	Alex Stoudenmire Well & Supply Co.	Dr	172	4	Ke (?)	276	. . . .	. . . . . .	Cy	D, S	. . .	4	10	Casing: 4-in. to 155 ft.; 2-in. screen from 155 to 172 ft. Supplies 2 homes and stock.
R-53	Jack Whittaker	Watson Drilling Co.	Dr	412	8	Ke Kg	. . .	. . . .	. . . . . .	T	Irr	68	11	30	Casing: 8-in. to 412 ft.; casing slotted and gravel-walled from 120 to 412 ft. Reported yield, 300 gpm in 1958. Irrigates crops and pastures. See electric log.
R-54	. . . . do	James A. Stoudenmire.	Dr	200	4	Kg	. . .	. . . .	. . . . . .	Cy	D, S	. . .	18	38	Casing: 4-in. to 180 ft.; 3-in. screen from 180 to 200 ft.
R-55	W. H. Reynolds . . .	Alex Stoudenmire Well & Supply Co.	Dr	200	3, 2	Kg	. . .	. . . .	. . . . . .	F	D	68	11	10	Casing: 3- and 2-in. to 200 ft.; lower 20 ft. perforated. Reported discharge, 8 gpm in November 1958. Supplies 10 homes.
R-56	I. E. Dupont Corp. . .	. . . .	Dr	200	3	Kg (?)	180	.2	10-30-58	N	N	. . .	. . . .	. . . .	
R-57	C. D. Reynolds . . .	Austin Stoudenmire.	Dr	180	4	Ke	206	25.9	11-13-59	J	D, S	. . .	4	12	
R-58	Graves Hall	Alex Stoudenmire Well & Supply Co.	Dr	100	4	Ke	198	31.2	. . do . .	J	D, S	. . .	4	22	Supplies 4 homes and stock.
R-59	H. H. Thomas	Austin Stoudenmire.	Dr	376	2	Kg	155	. . . .	. . . . . .	F	D, S	68	11	20	Estimated discharge, 5 gpm on 10-30-58. Well formerly flowed about 35 gpm.
R-60	W. J. Lipscomb . . .	James A. Stoudenmire.	Dr	400	6	Kg	280	100	10- -58	T	D, S	. . .	11	22	Casing: 6-in. to 400 ft. Reported yield, 40 gpm in 1958. Supplies home and chicken farm.
R-61	F. L. Lipscomb . . .	. . . . do	Dr	200	4	Kg	165	5	. . do . .	J	D, S	. . .	11	20	Well is reported to flow in winter and spring.
*S- 1	Till Plantation	. . . .	Dr	78	4	Ke	153	23.4	10-30-58	J	D, S	. . .	5	16	

Table 1.--Records of wells and springs in Autauga County, Ala.--Continued

Well or spring No.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level: Above (+) or below land surface (feet)	Water level: Date of measurement	Method of lift	Use of water	Field determinations: Temperature (°F)	Field determinations: Chloride (Cl)	Field determinations: Hardness as $CaCO_3$ (ppm)	Remarks
S- 2	Till Plantation	. . . .	Dr	300	3	Kg	153	+ 0.1	10-30-56	N	N	. . .	. . . .	. . . .	Well flowed until 1955.
S- 3	. . . . do	W. J. Bozeman, Jr.	Dr	300	4	Kg	. . .	. . . .	. . . . . .	J	S	68	11	24	Well at site flowed until 1955.
S- 4	Will Howard Smith .	James A. Stoudenmire.	Dr	400	2	Kg	150	. . . .	. . . . . .	Cf	D, S	. . .	4	12	Well reported to flow when not being pumped.
S- 5	. . . . do	. . . . do	Dr	400	3	Kg	150	+ 8.7	3- 2-59	F	S	37	11	12	Measured discharge, 1.2 gpm on 3-2-59.
S- 6	Till Plantation	. . . .	Dr	300	2½	Kg	150	3.0	10-30-58	N	N	. . .	. . . .	. . . .	Well flowed until 1955.
S- 7	. . . . do	W. J. Bozeman, Jr.	Dr	300	3	Kg	130	+ 6	. . do . .	F	S	68	11	16	Estimated discharge, 15 gpm on 10-30-58.
T- 1	Wadsworth Plantation.	James A. Stoudenmire.	Dr	400	4	Kg	174	10	2- -59	Cy	D, S	. . .	. . . .	. . . .	Casing: 4-in. to 400 ft.; lower 20 ft. perforated. See driller's log.
T- 2	A. R. Jones.	Alex Stoudenmire Well & Supply Co.	Dr	420	2	Kg	142	+ 7.0	4-14-59	F	S	68	4	12	Casing: 2-in. to 400 ft.; none below. Measured discharge, 2.2 gpm on 4-14-59.
T- 3	Emory Jones	. . . .	Dr	450	4	Kg	. . .	. . . .	. . . . . .	Cf	D, S	. . .	. . . .	. . . .	Reported to flow in winter.
T- 4	. . . . do	. . . .	Dr	450	4	Kg	150	+ 4	2- -59	F	S	69	4	18	Casing: 4-in. to 450 ft. Measured discharge, 10.0 gpm on 2-26-59.
T- 5	Charles Alexander .	. . . .	Dr	300	3	Kg	146	+ 2	. . do . .	F	D, S	68	4	8	Measured discharge, 0.8 gpm on 2-26-59.
T- 6	. . . . do	Alex Stoudenmire Well & Supply Co.	Dr	450	3	Kg	. . .	. . . .	. . . . . .	F	S	. . .	. . . .	. . . .	
T- 7	Will Howard Smith .	. . . . do	Dr	400	3	Kg	151	. . . .	. . . . . .	F	D, S	69	4	16	Measured discharge, 24.0 gpm on 2-26-59. Supplies 2 homes and stock.
T- 8	Wadsworth Plantation.	. . . . do	Dr	400	3	Kg	154	+ 4	2- -59	F	S	. . .	. . . .	. . . .	Casing: 3-in. to 400 ft.; lower 20 ft. perforated. Measured discharge, 6.3 gpm on 2-24-59.
T- 9	Will Howard Smith .	. . . . do	Dr	400	3, 3/4	Kg	153	+ 2	. . do . .	F	S	67	4	14	Measured discharge, 2.7 gpm on 2-26-59.
T-10	. . . . do	. . . . do	Dr	350	2	Kg (?)	. . .	. . . .	. . . . . .	Cf	D, S	. . .	. . . .	. . . .	
T-11	Graves Hall	. . . . do	Dr	400	3, 2	Kg	157	+ 2	2- -59	F	S	68	4	14	Casing: 3- and 2-in. to 400 ft. Measured discharge, 1.0 gpm on 2-26-59.
T-12	Posten Ranch	. . . . do	Dr	400	2	Kg	153	.2	2-24-59	Cf	D	. . .	4	12	

T-13	Will Howard Smith	Alex Stoudenmire Well & Supply Co.	Dr	400	3	Kg	149	+ ?	2- -59	F	D, S	67	4	10	Measured discharge, less than 1 gpm on 2-26-59.
T-14	Wadsworth Plantation	. . . .	Dr	400	2	Kg	152	10	. . do . .	Cf	S	. . .	4	10	Well flowed until 1957.
U- 1	J. M. Golden	. . . .	Dr	420	2	Kg	146	+ 3	3- -59	F	D, S	68.5	11	16	Casing: 2-in. to 420 ft. Measured discharge, 12.6 gpm on 3-26-59.
U- 2	. . . . do	. . . .	Dr	420	1	Ke Kg	143	+ 3	4- -59	F	S	67	11	20	Casing: 1-in. to 100 ft.; none below. Estimated discharge, less than 1 gpm on 4-14-59.
U- 3	L. D. Wright	. . . .	Dr	400	4, 2½	Kg	147	+ 2	. . do . .	F	D, S	68	11	12	Casing: 4- and 2½-in. to 400 ft. Measured discharge 1.1 gpm on 4-14-59. Supplies home and chicken farm.
U- 4	J. M. Golden	Bentley Pugh . . .	Dr	527	2	Kg	142	. . . .	. . . . . .	F	S	70	11	18	Measured discharge, 2.5 gpm on 4-14-59.
V- 1	Bama River Ranch .	. . . .	Dr	. . .	2	Ke (?)	139	+ 3	4- -59	F	S	67.5	11	40	Estimated discharge, 3 gpm on 4-23-59.
V- 2	John B. Armstrong .	. . . .	Dr	400	4	Ke	. . .	. . . .	. . . . . .	J	D	. . .	422	240	Supplies home and swimming pool.
V- 3	. . . . do	. . . .	Dr	400	4	Ke	126	. . . .	. . . . . .	F	S	65	592	278	Measured discharge from ½-in. pipe, 3.2 gpm on 4-23-59; well capped and equipped with float valve to prevent water waste.
V- 4	. . . . do	. . . .	Dr	400	4	Ke	126	+ 4	. . . . . .	F	S	69	443	202	Measured discharge from ½-in. pipe, 2.9 gpm on 4-23-59; well capped and equipped with float valve to prevent water waste.
*Mtg. TW-109	City of Montgomery.	Layne-Central Co.	Dr	200-281	6	Ke	146	15.3	2-19-52	. . .	N	. . .	27	8	Electric log shown on plate 3. See sample and driller's logs of test well drilled to depth of 1,219 ft.
				450-521	6	Kg	146	14.0	2-26-52	. . .	N	66	2	2	
*Mtg. TW-112	. . . . do	. . . . do	Dr	538	. . .	. . .	153.9	. . . .	. . . . . .	N	N	. . .	. . . .	. . . .	Abandoned and filled. See driller's and sample logs.

Table 2. --Chemical analyses of water from selected wells in Autauga County, Ala.

(Results in parts per million except as indicated)

Well No.: Numbers correspond with those in plate 1 and table 1.

Water-bearing unit: Ke, Eutaw formation; Kg, Gordo formation; Kck, Coker formation; Qt, High terrace deposits.

Well No.	Owner	Date of collection	Water-bearing unit	Iron (Fe) (in solution)	Sodium (Na)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
A- 5	Holy Ghost Mission School . .	12- 1-59	Kg (?)	0.04	2.7	13	0	5.6	0.8	0.1	0.2	8	0	34.5	6.3	. . .
D- 8	D. M. Parker	. . do . .	Kg	.03	1.2	16	0	.4	1.5	.1	.0	6	0	3[illegible].4	6.4	66
F- 4	L. B. Burmeister.	. . do . .	Kg	.02	1.5	18	0	1.2	1.0	.1	.2	11	0	33.9	6.6	66
H-21	Pine Level High School	. . do . .	Kg	.12	3.8	4	0	1.2	3.2	0	13	7	4	41.5	5.4	. . .
N- 2	Rastus McLendon	. . do . .	Ke	.17	3.8	60	0	3.6	1.0	.2	.1	[illegible]	0	107	7.1	70
N- 3	. . . . do	10-29-40	Ke	. . . .	. . . .	32	. . .	3.0	2.0	.4	. . . .	21	. . . .	. . . . .	. . .	68
O- 2	G. E. Treadwell.	12- 1-59	Ke	3.4	2.3	34	0	7.2	2.0	.6	.1	27	0	79.0	6.7	. . .
P- 1	J. B. Neighbors	. . do . .	Ke	.04	1.3	21	0	.4	1.2	.2	.0	12	0	39.8	6.6	66
P-17	Crystal Lake Broom Co. . . .	10-29-40	Kg	. . . .	. . . .	11	. . .	1.0	1.0	.1	. . . .	8	. . . .	. . . . .	. . .	68
Q-26	W. B. Dominick	12- 1-59	Qt	.05	4.7	3	0	.4	4.0	.1	15	10	8	54.8	5.4	. . .
R-40	City of Prattville	. . do . .	Kg Kck	.01	5.6	56	0	4.0	1.5	.1	.1	36	0	97.5	7.2	. . .
S- 1	Till Plantation	. . do . .	Ke	.05	4.6	11	0	.0	5.0	.1	15	16	6	64.4	6.1	. . .
Mtg. TW-109	City of Mo[illegible]mery.	2-20-52	Ke[1/]	.24	. . . .	401	11	1.0	27	2.8	1.0	8	0	679	8.6	. . .
Do.	. . . . do	2-23-52	Kg[2/]	.16	. . . .	24	0	3	2.0	0	.3	2	0	48.7	7.0	68

Mtg. TW-112	City of Montgomery.	3-12-52	Ke3/	0.08	. . . .	26	0	12	8.8	0.2	0.2	30	9	99.7	6.3	67
Do.	. . . . do	3-14-52	Kg4/	.32	. . . .	64	0	6	3.0	.2	.4	12	0	117	7.3	68
Do.	. . . . do	3-21-52	Kg5/	.08	. . . .	84	0	.2	3.0	0	.2	29	0	143	8.1	69

1/ Interval sampled 200-231 feet (Eutaw formation). 2/ Interval sampled 450-521 feet (Gordo formation). 3/ Interval sampled 97-140 feet (Eutaw formation).

4/ Interval sampled 233-310 feet (Gordo formation). 5/ Interval sampled 390-458 feet (Gordo formation).

Table 3.--Sample logs of wells in Autauga County, Ala.

	Thickness (feet)	Depth (feet)
Well E-4 Owner: Transcontinental Gas Pipe Line Driller: Layne-Central Co.		
Gordo formation:		
Granules and pebbles; pale-yellowish-orange very coarse-grained, subrounded to rounded ferruginous sand; and varicolored sandy clay	20	20
Clay, varicolored, sandy, slightly micaceous, and yellowish-orange subrounded to rounded cherty ferruginous pebbles	45	65
Clay, moderate-reddish-brown, sandy, slightly micaceous, and yellowish-orange subrounded to rounded cherty pebbles	23	88
Coker formation(?):		
Sand, very pale-orange to white, coarse-grained, angular to subangular, slightly micaceous, and some varicolored sandy micaceous clay	22	110
Clay, gray and varicolored, sandy, micaceous, lignitic, and very pale-orange coarse- to very coarse-grained, angular to subangular sand. . . .	24	134
Sand, very pale-orange to white, medium- to coarse-grained, angular to subangular, clayey, and dark-gray sandy lignitic clay	21	155
Clay, gray, fissile, slightly sandy, lignitic, micaceous, and pale-yellowish-orange coarse- to very coarse-grained, with granules, subangular to rounded ferruginous sand	22	177

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well E-4--Continued		
Coker formation(?)--Continued		
Clay, gray, fissile, slightly sandy, micaceous, lignitic, very fossiliferous, and numerous fossil fragments	45	222
Clay, gray, slightly sandy, micaceous, lignitic, fossiliferous, and white calcareous sandstone	21	243
Clay, gray, sandy, micaceous, lignitic, slightly fossiliferous	23	266
Clay, gray, sandy, micaceous, lignitic, fossiliferous; light-greenish-gray coarse- to very coarse-grained, angular to subangular slightly glauconitic sand; and light-gray calcareous slightly micaceous sandstone	23	289
Clay, gray, sandy, micaceous, lignitic, fossiliferous, and yellowish-gray coarse- to very coarse-grained sand, with some subangular to subrounded granules and pebbles	22	311
Sand, very pale-orange to white, very coarse-grained, with some angular to subangular granules, and gray sandy micaceous lignitic fossiliferous clay	44	355
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, clayey, micaceous, slightly lignitic and ferruginous	22	377
Sand, very pale-orange, coarse- to very coarse-grained, with some angular to subangular slightly micaceous granules, varicolored sandy micaceous clay; and gray sandy micaceous lignitic clay	21	398

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well E-4--Continued		
Pre-Cretaceous rocks:		
Sand, pale-yellowish-orange, coarse- to very coarse-grained, with some angular to subrounded granules and pebbles; varicolored sandy micaceous clay; gray sandy micaceous lignitic clay; and dark-greenish-gray chloritic biotitic schist	20	418

	Thickness (feet)	Depth (feet)
Well O-14 Owner: Bama River Ranch Driller: Watson Drilling Co.		
No record	230	230
Eutaw formation:		
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, well-sorted, glauconitic, slightly micaceous, with some light-gray micaceous, glauconitic clay	42	272
Sand, light-greenish-gray to yellowish-gray, fine- to medium-grained, angular to subangular, well-sorted, glauconitic, slightly micaceous, and light-gray to yellowish-gray glauconitic micaceous sandy clay	21	293
Sand, yellowish-gray to light-greenish-gray, medium-grained, well-sorted, very glauconitic, micaceous, and abundant light-gray to brownish-gray glauconitic micaceous sandy clay	21	314

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well O-14--Continued		
Eutaw formation--Continued		
Sand, light-greenish-gray to yellowish-gray, medium- to coarse-grained, angular to subangular, well-sorted, glauconitic, slightly micaceous, with small amount of gray to brownish-gray glauconitic micaceous sandy clay	42	356
Sand, light-greenish-gray to yellowish-gray, medium-grained, angular to subangular, well-sorted, slightly glauconitic and micaceous, with some light-brownish-gray glauconitic micaceous sandy clay	21	377
Clay, gray to light-brownish-gray, sandy, slightly glauconitic and micaceous, and yellowish-gray medium-grained, angular to subangular slightly glauconitic sand	42	419
Sand, light-yellowish-gray, fine- to medium-grained, angular to subangular, well-sorted, glauconitic, micaceous; light-gray to brownish-gray glauconitic micaceous sandy clay; and small amount of pale-red-purple to moderate-reddish-brown micaceous silty clay	21	440

Table 3. --Sample logs of wells in Autauga County, Ala. --Continued

	Thickness (feet)	Depth (feet)
Well P-25 (Samples described by C. W. Drennen) Owner: Autaugaville State Nursery Driller: Layne-Central Co.		
No record	21	21
Terrace deposits:		
Sand, light-red, medium-grained, with some coarse ferruginous pebbles	23	44
Granules and pebbles, subrounded	23	67
Eutaw formation:		
Clay, yellow, sandy, with some quartz pebbles	21	88
Clay, gray, fissile, sandy, glauconitic	22	110
Sand, yellow, medium-grained, glauconitic	21	131
Clay, gray, fissile, with light-brown medium-grained glauconitic sand	22	153
Sand, greenish-yellow, medium-grained, with fragments of gray waxy glauconitic clay	23	176
Sand, greenish-gray, medium- to coarse-grained, very glauconitic, and fragments of brownish-gray fissile clay	23	199
Sand, yellowish-green, medium-grained, very glauconitic, and fragments of brownish-gray fissile clay	22	221
Sand, yellowish-green, coarse-grained, very glauconitic, and fragments of brownish-gray fissile clay	23	244

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-25--Continued		
Eutaw formation--Continued		
Sand, green, medium-grained, very glauconitic, with fragments of gray fissile clay	22	266
Sand, yellowish-green, medium- to coarse-grained, very glauconitic, with fragments of gray waxy clay	23	289
Clay, gray, fissile, with yellow medium-grained very glauconitic sand	23	312
Sand, grayish-yellow, medium- to very coarse-grained, very glauconitic	22	334
Sand, yellow, medium- to coarse-grained, very glauconitic	23	357
Gordo formation:		
Sand, reddish-yellow, medium- to very coarse-grained, glauconitic, and varicolored, red, purple, gray, and yellow clay	23	380
Clay, varicolored, and reddish-yellow medium- to coarse-grained sand	23	403
Sand, brown, coarse- to very coarse-grained, with abundant chert and quartz pebbles, and some fragments of semi-indurated glauconitic sand and varicolored clay	23	426
Clay, varicolored, sandy, and brown medium- to very coarse-grained sand with some granules	21	447

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-25--Continued		
Gordo formation--Continued		
Sand, brown, medium- to very coarse-grained, with some granules; a few fragments of varicolored clay; and some glauconite	23	470
Clay, gray, fissile with carbonaceous imprints; varicolored clay; and reddish-yellow medium-grained glauconitic sand	23	493
Sand, yellow, coarse- to very coarse-grained, with some granules, and varicolored clay	22	515
Sand, yellow, very coarse-grained, with granules, and varicolored clay	46	561
No record	9	570

Well P-26
Owner: Autaugaville State Nursery
Driller: Layne-Central Co.

	Thickness (feet)	Depth (feet)
Terrace deposits(?):		
Sand, yellowish-orange, medium- to coarse-grained, angular to subangular, clayey, ferruginous	22	22
Clay, moderate-reddish-orange, sandy, slightly micaceous	22	44
Sand, yellowish-orange, medium- to very coarse-grained, with some angular to subrounded ferruginous granules and pebbles	22	66

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-26--Continued		
Eutaw formation:		
Sand, yellowish-orange, medium- to coarse-grained, angular to subangular, clayey, glauconitic, ferruginous, slightly micaceous . . .	22	88
Clay, dark-greenish-gray, sandy, micaceous, slightly glauconitic	22	110
Clay, greenish-gray to yellowish-orange, sandy, glauconitic, and grayish-yellow medium- to coarse-grained, angular to subangular glauconitic ferruginous sand	22	132
Clay, greenish-gray, sandy, slightly glauconitic and micaceous, and pale-yellowish-orange medium- to coarse-grained, angular to subangular slightly glauconitic ferruginous sand . . .	22	154
Clay, yellowish-orange to brown, sandy, glauconitic, slightly micaceous, ferruginous, and yellowish-orange medium- to coarse-grained, angular to subangular slightly glauconitic ferruginous sand.	22	176
Sand, grayish-orange, medium- to coarse-grained, angular to subangular, very glauconitic, ferruginous, and yellowish-gray sandy micaceous glauconitic clay	22	198
Clay, gray, sandy, glauconitic, micaceous, and light-greenish-gray coarse-grained, angular to subangular glauconitic sand.	23	221

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-26--Continued		
Eutaw formation--Continued		
Sand, greenish-gray, coarse-grained, angular to subangular, glauconitic, and yellowish-gray to gray sandy glauconitic calcareous slightly micaceous clay	23	244
Sand, yellowish-gray, medium- to coarse-grained, angular to subangular, glauconitic, and olive-gray fissile sandy micaceous calcareous clay. . .	23	267
Sand, yellowish-gray, coarse- to very coarse-grained, angular to subangular, slightly glauconitic, and olive-gray sandy micaceous clay	23	290
Sand, grayish-yellow, coarse-grained, angular to subangular, glauconitic, slightly ferruginous, and gray sandy slightly glauconitic clay.	22	312
Sand, yellowish-orange, coarse-grained, angular to subangular, slightly glauconitic, ferruginous .	22	334
Sand, yellowish-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic, ferruginous, and yellowish-gray sandy micaceous clay	23	357
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic; some manganese-coated(?) sand; grayish-yellow sandy clay.	23	380
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, slightly ferruginous, and grayish-yellow sandy clay	23	403

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-26--Continued		
Gordo formation:		
Clay, dark-yellowish-orange to moderate-reddish-brown, sandy, slightly micaceous	23	426
Clay, pale-red-purple and moderate-reddish-brown, sandy	22	448
Clay, moderate-reddish-brown, sandy, slightly micaceous	22	470
Clay, varicolored, sandy, and moderate-reddish-orange coarse-grained, angular to subangular clayey ferruginous sand	22	492
Pebbles and granules, pale-yellowish-orange, subangular to rounded, quartzitic; pale-yellowish-orange very coarse-grained, subangular slightly ferruginous sand; yellowish-gray sandy clay	23	515
Sand, pale-yellowish-orange, coarse- to very coarse-grained, with some subangular slightly ferruginous granules, and yellowish-orange sandy clay	23	538
Sand, pale-yellowish-orange, coarse- to very coarse-grained, with some angular to subangular ferruginous granules and pebbles, and some varicolored sandy clay	46	584
Sand, very pale-orange, coarse- to very coarse-grained, angular to subangular, slightly ferruginous	23	607
Sand, dark-yellowish-orange, very coarse-grained, with subangular very ferruginous granules and pebbles, and some varicolored sandy clay	22	629

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-26--Continued		
Gordo formation--Continued		
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, clayey, ferruginous	25	654
Well Q-25 Owner: Alexander Oil Test No. 1 Driller: Modern Drilling Co.		
Eutaw formation.		
Sand, yellowish-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic, ferruginous; red limonitic clay, and light-gray slightly micaceous clay	24	24
Sand, yellowish-orange to reddish-brown, medium- to coarse-grained, angular to subangular, glauconitic, very ferruginous	9	33
Sand, yellowish-orange, medium- to coarse-grained, angular to subangular, glauconitic, ferruginous	30	63
Sand, yellowish-orange, coarse-grained, angular to subangular, glauconitic, ferruginous, and light-gray slightly micaceous clay	30	93
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic, ferruginous, and light-gray clay	31	124

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25--Continued		
Eutaw formation--Continued		
Sand, yellowish-orange, medium-grained, angular to subangular, slightly glauconitic and micaceous, ferruginous, and light-gray to reddish-brown micaceous clay	30	154
Sand, yellowish-orange, coarse-grained, angular to subangular, slightly glauconitic, ferruginous, and light-gray fissile slightly micaceous clay	30	184
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic and ferruginous, and gray glauconitic micaceous limonitic sandy clay	30	214
Sand, very pale-orange to white, medium- to coarse-grained, angular to subangular slightly glauconitic, and light-gray sandy clay	31	245
Sand, pale-yellowish-orange, medium- to very coarse-grained, angular to subangular, clayey, ferruginous, slightly glauconitic	30	275
Clay, pale-red-purple, moderate-reddish-brown and dark-red, sandy; white calcareous sandstone; yellowish-orange medium- to very coarse-grained ferruginous sand	30	305
Sand, yellowish-orange, medium- to very coarse-grained, angular to subangular, clayey, ferruginous, slightly micaceous	29	334
Gordo formation:		
Sand, pale-yellowish-orange, medium- to very		

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25--Continued		
Gordo formation--Continued		
coarse-grained, angular to subangular, clayey, slightly ferruginous, with some yellowish-orange subangular to subrounded granules	31	365
Sand, very pale-yellowish-orange, coarse- to very coarse-grained, subangular, clayey, and some yellowish-orange subangular to subrounded quartz and chert granules	30	395
Sand, pale-yellowish-orange, coarse- to very coarse-grained, subangular, ferruginous; yellowish-orange subrounded ferruginous granules and pebbles; some varicolored sandy clay	61	456
Sand, very pale-orange, medium- to very coarse-grained, angular to subangular; some very pale-orange subrounded granules; and some varicolored sandy clay	30	486
Sand, very pale-yellowish-orange, medium- to very coarse-grained, subangular, clayey, and yellowish-orange subrounded ferruginous granules	30	516
Sand, pale-yellowish-orange, coarse- to very coarse-grained, subangular, clayey, ferruginous, and yellowish-orange subrounded to rounded ferruginous quartz and chert granules and pebbles	31	547
Clay, brown, pale-red-purple, and moderate-reddish-brown, sandy; very pale-orange medium- to very coarse-grained, angular to subangular clayey slightly ferruginous sand; some yellowish-orange subrounded ferruginous granules	27	574

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25--Continued		
Gordo formation--Continued		
Clay, varicolored, sandy; light-gray micaceous clay; pale-yellowish-orange medium- to very coarse-grained, subangular slightly ferruginous sand; yellowish-orange subrounded quartz and chert granules and pebbles	60	634
Coker formation(?):		
Clay, varicolored, sandy; light- to dark-gray pyritic micaceous slightly glauconitic clay	30	664
Clay, gray, sandy, micaceous, lignitic, pyritic; brown to red micaceous clay; very pale-orange medium- to coarse-grained, angular to subangular sand; some fossil fragments	30	694
Clay, gray, sandy, micaceous, lignitic, pyritic; very pale-orange medium- to very coarse-grained, angular to subangular sand; some fossil fragments	30	724
Clay, light- to dark-gray, sandy, micaceous, slightly glauconitic and lignitic, and some fossil fragments	31	755
Clay, gray, sandy, micaceous, lignitic, pyritic; varicolored sandy clay; light-gray medium- to very coarse-grained, angular to subangular sand; white calcareous slightly micaceous sandstone	30	785
Clay, light-gray to brown, sandy, micaceous; light-gray to white medium- to very coarse-grained, with some granules, subangular quartzitic sand; some pyrite and lignite	31	816

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25--Continued		
Coker formation(?)--Continued		
Clay, gray to brown, sandy, micaceous, lignitic, pyritic, and white calcareous glauconitic micaceous sandstone	31	847
Clay, gray to brown, sandy, micaceous, lignitic; white coarse- to very coarse-grained, subangular sand; white to yellowish-orange subrounded quartz granules and pebbles.	63	910
Clay, gray and brown, sandy, micaceous; white calcareous glauconitic micaceous sandstone; very pale-orange coarse- to very coarse-grained, subangular pyritic sand; yellowish-orange subrounded to rounded quartz granules and pebbles	59	969
Sandstone, dark-gray, pyritic; varicolored sandy micaceous clay; very pale-orange medium- to very coarse-grained, subangular sand; pale-orange subrounded quartz and chert granules and pebbles; some reworked fossil fragments	30	999
Clay, gray, fissile, micaceous; greenish-gray calcareous micaceous pyritic sandstone; some pale-orange subangular to subrounded quartz granules and pebbles	31	1,030
Clay, gray and varicolored, sandy, micaceous, pyritic, yellowish-orange subrounded quartz granules and pebbles	30	1,060

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25--Continued		
Coker formation(?)--Continued		
Sand, yellowish-orange, very coarse-grained, subangular, ferruginous; yellowish-orange subangular to subrounded quartz and arkose granules and pebbles; gray fissile micaceous sandy clay; varicolored micaceous sandy clay . .	61	1,121
Granules and pebbles, pale-yellowish-orange, angular to subrounded, quartzitic, and gray and brown sandy micaceous pyritic clay	31	1,152
Pebbles and granules, yellowish-orange, subangular to rounded, quartzitic, arkosic, and grayish-brown sandy micaceous pyritic clay . . .	30	1,182
Pebbles and granules, yellowish-orange, subangular to subrounded, quartzitic, arkosic; gray and varicolored sandy micaceous pyritic clay; light-gray micaceous pyritic schist	31	1,213
Pre-Cretaceous rocks(?):		
Granules and pebbles, pale-yellowish-orange, subangular to rounded, quartzitic; gray fissile micaceous clay; varicolored sandy micaceous clay . .	30	1,243
No record	13	1,256

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well R-5 Owner: Prattville Memorial Gardens Driller: Alex Stoudenmire Well and Supply Co.		
Terrace deposits:		
Clay, moderate-reddish-brown, sandy, micaceous; dark-yellowish-orange medium- to very coarse-grained, angular to subangular ferruginous sand, with some granules	20	20
Sand, yellowish-orange, coarse- to very coarse-grained with granules, subangular, ferruginous .	22	42
Sand, pale-yellowish-orange, coarse- to very coarse-grained with granules, angular to subrounded, ferruginous	21	63
Eutaw formation(?):		
Sand, pale-yellowish-orange, coarse- to very coarse-grained, angular to subangular, ferruginous, slightly micaceous	21	84
Sand, pale-yellowish-orange, medium- to very coarse-grained, angular to subangular, micaceous, ferruginous	21	105
Sand, yellowish-orange to light-reddish-brown, medium- to very coarse-grained, angular to subangular, micaceous, ferruginous, and some varicolored sandy micaceous clay	21	126
Gordo formation(?):		
Sand, pale-yellowish-orange, very coarse-grained, subangular, slightly ferruginous	21	147

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well R-5--Continued		
Gordo formation(?)--Continued		
Sand, very pale-yellowish-orange, coarse- to very coarse-grained, angular to subangular, slightly ferruginous	7	154

Well R-11 Owner: Prattville Ice and Coal Co. Driller: Acme Drilling Co.		
No record	144	144
Sand, pale-yellowish-orange, medium- to very coarse-grained, angular to subangular, ferruginous, and varicolored sandy lignitic clay	21	165
Sand, pale-yellowish-orange, coarse- to very coarse-grained, subangular, slightly ferruginous, and varicolored sandy clay	21	186
Sand, pale-yellowish-orange, coarse- to very coarse-grained, subangular, slightly ferruginous	21	207
Sand, very pale-orange, coarse- to very coarse-grained, subangular, slightly ferruginous	11	218

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109 (Samples described by H. L. Reade, Jr.) Owner: City of Montgomery Driller: Layne-Central Co.		
Mooreville chalk:		
Sand, dark-yellowish-orange and light-greenish-gray, medium- to coarse-grained, angular to subangular, micaceous, glauconitic, fossiliferous, and yellow clay	10	10
Eutaw formation:		
Clay, greenish-gray, micaceous, and light-greenish-gray medium-grained, angular to subangular glauconitic sand	12	22
Sand, light-greenish-gray, medium-grained, angular to subangular, pyritic, glauconitic, and greenish-gray micaceous fossiliferous clay	10	32
Sand, light-greenish-gray, medium-grained, angular to subangular, pyritic, glauconitic, and white sandy limestone	14	46
Sand, light-greenish-gray, medium-grained, angular to subangular, pyritic, glauconitic	10	56
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, pyritic, glauconitic, and greenish-gray micaceous clay	24	80
Sand, light-greenish-gray, medium-grained, angular to subangular, glauconitic, and greenish-gray micaceous clay. Contains fragments of sandy limestone	60	140

Table 3. --Sample logs of wells in Autauga County, Ala. --Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Eutaw formation--Continued		
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, pyritic, glauconitic; greenish-gray micaceous clay; limonitic concretions	32	172
Sand, light-greenish-gray, fine- to medium-grained, subangular to subrounded, glauconitic, and greenish-gray micaceous clay	13	185
Sand, light-greenish-gray, medium-grained, angular to subangular, glauconitic, and greenish-gray micaceous clay	10	195
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, pyritic, glauconitic, and small amount of gray clay	24	219
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, glauconitic, and greenish-gray micaceous clay	14	233
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, glauconitic, and greenish-gray micaceous clay	34	267
Sand, light-greenish-gray, medium-grained, angular to subangular, pyritic, glauconitic, fossiliferous. Contains fragments of limestone	22	289
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, glauconitic, fossiliferous, and greenish-gray micaceous clay	13	302

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Eutaw formation--Continued		
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, glauconitic, fossiliferous, and greenish-gray micaceous clay	24	326
Gordo formation:		
Clay, dark-reddish-brown and light-greenish-gray, micaceous, and pinkish-gray medium-grained, angular to subrounded pyritic glauconitic fossiliferous sand	10	336
Sand, pale-grayish-orange, medium-grained, angular, slightly glauconitic, and moderate-reddish-brown, dark-yellowish-orange, pale-green, and greenish-gray clay	10	346
Sand, very pale-orange, coarse- to very coarse-grained, angular to subangular, slightly glauconitic, and moderate-reddish-brown, pale-green, and dark-yellowish-orange clay	10	356
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, slightly glauconitic, and dark-yellowish-orange, moderate-reddish-brown, and pale-green clay	16	372
Sand, very pale-yellowish-orange, fine- to medium-grained, angular to subangular, and moderate-reddish-brown, pale-green, and pale-red-purple clay	10	382

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Gordo formation--Continued		
Sand, yellowish-gray, medium- to very coarse-grained, angular to subangular, and moderate-reddish-brown, pale-green, and pale-red-purple clay	13	395
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular	10	405
Sand, very pale-orange, medium- to very coarse-grained, angular to subangular, pyritic, and small amount of varicolored clay	13	418
Sand, very pale-yellowish-orange, medium-grained, angular to subangular, and moderate-reddish-brown, pale-green, and pale-red-purple clay	10	428
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, pyritic	13	441
Sand, grayish-orange, medium- to coarse-grained, angular to subangular, and moderate-reddish-brown, pale-green, pale-red-purple, and yellowish-brown clay	10	451
Sand, grayish-orange, medium- to very coarse-grained, angular to subangular, and varicolored clay	47	498
Sand, pale-yellowish-orange, medium- to very coarse-grained, angular to subangular	23	521
Sand, pale-yellowish-orange, medium- to very coarse-grained, angular to subangular; yellow to reddish-yellow quartzitic cherty gravel; and moderate-reddish-brown, pale-green, and pale-red-purple clay	15	536

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Gordo formation--Continued		
Sand, very pale-orange, fine- to medium-grained, angular to subangular, and greenish-gray, moderate-reddish-brown, and pale-red-purple clay	10	546
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, glauconitic, and pale-green, grayish-red-purple, and moderate-reddish-brown micaceous clay	37	583
Sand, very pale-yellowish-orange to white, fine- to medium-grained, angular to subangular, glauconitic, and pale-green, moderate-reddish-brown, and moderate-yellowish-brown micaceous clay	24	607
Coker formation:		
Sand, yellowish-gray, fine- to coarse-grained, angular to subangular, glauconitic, and pale-green, grayish-red-purple, and moderate-reddish-brown micaceous clay	66	673
Clay, greenish-gray and pale-green to varicolored, micaceous, and yellowish-gray fine- to medium-grained, angular sand	37	710
Sand, white, medium-grained, angular to subangular	13	723
Sand, white, medium-grained, angular to subangular, pyritic, and pale-green and pale-purple to varicolored micaceous clay	10	733

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Coker formation--Continued		
Clay, greenish-gray, micaceous, lignitic, and light-greenish-gray fine- to medium-grained, angular to subangular pyritic lignitic sand	46	779
Sand, light-greenish-gray, fine- to medium-grained, angular, lignitic, pyritic, and greenish-gray micaceous lignitic clay.	14	793
Clay, greenish-gray and pale-green, micaceous, lignitic, and light-greenish-gray fine- to medium-grained, angular pyritic lignitic fossiliferous sand	48	841
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, pyritic, fossiliferous; greenish-gray and pale-green micaceous clay; and white sandy limestone	10	851
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, glauconitic, pyritic, lignitic, fossiliferous; light-greenish-gray micaceous clay; and white sandy limestone .	24	875
Sand, light-greenish-gray, medium-grained, angular, pyritic, glauconitic	13	888
Sand, light-greenish-gray, fine- to medium-grained, angular, glauconitic, and pale-red-purple, greenish gray, pale-green, and moderate-yellowish-brown micaceous clay	10	898

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Coker formation--Continued		
Sand, white, medium- to coarse-grained, angular to subangular, pyritic, glauconitic, and greenish-gray, moderate-reddish-brown, and pale-green micaceous fissile clay	13	911
Sand, white, medium- to very coarse-grained, angular to subrounded, and yellow and grayish-brown clay	10	921
Sand, light-greenish-gray, fine- to medium-grained, angular to subangular, pyritic, fossiliferous, and greenish-gray micaceous clay. Contains pyritized wood fragments	13	934
Sand, white, medium- to coarse-grained, angular to subangular, pyritic, glauconitic, and greenish-gray, moderate-reddish-brown, pale-green, and pale-red-purple micaceous clay.	24	958
Clay, greenish-gray, micaceous, fissile, and white medium- to coarse-grained, angular to subangular pyritic glauconitic sand.	31	989
Shale, greenish-gray, micaceous, fissile, and white fine- to medium-grained, angular to subangular biotitic pyritic sand	13	1,002
Shale, greenish-gray and pale-green, micaceous, fissile; varicolored clay; and very pale-orange medium- to coarse-grained, angular to subangular pyritic glauconitic sand.	10	1,012

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Coker formation--Continued		
Sand, very pale-yellowish-orange, coarse-grained, angular to subangular, and moderate-reddish-brown, pale-green, and greenish-gray micaceous fissile clay.	14	1,026
Sand, very pale-orange, fine- to medium-grained, angular to subangular, pyritic, glauconitic, and varicolored clay	10	1,036
Sand, yellowish-gray to very pale-orange, medium-grained, angular to subangular, pyritic, limonitic, glauconitic, and greenish-gray, pale-red-purple, moderate-reddish-brown, and light-green micaceous fissile sandy clay	24	1,060
Sand, very pale-orange, medium-grained, angular to subangular	13	1,073
Clay, greenish-gray, pale-green, moderate-reddish-brown, and pale-red-purple, sandy, micaceous, fissile, and white medium-grained, angular quartzitic pyritic glauconitic sand	10	1,083
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, and varicolored clay	65	1,148
Sandstone, very pale-yellowish-orange, medium- to coarse-grained, angular, hard.	5	1,153
Sand, very pale-yellowish-orange, medium-grained, angular to subangular, and greenish-gray, moderate-reddish-brown, and pale-red-purple micaceous fissile clay	24	1,177

Table 3. --Sample logs of wells in Autauga County, Ala. --Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Coker formation--Continued		
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, and greenish-gray, moderate-reddish-brown, and pale-red-purple micaceous clay	38	1, 215
Pre-Cretaceous rocks:		
Sand, very pale-orange, medium- to very coarse-grained, angular; varicolored clay; and biotitic schistose fragments.	4	1, 219

Well Mtg. TW-112
(Samples described by H. L. Reade, Jr.)
Owner: City of Montgomery
Driller: Layne-Central Co.

Terrace deposits:		
Clay, dark-yellowish-orange	10	10
Sand, pale-yellowish-orange, coarse- to very coarse-grained, angular, micaceous, and fine to coarse quartzitic gravel	22	32
Sand, light-brown, very coarse-grained, angular to subangular, micaceous, and fine subrounded quartzitic gravel	10	42

Table 3. --Sample logs of wells in Autauga County, Ala. --Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-112--Continued		
Eutaw formation:		
Sand, grayish-orange, medium- to coarse-grained, angular to subangular, micaceous, and greenish-gray clay	13	55
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous, micaceous, and greenish-gray micaceous clay	14	69
Sand, light-greenish-gray medium- to coarse-grained, angular to subangular, micaceous, and greenish-gray micaceous clay	22	91
Sand, light-greenish-gray, fine- to coarse-grained, angular to subangular, glauconitic, micaceous, and greenish-gray micaceous clay	10	101
Sand, light-greenish-gray, coarse- to medium-grained, subangular to subrounded, slightly frosted, slightly glauconitic, micaceous	13	114
Sand, light-greenish-gray, coarse- to medium-grained, angular to subrounded, slightly frosted, slightly glauconitic, micaceous, and greenish-gray micaceous clay	10	124
Sand, light-greenish-gray, medium- to coarse-grained, angular to subangular, slightly frosted, glauconitic, micaceous, and greenish-gray micaceous clay	37	161
Sand, light-greenish-gray, medium-grained, angular to subangular, glauconitic, micaceous, and greenish-gray clay	23	184

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-112--Continued		
Eutaw formation--Continued		
Sand, light-greenish-gray, fine- to medium-grained, angular, micaceous, lignitic, and greenish-gray micaceous fissile clay	10	194
Gordo formation:		
Clay, greenish-gray, micaceous; varicolored clay, and light-greenish-gray medium- to fine-grained, angular to subangular glauconitic micaceous sand	13	207
Clay, varicolored, and light-greenish-gray fine-grained, angular glauconitic sand.	10	217
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous, and varicolored clay	38	255
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous; varicolored clay; and greenish-gray micaceous clay	10	265
Sand, very pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous, and varicolored clay	14	279
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous, slightly micaceous, and greenish-gray, pale-green, pale-red-purple, and moderate-red micaceous clay	23	302

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-112--Continued		
Gordo formation--Continued		
Sand, very pale-yellowish-orange, medium-grained, angular to subangular, ferruginous, and varicolored clay	10	312
Sand, pale-yellowish-orange, fine- to coarse-grained, angular to subangular, ferruginous, and pale-red-purple, pale-green, moderate-reddish-brown, and greenish-gray micaceous clay	12	324
Sand, pale-yellowish-orange, fine- to medium-grained, angular to subangular, ferruginous, pyritic, micaceous, and very pale-green, pale-red-purple, moderate-reddish-brown, brownish-yellow, and greenish-gray micaceous clay	47	371
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, ferruginous, micaceous, and greenish-gray to varicolored glauconitic clay	10	381
Sand, very pale-orange, medium- to coarse-grained, angular, ferruginous, micaceous, and moderate-reddish-brown, pale-red-purple, pale-green, and greenish-gray micaceous clay	13	394
Sand, pale-yellowish-orange, medium- to coarse-grained, angular to subangular, ferruginous, and varicolored clay	10	404
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, ferruginous	14	418

Table 3.--Sample logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-112--Continued		
Gordo formation--Continued		
Sand, very pale-yellowish-orange, fine- to medium-grained, angular to subangular, ferruginous, micaceous, and greenish-gray to varicolored micaceous clay	10	428
Sand, white, medium- to coarse-grained, angular to subangular, ferruginous, slightly micaceous, and varicolored clay	14	442
Sand, white, medium- to coarse-grained, angular to subangular, and varicolored clay	10	452
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, ferruginous, and pale-green, moderate-reddish-brown, and pale-red-purple sandy clay	37	489
Coker formation:		
Sand, very pale-orange, medium- to coarse-grained, angular to subangular, ferruginous, pyritic, micaceous, glauconitic, slightly lignitic, and greenish-gray micaceous lignitic clay	10	499
Sand, very pale-orange to white, fine- to coarse-grained, angular to subangular, micaceous, pyritic, slightly glauconitic, lignitic, and greenish-gray micaceous lignitic clay	14	513
Sand, light-greenish-gray, fine-grained, angular, micaceous, pyritic, lignitic, and greenish-gray, pale-green, pale-red-purple, and moderate-reddish-brown sandy micaceous clay	25	538

Table 4.--Drillers' logs of wells in Autauga County, Ala.

	Thickness (feet)	Depth (feet)
Well D-11 Owner: Southern Railroad Driller: Brady Drilling Co.		
Topsoil	8	8
Sand	8	16
Soapstone, red	84	100
Sand	100	200
Soapstone	10	210
Sand	10	220
Soapstone	15	235
Sand	10	245
Soapstone	75	320
Sand	33	353
Well H-6* Owner: Ruth M. Fleenor Driller: H. W. Peerson Well Co.		
Clay, sandy	15	15
Sand and gravel	4	19
Clay, yellow, sandy	21	40
Clay, coarsely sandy	21	61
Sand, coarse; clay blocks	20	81
Sand, coarse, packed	10	91
Sand, coarse, packed, and clay	10	101
Sand, coarse; clay blocks	20	121
Sand, packed; clay blocks	10	131
Sand, fine, and clay	10	141
Clay, red, sandy	10	151
Clay, coarsely sandy	20	171
Sand, coarse, packed	10	181
Clay, blocky	1	182
Sand, coarse, packed	9	191
No record	74	265

*Note: Log of well drilled at site and abandoned.

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-25 Owner: Autaugaville State Nursery Driller: Layne-Central Co.		
Sand and gravel	40	40
Clay	20	60
Sand and gravel	10	70
Clay, hard	12	82
Clay, sandy	10	92
Rock	1	93
Sand, draggy	19	112
Sand; cut better	17	129
Clay with streaks of sand	27	156
Sand	10	166
Clay	21	187
Sand, packed	9	196
Clay	2	198
Sand, packed	9	207
Sand, draggy	4	211
Sand, packed	20	231
Clay	7	238
Clay, sandy	30	268
Sand, packed	14	282
Clay	3	285
Sand, packed	5	290
Clay	8	298
Sand, packed	22	320
Clay	2	322
Sand, packed	45	367
Clay, red	103	470
Clay with streaks of sand	25	495
Sand, soft	15	510
Sand, packed	40	550
Clay	5	555
Sand	4	559
Clay, sandy, soft	11	570

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well P-26 Owner: Autaugaville State Nursery Driller: Layne-Central Co.		
Sand, red, and clay	12	12
Sand	9	21
Clay	14	35
Sand	9	44
Clay, sandy	44	88
Clay, blue	32	120
Sand, muddy	10	130
Clay	12	142
Sand, muddy	9	151
Clay	9	160
Sand and streaks of clay	42	202
Clay	11	213
Sand	14	227
Clay	4	231
Sand	2	233
Sand and streaks of clay	36	269
Shale, sandy	22	291
Sand and streaks of clay	46	337
Sand, yellow	7	344
Clay, sandy, yellow and blue	14	358
Sand, yellow, hard, and clay	22	380
Sand, yellow	22	402
Clay	83	485
Clay, sandy	11	496
Sand, packed	18	514
Clay	8	522
Sand, packed; clay beds in upper 8 feet	16	538
Sand, packed, and gravel	46	584
Sand, packed	15	599
Clay	2	601
Sand, streaks of clay	7	608
Sand, packed	10	618
Clay, red, and sand	36	654

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Q-25 Owner: Alexander Oil Test No. 1 Driller: Modern Drilling Co.		
Clay, red	28	28
Sand, brown	45	73
Clay	2	75
Sand, brown	25	100
Clay	5	105
Sand, brown	64	169
Clay	5	174
Sand, streaks clay	130	304
Rock	1	305
Sand, streaks clay	10	315
Clay, streaks packed sand	5	320
Clay, hard	70	390
Sand	30	420
Clay	4	424
Sand and gravel	87	511
Clay	4	515
Sand and gravel	57	572
Clay	6	578
Sand	162	740
Marl, blue	31	771
Rock	1	772
Clay, sandy	18	790
Clay and boulders	170	960
Rock	3	963
Shale, streaks sand	252	1,215
Gumbo	31	1,246
Rock	10	1,256

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well R-5 Owner: Prattville Memorial Gardens Driller: Alex Stoudenmire Well and Supply Co.		
Soil, gravel, and clay	20	20
Sand and gravel	43	63
Sand, yellow, and clay	21	84
Sand, yellow, and gray clay	21	105
Sand, yellow, and varicolored clay	21	126
Sand, yellow, coarse	12	138
Sand, yellow, coarse, clean	16	154

	Thickness (feet)	Depth (feet)
Well R-11 Owner: Prattville Ice and Coal Co. Driller: Acme Drilling Co.		
Cinders	4	4
Sand and gravel	11	15
Sand, muddy	13	28
Clay, sand and gravel	32	60
Sand, muddy	21	81
Sand, draggy	17	98
Sand	12	110
Clay (gumbo)	20	130
Shale	3	133
Sand	12	145
Clay	4	149
Sand	2	151
Clay	3	154
Sand	14	168
Clay	2	170
Sand, packed; clay at bottom	48	218

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well R-15 Owner: Prattville Elementary School Driller: I. E. Sarber		
Sand	30	30
Marl	60	90
Sand, water-bearing	9	99
Well R-27* Owner: Sunset Trailer Park Driller: Acme Drilling Co.		
Sand, red, and gravel	20	20
Sand, yellowish-tan, glauconitic	65	85
Marl, blue	20	105
Sand, yellow, medium	25	130
Sand, fine to medium	25	155

*Note: Log of well drilled at site and abandoned.

	Thickness (feet)	Depth (feet)
Well R-33 Owner: City of Prattville Driller: Layne-Central Co.		
Sand and gravel	24	24
Clay	6	30
Sand, red	14	44
Clay	49	93
Sand	18	111
Clay	26	137
Sand, fine	5	142
Clay	7	149
Clay, sandy	11	160
Sand	21	181
Sand, hard	7	188

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well R-38--Continued		
Clay, sand, and gravel	32	220
Clay	31	251
Sand	4	255
Clay, sandy	54	309
Sand, streaks clay	13	322
Sand	19	341
Clay	42	383
Sand	15	398
Shale	45	443

Well R-40
Owner: City of Prattville
Driller: Layne-Central Co.

	Thickness (feet)	Depth (feet)
Sand and gravel	13	13
Clay, sandy	14	27
Clay and sandstone	54	81
Sand	27	108
Clay and hard sandstone	18	126
Sand, muddy	9	135
Sandstone and clay	15	150
Sand	23	173
Sandstone	3	176
Sand	36	212
Sand, hard	33	245
Sand, very hard	35	280
Clay, some sand	37	317
Sand	21	338
Sandy clay	18	356
Sand, streaks clay	30	386
Soapstone, hard	35	421
Sand, very hard	21	442
Clay; some fine sand	44	486

Table 4. --Drillers' logs of wells in Autauga County, Ala. --Continued

	Thickness (feet)	Depth (feet)
Well T-1* Owner: Wadsworth Plantation		
Clay, red	19	19
Gravel	22	41
No record	42	83
Sandstone	2	85
Sand, fine	22	107
No record	37	144
Sand, fine	10	154
No record	106	260
Rock	1	261
No record	29	290
Sand	6	296
No record	139	435
Sand, yellow, coarse	5	440
Clay, ocher, red, and yellow	34	474
Sand	1	475

*Note: Log of well drilled at site in 1905; well abandoned in 1950.

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109 Owner: City of Montgomery Driller: Layne-Central Co.		
Clay, sandy	7	7
Chalk and shells	3	10
Clay, blue, with streaks of sand	5	15
Clay, blue	17	32
Sand	3	35
Rock	1	36
Clay, hard	3	39
Sand	6	45
Clay, sandy, with streaks of sand	20	65
Sand	8	73
Rock	1	74
Clay, sandy, with streaks of sand	11	85

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Rock	1	86
Clay, sandy.	4	90
Sand, with streaks of clay	11	101
Sand, hard, packed.	2	103
Rock	1	104
Sand, hard, packed.	4	108
Rock	1	109
Clay, sandy, with streaks of sand	13	122
Rock	1	123
Clay, with streaks of sand.	20	143
Rock	2	145
Clay, with thin streaks of sand.	9	154
Sand.	6	160
Clay.	10	170
Sand, with thin streaks of clay	13	183
Clay.	17	200
Sand, hard, packed.	11	211
Clay.	2	213
Sand, hard, packed.	3	216
Clay, sandy, with streaks of sand	22	238
Sand, hard, packed.	11	249
Sand, hard, packed, with streaks of clay	6	255
Sand, hard, packed.	26	281
Rock, soft.	2	283
Clay, sandy.	3	286
Rock	2	288
Clay, sandy, with streaks of sand	24	312
Clay, hard	65	377
Sand.	9	386
Clay.	15	401
Sand.	4	405
Clay.	12	417
Sand.	10	427
Clay.	9	436
Sand.	7	443

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Clay	7	450
Sand, hard, packed	10	460
Clay	2	462
Sand	2	464
Sand, hard, packed	11	475
Clay, hard	5	480
Sand, with streaks of clay	2	482
Sand, hard, packed	7	489
Clay	2	491
Sand, hard, packed	30	521
Clay	43	564
Sand, hard, packed	5	569
Clay	19	588
Sand, with streaks of clay	25	613
Clay, hard	20	633
Sand	4	637
Clay, hard	20	657
Sand	4	661
Clay, hard	7	668
Clay, sandy	4	672
Clay, hard	21	693
Sand, fine-grained, packed	7	700
Clay, sandy	12	712
Sand, hard, packed	15	727
Clay, with streaks of sand	68	795
Rock	2	797
Clay, with streaks of sand	10	807
Clay, blue	15	822
Rock	1	823
Clay	2	825
Rock	2	827
Clay, with streaks of sand	12	839
Rock	1	840
Clay	29	869
Clay, sandy, with streaks of sand	26	895
Sand	7	902

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-109--Continued		
Shale, hard, with streaks of sand and clay	105	1,007
Sand, hard, packed	10	1,017
Clay, sandy, hard	60	1,077
Sand	4	1,081
Clay, sandy, hard	21	1,102
Sand	28	1,130
Clay, sandy, with streaks of sand	18	1,148
Rock	1	1,149
Clay, sandy	7	1,156
Clay, hard	7	1,163
Clay, sandy	5	1,168
Sand	6	1,174
Sand, with streaks of clay	21	1,195
Sandstone	20	1,215
Shale	2	1,217
Rock	2	1,219

Well Mtg. TW-112
Owner: City of Montgomery
Driller: Layne-Central Co.

	Thickness (feet)	Depth (feet)
Soil	2	2
Clay	11	13
Sand, muddy	3	16
Sand and gravel	13	29
Clay, sandy, soft	22	51
Clay, with streaks of sand	17	68
Clay, sandy	12	80
Sand	8	88
Clay	9	97
Sand	7	104
Clay, sandy	3	107
Sand, hard-packed	27	134
Sand, hard-packed, with streaks of clay	6	140

Table 4.--Drillers' logs of wells in Autauga County, Ala.--Continued

	Thickness (feet)	Depth (feet)
Well Mtg. TW-112--Continued		
Clay, hard, with streaks of sand.	20	160
Sand, hard-packed, with streaks of clay.	20	180
Clay.	6	186
Sand, hard, packed.	7	193
Clay.	2	195
Sand.	1	196
Clay, varicolored, hard	19	215
Clay, sandy.	7	222
Sand, white, hard, packed	7	229
Clay.	4	233
Sand, hard, packed.	5	238
Clay, sandy.	3	241
Sand, hard, packed, with thin streaks of clay	7	248
Clay, sandy.	8	256
Sand, hard, packed, with thin streaks of clay	15	271
Clay.	4	275
Sand, hard, packed.	5	280
Clay, sandy.	4	284
Sand, hard, packed, with streaks of clay	18	302
Sand, hard, packed.	8	310
Clay.	4	314
Clay, with streaks of sand.	11	325
Clay, hard	6	331
Clay, sandy.	6	337
Clay, varicolored, hard	31	368
Sand, hard, packed.	7	375
Clay.	3	378
Sand, with streaks of clay	4	382
Clay.	8	390
Sand, with streaks of clay	8	398
Sand, hard, packed.	21	419
Clay.	8	427
Sand.	5	432
Sand, hard, packed.	26	458
Clay, hard, with streaks of sand.	37	495
Clay, hard, with streaks of lignite	43	538

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19. (ER: Section 4-3; p. 4-38; Resources Committed)

Please provide a general decommissioning plan to be effected at the end of plant life.

RESPONSE

As committed in Section 12 of the ANFFP License Application; "Specification S-I-11: Decontamination and Decommissioning"; at the end of plant life, the facilities and grounds will be decontaminated in accordance with a general decommissioning plan so that these facilities and grounds can be released for unrestricted use. This plan will address financial arrangements for defraying the expenses of decommissioning; a letter from J. J. Taylor, Vice President and General Manager, Westinghouse Water Reactor Divisions, which addresses this subject is provided in Attachment 19.1. (Although the introduction to this letter discusses the specific Columbia, SC and Cheswick, PA licensed sites, the text of the letter applies its commitments to "... all of the sites for which Westinghouse holds a Part 70 license".) This plan will be kept part of the Demonstration Section of the license, and will be included as part of the total Demonstration package to be submitted prior to the end of 1980; a summary of the plan follows:

Summary

The Nuclear Regulatory Commission's Division of Nuclear Materials Safety and Safeguards requires that an application for a license be accompanied by a plan and cost estimate for decommissioning, and financial arrangements to assure adequate funds to cover the costs at the time of decommissioning.

Westinghouse has accumulated actual experience in this area, including the preparation and submittal of a decommissioning plan for the Columbia, South Carolina fuel fabrication plant, and, implementation of decommissioning at the Cheswick fuel laboratories. The Alabama Nuclear Fuel Fabrication Plant (ANFFP) plan makes maximum use of this experience in formulating a conceptual program in sufficient detail to indicate the scope of activities and estimate the costs involved.

The ANFFP Decommissioning Plan, including resulting cost estimates, is prepared within the following guidelines:

1. Applicable experience obtained in planning the Columbia plant decommissioning, and in planning and carrying out the Cheswick Site fuel laboratory decontamination and decommissioning activities, are utilized to the extent practicable in preparing the ANFFP plan and cost estimate.
2. Costs are expressed in 1980 dollars.
3. Packaging, transportation and disposal charges are calculated using information from an existing low level waste disposal facility as the repository for contaminated material and equipment.
4. Current radiological limits and decontamination technology are utilized.
5. All process and ancillary equipment in controlled areas are to be cleaned to the extent practicable, and are to be packaged, transported to, and dispositioned at a licensed disposal facility.
6. All buildings are to be cleaned to levels established for unrestricted use.
7. All contaminated underground piping is to be removed, cleared to the extent practicable, packaged, transported to, and dispositioned at a licensed disposal facility. The ground surrounding such piping is also to be surveyed and removed for disposal if contaminated beyond established limits.
8. Approximately 4-inches of top soil are to be removed from the 30 developed acres (16,133 yd^3). This material is to be used in site grading (e.g., placed over existing undisturbed top soil). Final landscaping is to result in extensive grass-covered areas, and new trees and shrub areas, to stabilize the soil. Thus, the top soil is to be available for redistribution following decommissioning.

Within the above guidelines, Westinghouse has inventoried the equipment and material which has presently been designated for use in the proposed facility, and has estimated the portion likely to remain contaminated, or incapable of being satisfactorily decontaminated. This portion would be prepared and transported for disposition at a licensed disposal facility. Similarly the costs required for cleaning those portions of the facility requiring such decontamination (such as walls, floors, etc.) were estimated.

The estimate provides an allowance for professional health physics staffing to perform a comprehensive initial survey, and then prepare a specific overall plan for approval by the appropriate licensing agency prior to the initiation of decommissioning activities. It also provides for the required health physics surveillance during the entire operation, including the final clearance surveys of the "clean" facility, and an acceptance inspection by the appropriate licensing agency, as a condition of terminating the license.

Based on the above guidelines, and the independent contractor's estimate for decommissioning the similar Columbia facility, the total task costs for the ANFFP facility are estimated to be approximately $5,000,000. Further, it is estimated that it will take approximately one to two years to complete the decommissioning task.

20. (ER: Section 6-1.2; p.6-8; Groundwater)

Paragraph two states that "other nearby offsite water sources were substituted for the abandoned, shallow on-site well." Please list and provide a map indicating the location of these additional groundwater sources. Please provide pertinent hydrologic information and corresponding water quality data.

RESPONSE

For the winter survey, a well (W-1' in figure 2-7) at a house directly north of the site (across County Route 4) was sampled. During the spring survey, a water sample was taken from a water tap at the Prattville police station (which gets its water supply from the Prattville water system consisting of nine wells 300-600 ft. deep - see Para. 2.2.3 of the Environmental Report). The map with Attachment 20.1 shows locations of these wells.

For the summer season, a sample from the canyon creek was substituted for the shallow on-site well. The source of water from the canyon creek is believed to be from groundwater seepage.

Details of hydrologic information and sampling results are given in Table 7 of reference 1, which is included with this submittal.

ATTACHMENT 20.1

JASPER N. BUCKNER
CHAIRMAN
MURRAY KEMP
J. B. STRIPLIN

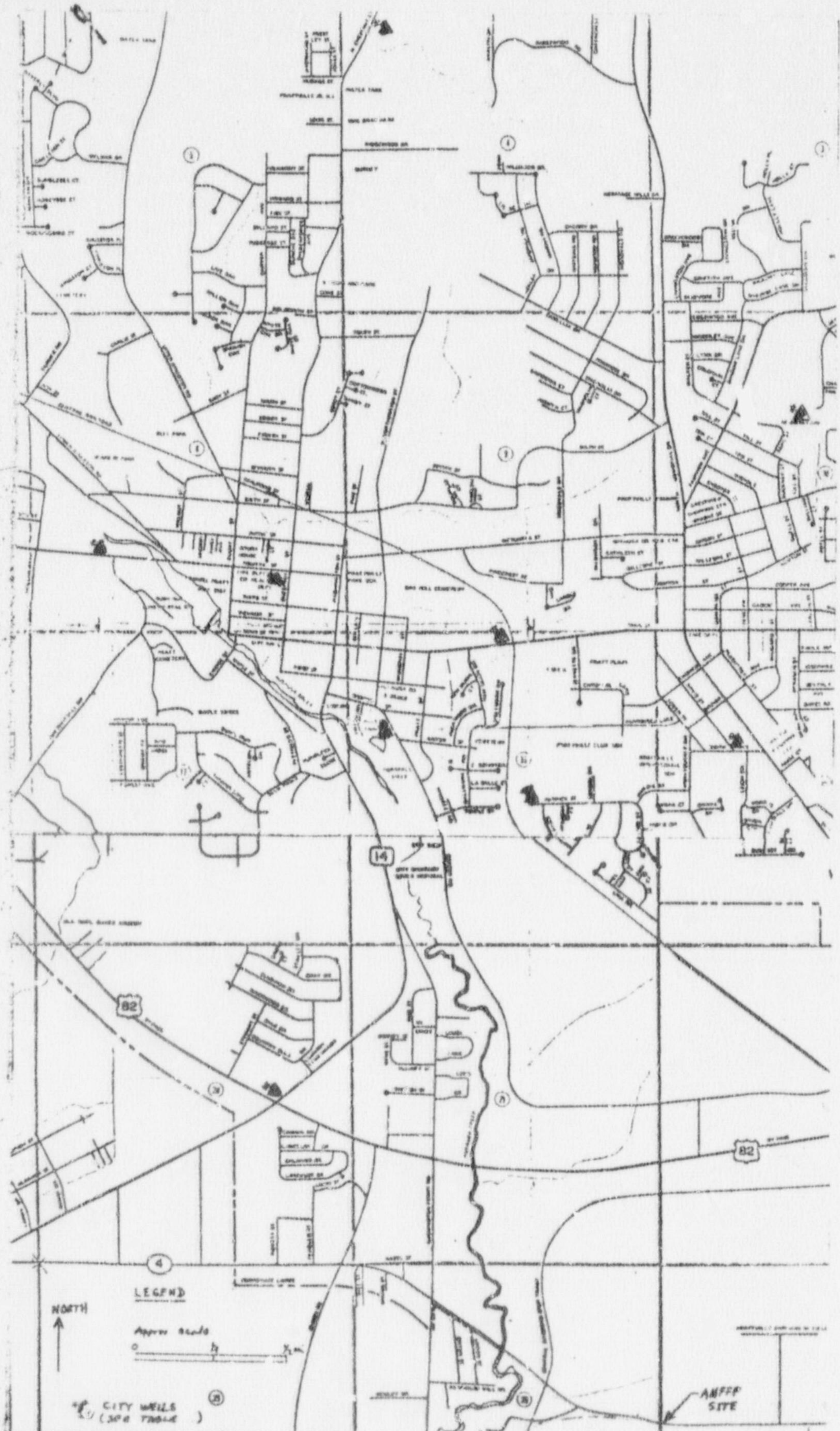
The Water Works Board
of the City of Prattville, Alabama

P. O. BOX 609 TELEPHONE 365-6783
Prattville, Alabama

J. N. BUCKNER, JR.
MANAGER
MRS. VIRGINIA McGOUGH
SECRETARY - TREASURER

LOCATION OF WELLS

Well # 2	Pratt Park Intersection of Doster Street and Washington Street
Well # 3	Davis Street Intersection of Davis Street and Smith Avenue
Well # 4	Underpass Intersection of East Main and Railroad
Well # 5	West Fourth Street West Fourth Street, 1000 feet west of Autauga Creek
Well # 6	Patrick Street West end of Patrick Street
Well # 7	Newton Park
Well # 8	By-Pass Intersection of 82 By-Pass and Highway 14
Well # 9	North Chestnut Street North Chestnut Street one mile south of Highway 31 North
Well # 10	Hunt's Alley Along branch between Third Street and Fourth Street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CITY WELLS
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4

21. (ER: Section 6-1.4.1; p. 6-13; Terrestrial Ecology Survey)

Please provide a more detailed description of the methods used to sample small mammals; i.e., how many live-trapping grids were located in each habitat? How many traps per grid? How many nights were the traps set? Provide similar information for the snap-trapping lines.

RESPONSE

In the fall surveys (1978) 50 live traps were used in each fence row and successional oak forest; and, 50 snap traps were used in each cotton field, pasture and mature oak forest. Trappings in pasture, successional oak forest and mature oak forest consisted of 600 trap-nights (i.e., 50 traps in each habitat for 4 nights).

In the winter and spring season surveys, 166 and 180 trap-nights were conducted in the fence row and right-of-way habitats.

Snap and live traps were set during the spring survey; live traps only were set in the winter survey; no traps were set during the summer survey.

For the winter season, 85 Sherman live traps (5 x 7 x 17 cm and 8 x 9 x 23 cm) and one Tomahawk trap (28 x 32 x 80 cm) were distributed through the major and minor habitats (cottonfield excepted), on four nights, and were checked daily. (Thus, mammal trapping during the winter season consisted of 344 trap-nights, all with live traps.)

The same live traps noted above for the winter season were used during the spring season survey (in pastures, lowland successional and mature oak forests). In addition to live traps, large Victor snap traps were set in cottonfields, fencerows, and upland successional and mature forests. A minimum of 150 trap-nights were accomplished in each major habitat during this Spring survey.

22. (ER: Section 6-2.2.2; p. 6-28; Well Water Sampling and Analysis)

On the same map, please show the location of all wells used in preoperational monitoring and those intended to be used for operational radiological and nonradiological monitoring. On what basis were these wells selected for radiological and nonradiological analysis.

RESPONSE

Figure 6-3, (Attachment 22.1) - which shows groundwater monitoring stations used during preoperational surveys, with the exception of the one sample taken at the police station in Prattville - has been altered to show proposed groundwater monitoring stations during ANFFP operations. The response for item 20 shows locations of Prattville water system wells.

The proposed operational groundwater monitoring stations will be all on-site, and are identified as follows:

WW1 is the same as the well designated W-2 in the preoperational monitoring program.

WW2 is a well to be drilled about 300 meters west of the property line belonging to the nearest easterly off-site resident.

WW3 is a well to be drilled near the present access road (center of the site), about 200 meters southwest of the proposed plant fenced area.

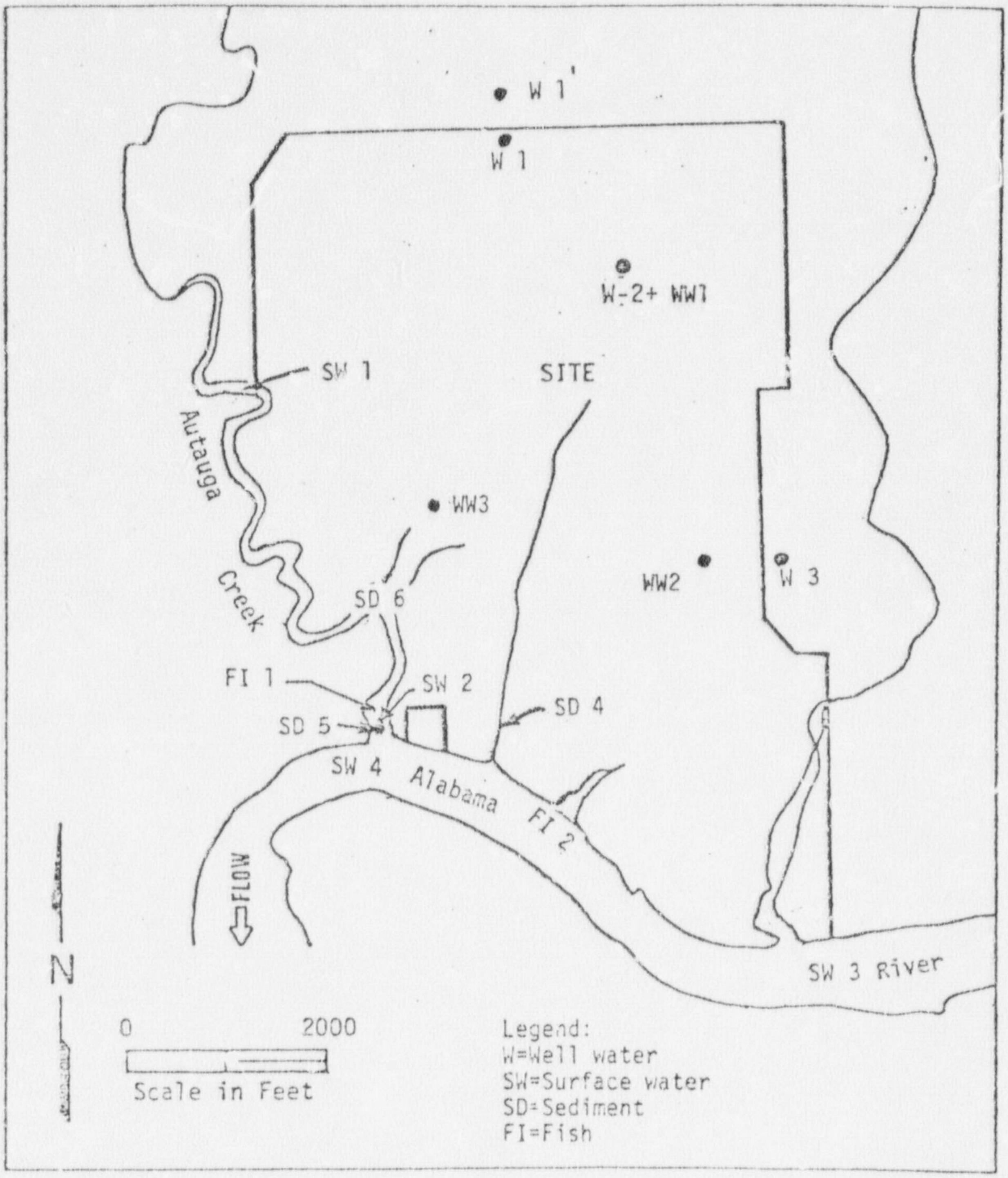
Rationale for choosing these monitoring locations was as follows:

Well WW3, located to the southwest of the proposed plant, was selected on the basis that much of the groundwater in this area is located just above the clay bearing surfaces in the Eutaw and Gordo formations, which dip south and southwestward toward the Alabama River (see sections 2.4 and 2.5 of the Environmental Report). Thus any liquid seepages infiltrating to the groundwater would most likely migrate towards proposed well WW3.

Well WW2 was selected on the basis of monitoring liquid seepages in the unlikely event that they might percolate through the groundwater towards the well of the nearest off-site resident in the downslope direction.

Well WW1 (directly east of the proposed fuel manufacturing building) is to be monitored for the unlikely event of percolation of liquid seepage toward the nearest resident in the easterly direction.

Routine monitoring groundwater samples in the northerly direction is not deemed necessary, since the general underground flow is towards the south or southwesterly direction as noted above.



Location of Surface Water, Sediment, Fish, and Groundwater Monitoring Stations During Preoperational Surveys

23. (ER: Section 6-3; p. 6-33; Related Environmental Measurement)

Please provide the ambient concentration of critical air pollutants measured at the nearest government air quality monitoring station.

RESPONSE

Data for ambient fluoride concentration levels in air were collected by the U.S. Environmental Protection Agency (EPA) at the County Health Center, 515 West Jefferson Davis Ave., Montgomery, Alabama, for the period 1967-1970 as follows:(1)

Year	Number of Observations (2)	Fluoride Concentration in air (μg/m^3): Maximum Daily Value	Fluoride Concentration in air (μg/m^3): Arithmetic Average
1967	26	0.47	0.06
1968	26	0.17	0.03
1969	26	0.07	0.03
1970	25	0.11	0.03

Data for ambient total suspended particulate (TSP) levels in air were collected by the U.S. EPA at several locations in Montgomery for the years 1977 1978, and 1979, as follows:

Year	Location	Number of Observations (3)	TSP Concentration in Air (μg/m^3): Maximum Daily Value	Arithmetic Average	Geometric Average
1977	2815 Forbes Drive	44	314	56	48
	1765 N. Decatur St.	40	139	45	39
1978	2815 Forbes Drive	39	92	49	42
	1765 N. Decatur St.	37	128	57	50
	645 S. McDonough St.	41	108	54	51
1979	2815 Forbes Drive	42	94	53	48
	1765 N. Decatur St.	41	96	48	44
	645 S. McDonough St.	47	98	54	51

(1) No later data on fluorides is available, since fluorides are not a parameter which is routinely monitored.

(2) Each observation was for a 24 hour period, and observations were spread over a 12 month period. (see reference 2)

(3) Each observation was for a 24 hour period, repeated every six days.

Data for existing ambient uranium concentration levels in air were also collected by EPA, through its Environmental Radiation Ambient Monitoring System (ERAMS). Data for the closest monitoring station to the ANFFP site were taken at the Eastern Environmental Radiation Facility (EERF), located on 1890 Federal Drive in Montgomery, for the period July 1973 through June 1978. These data are as previously reported in Table 2-30 of the ANFFP Environmental Report.

24. (ER: Section 7-2; Plant Site Alternatives)

This section discusses the criteria used to select the candidate site and briefly explains the desirable characteristics of the Prattville location but does not provide comparable data for the alternate locations. Please provide information as specifically as possible for other alternate locations so that the staff can assess the applicant's analysis and independently evaluate the alternatives.

RESPONSE

The ANFFP Environmental Report ("ER") provides detailed information demonstrating the ecological desirability of the Prattville, Alabama site. Environmental attributes include the site's favorable topology (high, flat plateau region), meteorology (good air dispersion characteristics and mild climate) and hydrology (bounded by a perennially flowing stream and the Alabama River, not prone to flooding). A large number of other sites in the Southeast are generally comparable from an environmental standpoint. Since, as documented in the Environmental Report, the "major benefits (associated with ANFFP) that will be enjoyed by the neighboring communities will totally recompense the minor economic and environmental costs to the local area that will result from the construction and operation of ANFFP" (ER, p. S-8), Westinghouse does not believe any detailed evaluation of alternative sites is appropriate. In this regard it should be noted that a nuclear fuel fabrication plant differs from the situation presented by the proposed construction and operation of a nuclear power plant. In the latter case, environmental and other considerations might significantly limit the number of sites that can reasonably be considered as potential alternatives. In contrast, a nuclear fuel fabrication plant is similar to hundreds of other industrial facilities whose environmental impacts are so minimal that a virtually unlimited number of sites can be considered as potential alternatives.

25. (ER: Section 8; Socioeconomic)

(a) The number of employees that will be needed for construction and for "shakedown" -- over time -- is not clear. On pages S2, S-7, and 8-3, it is stated that an average of about 150 workers will be needed during the 24-month construction period (1982-84) and that approximately 115 of these will be hired locally. However, on pages 8-3 and 8-7 it is stated that construction employment will peak at either 400 (p. 8-3) or 500 (p. 8-7). On pages S-3 and 8-3 it is stated that about 120 workers will be needed following construction during the nine-month equipment shakedown period. What is the maximum number of employees that are expected to be needed during these periods? How long will they work and when will they be needed? How many of these will be hired locally? A bar chart indicating employment requirements through time would be helpful.

(b) Pp. S-7, 8-3, and 8-4. It is estimated that secondary or "induced" employment in the local economy will be about 250 during construction (1982-84), about 60 in 1985, growing to 780 in 1988 and continuing thereafter at that level. Is the 250 estimate a peak or average estimate? What is the basis for these estimates; that is, what was the method(s) used to calculate these numbers? "Chamber of Commerce" information is vaguely referred to in Section 8 and was apparently used in various employment sectors (construction, trade, etc.). What "Chamber of Commerce" publication(s) is being referred to?

(c) Section 8.1-2, pp. 8-1, -2, and -3. The income benefits that are expected to accrue during various project phases are summarized:

(i) Section 8-1.2.1. It is stated that $24 million will accrue to the local economy from design, construction, and startup activities - 40% of the "current value of the project" ($60 million). What is the basis for this "40%" estimate?

(ii) Section 8-1.2.2 It is stated that "over the 40-year plant lifetime, the total present value of [induced] income [from operation] is estimated to be $950 million, of which 67 percent would benefit the local economy." How were these estimates derived? What discount rate was used? Why "67% to the local economy?"

(iii) Section 8.1-2. It is stated that the "second-level employment will amount to 28,000 man-years...and will generate income benefits with a current value of $280 million." How were these estimates derived?

(d) Section 8-1.4, p. 8-5. It is stated that about $130,000 will be paid annually for property taxes. This estimate was based on "current assessment practices of the Alabama State Tax Commission, present local tax rates, and 20-year average fair market value...assuming no exemption from taxes." Has Westinghouse applied for or been granted any exemptions from any municipal, county, or state taxes? What is the "20-year average fair market value?"

RESPONSE

a. The peak construction labor force is estimated to be 400. The sentence beginning on the 14th line of page 8-7 of the Environmental Report should be revised to read: "In addition, the transportation of about 400 (peak construction..."

The construction labor and shakedown labor force estimates are based on preliminary plant design information. These estimates cannot be refined until design progresses further, and construction contractors are selected. The peak shakedown labor force would be dependent on actual equipment delivery and installation schedules.

b. Induced employment will average about 150 during the construction period, and will peak at about 250.

Induced employment was estimated using statistics obtained from the Chamber of Commerce of the United States of America Publication No 2928 What New Jobs Mean to a Community, copyright 1973 (Library of Congress Card Catalogue No. 73-78146).

c(i) The 40 percent value was derived as follows:

- ° Total cost of the plant is estimated to be $55-65 million. (This is made up of the following items: land purchase, site preparation, building construction, architect engineer services, equipment design and purchases and, shakedown and startup expenses.)
- ° Local benefits are estimated at $20-30 million. (These include: site preparation and building construction, equipment purcha[illegible] and, shakedown and startup expenses.)
- ° Therefore: $\frac{\$20\text{-}30 \text{ million}}{\$55\text{-}65 \text{ million}} \approx 40\%$

(ii) The $950 million present value income was estimated by projecting the rate of personnel additions required to attain the design capacity of 1000 metric tons of uranium (MTU) per year, throughout the 40 year lifetime of the plant; then, the total payroll and material costs were estimated. This total came to some $944 million over 40 years of plant operation (which was rounded to $950 million). Of the induced income, 95 percent of the payroll and 20 percent of the material costs are estimated to be a direct benefit to the local economy. These come to some $632 million, or some 67 percent of the $950 million as induced income benefits to the local economy. [These estimates are based on Westinghouse experience and present value (1979) dollars.]

(iii) Total employment over the 40 year projected operation of ANFFP has been estimated to require some 37,000 man-years of effort. According to Chamber of Commerce of the USA Publication No. 2928 (referred to in response to item 25a), 78 secondary jobs are induced for each 100 new industrial workers. Thus, some 28,000 (rounded) man-years of induced secondary jobs are calculated over the 40 years operation of ANFFP.

From the latest Alabama Industrial Relations Employment Statistics (as of August 1979) the average employment income per capita was $616,910,200 for the first 3 months of the year, for 278,482 people in retail business, or an average per capita income of $8861 per year.

Given that this income is escalated at a compound rate of 7 percent per year for the two years prior to plant opening, and that this value is to be applied over the 40 years operating period of the plant, the total "current value" is $280 million for secondary level employment.

d. Westinghouse intends to pay its fair share of taxes. The "20-year average fair market value" was simply one of the terms (along with local tax rate) in a formula used to calculate the gross estimate of what taxes might amount to, in the original submittal of the Environmental Report.

26. (a) What is the status of permits required by the Alabama Air Pollution Control Commission for operation of potentially air-contaminating new sources and those required by the Alabama Health Department's Solid Waste Division for treatment, storage, and disposal of waste?

(b) What is the current status for the application of the NPDES permit? Please provide correspondence between Westinghouse and the State's officials in regard to the NPDES permit application.

RESPONSE

a. On October 27, 1978 - six months before the public announcement on April 11, 1979 of plans to construct an Alabama Nuclear Fuel Fabrication Plant (ANFF) - Westinghouse representatives F. Cellier (ANFFP Project Manager), B. A. Kerns (Manager Environmental Control Construction Technology), and R. A. Williams (ANFFP Engineer), met with Alabama Health Department representatives J. Cooper/R. Grusnick (Air Pollution Control Commission), A. Chipley (Solid Waste and Vector Control), C. Horn/E. Hughes (Water Improvement Commission), and A. Godwin/K. Whatley (Radiological Health Division). The purpose of this meeting was to discuss (in general terms) licenses, permits, and other approvals required for industries locating in Alabama. In addition to general information, Westinghouse representatives were given:

- "Air Pollution Control Commission Rules and Regulations";
- "Criteria, Policies, and Administrative Procedures of the Alabama Water Improvement Commission Concerning the Issuance of Waste Discharge Permits to Industrial Applicants";
- "Alabama Regulations for Control of Radiation".

On September 5-6, 1979, Westinghouse representatives F. Cellier, R. E. Wills (Counsel), W. S. Geiger (ANFFP Engineer) and R. A. Williams, met with Alabama Health Department representatives J. Cooper/R. Cowne/R. Gore/S. Robertson (Air Pollution Control Commission), A. Chipley/D. Cooper (Solid Waste and Vector Control), C. Horn/J. Poole (Water Improvement Commission), and W. Willis/A. Godwin/J. McNees/K. Whatley (Radiological Health Division). The purpose of this meeting was to discuss (in specific terms) licenses, permits and other approvals required for ANFFP - including

acquisition of latest application forms and estimates of lead times required by each agency for review and approval of relevant applications. Westinghouse representatives were given:

- Form APC-100: "Facility Identification";
- Form APC-101: "Indirect Heating Equipment";
- Form APC-102: "Manufacturing or Processing Operations";
- Form APC-103: "Refuse Disposal";
- Form APC-108: "Storage and Handling of Hydrocarbons";
- Form APC-110: "Application for Permit to Construct Air Pollution Control Device";
- "State of Alabama Rules and Regulations for Solid Waste Management";
- "Procedure to Follow in Requesting Approval for Sanitary Landfill";
- "National Pollutant Discharge Elimination System Permit Regulations of the Alabama Water Improvement Commission";
- EPA Form 7550-23: "National Pollutant Discharge Elimination System Application for Permit to Discharge Wastewater";
- Form RM: "Application for Radioactive Material License";
- Form RH-313R: "Application for Radioactive Material License - Use of Sealed Sources in Radioagraphy";
- Form: "Registration of Sources of Radiation".

Also, each agency gave estimates, ranging from one to six months, of lead times required for application reviews and approvals; and, each agency requested a copy of the ANFFP Environmental Report (when submitted to NRC) for review and additional input relating to application reviews and approvals (if any).

On January 2, 1980, copies of the ANFFP Environmental Report were sent to:

- Mr. James W. Cooper, Director, Alabama Air Pollution Control Commission;
- Mr. Alfred S. Chipley, Director, (Alabama) Division of Solid Waste & Vector Control;
- Mr. Charles R. Horn, Chief I.W.C.S., Alabama Water Improvement Commission;

and, copies of the ANFFP License Application and Environmental Report were sent to:

- Mr. Aubrey V. Godwin, Director, (Alabama) Division of Radiological Health.

On June 6, 1980, F. Cellier received a letter from A. Chipley (Attachment 26.1) which announced availability of draft regulations pertaining to the management of hazardous wastes in Alabama.

b. On March 4, 1980, F. Cellier received a letter from J. Poole (Attachment 26.2) which:

- Acknowledged review of the ANFFP Environmental Report;
- Gave three comments to be considered when the engineering report (to accompany the NPDES permit application) is prepared;
- Enclosed latest copies of procedures and forms for NPDES permit application.

As committed in Section 9 of the ANFFP Environmental Report, Westinghouse will continue to work closely with State authorities to assure that all licenses, permits and other authorizations are obtained well in advance of the dates that they will actually be needed.

ATTACHMENT 26.1

State of Alabama
Department of Public Health
State Office Building
Montgomery, Alabama 36104

IRA L. MYERS, M. D.
STATE HEALTH OFFICER

June 6, 1980

Mr. F. Cellier
Westinghouse Electric Corporation
P. O. Box 355
Pittsburg, Pennsylvania 15230

Dear Mr. Collier:

The Alabama Department of Public Health, Division of Solid Waste and Vector Control, has completed its regulations pertaining to the management of hazardous wastes. The regulations are now available in draft form for public comment. Copies of the regulations are available for in-house review at the following locations:

Mobile Public Library, Mobile
University of South Alabama Library, Mobile
Birmingham Public Library, Birmingham
University of Alabama Library, University
Houston Memorial Library, Dothan
Auburn University Library, Auburn
Huntsville Public Library, Huntsville
Florence-Lauderdale Public Library, Florence
Gadsden Public Library, Gadsden
Phenix City Public Library, Phenix City
Anniston-Calhoun County Public Library, Anniston
Decatur Public Library, Decatur
Carnegie Library, Selma
Fairhope Public Library, Fairhope
Troy State University Library, Troy
Division of Solid Waste Office, Montgomery

A public hearing will be held on July 15, 1980, at 10:00 a.m. in Room 200 of the State Office Building in Montgomery, Alabama. Anyone desiring to be heard may appear at the hearing. This agency, however, requests that any person wishing to make an oral statement at the hearing furnish the hearing officer with copies of his statement, if at all possible.

An effort will be made to give each person who wishes to speak an opportunity to do so; however, the Division of Solid Waste reserves the right to limit the lenth of each presentation in order to allow all parties to testify.

Those persons wishing to submit oral testimony at the hearing may notify the Division of Solid Waste of their intent and will be scheduled according to the order in which the request is received. Others who register at the hearing will be heard in the order in which they register.

The hearing record will be held open until July 30, 1980, at 5:00 p.m. for receiving written comments on the proposed regulations.

Copies of the draft regulations may be purchased from the Division of Solid Waste at a cost of $6.00 per copy. Checks or money orders should be made payable to the State Health Department.

We look forward to your input and comments on these regulations.

Sincerely,

Alfred S. Chipley

Alfred S. Chipley, Director
Division of Solid Waste & Vector Control
Environmental Health Administration

ASC:TGM:bw

STATE OF ALABAMA ATTACHMENT 26.2

WATER IMPROVEMENT COMMISSION

March 4, 1980

Mr. F. Cellier
Manager ANFFP Project
Westinghouse Electric Corporation
Nuclear Fuel Division
Post Office Box 355
Pittsburg, PA 15230

Dear Mr. Cellier:

The Environmental Report in support of the proposed Nuclear Fuel Plant in Prattville, Alabama has been reviewed. The following are comments generated during the review which may not be germane to the environmental report, but should be considered when the engineering report to accompany the NPDES permit application is prepared.

1. Layouts of the facilities shown in figure's 3.6 through 3.9 showing dikes, curbs, and other best management practices should be presented.

2. A means of flow measurement and sample collection should be provided for each discharge.

3. Is the expected treatment efficiency (3-3.2.4) based on plant experience, treatability studies, or some combination thereof?

To assist in permit application a copy of our procedures and copies of EPA Form 7550-23 are attached. If additional information is required during preparation of the permit application, please contact me.

Yours very truly,

John A. Poole Jr
John A. Poole, Jr.
Engineer, Technical Staff
Water Improvement Commission

JAP:ppr

Enclosures

27. (ER: Appendix B; p. B-2)

The staff knows of no biological investigation procedures that have been reviewed and approved by Oak Ridge National Laboratory. Please comment.

RESPONSE

This statement was taken directly from reference 3, page 38, para 4, of our Consultant's (EIA) report.[4] EIA performed an environmental evaluation on the Memphis Light & Water Co. Coal Gasification Project; and, ORNL (which was preparing the Environmental Impact Statement) assessed EIA's biological sampling methods to assure that they were based on up-to-date, approved scientific methods.

28. Engineering Questions

(a) For the Direct Conversion Process to be used at the Prattville Plant provide operating data sufficient to establish:

(i) HF losses to scrubber

(ii) If the HF is unacceptable for sale, what is the alternative disposal method?

(b) The cation-anion balance appears to be in error for neutral waste. Please clarify. (Section 3-3.2.4, p. 3-2.3)

(c) Please provide the rationale for the source terms on radiological and chemical effluents for potential accidental release involving the conversion kiln operations.

(d) Please estimate the maximum capacity of wet scrap recovery.

(e) Please estimate the annual usage at maximum operation capacity of all materials on Table 5-4.

(f) Provide range of plant operating hours per year at full production.

(g) Describe the UF_6 vaporization operation. Include:

(i) Method of cylinder transport and process connections.

(ii) Normal and maximum cylinder operating temperatures.

(iii) Number of cylinders hot at one time.

(iv) The containment housing, emergency scrubber capability.

In effect, justify the statements on page 5-15 in sufficient detail for independent evaluation by the staff.

(h) Please provide information and rationale to justify the source of accidental releases such as from a criticality accident involving the UNH production operations.

RESPONSE

(a) (i) Based on the current HF condenser design, some 95% of the HF will be recovered as (nominally) 55 w/o hydrofluoric acid. The remainder of the HF will be scrubbed by NaOH. The annual HF loss to the scrubber is estimated at some 2.2×10^4 Kg. (approximately 50,000 pounds).

(ii) It is intended that the HF be licensed for recycle as a valuable resource (e.g., sale); otherwise, the HF will have to be neutralized with $Ca(OH)_2$ and the product (CaF_2) dried and buried in valuable space at a licensed low level waste burial site.

(b) It is agreed that the ionic concentration presented in Section 3-3.2.4 p. 3-2.3 cannot be combined to show neutral discharges. This is not the intent at this point. This section is simply intended to show that the pH range will be maintained (as stated) by adding sufficient sulfuric acid to attain acceptable effluent discharge levels.

(c) The source term for airborne releases from the postulated accident associated with a leak from overfilling kiln hoppers is based on one hours' throughput of a kiln; the (incredible) explosive type accident hypothesized utilizes the total quantity of material in the kiln and chamber (at any one time) as the source term for airborne release.

(d) The estimated maximum capacity of wet scrap recovery is 15 to 30 MTU/year.

(e) The following represents the estimated annual usage for the chemicals listed in Table 5-4[(a)]:

Chemical	Storage Inventory	Annual Use
Nitric Acid	5,000 gallons	14,000 gallons
Hydrogen	60,000 gallons	510,000 gallons
Nitrogen	60,000 gallons	730,000 gallons
Argon[(b)]	2,500 gallons	32,500 gallons
Helium	1,000 gallons	11,500 gallons
Uranium Hexafluoride	1,100,000 pounds	3,450,000 pounds
Uranyl Nitrate	20,000 pounds	25,000 pounds
Lime	110,000 pounds	385,000 pounds
Hydrogen Peroxide[(b)]	5,000 gallons	14,500 gallons
Sodium Hydroxide	40,000 gallons	175,000 gallons
Water Glass Agent	14,000 pounds	78,000 pounds
Stabilizing Agent	54,000 pounds	71,000 pounds
Hydrofluoric Acid[(c)]	40,000 gallons	230,000 gallons
Sulfuric Acid[(b)]	5,000 gallons	60,000 gallons
Acetone[(b)]	350 gallons	1,000 gallons
Flocculating Agent	2,200 pounds	1,800 pounds
Solvent (VARSOL)[(b)]	50 gallons	250 gallons
Detergent (OAKITE)[(b)]	200 pounds	800 pounds
Perchloroethylene[(b)]	50 gallons	50 gallons
Dichloromethane[(b)]	300 gallons	900 gallons
Zinc Stearate[(b)]	2,500 pounds	5,000 pounds

(a) Cleaning Agent (Ethanol) is no longer being considered for bulk storage
(b) Storage inventory adjusted to most recent estimates.
(c) HF is a product (as opposed to a raw material); thus, the 230,000 gallons is actually the annual production, with 40,000 gallons being the accumulated inventory prior to shipment.

(f) The intent is to operate the plant 365 days per year, 24 hours per day, when at maximum capacity (giving 8760 hours/year), except for a potential one week plant shutdown per year for vacation (giving 8592 hours/yr).

(g) (i) Cylinder transport and process connections:

UF_6 cylinders will be transported from the UF_6 storage area to the SNM Building UF_6 bay via lift truck.

The cylinders will then be installed in a vaporizer, using an overhead crane.

A cylinder will be connected to its process header by flexible copper tubing. When the cylinder has reached process temperature and pressure (using hot water spray), the UF_6 will be delivered to the process by opening the cylinder valve.

When a cylinder which is supplying the conversion system is sufficiently depleted of UF_6 as to no longer maintain a supply pressure above 5 psig, it will be disconnected from the supply line and valved into a cold trap evacuation system for removal of residual UF_6 (to an acceptable final heel of less than 20 pounds).

Heel removal is accomplished by evacuating the cylinder with a vacuum pump through an exhaust train, consisting of a cold trap system with self contained refrigeration (-65°F) to condense UF_6 vapor, and two final series chemical absorber (Al_2O_3) traps for the capture of any final traces of UF_6.

Upon completion of the evacuation process, the cylinder will be removed from the vaporizer, and transferred by crane to the cylinder scales.

The cylinder will be weighed to assure that the residual heel is equal to (or less than) 20 pounds.

(ii) Normal cylinder operating temperature: 70°C-90°C
Maximum cylinder operating temperature: 95°C

(iii) Normal (75% of the time) - 5 cylinders (HOT)
Change over (25% of the time) -10 cylinders (HOT)