Geology and Ground-Water Resources of the Paintsville Area Kentucky

By J. A. BAKER

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GEOLOGY AND GROUND-WATER RESOURCES OF THE PAINTSVILLE AREA, KENTUCKY

By J. A. Baker

ABSTRACT

The Paintsville area, Kentucky, as used in this report, is a 7½-minute quadrangle which encompasses about 60 square miles in south-central Johnson County in the Eastern Kentucky Coal Field. All rural families in the area depend on ground water for their domestic supplies. The total amount of ground water used is estimated to be about 65,000 gallons per day. About 62,000 gpd is used for domestic supplies, and about 3,000 gpd is used to supply two local dairies. The two public supplies in the area are obtained from surface water.

All known wells in the area, a total of 1,020, were inventoried. Probably most wells in the area will not yield as much as 10 gallons per minute, and only one well was reported to yield as much as 100 gpm. Most wells less than 200 feet deep produce fresh water, but a few shallower wells at Paintsville and in the southwest corner of the area near Denver produce salty water. The temperature of water in most drilled wells ranges from 54° to 61° F, and the temperature of water in shallow dug wells ranges from 49° to 65° F.

The fresh-water aquifers include the Lee and Breathitt formations of Pennsylvanian age and Quaternary alluvium. Rocks older than those of Pennsylvanian age, penetrated by numerous gas wells, do not yield fresh water.

The Lee formation is a massive, poorly sorted sandstone and conglomeratic sandstone with a few thin shale lentils. The Lee formation yields water to most of the wells in the valley of Paint Creek and its tributaries in the northwest part of the area and to a few wells in the valley of Levisa Fork. Only 6 of the 176 wells inventoried in the Lee formation were reported inadequate for domestic use. The best producing wells obtain water from joints and bedding planes in the sandstone. A "slug" test on well 8250–3750–24 indicates a coefficient of transmissibility of at least 1,100 gpd per ft. Water at shallow depths in the Lee is generally soft to moderately hard and is used for domestic purposes, but the water in many wells contains objectionable amounts of iron. Waters at depth in the formation contain as much as 24,000 parts per million of chloride. In the Denver area and at Paintsville salty waters from deep in the Lee formation may percolate upward through abandoned wells and contaminate shallow waters in the Lee and Breathitt formations.

The Breathitt formation is a sequence of shales, siltstones, sandstones, thin limestones, and coal beds with associated underclays. Most drilled wells in the area obtain water from the Breathitt formation because it crops out in nine-tenths of the area and underlies the alluvium along the Levisa Fork of the Big Sandy River and most of its tributaries. Only 17 of the 426 wells in the Breathitt formation that were inventoried were reported inadequate for domestic use. The best producing wells obtain water from vertical joints, which are best developed in the sandstones, and from openings along horizontal bedding planes. A "slug" test on well 8245–3745–404 indicates a coefficient of transmissibility of at least 3,300

gpd per ft. The water from the Breathitt formation is generally considered suitable for domestic and stock use, but it is slightly harder and contains slightly more iron than water from the Lee formation.

Quaternary alluvium in the area ranges from coarse sand to silt. The alluvium in the valley of the Levisa Fork is generally coarser than that in the smaller tributary valleys. Only 22 of the 169 wells inventoried in the alluvium were reported inadequate for domestic or stock needs. Water from the alluvium is considered suitable for domestic use. It is generally softer than water in the Lee and Breathitt formations.

INTRODUCTION

This report is one of a series on the ground-water supplies in Kentucky, being prepared by the Ground Water Branch of the United States Geological Survey in cooperation with the Agricultural and Industrial Development Board, Commonwealth of Kentucky. The index map (fig. 1) shows the areas in Kentucky already covered by reports and areas where work is in progress. The purpose of this investigation was to obtain detailed information on the occurrence, use, and quality of ground water of a small area typical of the Eastern Coal Field of Kentucky. The information obtained will be used as a basis for further ground-water studies in the Eastern Coal Field.

The ground-water investigations are under the general direction of A. N. Sayre, Chief of the Ground Water Branch of the U. S. Geological Survey, Washington, D. C. Work in Kentucky is under the direction of M. I. Rorabaugh, District Engineer, Louisville, Ky. This report was written under the supervision of E. H. Walker, Geologist, Louisville, Ky. Chemical analyses were made under the direction of W. L. Lamar, District Chemist, Quality of Water Branch, U. S. Geological Survey, Columbus, Ohio.

Nearly all of the 7½-minute quadrangle (Paintsville SE.) covered by this report is in the south-central portion of Johnson County, in eastern Kentucky (fig. 1). The area extends about 8½ miles from north to south and about 7 miles from east to west, covering approximately 60 square miles. About three-eighths of a square mile in the extreme southeast corner of the area is in Floyd County. Paintsville, the county seat of Johnson County, is in the east-central part of the area where Paint Creek joins the Levisa Fork of the Big Sandy River.

The fieldwork began in August 1949 and was completed in September 1951. During this time all known water wells, a total of 1,020, were inventoried. The locations of these wells are plotted on plate 1. Depth of well and depth to water were measured where possible, and pumping levels were measured in a few wells to determine specific capacities. Periodic measurements of water levels were made in selected wells. Fifty-four samples of water were collected for chemical

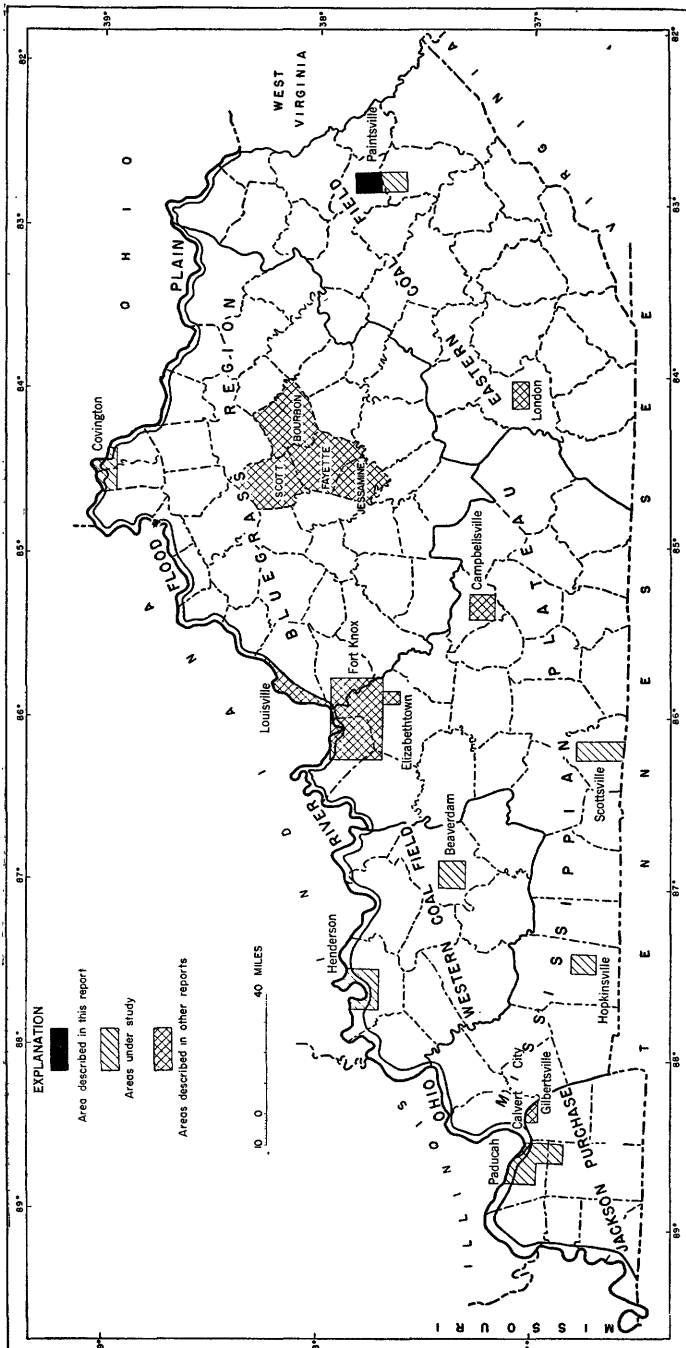

FIGURE 1.—Index map of Kentucky showing progress of ground-water investigations.

analysis. Surface contacts of geologic formations were mapped, and rock outcrops were studied to determine the nature of openings in the rocks. Driller's logs, sample cuttings, records of oil and gas wells, and tests for building and bridge foundations were studied to determine the nature of the formations below the surface.

Appreciation is expressed to all who contributed to the information used in this report. The residents and well drillers in the area supplied much of the data concerning wells and springs. Dr. H. R. Wanless of the University of Illinois, an authority on the stratigraphy of the area, provided much information which was useful in conducting this investigation. The following companies provided useful information from their files: Farwest Coal Co., by courtesy of Mr. J. O. Watson; Northeast Coal Co., by courtesy of Mr. Hansel Wiley; and Southeast Coal Co., by courtesy of Mr. Harry Laviers. The Kentucky-West Virginia Gas Co., by courtesy of Messrs. D. M. Young and Phillip Jenkins, and the Inland Gas Corp., by courtesy of Mr. R. N. Thomas, provided logs of gas wells. The Chesapeake and Ohio Railway Co. furnished bedrock profiles and the log of a well drilled for water at the Paintsville yards.

The geologic map accompanying this report is based largely on the areal geologic map and structure map, Series IX, 1951, by the writer and R. E. Hauser (1951), which were published by the University of Kentucky, Kentucky Geological Survey, in cooperation with the Agricultural and Industrial Development Board of Kentucky and the U. S. Geological Survey.

WELL-NUMBERING SYSTEM

Wells and springs inventoried by the U. S. Geological Survey in Kentucky are numbered according to a statewide grid of 5-minute meridians of longitude and 5-minute parallels of latitude. The wells in a 5-minute quadrangle, or part thereof, are numbered consecutively in the order inventoried. A well is designated by a composite of three numbers: The first is the degree and minutes of longitude on the east side of a 5-minute quadrangle; the second, the degrees and minutes of latitude on the south side of a 5-minute quadrangle; and the third, the number of the well in that 5-minute quadrangle. Thus, well 8245–3745–1 in the sketch (fig. 2) is the first well inventoried in the 5-minute quadrangle west of longitude 82°45′ W. and north of latitude 37°45′ N. The next well inventoried in that 5-minute quadrangle would be designated 8245–3745–2, and so on.

Springs are numbered in the same way but the letter "S" precedes the last number. Three abandoned coal mines were numbered in the same way as wells and springs, but the letter "M" precedes the last number.

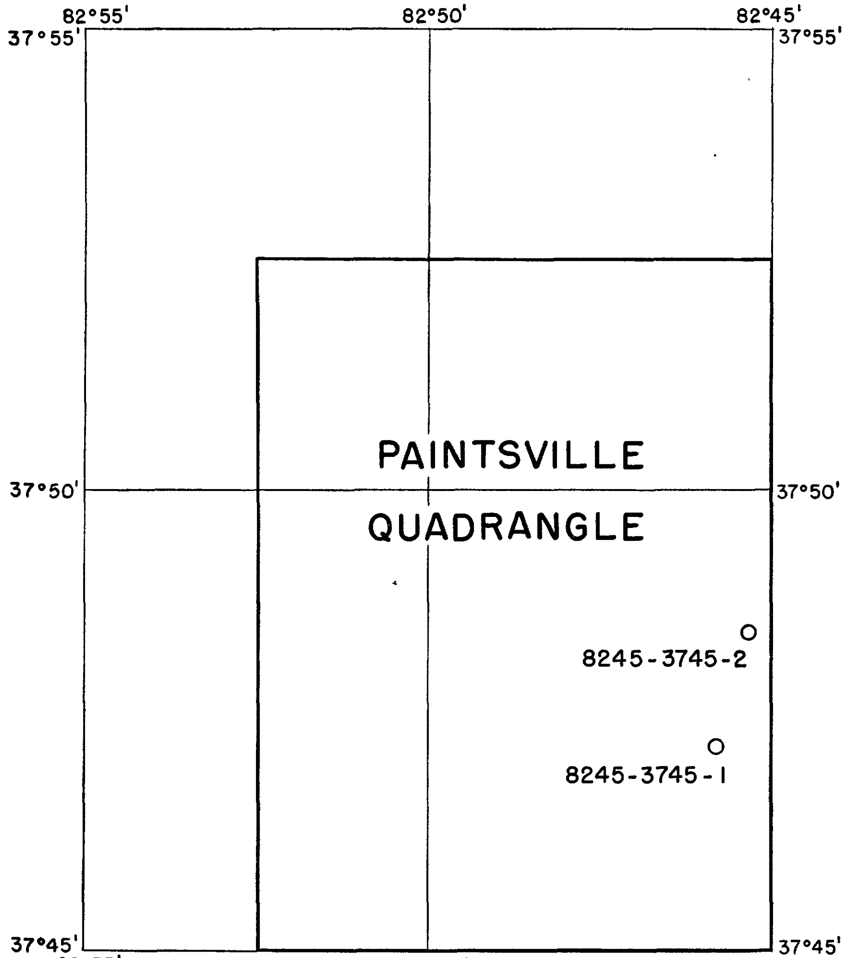

FIGURE 2.—Sketch showing well-numbering system

GEOGRAPHY

CLIMATE

The climate of the Paintsville area and of eastern Kentucky in general is temperate. Figure 3 shows graphically the monthly precipitation recorded at Paintsville and monthly temperatures recorded at Pikeville, Ky. Pikeville is about 28 airline miles southeast of Paintsville, and the climate is similar to that at Paintsville.

An interrupted record made at Paintsville by the United States Weather Bureau during the period 1933–50 shows an average annual precipitation of 45.31 inches. The amount of rainfall recorded in the driest year (1941) was 33.47 inches, slightly more than half the

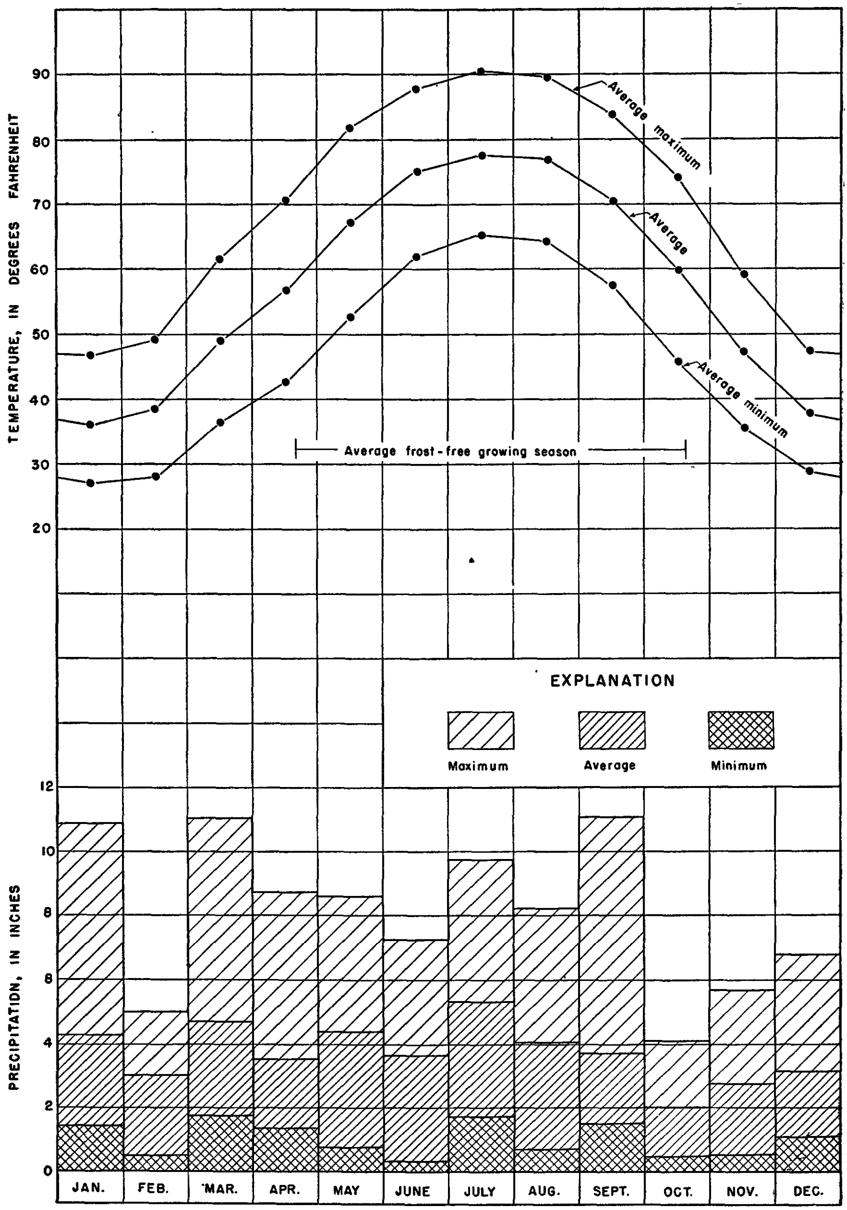

FIGURE 3.—Graphs showing monthly temperatures at Pikeville, Ky., and precipitation at Paintsville, Ky. (From records of the U. S. Weather Bureau.)

rainfall recorded in the wettest year (1950), 63.11 inches. The wettest month of the year is July, when about an eighth of the annual precipitation falls, and the driest month is October, when about a twentieth of the annual precipitation falls. Spring and summer rainfalls are usually intense short rains, often thunderstorms. Fall and winter rains generally are drizzles, sometimes lasting for several days. Winter rains and above-freezing daytime temperatures combine to prevent the accumulation of much snow cover.

The average annual temperature recorded at Pikeville, Ky., during the period 1935–52, is 57.8° F. The lowest winter temperature recorded was −5° F in January 1940, and the highest summer temperature recorded was 104° F in July 1952. The warmest month is July with an average temperature of 77.6° F. January is the coldest month with an average temperature of 36.9° F. The frost-free period, from about April 25 to October 15 for the Eastern Coal Field in general, provides a growing season of about 175 days.

TOPOGRAPHY AND DRAINAGE

The Paintsville area is in the Cumberland Plateau physiographic section, in the part known as the Eastern Kentucky Coal Field or Eastern Kentucky Mountains. The Cumberland Plateau section is a maturely dissected, irregular surface characterized by narrow, winding ridges and deep, steep-sided valleys. Virtually all flat land is confined to bottom lands bordering the Levisa Fork of the Big Sandy River, Paint Creek, and their larger tributaries. Remnants of the old plateau surface are represented by the hilltops which reach altitudes of about 1,300 feet above sea level. Valley floors are about 600 feet above sea level.

The area is drained by the Levisa Fork of the Big Sandy River, which flows northward toward the Ohio River in the eastern part of the area. Major tributaries to Levisa Fork, which also drain parts of the area, are Johns Creek, Miller Creek, Paint Creek, and Toms Creek. A great number of named and unnamed branches drain the many minor valleys of the area.

NATURAL RESOURCES

A dense forest of oak, hickory, chestnut, and poplar once covered the slopes of the area. This virgin timber has been completely removed; and second- and third-growth timber, mostly oak and hickory, now grows on the hillsides. One sawmill is operating in the area, but much of the timber is said to come from neighboring counties.

Mineral deposits of economic value occurring in the area include coal, natural gas, petroleum, limestone, and clay shale. Coal is the most important mineral economically, although production is declining. The so-called Van Lear coal is the most extensively mined bed, but several other beds are mined and the coal used locally. About 36 million tons of coal was mined in Johnson County from 1892 to 1938.[1]

Formations of Silurian and Devonian age at depth produce natural gas, and the Toms Creek field northeast of Paintsville has produced about 250 million cubic feet since its discovery in 1934. The Rockhouse field, 4 miles west of Paintsville, has produced about a billion cubic feet since its discovery in 1940. Reserves are thought to be half or less than the production to 1953. A few oil wells near Staffordsville yield 2 to 3 barrels a day from the Berea sandstone of Mississippian age.

Limestone and clay shale of possible commercial importance are still undeveloped.

POPULATION AND CULTURE

According to the 1950 census the population of Johnson County is 23,832 and the population of Paintsville, 4,290. The density of the rural population (excluding the population of Paintsville) is about 70 persons per square mile. The city and county had a steady and continued increase in population between 1850 and 1940, although the rate of increase dropped sharply after 1890. The rural population of Johnson County has decreased since 1940 as a result of declining coal production and the limited opportunities for farming the poor soil.

Small-scale subsistence farming is characteristic of the area. Corn, hay, tobacco, potatoes, and vegetables are grown mostly for local use, and chickens, dairy and beef cattle, pigs and hogs, and mules are raised in small numbers. Poor soil and steep slopes make most of the area unsuitable for agriculture. The total land in farms is 133,479 acres, or 79 percent of the land area of Johnson County. There are 2,424 farms with an average of 55 acres per farm. Only 14 percent of the farmland is cultivated, or about 7.7 acres on the average farm.

One railway company and five bus companies supply the passenger and freight service. The Chesapeake and Ohio Railway Co. supplies regular passenger and freight service north and south along the valley of the Levisa Fork, and a branch line runs southwestward from West Van Lear through Hager Hill, Collista, Denver, and Leander. One line running eastward from West Van Lear to Van Lear serves the Farwest Coal Co. The Southeastern Greyhound Bus Co. and Conley Bus Lines provide passenger service to principal cities, and McCarthy Bus Lines, Paintsville Bus Lines, and Sparks Brothers Bus Lines provide local service. Barges once transported supplies as far up Levisa Fork as Pikeville, but development of the railroad and im-

[1] Hauser, R. E., and Thomas, G. R., 1950, Preliminary report on the mineral resources of the Paintsville area, Kentucky: Ky. Geol. Survey (MS report).

proved highways made water transportation in this area uneconomical. A recent proposal to canalize the Big Sandy River was turned down by a congressional committee.

Several hard-surfaced roads serve the area. U. S. Highways 23 and 460 run south and west from Paintsville. Kentucky Highways 40 and 302 run east and Kentucky Highways 201 and 172 run north. Improved gravel roads serve small communities in the area. The rest of the roads are unimproved dirt and gravel roads that become nearly impassable after heavy rains.

GENERAL GEOLOGY AND GROUND WATER

The amount and quality of water obtained from wells and springs depends on the climate, topography, and water-storing and water-yielding characteristics of the geologic formations. In this section are given a brief geologic history of the area and some general remarks on the occurrence and the chemistry of ground water. Water-bearing formations, listed in table 1, are discussed in detail in the section on geologic formations and their water-bearing properties.

AREAL GEOLOGY

Sedimentary rocks of Pennsylvanian age and alluvium of Pleistocene and Recent ages appear at the surface in the Paintsville area. The rocks of Pennsylvanian age crop out in the uplands and are covered by alluvium in the valleys; the area covered by alluvium is less than 10 percent of the total area of the quadrangle. Plate 2 shows the areal extent of the deposits.

GEOLOGIC HISTORY

The following discussion of the probable geologic history is based in part on the work of McFarlan (1943), Otton (1948), Thomas (1949), and Wanless (1939).

During Pennsylvanian time the Paintsville area was part of a broad lowland plain lying close to a shallow sea. Streams flowing into the area from an uplifted land mass somewhere to the north or northeast carried vast quantities of sand and gravel which were deposited on the broad delta plain. These coarse, poorly sorted materials, about 500 feet thick, now form the sandstones and sandstone conglomerates of the Lee formation.

After the deposition of the coarse sediments of the Lee formation, the supply of sand diminished; and clays and silts were deposited, probably in broad and shallow bays near the sea. A few thin limestones and marine shales indicate short periods of invasion by the sea. At other times forests grew in swampy lowlands and were later buried, forming coal beds. This 600-foot succession of siltstones, shales,

TABLE 1.—*Generalized section of the geologic formations in the Paintsville area, Kentucky*

System	Formation or member		Thickness (feet)	Lithology	Water-bearing characteristics
Quaternary	Alluvium		0-96	Sand, silt, clay, and some gravel	Yields enough fresh water for domestic use to dug and drilled wells in the valley of Levisa Fork and its tributaries at depths ranging from a few feet to about 80 feet.
Pennsylvanian	Breathitt formation	Undifferentiated	310-450	Mainly siltstone, shale, and some sandstone. Contains the Magoffin beds of Morse (1931) and Fire Clay coal.	Yields enough fresh water for domestic use to most wells in its outcrop area at depths up to about 200 feet. Yields salty water to a few shallow and deep wells.
		Van Lear coal	0.8-5	Coal, carbonaceous shale, and underclay	
		Undifferentiated	147-274	Shale, siltstone, some sandstone. Contains a fossiliferous sandstone, shale, and limestone zone near base.	
	Lee formation		245-490	Sandstone and conglomeratic sandstone with shale lentils.	Yields enough fresh water for domestic use to most wells in its outcrop area at depths up to about 200 feet. At greater depths and away from its outcrop area may yield salt water.
Mississippian	Pennington formation		0-200?	Shales, with interbedded sandstone and limestone.	Not known to contain water.
		Maxon sand of drillers		Quartz sandstone	Contains brine in southeast corner of Paintsville area.
	Glen Dean limestone (Little Lime of drillers)		0-25	Dense to crystalline limestone, often fossiliferous.	Not known to contain water.
	Pencil Cave shale (of drillers)		0-40	Hard shale which caves on drilling often in the shape of pencils.	Not known to contain water.
	Big Lime (of drillers) (St. Louis(?), Ste. Genevieve, and early Chester limestones).		20-50	Limestone	Contains brines in some localities.
	Big Injun sand (of drillers)		15-60	Sandstone	Contains brines in Ohio and parts of West Virginia.
	Weir sand of drillers		60±	Fine- to medium-grained sandstone	Contains brines in some localities throughout eastern Kentucky.
	Sunbury shale		12-15	Black to dark-brown fissile shale	Not known to contain water.
	Berea sandstone		65±	Sandstone and gritty sandstone	Known to contain brines north of the Paintsville area and in West Virginia.
Devonian	Ohio shale (Brown shale of eastern Kentucky)		450-500	Shale	Not known to contain water.
	Olentangy shale		180±	Soft to siliceous shale	Not known to contain water.
	Corniferous lime (of drillers).		600-700	Sandy dolomite, dolomite, sandstone, sandy and cherty limestone, limestone.	Contains brines in porous zones along fractures. Strongest brines in eastern Kentucky.
Silurian	Corniferous lime (of drillers).				
	Big Six sandstone (of drillers)		40-50	Sandstone	Contains brines in other areas.

sandstones, thin limestones, and coal beds now composes the Breathitt formation.

Sometime after the deposition of the Breathitt formation, uplift, accompanied by tilting of the strata slightly to the southeast, brought the area well above sea level and erosion began. The land surface was probably worn down to a rolling plain not far above sea level. Renewed uplift raised the plain to the present level of the hilltops, all of which rise to about the same altitude; and erosion cut out the present valleys.

During part of the Pleistocene ice age the Levisa Fork and its larger tributaries flowed on bedrock at lower elevations than their present channels. As the glacial ice that covered most of Ohio melted, the Ohio Valley became partially filled with sands and gravels, brought in by melt waters. The fill deposited in the Ohio River valley dammed the flow of water in tributaries, and streams such as the Levisa Fork filled their valleys with sediments. The terrace along the Levisa Fork on which Paintsville stands is underlain by as much as 96 feet of alluvial fill. The Levisa Fork has not yet cut down to its old bedrock channel and flows over about 30 feet of sand in most places.

GEOLOGIC STRUCTURE

Some warping and faulting of the strata accompanied the general uplifts of the area. On plate 2, contours drawn on the top of the Lee formation from surface exposures and well-log data show a general dip of the strata to the southeast of about 65 feet to the mile, interrupted by minor flexures. The northwest part of the area includes part of the east flank of the Paint Creek uplift, the axis of which trends north and lies about 7 miles to the west.

The Irvine-Paint Creek fault strikes east-northeast through the northwest corner of the area. The maximum vertical displacement along the fault is about 30 feet. North of the Paintsville area, the southern side of the fault has risen with respect to the northern side, but farther west the movement is reversed (Browning, 1921).

OCCURRENCE OF GROUND WATER

Essentially all fresh water is derived from precipitation which falls on the earth as rain or snow. In the Paintsville area about 45 inches of precipitation falls each year. Stream-gaging records over a period of 22 years show that an average of about 14 inches of this water is discharged by streams. In an average year the remainder, about 31 inches, is discharged by evaporation and transpiration. The stream discharge includes water that runs directly off the land surface to the streams and water that has seeped into soil and rock formations before entering the streams as ground water.

The loose deposits and hard rocks that form the outer crust of the earth all have open spaces, or pores, which at some depth below the surface are generally filled with water. The zone where all the pore spaces of a formation are filled with water is called the zone of saturation, and the water in the zone of saturation is ground water.

The nature of the open spaces controls the amount of water that can be stored in them and the rates at which it can be replenished and yielded to springs and wells. The types of openings in rocks which are important to the occurrence of ground water are discussed in detail by Meinzer (1923). Open spaces between particles of gravel, sand, silt, and clay are called primary openings because they were formed when the sediments were deposited. Cracks in the rocks such as joints and openings along bedding planes are called secondary openings because they were formed after the loose materials were wholly or partly consolidated.

The amount of water that can be stored in a formation depends on the percentage of the total volume of the formation that is occupied by open spaces, or its porosity. Despite the fineness of grain size of well-sorted local clays and silts and their consolidated equivalents, the shales and siltstones, the porosity of these materials may be as high as or higher than the porosity of local sandstones. Some of the sedimentary deposits in this area are poorly sorted, small particles filling the spaces between larger particles, thus reducing the amount of open space available for storing water. During the consolidation of loose deposits to form hard rocks the porosity was further reduced, partly by closer packing of the grains and partly by the deposition of mineral matter between grains during cementation.

The porosity of a formation determines the amount of water that can be stored, but not the speed with which the formation will yield it to wells. The capacity of a formation to yield water is a function of its permeability. To yield water, the pore spaces must be interconnected so that water may move through them. When the pores of a formation are large enough and interconnected, allowing the movement of water with perceptible speed, the formation is called permeable. The coefficient of permeability, as used by the Ground Water Branch of the Geological Survey, is defined as the amount of water, in gallons per day (gpd), that will flow through a cross sectional area of 1 square foot under a hydraulic gradient of 100 percent at a temperature of 60° F. The field coefficient of permeability is defined as the rate of flow of water, in gallons per day, under prevailing conditions, through each foot of thickness of a given aquifer in a width of 1 mile, for each foot per mile of hydraulic gradient. The coefficient of transmissibility of an aquifer is defined as the product of the field coefficient of permeability and the thickness, in feet, of the saturated part of the aquifer, expressed in gallons per day per foot.

The intergranular spaces in the fine-grained formations are so small that, even though they are connected, the frictional resistance to movement of water is great, and the water moves through them only very slowly, if at all. Therefore, clays, silts, shales, and siltstones, although they may store large amounts of water, yield it so slowly that they rarely are good sources of water.

Water obtained from wells in the alluvium comes almost entirely from intergranular pore spaces, but much of the water from wells in the consolidated sandstones and siltstones comes from joints and openings along bedding planes. The shale beds in the area yield little or no water because the primary openings are very small and secondary openings are not well developed.

The top of the zone where all the pore spaces of a formation are filled with water (the zone of saturation) is called the water table. In places where ground water is free to move in any direction, the water table slopes gently from areas of recharge to areas of discharge. In the Paintsville area the water table is at the surface in lowland swampy areas and as much as 120 feet below the land surface on the hillsides. The depth to water table along the ridge crests is unknown, as no wells were found on the crests.

At some places the water levels in wells close to each other are quite different. At Staffordsville, for example, the water level in well 8250–3745–262 was 61.9 feet below that in well 8250–3745–263, although the wells are only a few feet apart and at the same level. The higher water body in well 8250–3745–263 is called perched ground water, because it is held up by an impermeable zone which separates it from an underlying body of ground water. The water in flooded coal mines is usually perched ground water. The upper surface of the perched water body is called a perched water table.

In some parts of the Paintsville area, wells tap water which rises considerably above the level at which it is first struck, and some wells on low ground flow at the surface. In some places water rises above the level at which it is first struck because it is confined in the water-bearing bed by an overlying impermeable bed of shale or clay. Down dip from the recharge area, the water (called confined or artesian water) is under pressure caused by the weight of the water at higher elevations in the water-bearing bed. When a well is drilled through the impermeable bed into the water-bearing bed, pressure is released; and the water rises in the well. For example, water in sandstone of the Lee formation at a depth of 140 feet rose to within 35 feet of the surface in well 8245–3745–30, near Paintsville; water in sandy shale of the Breathitt formation at a depth of 85 feet rose to within about 13 feet of the surface in well 8245–3745–204, in the south-central part of the area at Collista; and water in a sand lens in alluvium at a depth of 25 feet rose to within 2 feet of the surface in auger hole 8245–3745–405, at Paintsville.

In other places, water that occurs in joints rises above the level at which it is first struck. When a well intersects an inclined water-bearing joint below the water table, the water will rise in the well to the level of the water in the joint (fig. 4). For example, water in

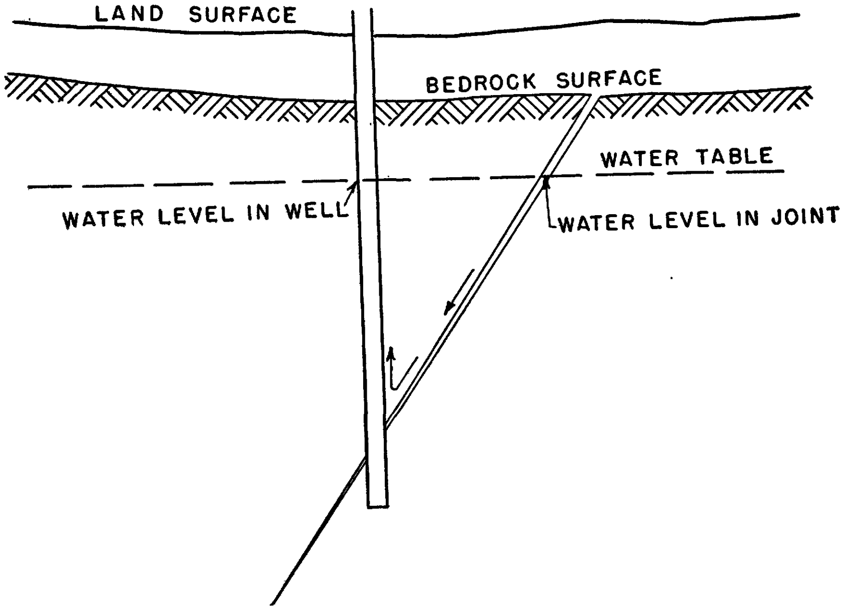

FIGURE 4.—Diagram showing relationship of water level in well intersecting a water-bearing joint and water level in joint.

nearly vertical cracks in rocks of the Breathitt formation rose above the level at which it was first struck in dug wells 8245–3745–237 and 8245–3745–257.

Waters from wells 8245–3745–141, near Paintsville; 8245–3745–360, in Paintsville; 8245–3750–59, northeast of Paintsville at Nippa; and 8250–3745–226, at Denver, flow at the surface, owing, at least in part, to the presence of natural gas in rocks penetrated by the wells.

CHEMICAL QUALITY OF GROUND WATER

Water that falls on the earth in the form of rain or snow contains very little mineral matter in solution. However, water passing over or through the ground dissolves oxygen, carbon dioxide, organic acids, and mineral substances from the earth. The character and amount of mineral matter dissolved depend on the chemical nature of the soil and rock materials and the nature and duration of contact of the water with them. The presence in solution of oxygen, carbon dioxide, and organic acids greatly increases the dissolving action of the water.

The analyses of samples of water from 49 wells, 3 coal mines, and 1 spring (table 2) show the chemical quality of ground water in the Paintsville area. Selected analyses are plotted on plate 2 to illustrate the general chemical quality of ground water throughout the area. The chloride content of water from eight wells is shown by symbol on plate 2. Selected analyses plotted on figure 7 show the range in quality and a comparison of quality of water from different formations.

The following discussion of the chemical constitutents of ground water was adapted from publications of the U. S. Geological Survey.

Dissolved solids.—Dissolved solids are the residue after evaporation of the water and consist mainly of dissolved mineral matter, and some organic material and water of crystallization. Water with less than 500 parts per million of dissolved solids is satisfactory for most uses. Water with more than 1,000 ppm generally requires treatment to render it suitable for most domestic and industrial uses. Dissolved solids in 14 water samples from the Paintsville area ranged from 42 to 39,800 ppm. Seven samples contained less than 500 ppm, and six samples contained more than 1,000 ppm of dissolved solids. The highest concentrations of dissolved solids are in sodium chloride waters from wells and in acid mine waters.

Hardness.—Soap used with hard water forms a sticky insoluble scum, which is difficult to remove from fabrics and containers, and hard water requires a greater amount of soap to produce a lather. Hard water also forms scale when used in boilers.

Calcium (Ca) and magnesium (Mg) cause virtually all hardness in most natural waters. Carbonate hardness, sometimes called temporary hardness, is due to the presence of calcium and magnesium bicarbonate and carbonate and can be partially removed by boiling. Noncarbonate hardness, called permanent hardness, is generally due to the presence of sulfates or chlorides of calcium and magnesium and cannot be removed by boiling. Hardness can be removed by various home water-softening devices, in which sodium is substituted for the calcium and magnesium.

Hardness of water is usually expressed as the quantity of calcium carbonate ($CaCO^3$) equivalent to the calcium and magnesium present. Water that has less than 60 ppm of hardness is usually considered soft. Water that has 61 to 120 ppm of hardness may be considered moderately hard and does not seriously interfere with the use of the water for many purposes but does increase the amount of soap consumed, and treatment for its removal may be profitable for laundries and necessary for industries which require soft water. Hardness of 121 to 200 ppm is noticed by nearly everyone; and in many places where the hardness is over 200 ppm, it is common practice to soften water for household use or to install cisterns for storing rain water.

TABLE 2.—*Chemical analyses of water from wells, springs, and mines in the Paintsville area, Kentucky*

[In parts per million]

Well No.[1]	Owner	Reported depth (feet)	Water-bearing formation	Date sampled	Temperature (° F)	Silica (SiO_2)	Aluminum (Al)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)
8245-3745-S-4			Breathitt	Dec. 2, 1949	54			0.71			
8245-3745-7	Herb Spradlin	84	do	do	55			.97			
33	Paris Wells	[2] 150	Breathitt (and Lee?)	Dec. 26, 1950	57			.67			
38	Mrs. Jim Pack	80	Breathitt	Dec. 2, 1949				.87			
43	Paintsville Country Club	135	do	do	56			6.9			
92	E. P. Welch	[2] 57.4	Alluvium	Dec. 1, 1949	56	20		3.4		1.9	1.3
93	Albert Skauge	[2] 78.6	do	do	56	9.0		26		8.6	2.5
119	Lick Fork School	36-38	Breathitt	Dec. 2, 1949	59			.81			
140	Irving Arrowood	75	Lee	do	58			.29			
141	Harry Davis	800-900?	Lee?	Dec. 21, 1950	57			.46			
143	Johnny Blanton	90	Lee	Mar. 1, 1950	52			.18			
				July 20, 1950	60	9.8		.32		23	9.2
149	Russell Rice	50	Breathitt	Dec. 2, 1949	61			.70			
153	Raymond King	96	do	do	59			2.5			
155	Lucy Hall	96	do	do	55			13			
163	Oscar Stapleton	[2] 70.2	Alluvium	do	57			50			
183	J. J. Auxier	69	Breathitt	do	50			1.5			
186	Howes Land Co.		do	do	57			.35			
188	Kentucky Water Co.	[2] 78	do	Mar. 1, 1950				1.2			
189	Ernest Daniel	75	do	do	51			.16			
322	Gus Hayes	280	Lee	July 20, 1950	57	17		1.2		29	8.0
358	Link Fyffe	55	do	Mar. 3, 1950	47			.38			
359	L. H. Tune	85	Breathitt	July 20, 1950	65	15		.66		28	7.2
360			Lee?	do	59	5.9	8.6	4.4		1,340	368
399	Clyde Preston	36	Alluvium	Dec. 21, 1950	56			.58			
400	William McCarty	106	Breathitt	Dec. 26, 1950	53	11		.71		48	17
406	Simon Daniels (operator)	1,825	Breathitt and Lee	Sept. 5, 1950	60	9.2	16	4.6		1,360	424
8245-3750-52	Walter Van Hoose	65	Breathitt	Dec. 1, 1949	49			24			
53	do	[2] 30.9	Alluvium	do	57			.44			
59		2,006	Lee?	do	59	8.0		.77		37	11
133	Virgil Daniels	62	Breathitt	Dec. 2, 1949	57			14			
134	do	82.5	do	do	48			.46			
150	Jess Burchett	[2] 77.6	do	do	58			.69			
170	Sam Ramey	[2] 112.4	do	Dec. 1, 1949	58			2.1			
201	Sulfur Springs Branch School	[2] 83.8	do	Feb. 27, 1950	55			.16			
212	Jay Keller	100	do	Mar. 1, 1950	55			1.2			

8250-3745-3	Jesse Horne	85	Lee	Feb. 27, 1950	42			.90			
12	Rodney Picklesimer	75	do	do	52			.26			
15	Crate Rice	220	do	Dec. 1, 1949	45			3.4			
25	Albert Blanton	75	Breathitt	do	56			2.1			
36	W. M. Senters	[2] 16.7	Alluvium	do	56			.19			
37	do	[2] 53.0	Breathitt	do	56			1.1			
209	Norma Ferguson	[2] 65.2	Lee	do	56			.48			
226	Bob Caudill	90?	Lee?	Feb. 27, 1950	47	6.0		1.2		47	13
229	Arnold Ward	65	Lee	do	56			9.7			
326	M. Tackett	75	do	Dec. 21, 1953	55			20			
8250-3750-3	J. W. Prater	69	do	Dec. 1, 1953	48			3.0			
9	James McKenzie	70	do	do	57	12		.99		1.8	1.6
13	Frank Lemaster	[2] 31.2	do	Feb. 28, 1950	52			.13			
17	Jim Fraser	[2] 56	do	Mar. 2, 1950	55			.17			
25	Charlie McKenzie	34	do	do	56			3.6			

Chemical analyses of water flowing from coal mines

8245-3750-M-1			Breathitt	July 20, 1950	60	15	2.9	0.47	1.1	92	46
M-2	Howes Land Co		do	July 18, 1950	58	19	2.8	.48	2.3	81	33
M-3	do		do	do	57	18	2.1	2.8	1.1	80	43

[1] For location of wells see map, plate 1.
[2] Measured with steel tape.

TABLE 2.—*Chemical analyses of water from wells, springs, and mines in the Paintsville area, Kentucky*—Continued

[In parts per million]

Well No.[1]	Owner	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Carbonate	Hardness as $CaCO_3$ Noncarbonate	Specific conductance at 25° C. (micromhos)	pH
8245-3745-S-4	......	......	......	54	37	3.5	......	4.9	......	72	44	28	191	......
8245-3745-7	Herb Spradlin	......	......	100	9	6.2	......	1.9	......	81	81	0	203	......
33	Paris Wells	......	......	306	39	48	0.2	2	......	147	147	0	715	......
38	Mrs. Jim Pack	......	......	267	13	4.2	......	.2	......	184	184	0	442	......
43	Paintsville Country Club	......	......	247	1	14	......	.1	......	130	130	0	417	......
92	E. P. Welch	6.9		21	4.8	1.8	.1	.1	48	10	10	0	49.1	6.7
93	Albert Skauge	11		65	.9	1.0	.1	.6	58	32	32	0	101	7.1
119	Lick Fork School	......	......	97	10	5.0	......	.2	......	85	79	6	193	......
140	Irving Arrowood	......	......	325	1	17	......	.1	......	6	6	0	528	......
141	Harry Davis	......	......	234	0	849	.1	.0	......	450	192	258	2,970	......
143	Johnny Blanton	......	......	269	1	30	......	.0	......	86	86	0	486	......
					1.2	27	.3	.4	276	95	95	0	477	8.0
149	Russell Rice	76		269	364	3.8	......	.0	......	446	173	273	986	......
153	Raymond King	......	......	211	1	480	......	.2	......	244	226	18	1,910	......
155	Lucy Hall	......	......	276	2	2.3	......	.0	......	51	51	0	168	......
163	Oscar Stapleton	......	......	106	1	2.8	......	.1	......	28	28	0	82	......
183	J. J. Auxier	......	......	46	47	44	......	17	......	212	155	57	551	......
186	Howes Land Co.	......	......	189	3	17	......	.1	......	38	38	0	534	......
188	Kentucky Water Co.	......	......	329	28	4	......	1.6	......	40	27	13	136	......
189	Ernest Daniel	......	......	33	1	320	......	.0	......	43	43	0	1,710	......
322	Gus Hayes	......	......	488	2.6	9.0	.4	11	210	105	105	0	344	7.3
358	Link Fyffe	38		198	2	4	......	.1	......	66	66	0	424	......
359	L. H. Tune	......	......	283	4.1	16	.3	.5	310	99	99	0	522	7.4
360	......	88		321	0	15,500	......	......	25,500	......	......	......	34,400	7.3
399	Clyde Preston	8,010	96	120	5.8	32	.2	5.6	......	65	27	38	198	......
400	William McCarty	......	......	33	3.3	1,020	1.1	.1	2,150	191	191	0	3,880	7.9
406	Simon Daniels (operator)	769	6.0	552	0	24,000	......	......	39,800	......	......	......	53,300	7.2
8245-3750-52	Walter Van Hoose	13,400	162	370	76	6.0	......	.1	......	148	135	13	425	......
53	do	......	......	165	39	47	......	34	......	189	113	76	518	......
59	......	......	......	138	1.8	6.0	.1	.0	220	138	138	0	396	8.0
133	Virgil Daniels	37		254	1	25	......	.2	......	96	96	0	325	......
134	do	......	......	203	5	10.	......	3.5	......	98	98	0	474	......
150	Jess Burchett	......	......	296	23	4.0	......	9.6	......	48	28	20	130	......
170	Sam Ramey	......	......	34	159	78	......	.1	......	209	209	0	1,100	......
201	Sulfur Springs Branch School	......	......	367	1	4	......	.2	......	42	42	0	262	......
212	Jay Keller	......	......	161	92	4	......	.2	......	237	201	36	513	......

8250-3745-3	Jesse Horne	--------	--------	245	1	4	--------	8.0	--------	28	28	0	128	------
12	Rodney Picklesimer	--------	--------	67	21	6	--------	1.7	--------	29	21	8	103	------
15	Crate Rice	--------	--------	26	1	11	--------	.1	--------	96	96	0	487	------
25	Albert Blanton	--------	--------	198	2	6.0	--------	.0	--------	88	88	0	324	------
36	W. M. Senters	--------	--------	300	70	28	--------	70	--------	118	3	115	418	------
37	do	--------	--------	4	1	200	--------	.2	--------	119	119	0	1,100	------
209	Norma Ferguson	--------	--------	318	30	4.0	--------	1.5	--------	53	30	23	145	------
226	Bob Caudill	--------	--------	37	2.9	585	.5	2.4	1,350	171	171	0	2,460	7.5
229	Arnold Ward	467		434	36	15	--------	.3	--------	175	139	36	389	------
326	M. Tackett	--------	--------	169	1	1	.1	.0	--------	52	52	0	104	------
8250-3750-3	J. W. Prater	--------	--------	68	12	1.4	--------	.0	--------	95	95	0	220	------
9	James McKenzie	--------	--------	116	5.9	1.8	.1	3.0	42	11	8	3	39.0	7.5
13	Frank Lemaster	3.9		10	8	10	--------	4.6	--------	44	31	13	123	------
17	Jim Fraser	--------	--------	38	1	2	--------	.0	--------	4	4	0	23.4	------
25	Charlie McKenzie	--------	--------	120	24	6	--------	.1	--------	116	98	18	261	------

Chemical analyses of water flowing from coal mines—Continued

8245-3750-M-1	----------	124	6.0	[3] 0	661	2.2	0.4	0.9	998	419	0	419	1,290	4.30
M-2	Howes Land Co	74	6.6	9	465	8.0	.3	2.2	736	338	8	330	969	4.7
M-3	do	87	6.0	[4] 0	541	10	.3	2.2	845	376	0	376	1,250	3.35

[1] For location of wells see map, plate 1.
[3] Total acidity as H_2SO_4, 29 ppm.
[4] Total acidity as H_2SO_4, 88 ppm.

The total hardness of water collected from 49 selected wells in the area ranged from 4 to 450 ppm. The carbonate hardness ranged from 3 to 226 ppm. Thirty samples had no noncarbonate hardness; in the remaining 19 samples the noncarbonate hardness ranged from 3 to 273 ppm. Three samples of mine water had 8, 0, and 0 ppm of carbonate hardness and 330, 376, and 419 ppm of noncarbonate hardness, respectively. Although the mineral content varies greatly from place to place and within formations, waters from the Breathitt formation had the greatest hardness, ranging from 38 to 446 ppm; and the waters from the alluvium along the Levisa Fork were softest, ranging from 10 to 65 ppm. Hardness of the waters from the Lee formation ranged from 4 to 450 ppm.

Hydrogen ion concentration (pH).—The hydrogen ion concentration (pH) is an index of the acidity or alkalinity of water. A pH value higher than 7.0 indicates alkalinity, and a pH value of less than 7.0 indicates acidity. Eleven samples of well water had values of pH ranging from 6.7 to 8.0. Samples of water from three coal mines were acidic, with values of pH ranging from 3.4 to 4.7.

The pH of water helps determine the amount and type of treatment, if any, needed to make the water suitable for domestic or industrial use.

Specific conductance.—The specific conductance of water, the capacity of the water to conduct electricity, varies with the temperature and concentration and degree of ionization of dissolved minerals. Specific conductance is used as an indication of the concentration of dissolved solids in waters. Values of specific conductance are expressed as micromhos at 25° C, which ranged from 23.4 to 53,300 micromhos for samples of ground water collected in the Paintsville area.

Silica (SiO_2).—Silica (SiO_2) is dissolved by ground water in small quantities from almost all types of rocks. It contributes to the formation of scale in pipes and boilers. The silica contents of ground-water samples collected in the Paintsville area ranged from 5.9 to 20 ppm.

Iron (Fe).—Iron is an objectionable constituent present in ground waters in this area. If iron in water amounts to more than about 0.3 ppm, the excess may settle out as a reddish sediment if the water is exposed to air and may sometimes create a scum on water. Iron can cause stains on clothing, cooking utensils, and bathroom fixtures, and excessive quantities discolor such foods as coffee and beans when the water is used for cooking.

The quantity of iron in ground water is not uniform, and water from adjacent wells may differ widely in iron content. The iron contents of the 54 samples of ground water collected in this area ranged from

0.13 to 50 ppm. Iron in 48 samples of water from rocks of Pennsylvanian age ranged from 0.13 to 24 ppm and was more than 0.3 ppm in 41 of the samples, and the iron in 6 samples of water from alluvium ranged from 0.19 to 50 ppm and was more than 0.3 ppm in 5 of the samples.

Iron can be removed from most waters by aeration and filtration. Aeration can be accomplished by letting the water flow through a spillway or by letting it drip through numerous small holes in the bottom of a tank. The water can then be filtered through a barrel of clean sand to remove the precipitated iron.

Sulfate (SO_4).—Sulfate combined with calcium or magnesium gives to water a permanent hardness; and sulfate combined with magnesium and sodium, if present in large quantities, imparts a bitter taste to water.

Sulfate, like iron in some cases, may be derived from the oxidation of the iron sulfide minerals marcasite and pyrite. Surface pollution, including fertilizers may be a source of sulfate, also. Several shallow wells are fairly high in sulfate, but most waters in the Paintsville area do not contain large enough quantities of sulfate to affect the use of the water seriously for ordinary purposes. Sulfate contents of the 54 ground-water samples collected was as much as 661 ppm. Thirty-nine samples had less than 25 ppm, ten samples had from 25 to 100 ppm, and five samples had more than 100 ppm. Waters from the Breathitt formation had the widest range of sulfate content, from 1 to 661 ppm. The highest concentrations were in acid mine waters which had from 465 to 661 ppm of sulfate. Waters from the Lee formation contained as much as 36 ppm of sulfate, and waters from the alluvium contained 0.9 to 20 ppm.

Waters containing "dregs" of white or red precipitates are locally called white or red sulfur water. The red precipitates are probaby iron compounds and not sulfur.

Nitrate (NO_3).—Nitrate present in amounts greater than about 45 ppm may cause cyanosis ("blue baby") in infants if the water is used to prepare baby formulas. Sodium nitrate is useful in inhibiting the intercrystalline cracking of boiler steel. Nitrate in natural waters is considered to be a final oxidation product of nitrogenous organic materials and may be suggestive of surface pollution, particularly where present in large amounts in shallow or badly cased wells. Fertilizers are sometimes a source of nitrate in ground waters, especially in shallow wells. Only 1 of the 54 water samples analyzed contained more than 45 ppm of nitrate.

Chloride (Cl).—Chloride in excess of 250 ppm may give a salty taste to the water. Seven of the wells sampled in the Paintsville area yielded water containing more than 250 ppm of chloride, and the rest of the wells yielded water containing 200 ppm or less. The presence of high concentrations of chloride in waters from near the base of the Lee formation limits the depths to which wells might be drilled to obtain higher yields.

Fluoride (F).—Fluoride in small quantities (up to about 1.0 ppm) is believed by many health authorities to inhibit tooth decay in children, and it is added to some public water supplies. However, a fluoride content of more than 1.5 ppm may cause permanent mottling of the teeth when the water is used during the period of formation of permanent teeth. Samples of water collected from 13 wells and 3 coa mines were analyzed for fluoride, which ranged from 0.1 to 1.1 ppm

TEMPERATURE OF GROUND WATER

The temperature of ground water has been measured periodically in a few observation wells since 1949. A small quantity of water is withdrawn from a well with a bailer or bucket, and the temperature of the water in the container is measured by means of a field thermometer that is graduated in 1° F divisions and that is considered to be accurate to ± 0.5° F.

The average ground-water temperature is about 57° F, which is approximately the mean annual air temperature. The temperature of water in most drilled wells varies from 54° F in winter to 60° F in summer, and the temperature of water in shallow dug wells varies from 49° F in winter to 65° F in summer. The high and low ground-water temperatures lag behind the high and low air temperatures during the year (fig. 5). Because it is closer to the surface, water in shallow wells is more sensitive to changes in air and local recharge temperatures and, therefore, shows a wider temperature range.

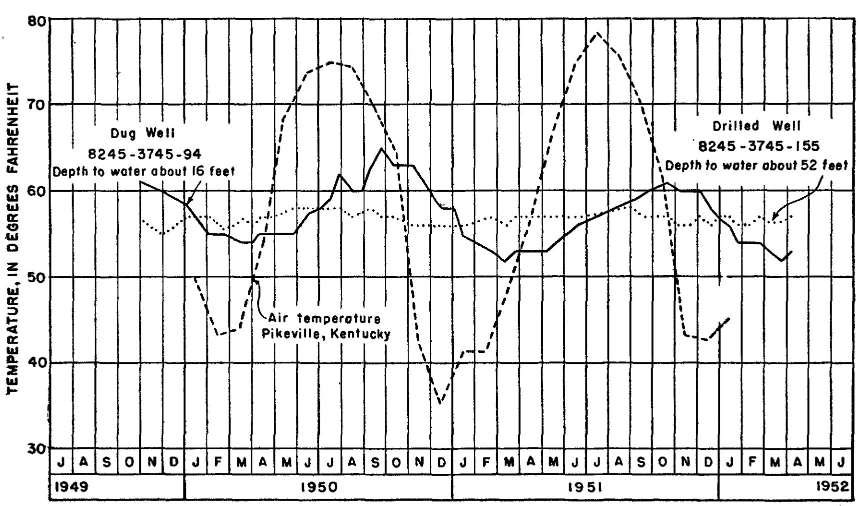

FIGURE 5.—Graphs showing relation between air and ground-water temperatures.

DEVELOPMENT

Records for 1,020 water wells and 15 springs were obtained during the investigation. They are listed in tables 3 and 4, and their locations are plotted on plate 1. Five hundred and sixty-eight of the wells are dug wells, four hundred and fifty-one are drilled wells, and one is a driven well.

Dug wells are constructed with picks, shovels, and other hand tools. Most dug wells in this area are walled with rock but some are walled with tile. Dug wells are shallow and obtain water largely from unconsolidated materials in tributary valleys where the water table is close to the surface. Several wells are dug in rock; the yield of some of these wells has been increased by "shooting" the bottoms with dynamite or by drilling holes in the bottoms with hand drills or percussion tools.

Drilled wells are gradually replacing dug wells because they are less subject to pollution by surface seepage. Drilled wells also penetrate deeper into the saturated zone and therefore afford a more dependable water supply. Drilled wells are constructed with percussion tools mounted on a truck body or trailer. The common practice of drillers in this area is to set casing in the first rock formation drilled into and then to continue drilling only until water is first struck in consolidated rock. Therefore, most of the drilled wells obtain water from the Breathitt formation, because it is at the surface over most of the area. Few drilled wells are finished in alluvium, mainly because the local drillers are unfamiliar with screening and development techniques and because of the high cost of screened casing.

More than 80 percent of the wells listed are not equipped with pumps of any kind, but water is withdrawn by lowering bailers or buckets into the wells. About one-eighth of the wells are equipped with power pumps and less than one-tenth with hand pumps. The most common type of power pump in use is the jet pump powered with ½-, ⅓-, or ¼-horsepower electric motors. The maximum pumping capacities of pumps of this type are from about 150 to 300 gph.

UTILIZATION

The total amount of ground water withdrawn from wells in the area is estimated to average about 65,000 gpd. The two public water supplies in the area, those of Paintsville and Van Lear, are obtained from surface water; but all individual domestic supplies are from ground water, augmented in a few places by rain water collected in cisterns. Ground water is used also to supply two local dairies. Some domestic wells are used also to water stock, but most stock water is obtained from streams.

The amount of ground water withdrawn for domestic use is estimated to be about 62,000 gpd. Data regarding daily ground-water withdrawal were obtained from about 1 out of every 20 well owners.

The averages for ground-water use thus obtained were applied to the total number of wells in use to estimate total ground-water withdrawal for domestic and farm use. Families drawing water from wells with bailers and hand pumps use an average of 40 gpd or about 10 gpd per person. Families using water from wells equipped with electric pumps use an average of 200 gpd or about 50 gpd per person. One privately owned well, 8245–3745–38 on Highway 40 east of Paintsville, reportedly pumps about 1,500 gpd, which supplies about 20 families with running water.

The present use of ground water for industrial purposes amounts to only about 3,000 gpd, which is used by two rural dairies. Davis Dairy, south of Paintsville on Lick Fork near Hager Hill, pumps ground water from two wells, each equipped with a ½-horsepower electric jet pump. Well 8245–3745–192 pumps about 1,600 gpd, and well 8245–3745–193 pumps an estimated 500 gpd. Neal's Dairy, northeast of Paintsville near Thealka, pumps about 600 gpd from a dug well, which is walled with rock. The owner reported that the well is pumped down to the bottom of the intake pipe nearly every day. Daniel's Dairy, on Frank Street in Paintsville, had a well

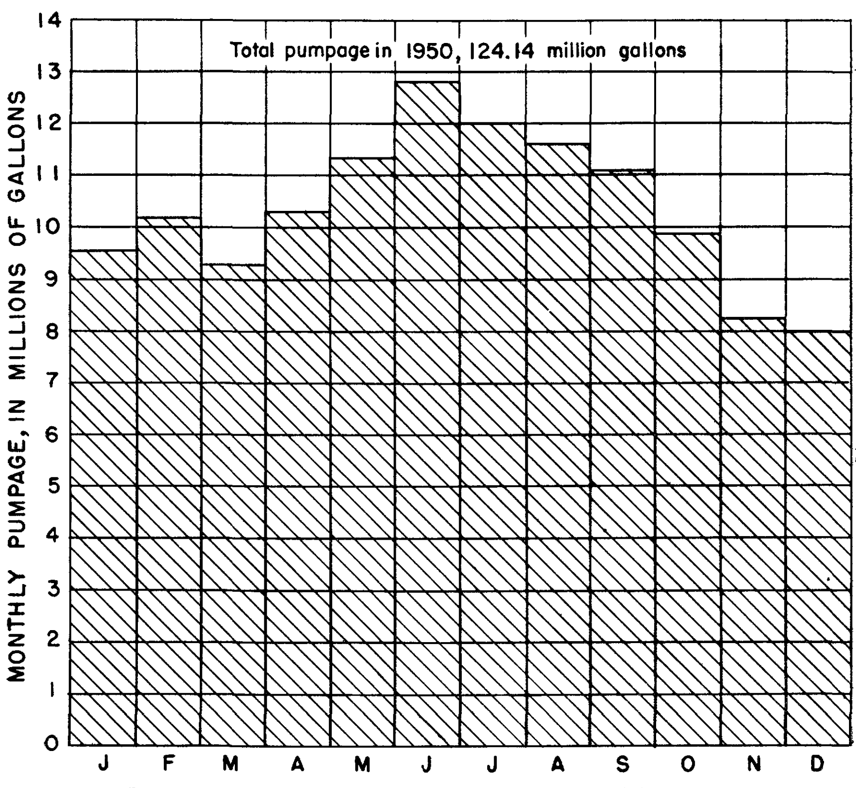

FIGURE 6.—Pumpage in 1950 from Levisa Fork by Paintsville Water Plant.

drilled to obtain water for cooling, but it was abandoned because of the high chloride content of the water and because the amount of water yielded was inadequate for the need. About 2,000 gallons of water per day is obtained from the public supply for the operation of the dairy.

The Chesapeake and Ohio Railway had a well drilled at the Paintsville yards to obtain water for use in engine boilers. It was reported that the quantity of water obtained was adequate but that the water was too highly mineralized to be suitable.

The town of Van Lear formerly obtained a municipal water supply from four drilled wells and a coal mine but has converted to a surface supply because of an increased demand for water from residents of West Van Lear and Hager Hill. About 25,000 gpd reportedly was pumped from the four wells. The water plant at Van Lear now pumps about 75,000 gpd from the Levisa Fork.

Paintsville, population 4,290, pumped an average of 354,000 gallons of water per day from the Levisa Fork during 1950, or about 80 gpd per inhabitant (fig. 6).

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

The geologic formations recognized in this area and their water-bearing properties are listed in table 1. Typical well logs and measured sections are listed in tables 5 and 6. Brief mention is made of formations of Silurian and Devonian age that were penetrated in oil and gas tests, but water in these formations is salty. McGrain and Thomas (1951) have collected data on eastern Kentucky brines, the strongest of which occur predominantly in the Silurian and Devonian rocks. The principal fresh-water-bearing formations are Pennsylvanian rocks and Quaternary alluvium.

PRE-CARBONIFEROUS ROCKS

Big Six sandstone (of drillers).—The Big Six, a gas-producing sandstone of Silurian age in eastern Kentucky, has been encountered in gas wells at depths ranging from 1,585 to 2,820 feet in this area. It is 40 to 50 feet thick. This formation contains brines of commercial quality in other areas and should be included in any exploratory drilling for brines in eastern Kentucky (McGrain and Thomas, 1951, p. 21).

Corniferous limestone (of drillers).—The Corniferous limestone is a sequence of limestones and dolomites of Silurian and Devonian age, 600 to 700 feet thick in this area. It has been encountered in gas wells at depths ranging from 1,520 to 2,269 feet. North of Paintsville in eastern Kentucky the formation has porosity in the form of fractures and solution zones. Brines occurring in the porous zones are the strongest sampled in eastern Kentucky (McGrain and Thomas, 1951, p. 21).

Olentangy shale.—The Olentangy shale is late Devonian in age. It is recognized as a light-colored shale (called Fire Clay by drillers) which is about 180 feet in thickness and occurs near the base of the Ohio (Brown) shale. Olentangy shale has been encountered in gas wells in this area at depths ranging from 1,510 to 1,715 feet, but is not reported to contain water.

Ohio shale.—The Ohio shale (Brown shale of eastern Kentucky drillers) is probably of Devonian age and is 450 to 500 feet thick in this area. It has been encountered in gas wells in this area at depths ranging from 900 to 1,430 feet. The Ohio shale is considered by some to have porosity but not permeability (McFarlan, 1943, p. 294). Natural gas is contained in joints and along bedding planes of this shale, which is not reported to contain water in this area.

MISSISSIPPIAN ROCKS

Berea sandstone.—The Berea sandstone, which is early Mississippian in age, is about 65 feet thick in the Paintsville area but pinches out farther south. It has been found in gas wells in this area at depths ranging from 787 to 1,480 feet. The Berea sandstone contains salt water north of Paintsville and in West Virginia (Lafferty, 1949, p. 222).

Sunbury shale.—The Sunbury shale of early Mississippian age is a black to dark-brown fissile shale, 12 to 15 feet thick. It has been identified in gas and oil wells in this area at depths ranging from 782 to 1,355 feet. It probably does not contain water.

Weir sand.—The Weir sand, a sandstone of early Mississippian (Osage) age, produces oil in the region of the Paint Creek uplift west of Paintsville. It is mainly a sandstone but grades laterally into sandy shale. It is about 60 feet thick in this area and has been recognized in gas and oil wells at depths ranging from 742 to 1,385 feet. The Weir sand is said to contain a little salt water in some areas (Lafferty, 1949, p. 221).

Big Injun sand (of drillers).—The Big Injun sand is a gas-producing sandstone of early Mississippian (Osage) age in eastern Kentucky. Locally three "pay zones" are recognized, but the whole gas-producing zone is commonly referred to as Big Injun. It is about 60 feet thick in this area, and it has been discovered in gas and oil wells in this area at depths ranging from 417 to 1,130 feet. Salt water occurs in the formation in Ohio and parts of West Virginia (Lafferty, 1949, p. 221).

Big Lime (of drillers).—The Big Lime is a gas-producing limestone of Mississippian (late Meramec and early Chester) age. Pre-Pennsylvanian erosion cut deeply into the formation throughout eastern

Kentucky, causing the thickness to vary over short distances. It is 20 to 150 feet thick in this area. It has been detected in gas and oil wells in this area at depths ranging from 376 to 996 feet. Salt water occurs in fractures and solution zones in some localities.

Pencil Cave (of drillers).—The Pencil Cave is of Mississippian (middle Chester) age. It is a blue-green to dark hard shale which caves readily on drilling, often in the form of pencil-shaped splinters. It ranges in thickness from a knife edge to 40 feet in this area and has been completely removed in places by pre-Pennsylvanian erosion. It has been revealed in gas and oil wells in this area at depths ranging from 506 to 688 feet. The Pencil Cave is not known to contain water.

Little Lime (of drillers).—The Little Lime is of Mississippian (middle Chester) age and is the driller's term in eastern Kentucky for the Glen Dean limestone. It ranges in thickness from a knife edge to 25 feet, having also been removed in places by pre-Pennsylvanian erosion. It has been disclosed in gas and oil wells in this area at depths ranging from 442 to 972 feet. It probably does not contain water in this area.

Pennington formation.—The Pennington formation, of Mississippian (undifferentiated late Chester) age, is a sequence of shales and some sandstone and limestone. It has been removed by pre-Pennsylvanian erosion in the northeast two-thirds of the Paintsville area.

The Maxton sand, a gas-producing sandstone member of the Pennington formation (McFarlan, 1943, p. 297), is distinguished only with difficulty from the overlying sandstones of the Lee formation. A sandstone called Maxton contains salt water in the southeast corner of the area but its identification as Maxton in logs of gas wells drilled in that part of the area is uncertain. This sandstone ranges in thickness from a knife edge to 159 feet and is found in gas and oil wells at depths ranging from 540 to 880 feet.

PENNSYLVANIAN ROCKS

LEE FORMATION

Stratigraphy.—The Lee formation was named for exposures in Lee County, Va., and the name as used in Kentucky includes the thick sandstones of Pennsylvanian (Pottsville) age below the Lily coal of the Breathitt formation and above the Mississippian formations of the London area (Campbell, 1898, p. 4). According to Wanless (1939, p. 39), the Lee formation of Kentucky includes the Lee and the lower part of the Norton formation of Virginia. In the Paintsville area the Lee formation includes the thick sandstone of Pennsylvanian (Pottsville) age above the Mississippian rocks and a few feet below a thin, fossiliferous shale bed in strata at the base of the overlying Breathitt formation. (See generalized section on map, pl. 2.) Campbell (1898, p. 8) divided the Lee formation into three lithologic units in the London area; but because correlation of such subdivisions throughout Kentucky is uncertain, no attempt was made to divide the formation in this area. Drillers in eastern Kentucky refer to the Lee formation as the Salt Sands because the first salt water struck while drilling usually occurs in these sandstones.

The Paint Creek uplift has brought the Lee formation to the surface in the western part of the area, and there it crops out over an area of about 1 square mile along the valley of Paint Creek and its tributaries. Away from the Paint Creek uplift the Lee formation dips under the Breathitt formation, and the top of the Lee is as much as 600 feet below the surface in the southeast part of the area.

The greatest thickness of the Lee formation exposed is about 100 feet, measured on a small uplift near Staffordsville. Logs of oil and gas wells (table 5) show that the formation is locally 250 to 500 feet thick and that it thickens towards the southeast.

The Lee formation in this area consists of sandstones and minor amounts of shale. The sandstones are white to gray on fresh exposures and weather to shades of yellow and gray. The sand grains are mainly of quartz with minor amounts of mica. The quartz grains range in diameter from about 0.1 millimeter to about 2 millimeters and are poorly sorted. Most sand grains are angular to subround. Stray pebbles of quartz can be found in most outcrops of the Lee formation; and toward the base of the formation, pebbles become quite common. The pebbles are quartz, well rounded, and as much as one-fourth inch in diameter. Some pebbles occur singly, but they also form beds or zones from one pebble thick up to several inches or more thick. Many quartz grains display crystal faces owing to deposition of silica by circulating waters. This secondary deposition of silica is largely responsible for the cementation of the sandstones, although iron sulfide, either marcasite or pyrite, iron carbonate, and calcium carbonate are present in small amounts as cementing material.

Shale beds in the outcrop area of the Lee formation are lenticular and less than 20 feet thick, but logs of oil and gas wells in the southeast part of the area show greater thicknesses of shale.

The sandstones are massive, cross bedded, and cliff forming. Steeply inclined joints and openings along bedding planes separate the rocks into large blocks. In the vicinity of the Irvine-Paint Creek fault the joints incline at angles of 50° to the southeast and 55° to the northwest, intersecting one another at angles of about 75°. The pitting of some weathered surfaces suggests the local term "Bee Rock" to observers describing the honeycombed appearance of outcrops in other areas.

Character of openings.—Water is stored in the sandstones of the Lee formation in the openings between sand grains and along joints and bedding planes. The sizes of the original openings between sand grains were greatly reduced by deposition of fine-grained material in the spaces between larger grains and by compaction and cementation of the sandstones after they were deposited. Water stored in pore spaces between grains of sand is released very slowly from the small openings. The joints are paper thin at depth and are from fractions of an inch to about 6 inches wide at the surface. They are curved, irregular, and discontinuous. Openings along joints and bedding planes act as conduits through which water can flow quite freely, but they cannot store much water because the open space they provide is only a small fraction of the total volume of the formation.

Availability of ground water.—Enough fresh water for domestic use generally can be obtained from wells in the Lee formation in its outcrop area at depths ranging from a few tens of feet to about 200 feet. At greater depths and away from the outcrop area, the Lee formation may yield salt water.

A total of 176 water wells in the Lee formation were inventoried. Of these, 165 are in the outcrop area of the Lee formation or where the Lee formation is covered only by alluvium. Eleven wells were drilled through rocks of the Breathitt formation and into the Lee formation. Thirty-three of the 176 wells are dug wells and 143 are drilled wells. Only 6 of the dug wells and none of the drilled wells were reported inadequate for domestic supply.

Yield of wells.—Otton (1948, p. 23–25) reports that wells not intersecting a sufficient number of joints in the Lee formation in the London area can obtain only about 5 to 10 gallons of water per minute and that yields of 20 to 40 gpm are considered good for wells in the Lee formation. Few of the wells now existing in the Lee formation in the Paintsville area will yield more than 10 gpm, because most wells are not drilled deep enough to intersect many joints.

A bailing test was made on well 8250–3750–25. The well was drilled to a depth of 34 feet in sandstones of the Lee formation, and the static water level was 26 feet below surface before the bailing test was started. The well was bailed at a rate of 3½ gpm for 32 minutes with a drawdown of about one foot. The test was not continued long enough for accurate results, and some recovery probably occurred after the last bailer was pulled and before the tape could be lowered. A "slug test" on a well in the Lee formation, discussed later in this report, indicated a minimum transmissibility of about 1,100 gpd per ft. Tests at Corbin by Guyton and Jones [2] indicated that the transmissibility of the sandstones of the Lee formation at Corbin is about 7,000 gpd per ft.

[2] Guyton, W. F., and Jones, D. J., 1944, Memorandum on water supply, Corbin, Ky.: U. S. Geol. Survey and Ky. Dept. Mines and Minerals (MS rept.).

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Chemical character of water.—The chemical composition of water from 20 wells in the Lee formation ranges widely, as is shown by the analyses of 21 samples appearing in table 2 and the graphic plots of selected analyses on plate 2 and in figure 7. The samples of water from wells 8250–3750–17 and 8245–3745–140 were the softest waters sampled from any formation and had a hardness of only 4 and 6 ppm, respectively. Eleven of the remaining samples had hardnesses of less than 100 ppm; five had hardnesses between 100 and 200 ppm; and one had a hardness of 450 ppm. Hardnesses of two of the samples were not reported.

Iron contents ranged from 0.13 to 20 ppm. Seventeen of the twenty-one samples had more than 0.3 ppm. The iron is probably present as a result of the weathering of iron sulfides (marcasite or pyrite), iron oxide, and iron carbonate cementing materials. The wide range in the iron contents of waters may be due to the irregular distribution of these materials throughout the sandstones.

The presence of high-chloride water at depth in the Lee formation limits the depth to which water wells might be drilled throughout the area. Chloride concentrations ranged from 1 ppm, in well 8250–3745–326, to 24,000 ppm, in well 8245–3745–406. Seventeen of the samples had less than 30 ppm of chloride. The wells from which 16 of these samples were collected are domestic wells drilled in the outcrop area of the Lee formation. Water flowing from well 8245–3750–59, an abandoned gas test-well, contains only 6 ppm of chloride and is probably a mixture of waters from the Lee and Breathitt formations. Waters from wells 8250–3745–226, 8245–3745–141, 8245–3745–360, and 8245–3745–406 are hard to very hard sodium chloride waters having chloride concentrations of 585, 849, 15,500, and 24,000 ppm, respectively. Well 8250–3745–226 at Denver is an abandoned domestic well drilled to an unknown depth from which water flows at the surface. Wells 8245–3745–141 west of Paintsville and 8245–3745–360 in Paintsville are abandoned gas tests drilled to unknown depths below the Lee formation and also flow at the surface. Well 8245–3745–406 east of Paintsville is a producing gas well in which the water is sealed off by casing. The salty waters flowing from well 8245–3745–226 and well 8245–3745–360 probably contaminate shallower ground waters in both the Lee and Breathitt formations at Denver and Paintsville. Wells 8245–3745–30 at the drive-in theater east of Paintsville, 8245–3745–136 at Daniel's Dairy in Paintsville, and 8245–3745–402 at the Chesapeake and Ohio Railway Co. yards in Paintsville reportedly struck salty water at moderate depths in the Lee formation.

The fluoride content in seven samples of water from the Lee formation ranged from 0.1 to 0.5 ppm. Fluoride was not determined in the remaining samples.

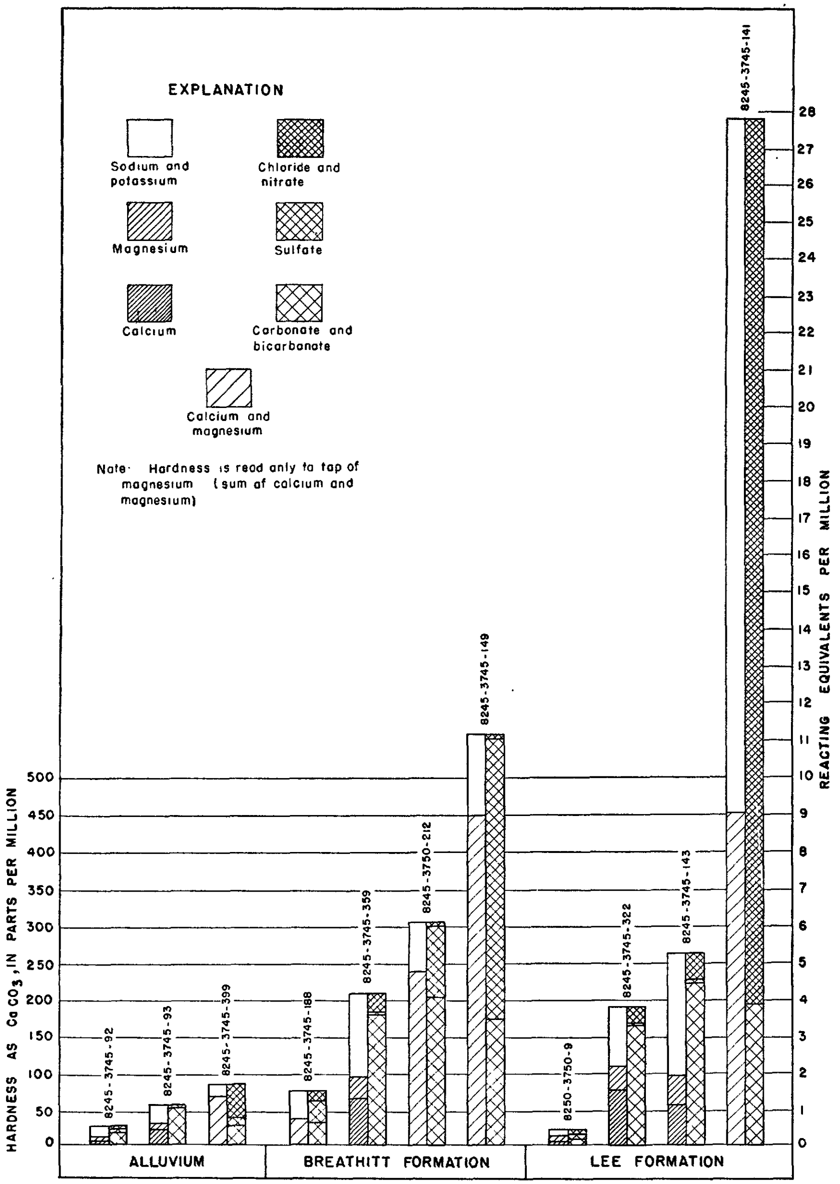

FIGURE 7.—Graphic representation of selected chemical analyses of ground waters from the three principal aquifers in the Paintsville area, Kentucky.

BREATHITT FORMATION

Stratigraphy.—The Breathitt formation was named from exposures in Breathitt County, Ky., and the name was applied by Campbell (1898, p. 4) to strata of Pennsylvanian age above the Lily coal in the London area. At the type locality the Breathitt formation includes rocks of Pottsville age only. However, no upper boundary has been defined, and the formation includes rocks of Allegheny age in other localities. All consolidated rocks above the massive sandstones of the Lee formation in the Paintsville area are included in the Breathitt formation.

The Breathitt formation crops out over more than 90 percent of the Paintsville area (pl. 2), and it underlies the alluvium in the valley of the Levisa Fork and most of its tributaries. Inasmuch as no consolidated rocks overlie the Breathitt formation in this area, the thickness of the Breathitt is equal to the depth from the surface to the top of the underlying Lee formation except in the alluvium-filled valleys. The eroded thickness of the Breathitt ranges from a knife edge at the contact with the Lee in Paint Creek valley to about 600 feet on the hills in the southeast part of the area.

The Breathitt formation consists of sandstones, siltstones, shales, thin limestones, underclays, and coal beds. Siltstones and shales are the predominant rock types, but sandstones are more conspicuous in outcrop because of their greater resistance to weathering. The sandstones grade vertically and laterally into sandy shales and siltstones, and changes in lithology take place over very short distances. Channeling is common, particularly at the base of sandstone beds. The sandstones are thickest in the southeastern part of the area and around Paintsville. The most persistent sandstone caps the hills in the eastern half of the area.

The sandstones of the Breathitt formation are mostly gray on fresh surfaces and weather to shades of yellow and brown. Iron staining is conspicuous on exposed surfaces, but Robertson [3] points out that iron staining is not noticeable in diamond-drill cores. The sandstones are composed predominantly of quartz grains ranging in diameter from about 0.1 to 0.5 millimeter. Much fine-grained material, mainly mica and platy carbonaceous material, occupies spaces between sand grains. Robertson [4] also reports the presence of detrital chert grains in samples examined by him. Cementing materials are mainly silica, clay paste,[5] and small amounts of sulfides, oxides, and carbonates of iron. Robertson [6] noticed that an outstanding characteristic in thin sections is the extreme amount of

[3] Robertson, D. A., 1951, Petrographic analysis of the Pennsylvanian sandstones of Perry County, Ky.: p. 40, Ill. Univ. (unpublished master's thesis).

[4] Op. cit.

[5] Op. cit.

[6] Op. cit., p. 97.

secondary change or diagenesis which has taken place in the sandstones. One result of the diagenesis is the formation of quartz aggregates, probably caused by the differential solution of quartz grains at their points of contact with other quartz grains. Most of the sandstones are cross bedded, but the cross bedding is not as conspicuous as it is in the sandstones of the Lee formation. Joints in the sandstones of the Breathitt formation are not as well developed as in the Lee formation.

Shales and siltstones are mostly black and brown on fresh surfaces. Shales below the Van Lear coal are commonly darker than shales above and weather to shades of olive, green, and gray. Shales and iron-stained siltstones contain bands and nodules of ironstone in some places. Quartz and platy material, mainly mica, are the predominant mineral grains. Joints are not well developed in the shales and siltstones. In places, siltstones show the peculiar type of structure known as "pencil fracture." The rock is broken at right angles to the bedding in the form of thin splinters.

Near the base of the formation, about 12 to 20 feet above the top of the Lee formation, there is a hard black fissile shale 2 to 6 inches thick, which contains fossil *Lingula* and *Orbiculoidea*. In some places the fissile shale bed is underlain by a dark-gray, very fine-grained sandstone, which is gradational into siltstone, about 1 foot thick, and very fossiliferous. Most of the fossils are brachiopods, but one trilobite pygidium was seen. About 1.2 miles north of the junction of Kentucky Highway 172 with U. S. Highway 460, at a place where the fossiliferous siltstone underlies the shale, a zone of blue-gray dense fossiliferous limestone concretions overlies the shale bed. This fossiliferous shale (and sandstone, siltstone, and limestone concretions where present) may be equivalent stratigraphically to the marine roof rock overlying the Quakertown coal of Ohio (Wanless, 1939, pls. 7, 9). It was found very useful in tracing the top of the Lee formation in this area.

Coals and limestones, though thin, are important stratigraphic guides. Dense blue, sometimes sandy, limestone concretions, about 1½ feet thick and 4½ feet in diameter, probably White's (1885) Campbell Creek limestone, are exposed 45 to 81 feet below the Van Lear coal. At Baker and Stave Branches, similar concretions, possibly the Cedar Grove sandstone of Hennen and Reger (1914), are exposed from 10 to 22 feet above the Van Lear coal. The Magoffin beds of Morse (1931) are also exposed at two places. At Whippoorwill Branch, 22 feet above the Fire Clay Rider coal, the bed consists of septarian limestone concretions. At Richmond Gap, 29 feet above the Fire Clay Rider coal, the same zone consists of a 3-inch band of iron carbonate ore overlain and underlain by black shale. The septarian limestone, iron ore, and black shale all contain marine fossils. The

Van Lear coal, about 150 to 250 feet above the top of the Lee formation and 10 inches to 5 feet thick, is the most important coal economically.

Character of openings.—The grains making up the sandstones and siltstones of the Breathitt formation are smaller than the grains making up the sandstones of the Lee formation, and the openings between grains are smaller. Water is stored in these primary openings, but it moves through them very slowly. Openings between particles making up the shale beds are so small that water does not move through them at a perceptible rate.

Openings along steeply inclined joints and bedding planes are poorly developed in the shales and siltstones of the Breathitt formation. Although better developed in the sandstones, the openings along joints in the sandstones of the Breathitt are not as large as those in the sandstones of the Lee formation. Openings along joints and parallel to bedding planes in coal beds are generally paper thin, but they are fairly closely spaced and generally allow water to move more freely than it does through the shale beds. After heavy rains, water percolating down through coal beds forms seeps at the contact with underlying shales or underclays.

Availability of ground water.—The Breathitt formation crops out or is overlain by alluvium in more than 90 percent of the Paintsville area, and it furnishes enough fresh water for domestic use to wells over most of the area.

Of the 426 inventoried wells in the Breathitt formation, 142 are dug wells and 284, drilled wells. The deepest drilled well yielding fresh water is 190 feet deep; 8 slightly shallower wells yield water reported to be too salty for domestic use. Only 16 of the dug wells and 1 of the drilled wells were reported inadequate in quantity for domestic supply.

Yield of wells.—The yield of any well drilled in the Breathitt formation depends on the kind of rock and the number of cracks it intersects. Because the sandstones generally contain more cracks than shales and siltstones, they yield water more freely. However, it is impossible to predict in advance the number of cracks a well may intersect and therefore impossible to predict the yield of a well in advance of the drilling and actual testing of it.

Reported yields of wells drilled in rocks of the Breathitt formation range from less than a gallon per minute to as much as 100 gpm. The owner of well 8245–3745–325 tested it by pumping with an electric jet pump and reported a yield of 10.9 gpm. An employee at the Kentucky Water Co. plant in Van Lear reported that abandoned municipal wells 8245–3745–188 and 8245–3745–404 yielded 18 to 20 and 100 gpm, respectively. Bailing tests by well drillers indicate that most wells in the Breathitt formation in this area will not yield more than 10 gpm. Bailing tests show that the specific capacity of well 8245–3745–155, near Paintsville, was about 0.08 gpm per ft of drawdown (drawdown 12.5 feet after bailing for 32 minutes at the rate of 1 gpm); the specific capacity of well 8245–3745–194, on Lick Fork, was about 1.7 gpm per ft of drawdown (drawdown 10 feet after bailing for 7 minutes at the rate of 17 gpm); the specific capacity of well 8245–3745–204, near Collista, was about 0.6 gpm per ft of drawdown (drawdown 15 feet after bailing for 8 minutes at the rate of 9 gpm). A "slug test" on a well in the Breathitt formation indicated a minimum transmissibility of about 3,300 gpd per ft.

The large amounts of ground water stored in abandoned coal mines throughout the area could be easily obtained by either gravity flow or pumping; however, the replenishment by seepage from the roof and wall rocks is slow.

Chemical character of water.—The analyses of 24 samples indicate the chemical character of waters from the Breathitt formation (table 2). Plate 2 and figure 7 show graphic plots of selected analyses.

The quality of water from the Breathitt formation differs from place to place, some waters being soft and relatively low in mineral content and some hard and relatively high in mineral content. Generally speaking, waters from the Breathitt formation are of a calcium-magnesium bicarbonate type and contain undesirable amounts of iron.

The hardness of 24 samples of water from the Breathitt formation ranged from 38 to 446 ppm. Thirteen samples had less than 100 ppm, six had 100 to 200 ppm, four had 200 to 250 ppm, and one had 446 ppm. The variability in hardness apparently shows little relationship to depth or location of wells.

Iron contents ranged from 0.16 to 24 ppm, and only two of the samples had less than 0.3 ppm. Sulfate was not present in objectionable quantities in water from wells; however, three samples of mine water had high sulfate contents, probably due to the oxidation of iron sulfides by the action of air and water, which produces sulfuric acid.

Most drilled wells that are not contaminated by surface seepage yield water containing less than about 0.2 ppm of nitrate. Water from a coal bed penetrated by well 8245–3745–7 at Van Lear contained 1.9 ppm of nitrate, and waters from three coal mines contained 2.2, 2.2, and 0.9 ppm of nitrate, respectively.

Chloride is an objectionable constituent present in waters from some wells in the Breathitt formation at Paintsville and Denver. Waters from wells 8245–3745–153 and 8245–3745–400, east of Paintsville, and 8245–3745–189, east of Paintsville near Thelma, had 480, 1,020, and 320 ppm of chloride, respectively. Waters from wells 8245–3745–153 and 8245–3745–400 are hard sodium chloride waters, and water from well 8245–3745–189 is a soft sodium chloride bicarbonate water.

At Denver, water from well 8250–3745–37, drilled 53 feet deep in the Breathitt formation, had a chloride content of 200 ppm. The water is a moderately hard sodium chloride bicarbonate water. Waters from wells 8250–3745–27 and 8250–3745–28, also drilled in the Breathitt at Denver, tasted salty to the owners. The salty waters in shallow wells at Paintsville and Denver probably are all contaminated by waters from nearby abandoned deep gas wells.

Waters from three wells in the Breathitt formation were analyzed for fluoride content. Wells 8245–3745–33, 8245–3745–359, and 8245–3745–400 had 0.2, 0.3, and 1.1 ppm of fluoride, respectively.

Manganese and aluminum are present in many acid waters and were found in small quantities in the waters from the three sampled mines.

QUATERNARY ALLUVIUM

Stratigraphy.—Alluvium of Pleistocene and Recent age overlies the bedrock in all the stream valleys, extending into the heads of even the smallest streams. (See pls. 2, 3.) The alluvium ranges in thickness from at least 96 feet on a terrace in the valley of Levisa Fork to a feather edge at the valley walls and in the headwaters of the smaller streams. (See pl. 3.) It generally consists of medium to fine sand, silt, and clay with stray pebbles and a few thin lenses of gravel.

At least two benchlike flats stand above flood stage along the Levisa Fork. The higher flat, or terrace, stands about 50 to 60 feet above mean river stage and about 5 to 10 feet above the lower terrace. The two terraces together range from about 10 feet to half a mile in width. Another bench stands a few feet above mean river stage and, where best developed, is about 20 to 50 feet wide on either side of the stream.

The maximum known thickness of the alluvium along the Levisa Fork is about 96 feet in well 8245–3745–167, located on a terrace about 60 feet above the river southeast of Paintsville at West Van Lear. The plans for a railroad bridge show that at Van Lear the river bed is underlain by about 30 feet of "fine sand," a layer of "sand and gravel" lying about 3 feet above bedrock. The plans for the railroad bridge near Thelma show a thickness of about 20 feet of alluvium below the river bed there. A few bedrock elevations in the valley of Levisa Fork are shown on plate 2.

Alluvium in the valley of the Levisa Fork is generally coarser grained and thicker than the alluvium in tributary valleys. It has been derived from erosion of sandstones at the headwaters of the Levisa Fork and sandstones, siltstones, and shales farther downstream. Samples of alluvium were obtained from the core of well 8245–3745–403, drilled by the Frye Engineering Co., Lexington, Ky., at the site of the new water plant in Paintsville about 30 feet above mean low water level. These samples show that the material is silty and contains small amounts of sand and clay to a depth of 26 feet. At a depth ranging from 22–26 feet this silty zone contains some organic matter and may represent a buried soil zone. About 32 feet of fine- to coarse-grained sand, ranging from 0.1 to 1.0 millimeter in grain diameter, underlies the 26 feet of silt. The sand grains are mainly clean angular to semiangular quartz and some feldspar, limonite, and muscovite.

The alluvium in tributary valleys has been derived from the areas of shale, siltstone, and sandstone outcrops which the tributary streams drain. The greatest thicknesses reported are about 60 feet in well 8245-3745-204, near Collista (section CC′, pl. 3), and more than 52 feet in auger hole 8245–3745–405 at the playground in Stafford Addition, Paintsville. It consists of fine sand, silt, and clay. A driller's record of well 8245–3745–204 in the valley of Jenny Creek near Collista shows 10 feet of sand above the bedrock, and the sand is overlain by 50 feet of clay and sandy soil. The auger hole record furnished by the Frye Engineering Co. shows 27 feet of clay and sand overlain by 25 feet of clay at Paintsville.

Character of openings.—Water is stored in and moves through intergranular openings in the unconsolidated alluvium. In contrast to the consolidated sandstones, the intergranular openings in the alluvial sands are generally free of cementing materials. However, the openings between the sand grains may be partly filled with finer particles, and secondary openings are unknown in the alluvium.

Availability of ground water.—At depths ranging from a few feet to about 80 feet, enough water for domestic use can generally be obtained from wells in the alluvium in the valley of the Levisa Fork and its tributaries.

A total of 169 wells in the alluvium were inventoried. Of these, 164 are dug wells, 4 are drilled wells, and 1 is a driven well. Twenty-two dug wells were reported as being inadequate for domestic supply, but none of the drilled wells were reported as inadequate. The dug wells range in depth from a few feet to about 40 feet; the drilled wells range in depth from about 57 to 80 feet. None of the wells in the alluvium were reported to yield water unsatisfactory in quality for domestic use.

Yield of wells.—The yield of a well in the alluvium depends on the size, shape, and degree of sorting of the particles, the type of well construction, and the depth of penetration into the saturated zone. Nearly all wells drilled in the valleys of the area are cased through the alluvium and get water from underlying rocks, even though the water in the rocks may be of poorer quality. The maximum saturated thickness of alluvium is about 40 feet. Bailing tests were not made on wells in the alluvium for fear of drawing sand into the bottoms of the wells, thus rendering them useless to the owners.

Permeameter tests on samples of sand bailed from drill hole 8245–3745–403 indicate a permeability of about 500 gpd per sq ft, and tests on very fine to fine sand collected from the north bank of the Levisa Fork opposite the mouth of Buffalo Creek indicate a permeability of about 80 gpd per sq ft. The samples tested were not undisturbed samples; consequently, they may not be typical of the alluvium in this area.

Chemical character of water.—Chemical analyses were made of six samples of water from wells in the alluvium (see table 2). These analyses and reports of local users indicate that the water in the alluvium is generally softer than the water in the bedrock, although it contains objectionable amounts of iron in places. Plate 2 and figure 7 show graphic plots of selected analyses. Water from wells 8250–3745–36, at Denver, and 8245–3750–53, at Nippa, which were dug in alluvium in tributary valleys, had hardnesses of 118 and 189 ppm, respectively. The hardness of waters from drilled wells 8245–3745–92, near Thealka, 8245–3745–163, at West Van Lear, 8245–3745–93, near Thealka, and dug well 8245–3745–399, near Van Lear, all in alluvium along the Levisa Fork, were 10, 28, 32, and 65 ppm, respectively. The iron contents of waters from drilled wells 8245–3745–92, 8245–3745–93, and 8245–3745–163 were 3.4, 26.0, and 50.0 ppm, respectively; and the iron content of water from dug well 8245–3745–399 was 0.58 ppm. The high iron contents of waters from wells 8245–3745–93 and 8245–3745–163 probably result in part from corrosion of the well casings.

FLUCTUATIONS OF WATER LEVELS

It is commonly known that water levels in wells do not stay in a stationary position but rise and fall in response to various natural and artificial causes. Water levels in 14 selected wells have been measured periodically to determine the nature and magnitude of ground-water fluctuations in the Paintsville area. Most of these wells were measured monthly from November 1949 through January 1950 and biweekly thereafter. Continuous recording gages have been operating on wells 8245–3745–93, 8245–3745–404, 8250–3750–11, and 8250–3750–24 since April 1951. Graphs of water levels in the selected wells, river levels of the Levisa Fork, and rainfall records are shown in figures 8 and 9. Water levels are recorded in table 7. The continuous records of water-level fluctuations in two wells are compared with a record of atmospheric pressure changes and with rainfall records in figure 10.

The principal factors causing fluctuations of water levels in wells in the Paintsville area are precipitation, changes in stream level, changes in atmospheric pressure, natural discharge, and pumping from wells. Earthquakes cause minor abrupt fluctuations in water levels in some of the wells. The average yearly precipitation of about 45 inches provides almost 800 million gallons of water per square mile. Most of this (about 580 million gallons) is returned to the atmosphere by evaporation and transpiration. Some of the water is discharged to streams as direct surface runoff; and the remainder, a very small part of the total precipitation, seeps into the soil and rocks and is added to the ground-water supply, later seeping into the streams or being evaporated or transpired.

Although precipitation is fairly well distributed throughout the year (figs. 8 and 9), recharge from precipitation is probably greatest in winter when losses by evaporation and transpiration are small. Inasmuch as flood flows in the streams generally coincide with periods of local heavy precipitation, the effects on water levels of infiltration of river water and recharge from precipitation are not easily separated. The hydrographs in figure 8 may all show influence of the stage of the Levisa Fork. The hydrographs in figure 9 are of wells located beyond any possible effect of floods in the Levisa Fork, but they may show the effects of local floods in the tributary valleys.

Ground-water levels in this area generally fall during the summer and early fall and rise during the winter. Water levels in wells in this area are usually lowest in August and September, although about a sixth of the average annual precipitation falls during these months. Most of the July and August rainfall is lost through evaporation and transpiration and does not seep downward into the ground-water reservoir. Water levels are highest in January and February, when another sixth of the average annual precipitation falls and evaporation and transpiration losses are lowest.

The continuous records of water-level fluctuations in wells 8245–3745–404, drilled in the Breathitt formation, and 8250–3750–24, drilled in the Lee formation, show changes in water levels which do not all correlate with precipitation or stream levels. Comparison of the two hydrographs with a record of atmospheric-pressure changes, converted to feet of water and inverted (fig. 10), shows that short-term fluctuations of water levels in the two wells correlate with changes in atmospheric pressure. Water levels in these wells respond to atmospheric-pressure changes, because the water occurs in joints that do not intersect the surface or in permeable zones separated by less permeable zones. Changes in atmospheric pressure are not transmitted as freely to the water table through the impermeable material as to the water level in the well. Therefore, an increase in atmospheric pressure causes a depression of the water level in the well and a decrease in atmospheric pressure causes a rise of the water level (fig. 10). The ratio of water-level change to atmospheric-pressure change is called the barometric efficiency of the well, usually expressed in percent. The barometric efficiencies of wells 8245–3745–404 and 8250–3750–24 during the period of record shown on figure 10 were roughly 40 percent and 60 percent, respectively. The apparent barometric efficiencies

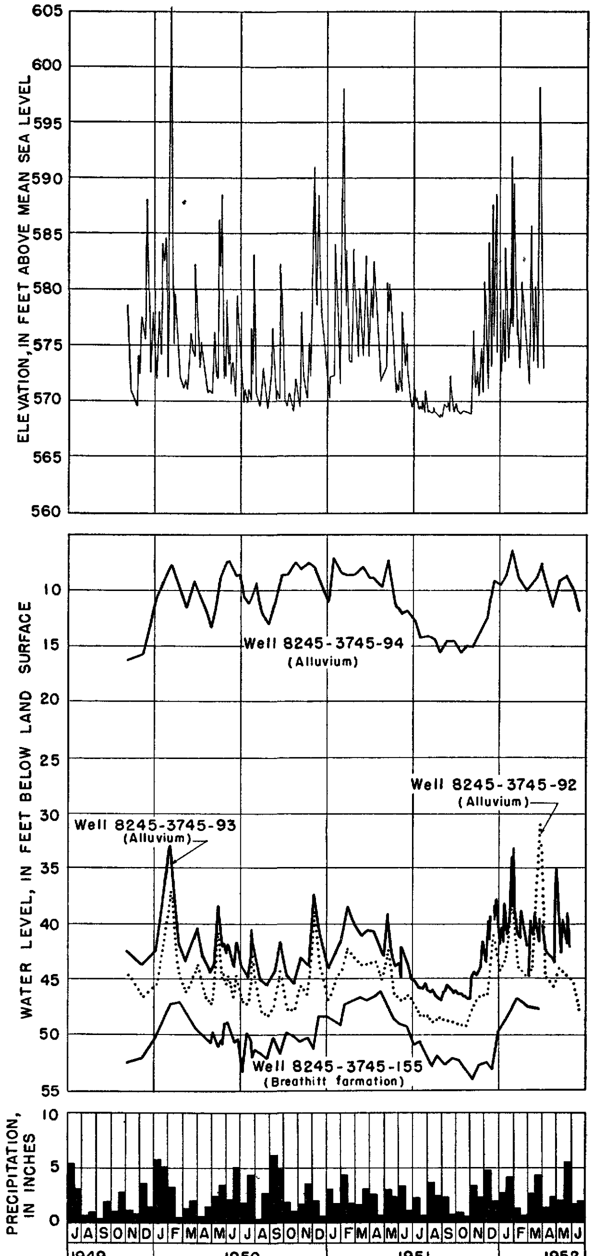

FIGURE 8.—Graphs showing water levels in wells and in Levisa Fork and precipitation in the Paintsville area, Kentucky.

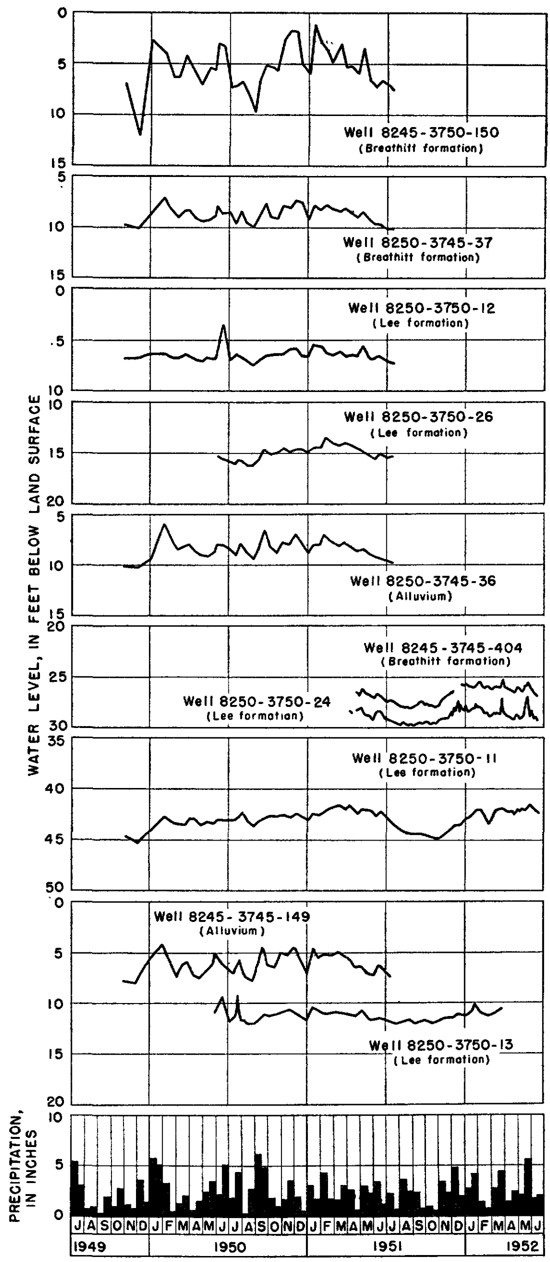

FIGURE 9.—Graphs showing water levels and precipitation in the Paintsville area, Kentucky.

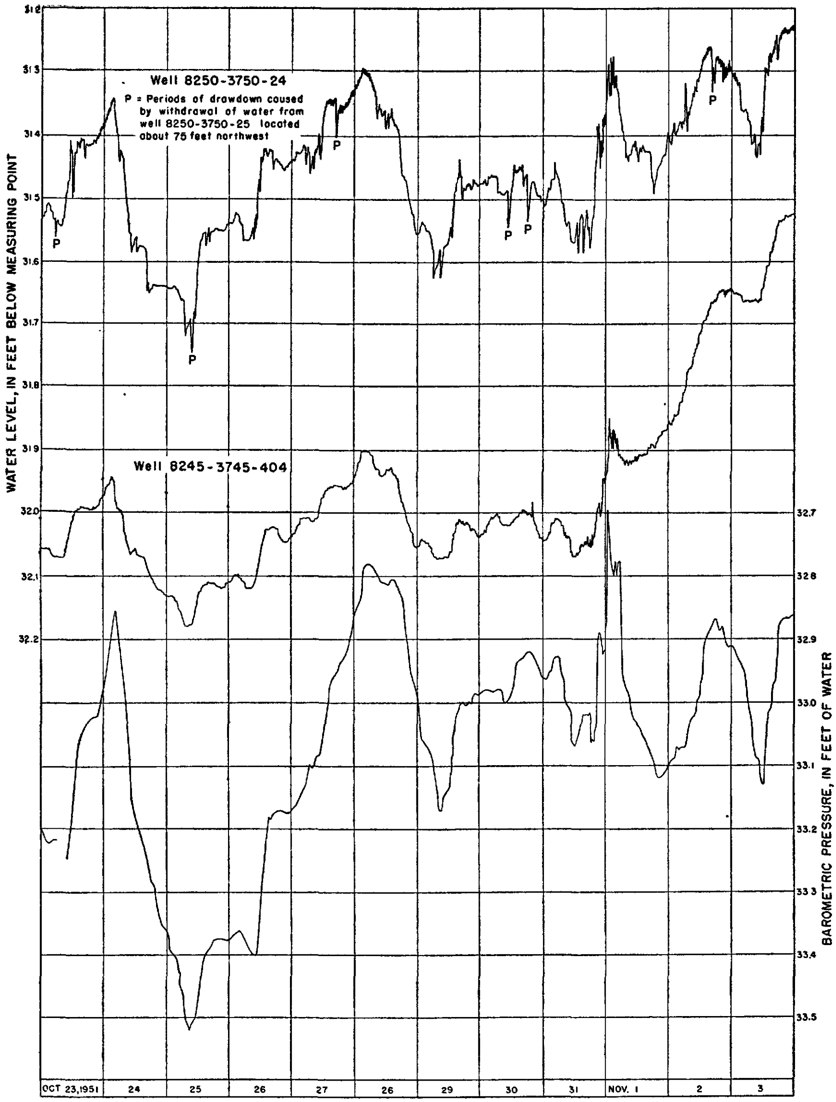

FIGURE 10.—Graphs showing effect of barometric pressure on water levels in wells in the Paintsville area Kentucky.

of the wells varied from time to time because the barometric changes were recorded between 4 and 5 miles away from the wells and local variations in atmospheric pressure occur in such distances. The general rise of water levels in wells 8245–3745–404 and 8250–3750–24 on November 2 and 3 (fig. 10) is due to the effect of recharge by local rainfall or by local flooding of the nearby stream.

Whenever a well is pumped, the water level in the well is lowered. Water levels in nearby wells in the same aquifer are lowered with a rapidity dependent upon the character of the aquifer. The hydrograph of well 8250–3750–24 shows the effect of pumping of well 8250–3750–25 located about 75 feet to the northwest.

Two of the observation wells in the Paintsville area showed abrupt fluctuations owing to earthquakes. The water levels in wells 8245–3745–404 and 8250–3750–24 fluctuated abruptly on July 21, 1952, at 6:50 a. m. in response to a destructive earthquake centering in southern California. The fluctuation in well 8245–3745–404 was 0.42 foot and in well 8250–3750–24, 0.02 foot. The fluctuations above and below the general trend of water levels were about equal in magnitude.

TRANSMISSIBILITY TESTS

In February 1952 "instantaneous slug" tests were run on well 8245–3745–404, drilled in the Breathitt formation, and well 8250–3750–24, drilled in the Lee formation, in an attempt to compute the coefficients of transmissibility of each formation. The "slug test" method (unpublished) of determining transmissibility was developed by Mr. J. G. Ferris, Regional Engineer of the United States Geological Survey. The coefficient of transmissibility indicates the number of gallons of water per day that will pass through a section of the aquifer 1 mile wide under a hydraulic gradient of 1 foot per mile. Known volumes of water were quickly poured into each well, causing the water levels to rise. Immediately thereafter, the water levels in the wells began to decline at decreasing rates towards the original water levels. The build-up, measured for several values of time, plotted against the reciprocal of time, both on arithmetic scales, resulted in curved-line graphs for both wells tested. In theory straight-line graphs should have resulted if the assumptions on which the formula for computing transmissibility are valid in this area. One of the assumptions on which the formula is based is that water is free to move through the water-bearing bed in all directions. However, cracks in the rocks of this area provide passageways through which water can move more easily in one direction than another, and the cracks are not uniform in width or extent. Another assumption on which the formula is based is that the flow of the slug of water out of the well into the formation is laminar. It is very probable that during the early stages of the tests turbulent flow resulted from the effect of the sudden injection of the slug of water into the wells. The departure of these two field conditions, among others, from conditions assumed to exist in deriving the formula limits the accuracy of the results in this area.

The test on well 8245–3745–404 indicates a minimum coefficient of transmissibility of approximately 3,300, and the test on well 8250–3750–24 indicates a minimum coefficient of transmissibility of approximately 1,100 gpd per ft.

RECORDS OF WELLS AND SPRINGS AND MEASURED SECTIONS

TABLE 3.—*Records of wells in the Paintsville area, Kentucky.*

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well[1]	Depth of well[2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation[3]	Water level: Below land surface[2] (feet)	Water level: Date of measurement	Method of lift	Use of water[4]	Remarks
8245-3745-1	Johns Creek	Mitchel DeLong.	Link Fyffe, Jr.	Dr	160	6		B	70	Aug. 10, 1949	Electric, jet	Dom	Water at 78 and 110 feet.[5]
2	do			Dug	18								
3	do	J. S. Richmond		Dug	18				2	Aug. 10, 1949	Bucket	Dom	Low in fall.[5]
4	do	do	John Lyons	Dr	103	6		B				A	"Sulfur water."[5]
5	do	Otis Richmond		Dug	35				25	Aug. 10, 1949	Bucket	Dom	Low in fall.[5]
6	Richmond Gap	Manuel Clay		Dug	23.0		Sandstone	B	8.0	do	do	Dom	
7	Van Lear	Herb Spradlin		Dr	84	6	Coal?	B	45	do	Bailer	Dom	Chemical analysis in table 2. Coal bed 3 feet thick at depth of 80 feet.[5]
8	Richmond Gap	John Crun		Dug	22		Sandstone?	B	19	Aug. 11, 1949	Bucket	Dom	Low in dry weather. Water enters well through fractures.[5]
9	do	do		Dug	32		do	B	12	do		A	
10	Fletcher Gap			Dr	1,751		Sandstone	B, L				A	Altitude 717 feet. Log available. Water at 25, 205, 280, and 532 feet.
11	Thealka			Dr	2,745		Quicksand at 20–40 feet.	Al					Gas well. Altitude 650 feet. Log in table 5. Gas in shale 135–150 feet. Water at 20–40 feet.
12	Richmond Gap	George Hughes		Dug	21		Sandstone? and coal.	B	16	Aug. 11, 1949	Bucket	Dom	Never dry, dug to base of coal bed. Water enters well through cracks in rock under coal.[5]
13	do	do		Dug	35		do	B			do	Dom	Goes dry in fall.[5]
14	do	Bill Hughes		Dug	39		do	B			do	Dom	Never dry.[5]
15	Van Lear	Oliver Jenkins	Link Fyffe	Dr	52	6		B	10	Aug. 11, 1949	Hand	Dom	
16	Johns Creek	Henry Auxier		Dug	30				16	Aug. 12, 1949	Bucket	Dom	Never dry.[5]
17	do	James Auxier		Dug	40				20	do	do	Dom	Do.[5]

18	Levisa Fork near Van Lear.	Martha Webb		Dug	28			B	18	do	do	Dom	Hole drilled 1½ feet deep in bottom of well.
19	Johns Creek	Piney Oil and Gas Co.	Holcomb and Hale.	Dr	3, 531		Shale and sandstone.	B, L					Gas test, "dry hole." Altitude 774 feet. Log available. Well plugged. Water at 209, 625, and 2,725 feet.
20	Levisa Fork near Van Lear.	Otto Preston		Dug	32		Shale?	B	16	Aug. 12, 1949	Bucket	Dom	Low every fall.[5]
21	do	Milo Preston		Dug	20	16		B	12	do	do	Dom	Never dry.[5]
22	do	Bert Preston		Dug	22		Clay?	Al	10	do		A	
23	do	do		Dug	22	18		B	15	do	Bucket	Dom	Never dry.[5]
24	Highway 40, Mealy	Curtis Hickman		Dr	44	6	Shale?	B	15	Aug. 15, 1949	Bailer	Dom	
25	do	Bruce Davis		Dug	38			B	32	do	Bucket	Dom	Low in fall.[5]
26	do	J. H. Short	Link Fyffe	Dr	60–70			B			Electric	Dom	
27	do	Cecil Sammons		Dug	20	18		B	18	Aug. 15, 1949	Bucket	Dom	Dry in fall.[5]
28	do	Troy Fitch, Sr.		Dug	31	24		B	15	do	do	Dom	Never dry.[5]
29	do	do	J. H. Fyffe	Dr	52	6		B			Electric	Dom	
30	Highway 40 at drive-in theater 0.2 mile east of Levisa Fork.	Bill Cain	do	Dr	145. 2	6	Shale and sandstone.	B, L	35. 0	Sept. 15, 1950	Electric, jet.	Dom, C	Cuttings available. Water salty. Log in table 5.
31	Highway 40, Mealy	Russell Sammons.		Dug	30				14	Aug. 15, 1949	Bucket	Dom	Never dry.[5]
32	do	Elizabeth Hall		Dug	40		Sandstone	B	37	do	do	Dom	Do.[5]
33	do	Paris Wells		Dr	[6] 150	6		B, L?	30. 5	Dec. 26, 1950		A	Chemical analysis in table 2. Water salty.[5]
34	do	do		Dug	20				12	Aug. 15, 1949	Bucket	Dom	Never dry.[5]
35	Highway 40 about 2 miles east of Paintsville.	C. H. Lewis		Dug	24		Sandstone	B	12	do	Electric	Dom	Dry in fall.[5]
36	do	do		Dr	89			B	44	do	do	Dom	"Black sulfur water."[5]
37	Highway 40 about 1½ miles east of Paintsville.	Bill Perkins		Dug	30							Dom	Dry in fall.
38	Highway 40 about ¾ mile east of Paintsville.	Mrs. Jim Pack		Dr	80			B			Electric, jet.	Dom	Chemical analysis in table 2. Supplies about 20 families. Pumpage estimated, 1,500 gpd in 1947.
39	do	Mrs. Dora Daniels.	Link Fyffe	Dr	55	6	Sandstone	B	17	Aug. 16, 1949	Electric	Dom	Supplies four families.
40	Highway 40 about 1 mile east of Paintsville.	Mrs. Belle Preston.	John Lyons	Dr	86+	(		B	30	do	Hand	Dom	"Sulfur water."[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3745-													
41	Highway 40 about ½ mile east of Paintsville.	Mrs. E. Hawes		Dug	30							Dom	Never dry.[5]
42	Davis Branch	J. M. Hall	Roscoe Davis and C. C. Price.	Dr	65	12	Sand and gravel.	Al	30	Aug. 16, 1949		A	"Sulfur water."[5]
43	do	Paintsville Country Club.		Dr	135	6	Sandstone	B			Electric, jet.	Dom	Chemical analysis in table 2. Supplies four families and club house.
44	do	Nelson Gullett		Dug	12							Dom	Dry in fall.[5]
45	do	Ward Auxier	J. H. Fyffe	Dr	90			B			Electric	Dom	
46	do	R. W. Price		Dug	22		Clay	Al	14	Aug. 16, 1949	Electric, cylinder.	Dom	Has been pumped dry.
47	do	Mrs. Curtis Barber.	do	Dr	48	6		B	18	do	Electric	Dom	"Sulfur water."[5]
48	do	do		Dug	30		Sandstone?	B	28	do		Dom	Dry in fall.[5]
49	do	Glennie Davis		Dug	25							Dom	Low in dry weather.[5]
50	do	Nancy Keaton		Dug	18		Gravel	Al				Dom	Do.[5]
51	do	Lewis Keaton		Dug	17		Sandstone	B	12	Aug. 16, 1949		Dom	Never dry.[5]
52	do	Henry Barber	Link Fyffe	Dr	90		Shale?	B	25	do		Dom	"Sulfur water."[5]
53	do	J. C. Robinson		Dug	41		Shale	B	29	do		Dom	Dry in winter.[5]
54	House No. 148, Van Lear.	Ben Gobel		Dr	60+	6		B				Dom	Supplies two families.
55	Highway 40 about 2 miles east of Paintsville.	Ottis Patrick	Link Fyffe	Dr	45	6		B	22	Aug. 16, 1949	Electric, jet.	Dom	Pumps dry when pumped overnight.
56	do	do	do	Dr	94			B	6	do	Hand	Dom	"Sulfur water."[5]
57	Thelma	Henry Franklin.		Dug	30		Shale?	B	22	do		Dom	Dry in fall.[5]
58	do	John Price		Dug	21		Sand	Al	15	do		Dom	Never dry.[5]
59	do	James M. Gamble.	Link Fyffe	Dr	85	6	Sandstone	B	20	do		Dom	Do.
60	do	Doris Preston		Dug	28		do	B	8	do		Dom	Do.[5]
61	do	do		Dr									Well not used. "Sulfur water."[5]
62	do	Mrs. Joe Boyd		Dug				B				Dom	Dry once in fall.[5]
63	do	Mrs. Lizzie Meade.		Dug	22				20	Aug. 16, 1949		Dom	Dry in fall.[5]

64	do	Dan Gamble		Dug									
65	do	do	J. H. Fyffe	Dr	115			B	50	Aug. 16, 1949	Electric	Dom	
66	do	J. M. Price		Dug	12				7	do	do	Dom	Never dry.[5]
67	do	Arnett Daniels	Link Fyffe, Jr.	Dr	180	6	Sandstone?	L?	20	do		Dom	
68	do	Mrs. Walter Holbrook.	Link Fyffe	Dr	50	6		B	13	do		Dom	Water high in iron.
69	do	James Fraley		Dug	15.0				[5]2	do		Dom	Never dry.[5] Water muddy after rain.
70	do	do		Dug	30				24	do		Dom	Low in fall.[5]
71	do	do		Dug	40				24	do		Dom, S	
72	do	do	Frank Wells	Dr	160	6					Hand	Dom	
73	Highway 40, Mealy	Charles Preston	Link Fyffe	Dr	88	6		B	12	Aug. 17, 1949	Electric	Dom	
74	do	do		Dug	22				12	do		Dom	Low in dry weather.
75	Dicy Branch	K. Patrick		Dug	17		Sand	Al	7	Aug. 18, 1949		Dom	Never dry.[5]
76	do	James Gillespie		Dug					5	do		Dom	
77	do	W. K. Arrowood.		Dug	17			B	13	do		Dom	Low in fall.[5]
78	do	do		Dug	30+			B	15	do		S	Never dry.[5]
79	do	Mrs. G. A. Picklesimer.	John Lyons	Dr	70	6		B			Electric	Dom	Gas in well.[5]
80	do	Cecil Meeks	J. H. Fyffe	Dr	45	6		B	42	Aug. 18, 1949	do	Dom	"Sulfur water." [5]
81	do	William McKenzie.		Dug					20	do		Dom	Never dry.[5]
82	do	Gober Music	J. H. Fyffe	Dr	47½	4		B	12	do	Hand	Dom	Do.[5]
83	do	Mrs. J. D. Short.		Dug	22							Dom	Never dry.
84	do	Edwin Phelps	Link Fyffe, Jr.	Dr	40	6		B			Hand	Dom	When pumped continuously, "sulfur stirs up." [5]
85	do	Bessie Duty		Dug	16			B				Dom	Low "at times." [5]
86	do	Lon Phelps		Dug	38			B	10	Aug. 18, 1949		Dom	Never dry.[5]
87	Webb Branch	Grover Fanning.		Dug					13	do		Dom	Do.[5]
88	do	David Powers		Dr	22							Dom	Gas in well.[5]
89	do	Proctor Wells		Dug	22				12	Aug. 18, 1949		Dom	
90	do	do		Dug	24		Sandstone	B	9	do		Dom	
91	do	G. W. Fannin		Dug	30				26	do		Dom	Supplies 3 families.
92	Rural Highway 1042, near Thealka.	E. P. Welch	Mev Hall	Dr	57.4	18	Sand	Al	44.56	Nov. 2, 1949	Bailer	Com	Chemical analysis in table 2. Observation well.
93	do	Albert Skauge	J. H. Fyffe	Dr	78.6	6	Coarse sand	Al	42.50	do	do	Dom	Do.
94	do	John Davis		Dug	21.8	18	Clay?	Al	16.27	do	Bucket	Dom	Never dry.[5] Observation well.
95	do	Ernest Neal		Dug	20		Shale?	B	10	Aug. 18, 1949	Electric	Dom, S	600 gpd pumps well dry.[5]
96	Highway 23 about 1 mile south of Paintsville.	J. R. Newsome		Dug	22		Sandstone	B	12	do		Dom	
97	do	Sally Rice		Dug	17		do	B	10	do		Dom	Never dry.[5] Hole drilled 5 feet deep in bottom of well.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3745-													
98	Highway 23, Hager Hill.	Mrs. J. M. Salyers.		Dug	24				17	Aug. 21, 1949		Dom	
99	do	do		Dr	112	6		B	47	do	Gasoline	S	
100	Burnt Cabin Branch, Hager Hill.	Wilson Preston.	C. McKenzie	Dr	53	6	Shale	B	23	do		Dom	
101	do	Irvin Music		Dug	27½			B	12	do		Dom	
102	do	Quentin Spradlin.	C. McKenzie and E. Conley.	Dr	80	6	Sandstone coal and shale.	B	2.8	June 22, 1950	Hand	Dom	Water level cannot be lowered much by pumping with hand pump.[5]
103	Highway 23, Hager Hill.	Joe Minton		Dr	29.5	6		B	[6] 16	Aug. 21, 1949		A	"Sulfur water." [5]
104	do	do		Dug	[6] 22				[6] 12	do		Dom	Dry in dry weather.[5]
105	Lick Fork, Hager Hill.	Virgil Johnson		Dug	38							A	Gas in well.[5]
106	do	do	J. H. Fyffe	Dr	98	6		B	60	Aug. 21, 1949		Dom	Gas in well. Coal bed 5 feet thick at 65 feet depth.[5]
107	Rural Highway 1049, Lick Fork.	Marcus Adams	C. L. McKenzie.	Dr	63	6		B	12	do		Dom	
108	do	Phonzo Adams		Dr	51½	6		B	33	do		Dom	
109	Rural Highway 1049, Collista.	Mrs. D. Conley.	Blevins and Fyffe.	Dr	64			B	30	do		Dom	"Sulfur water." [5]
110	Collista Post Office			Dug	22				10	do		Dom	Low in dry weather.[5]
111	Hencliff near Paintsville.	Fred Baldwin, No. 1.		Dr	2,606								Gas test. Altitude 720 feet. Log available.
112	Highway 23, Lick Fork.	W. M. Crider		Dr	96			B	20	Aug. 23, 1949		Dom	
113	do	R. E. Butcher	Fyffe	Dr	[6] 52	6		B					"Sulfur water."[5]
114	Lick Fork			Dug	28			B					
115	do	Homer Hale		Dug	32				17	Aug. 23, 1949		Dom	Never dry.[5]
116	do	Earl Preston		Dug	24		Shale?	B				Dom	"Sulfur water." [5]
117	do	Orville Oney	C. McKenzie	Dr				B			Electric, jet		
118	do	Adrian Davis	Link Fyffe	Dr	45?	6		B	10	Aug. 23, 1949		Dom	Gas in well.[5]
119	do	Lick Fork School.	J. H. Fyffe	Dr	36-38	6		B			Hand	P	Chemical analysis in table 2.
120	do	Farly Bentley		Dug	23		Sandstone?	B					Never dry.[5]

121	do	Luther Marshall.	C. McKenzie	Dr	62	6		B	42	Aug. 23, 1949		Dom	Coal bed at depth of 26 feet.[5]
122	Highway 23, Fletcher Gap.	Henry Gobel		Dug	35				15	Aug. 29, 1949	Electric	Dom	Low in fall.[5]
123	do	Ben Adams		Dug	22		Sand and gravel.	Al	16	do		Dom	Can be bailed dry.
124	do	Lucy Hyden		Dug	22				6	do	Electric	Dom	Low in fall.[5]
125	do	J. D. Music		Dug	25				8	do		Dom	Never dry.[5]
126	do	Otis Music		Dr	63	6		B			Electric	Dom	
127	Little Lick Fork	Dan Conley, Jr.		Dug	23		Gravel	Al				Dom	Low in dry weather.[5]
128	do	Hershel Pratt		Dug				Al	6	Aug. 29, 1949		Dom	Can be bailed dry.
129	do	Marie Coldin	J. H. Fyffe	Dr				B					"Sulfur water."[5]
130	do	Douglas Fairchild.	Link Fyffe	Dr	40	6		B				Dom	Do.[5]
131	do	Troy Conley	do	Dr	45	6		B					Do.[5]
132	do	Ida Sparks		Dug	23			B	15	Aug. 29, 1949		Dom	
133	do	Hayden Conley		Dug	28		Shale	B	12	do	Electric	Dom	Log available. Never dry.[5]
134	do	Robert Conley.		Dug	18		do	B	14	do		Dom	Low in dry weather.[5]
135	do	Harold Kestner.		Dug	28				6	do		Dom	Never dry.[5]
136	Frank Street, Paintsville.	Daniels Dairy	Link Fyffe	Dr	98	6	Sandstone	L	30	When drilled, 1947.		A	Well plugged with concrete. Water salty; well pumped dry in 4–6 hours with centrifugal pump of unknown horsepower.[5]
137	Tays Branch	Harry Davis		Dug	25				20	Aug. 30, 1949		Dom	Dry in fall.[5]
138	do	do		Dug	25				[6] 12	do		Dom	Never dry.[5]
139	do	do		Dug	30							Dom	
140	Highway 23, near junction of Highway 460.	Irving Arrowwood.	Link Fyffe	Dr	75	6	Sandstone?	L			Hand	Dom	Chemical analysis in table 2.
141	Tays Branch	Harry Davis		Dr	800–900?			L?	Flowing			S	Chemical analysis in table 2. Abandoned gas test.
142	Highway 460, near junction of Highway 23.	Marsha Adams	Link Fyffe	Dr	80+	6	Sandstone	L			Electric	Dom	
143	do	Johnny Blanton.	Crate Rice	Dr	90	6	do	L	12	When drilled	Electric, piston	Dom	Chemical analysis in table 2. Supplies four families.
144	Middle Fork, Collista.	Charlie Lemasters.	Link Fyffe	Dr	65	6		B	12	Aug. 30, 1949		Dom	Water salty.[5]
145	do	Onay Horne	Luther Wright and Emmet Kelly.	Dr	60	6		B	15	do		A	"Sulfur water."[5]
146	do	L. Conley		Dr	41	6		B				Dom, S	

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3745-													
147	Jenny Creek, Collista.	T. J. Welch		Dug	15							Dom	Dry in dry weather.[5]
148	Lick Fork, Collista.	Ellzie Rice		Dug	25			B	15	Aug. 30, 1949		Dom	Dry in fall.[5]
149	do	Russell Rice	Link Fyffe	Dr	50	6		B	15	do		Dom	Chemical analysis in table 2.
150	do	Raymond Conley.		Dug	25			B	15	do		Dom, S	Water enters through crack in rock.[5] Low in fall.
151	Collista	Reese Blair		Dug	27		Shale	B	20	Sept. 13, 1949	Bucket	Dom, S	Supplies two families.
152	Off Highway 40, about 0.3 mile east of Paintsville.	Maria L. Rice		Dr	59.5	6	Sand	Al	46.92	Nov. 4, 1949		Dom	Observation well Nov. 4, 1949 to Nov. 21, 1950.
153	Off Highway 40, about 0.25 mile east of Paintsville.	Raymond King	Frank Wells	Dr	96	6	Shale	B	41	When drilled	Electric	Dom	Chemical analysis in table 2 and partial log available.
154	Off Highway 40, about 0.2 mile east of Paintsville.	R. C. Lyons	C. C. Price	Dr	60		Sand?	Al			do	Dom	"Sulfur water."[5]
155	Highway 40, 0.1 mile east of Paintsville.	Lucy Hall	John Lyons	Dr	96	6	Shale?	B	52.49	Nov. 4, 1949	Bailer	Dom	Chemical analysis in table 2. Observation well.
156	Off Highway 40, about 0.1 mile east of Paintsville.	Russell Meade	do	Dr	96	6	Sand?	Al	66	do		A, 1935	Contaminated.[5]
157	Highway 40 east of Paintsville.	George Hall		Dug	20.7		Sandstone	B	5.85	do	Bucket	Dom	
158	Highways 23 and 460, near Hager Hill.	W. M. Ward	John May	Dr	80			B			Electric	Dom	
159	do	do		Dr	70			B			do	S	"Sulfur water."[5]
160	East bank of Levisa Fork, near West Van Lear.	Mrs. W. Webb		Dug	17.5		Unconsolidated	Al	11.0	Nov. 8, 1949	Bucket	Dom	Dug to top of bedrock. Never failed.
161	do	do		Dug	12.6		do	Al	9.2	do	Hand	Dom, S	Do.[5]
162	do	James A. Ward		Dr	96	6	Sandstone?	B	82.59	do	Bailer	Dom	Dry but probably obstructed by bailer lost in well.[5]
163	River Road, West Van Lear.	Oscar Stapleton.	J. H. Fyffe	Dr	70.2	6	Sand	Al	41.21	Nov. 9, 1949	do	Dom	Chemical analysis in table 2.

164	Clay Avenue, West Van Lear.	Marvin Ward	Link Fyffe	Dr	97	6	Sandstone and shale.	B	27	When drilled	Hand	A, Dom	Log available. Water salty.[5]
165	do	Earl Messer	J. H. Fyffe	Dr	98		"Coal and rock."	B				A	Partial log available. Casing sealed. "Sulfur water" and salty.[5]
166	West Van Lear	J. W. Messer	Pat Ramsey	Dr	101			B				A	
167	River Road, West Van Lear.	Mrs. Belcher	John Lyons	Dr	92.5	6		B	49.77	Nov. 9, 1949	Bailer	A	Water high in iron.
168	West Van Lear	Grant Hitchcock.	J. H. Fyffe	Dr	105	6	Coal?	B	48	When drilled	Electric	Dom	Partial log available. Water hard.[5]
169	do	Oliver Spradlin.	do	Dr	95	6		B	30	do	do	Dom	Supplies five families.
170	do	John Hall	Pat Ramsey	Dr	98.7			B	50.56	Nov. 9, 1949		A, Dom	Water hard, "sulfur water," salty?[5]
171	do	Bert Young		Dr	88.9	6		B	30.48	do		A	"Sulfur water," salty?[5]
172	do	Wes Nelson		Dr	65			B			Electric	Dom	"Sulfur water."[5]
173	do	Herschel Pack		Dr	69.5	6		B	20.97	Nov. 9, 1949		A, Dom	Supplied several families.
174	do	Sofie Smith		Dr	27.7	6		B	9.3	do	Bailer	Dom	"Sulfur water."[5] Water turns red when heated.
175	do	O. Salyers		Dug	15.5				5.0	do	Bucket	Dom, S	Not dry for past 5 years.[5]
176	do	Flora Pelphry		Dug	14.5	18	Sand	Al	12.32	Nov. 14, 1949	do	Dom	Well goes dry in fall.[5]
177	do	J. Pack	J. H. Fyffe	Dr	43.2	6		B	12.7	do	Bailer	Dom	
178	do	Malcolm Honeycutt.		Dug	23.0				15.8	do	Bucket	Dom	
179	Kentucky Highway 302 at West Van Lear.			Dug	27.0				7.2	do		A	Dug to supply water for construction work.
180	West Van Lear	Elmer Jones		Dug	23.4			B	11.28	do	Bucket	Dom	Formerly supplied several families.
181	do	C. G. Price		Dug	24.3		Unconsolidated?	Al	8.0	do		A	
182	Highway 23 and 460, West Van Lear.	J. J. Auxier		Dug	13.4		Unconsolidated.	Al	6.02	do		Dom	
183	do	do		Dr	69	6		B			Electric	Dom	Chemical analysis in table 2.
184	Highway 23 and 460 at south end railroad yards.	Chesapeake and Ohio Railway Co.		Dug	22.2		Unconsolidated.	Al	4.3	Nov. 15, 1949	Bucket	Dom	Used to be only well in vicinity. Supplied as many as 25 families.
185	Pine Street, Paintsville.	Wannie Sparks		Dr	78.2	6		B	17.25	do		A	
186	House 205, Thealka	Howes Land Co.	John Lyons	Dr			Shale?	B			Lift	Dom	Chemical analysis in table 2.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3745-187	Highway 302, Van Lear.	Kentucky Water Co.		Dr	[6] 111	6	Sandstone	B	23.91	Feb. 22, 1950		A, Mu	Yield 100 gpm.[5] Formerly used for municipal supply.
188	Highway 302 near railroad bridge, Van Lear.	do		Dr	[6] 78	6		B	18.8	do		A, Mu	Chemical analysis in table 2. Yields 18 to 20 gpm.[5]
189	Near railroad bridge, Thelma.	Ernest Daniel	J. H. Fyffe	Dr	75	6	Sandstone	B			Electric	Dom	Chemical analysis in table 2.
190	East end railroad bridge, Thelma.	Martin Sammons.	do	Dr	[6] 96	6	"Blue slate"	B	47.0	Mar. 1, 1950	Bailer	Dom	"Sulfur water," unfit for laundry.[5]
191	Highway 302 near pumping plant, Van Lear.	Kentucky Water Co.		Dr	[6] 128	8		B	[6] 50	July 8, 1947		A, Mu	Yields 25 gpm.[5] Formerly used for municipal supply.
192	Lick Fork	Elbert Davis	J. H. Fyffe and Link Fyffe.	Dr	[6] 60	6	Dark shale	B			Electric, jet	S	Originally drilled 47 feet by J. H. Fyffe. Drilled from 47 to 60 feet by Link Fyffe. Estimated 1,600 gpd. pumped.
193	do	do	Link Fyffe	Dr	[6] 60	6	Sandy shale	B			do	In, Co	Estimated 500 gpd. pumped.
194	do	do	J. H. Fyffe and Link Fyffe.	Dr	70.0	6	Coal and sandy shale.	B	32.92	Apr. 4, 1950	do	Dom	Originally drilled to 67 feet by J. H. Fyffe. Drilled from 67 to 70 feet by Link Fyffe. Water high in iron.
195	do	do	J. H. Fyffe	Dr	[6] 60	6		B				Dom	
196	Jenny Creek	T. J. Welch		Dug	[6] 18		Sand	Al	6.1	June 7, 1950	Bucket	Dom	Dry in dry season.[5]
197	do	George Conley		Dug	20.0			B	7.3	do	do	Dom	Water enters well through crack in rock; dry every fall.[5]
198	Jenny Creek, near Collista.	Mace Cantrill		Dug	26½		Sand	Al	4.6	do		Dom,	Never dry.[5]
199	Lick Fork, near Collista.	Wallace Blair	Charlie McKenzie.	Dr	67½	6	Sandstone	B	13½	1948		Dom	
200	do	Heber Rice		Dug	26½		Sand and clay	Al	11	June 7, 1950		Dom	Never dry.[5]

201	do	Dorman Spears		Dug	30.0				7.0	do		Dom	Supplies two families.
202	do	Hershel McCloud.		Dr	68	6		B	12.1	do		Dom	
203	do	Edna Burke		Dug	29		Sand and gravel.	Al	7.1	do		Dom	Never dry.[5]
204	Jenny Creek, near Collista.	Harry Thomas	Link Fyffe	Dr	85.0	6	Sandy shale	B	13.2	Apr. 7, 1950		Dom	Cuttings available. Water has slight salty taste. Log in table 5.
205	Highway 23, near East Point.			Dr	61.0	6		Al	8.3	June 14, 1950			Gas seen bubbling in well. Gas well nearby.
206	do			Dug	[6] 26½				[5] 12	do			
207	do	McKinely Webb.		Dug	[6] 11½				[5] 1	do		Dom	Never dry.[5]
208	do	James S. Auxier		Dug	45			Al	5	do		Dom	Never dry.[5] Supplies two families.
209	do	do		Dug	16							S	
210	do	Clyde Music		Dr	55.0			B	6½	June 14, 1950	Hand	Dom	Sulfur taste.[5]
211	Highway 23 at Fletcher Gap.			Dr				B			do		
212	Highway 23, near Hager Hill.	Everett Music		Dug	35				[6] 9½	June 14, 1950		Dom	Low in dry season.[5]
213	do	Mathew Whitaker.		Dug	13.5			Al	5.8	do	Electric, jet	Dom	Well dug to top of bedrock.[5]
214	do	Laura B. Music		Dug	20						Hand	Dom	Well sealed.
215	do	Ova Jones	J. H. Fyffe	Dr	65	6		B	2.0	June 14, 1950		Dom	Sulfur taste.[5]
216	do	Worth Conley		Dug	23			Al				Dom	Dry from Nov. thru Jan. 1930.[5]
217	do	J. D. Caudill	Charlie McKenzie.	Dr	45	6		B	7	Mar. 1950	Electric, jet	Dom	
218	do	Alvin Johnson		Dug	[6] 18½				7.0	June 16, 1950		Dom	Dry in dry seasons.[5]
219	do	Glen Wells		Dr	100	6		B	9.1	do	Hand	Dom	
220	do	do		Dug	20.0				6.5	do		S	Low in dry weather.[5]
221	do	James Woods	Charlie McKenzie.	Dr	46	6	Sandstone	B	10	When drilled, 1946.	Electric, jet	Dom	
222	do	Virgil Johnson		Dr	54	6		B				A, Dom	Well filled. Water red color.[5] Unfit for use.
223	Highway 23, Hager Hill.	Harry Hammond.		Dug	18.5			B	6.6	June 16, 1950	Hand	Dom, S	Not dry past 6 years.[5] Hole drilled in rock in bottom of well, water enters through hole.
224	do	Kermit Baldridge.	Link Fyffe, Jr.	Dr	190	6	White sandstone.	B			Electric, jet	Dom	
225	do	do	Link Fyffe	Dr	37.5	8		B	10.7	June 16, 1950		A, Dom	Clear when drawn, turns red upon standing, unfit for use.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3745-226	Lick Fork	Luther Fitzpatrick.		Dug	22.0			Al	4.3	June 22, 1950		Dom	Nearly dry late summer of 1949.[5]
227	do	Dorleen Blair		Dug	28.5				8.5	do		Dom	Low in summer of 1949.[5]
228	do	Onda Akers		Dug	[6] 23				8.5	do		Dom	Dry in dry summers.[5]
229	do	Ed Blair		Dug	[6] 11				2.5	do		Dom	
230	do	do		Dug	[6] 6			Al	[6] 1	do		Dom	Used mostly to cool milk.
231	do	Dan Cantrill		Dug	20			Al	[6] 2	do		Dom, S	Not dry since dug in 1938.[5]
232	do	Willie Davis		Dug	24.0				3.5	do		Dom	Never dry; water has greasy appearance, stains buckets and clothing red, sulfur odor in summer, unfit for use during summer.[5]
233	do	Oscar Brafford	Link Fyffe	Dr	50	6	Shale	B	9.3	do		Dom	Stains clothing yellow.[5]
234	do	do		Dug	[6] 18			B	6.6	do		Dom	
235	do	Mance Cantrill		Dug	[6] 15		Coal and shale	B				Dom	Dug to top of Van Lear coal. Dry in late summer every year.[5]
236	do	Dewey Beverly.		Dr		6		B	8.1	June 22, 1950		Dom	Well plugged at water level.
237	Off Lick Fork	Everett Conley.		Dug	18		Sandstone	B	3.1	do		Dom	Never dry.[5] Dug to top of bedrock. Water enters from crack in sandstone.
238	do	do		Dug	18		Sand and gravel.	Al	3	do		Dom	
239	do	Malcolm Kestner.		Dug	16.5			Al	3.3	do		Dom	Dry nearly every fall.[5]
240	do	do	Link Fyffe	Dr	40	6		B	3.5	do		S	Clear when drawn, oily skim appears after setting.

241	do	Everett Kestner.		Dug	12			B				Dom	Supplies 3 families in dry weather.[5]
242	do	Ashland Stapleton.		Dug	[6] 16				[6] 6	June 22, 1950	Hand	Dom	Low in fall of 1949.[5]
243	do	Jesse Stapleton		Dng	20.8				2.7	do		Dom	Never dry.[5]
244	do	Homer Stapleton		Dug	1.8			Al				Dom	Well dug in bed of small branch stream.
245	do	George Page		Dug	19.5		Sandstone	B	7.9	June 22, 1950		Dom	Dug to top of rock.[5]
246	Burnt Cabin Branch.	Venus Patrick		Dug	20			Al	7.0	do		Dom	
247	Off Highway 23, near Hager Hill.	William Ward Farm, well No. 1.		Dr	1,880								Gas test. Altitude 681 feet. Log available. Water at 40 feet.[5]
248	Burnt Cabin Branch.	Harry Preston		Dug	20		Sandstone	B	2.6	June 22, 1950		Dom	Never dry; water enters through crack in sandstone.[5]
249	do	Morse Arms		Dug	38		Shale	B	11.2	do		Dom	Never dry.[5] Supplies 2 families.
250	do	Arch Bayes		Dug	36		Sand	Al	3.3	do		Dom	Low in dry years.[5] Supplies 2 families.
251	do	Leslie Blevins		Dug	28			Al	7.1	do		Dom	
252	do	do		Dug				Al	3.8	do		S	Never dry.[5]
253	do	William Stambaugh.		Dug	11.2				2.3	June 23, 1950		Dom	Supplies 2 families.
254	do	Son Fairchild		Dug	16			B	5.6	do		Dom	Dry in summer 1949; water enters from 2 cracks in rock.[5]
255	do	Henry Cantrill		Dug	[6] 18½		Shale	B	4.6	do		Dom	Never dry.[5]
256	do	Virgil Blair		Dug	[6] 15		Sand and clay	Al	1.5	do		Dom	
257	do	William E. Blair.		Dug	18		Sand and gravel.	Al	4.7	do		Dom	Low every summer. Dug to top of shale bedrock, Breathitt formation, water also enters from crack in shale.[5]
258	do	Estill Blair		Dug				Al				Dom	
259	Jenny Creek	G. W. Hackworth.		Dug	20		Clay	Al	4	June 23, 1950		Dom	Never dry.[5]
260	do	W. W. Hackworth.		Dug	[6] 16½							A, Dom	Dry in dry season.[5]
261	do	Marion Stapleton.		Dug	[6] 16½		Sand	Al	[6] 7	June 23, 1950		Dom	
262	do	James Nunley		Dug	[6] 25				11.1	do		Dom	
263	do			Dug	[6] 23½				8.1	do			
264	do			Dug	22.7				5.4	do			
265	do	J. L. Fitzpatrick.		Dug	[6] 18		Sand and gravel.	Al	2.8	do		Dom	Never dry.[5] Supplies 2 families.
266	do	Jack McCarty		Dug	12.7				4.2	do		Dom	Cannot be bailed dry.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245–3745–													
267	Jenny Creek			Dug	[6] 12			Al	.7	June 23, 1950		A	
268	Thealka	Howes Land Co.	John Lyons	Dr							Hand	A, Dom	
269	House 54, Thealka	do	do	Dr			Shale	B			do	Dom	
270	House 59, Thealka	do	do	Dr			do	B	20	When drilled about 1908–15.	do	Dom	
271	House 66, Thealka	do	do	Dr			do	B	20	do	do	Dom	
272	House 12, Thealka	do	do	Dr			do	B			do	Dom	
273	House 83, Thealka	do	do	Dr			do	B			do	Dom	
274	House 21, Thealka	do	do	Dr			do	B			do	Dom	
275	House 25, Thealka	do	do	Dr			do	B			do	Dom	
276	House 94, Thealka	do	do	Dr			do	B			do	Dom	
277	House 37, Thealka	do	do	Dr			do	B			do	Dom	
278	Lot No. 412, Thealka.	do	do	Dr			do	B			do	S	
279	House 34, Thealka	do	do	Dr			do	B			do	A, Dom	
280	House 213, Thealka	do	do	Dr			do	B			do	Dom	
281	House 222, Thealka	do	do	Dr			do	B			do	Dom	
282	House 233, Thealka	do	do	Dr			do	B			do	Dom	
283	House 237, Thealka	do	do	Dr			do	B			do	Dom	
284	House 240, Thealka	do		Dug							do	Dom	
285	Rural road near Thealka.	Howard Kazee	Schmidt and Wells.	Dr				B	15	July 6, 1950	Electric, jet.	Dom	
286	Hencliff, near Paintsville.	Irvin Rice	J. H. Fyffe	Dr	57	6		B	27	July 12, 1950	do	Dom	
287	do	do		Dug	13			Al	5	do		Dom	Not used much. Had electric pump.
288	do	do		Dug	27				12	do		Dom	Goes dry when used in dry season.[5]
289	Highway 23, Hager Hill.	Roy Spears		Dr	40+			B			Electric	Dom	Chemical analysis by the Duro Co., Dayton, Ohio, available.
290	do	do		Dug	14			B			Hand	Dom	Low in dry seasons.[5]
291	do	James T. Auxier.		Dug	26			B	10	June 27, 1950		Dom	Never dry.[5]
292	do	Mrs. R. Spears		Dug	24	12	Sand	Al	[6] 6	do		Dom	Low in dry seasons.[5]

293	Off Highway 23, Hager Hill.	George Honeycutt.		Dug	30			B	4.7	do		Dom	Dry every fall; hole drilled in bedrock in bottom of well.[5]
294	do	Fred Hager		Dug	18.6				3.0	do		A, Dom	Never dry.[5]
295	Highway 23, Hager Hill.	Cecil Lovely	Charlie McKenzie.	Dr	58	6	Sandstone	B	14	When drilled, 1948.	Electric, jet.	Dom	Turns red, unfit for laundry. Supplies 2 families.
296	do	Schoolhouse		Dr		6		B			Hand	P	
297	do	Bob Johnson		Dug	23				9.3	June 17, 1950	do	Dom	Never dry.[5]
298	do	Mrs. D. F. Thompson.		Dr				B			Electric	Dom	Supplies 3 homes.
299	do	do		Dug							do	Dom	Dry every fall.[5]
300	Near Paintsville	Mollie Gullett		Dug	15			Al	8	June 28, 1950		Dom	Never dry.[5] Dug to top of shale, Breathitt formation.
301	do	Willie B. Gullett.	Link Fyffe	Dr	105.0	6	Shale and shaly sandstone.	B	39½	June 29, 1950		Dom	
302	Highway 23, Hager Hill.	Johnny Whittaker.		Dug	17.0			Al	4.0	July 6, 1950		Dom	Never dry.[5]
303	do	J. S. Hampton		Dug	[6] 13½		Clay	Al	3.3	do		A, Dom	Do.[5]
304	do	Gladys Wilson		Dug	[6] 11½				3.5	do		A	Not used past 2 years.[5]
305	do	Mrs. G. Boyd		Dug	19.0				6.4	do		A	Formerly had electric pump on well. Low in summer.[5]
306	do	Albert Adams		Dug	9		Sand	Al				S	Low in dry years.[5]
307	do	Roscoe Lemaster.		Dug	14		do	Al				A, Dom	
308	do	Sarah Belle Davis.		Dug	20	10	Clay	Al	7.6	July 6, 1950		Dom	Not used much. Low in dry weather.[5]
309	do	do		Dug	[6] 28	36	Sandstone	B	5.2	do		S	Not used much. Can be bailed dry in dry season.[5]
310	do	Charles W. Nelson.		Dr	70	6		B	30	do		A, Dom	
311	Highway 23, Hager Hill Post Office.	Alex Dotson		Dug	22			Al	9.9	do		A	Too low for use in dry years.[5]
312	Highway 23, Hager Hill.	Virgil Salyers		Dug	23.5	36			12.3	do		A	Never dry.[5]
313	do	Morton Griffith.		Dug	22		Clay	Al	8.1	do		Dom	Do.[5]
314	do	C. W. Burke		Dr	74			B			Hand	A	
315	Hager Hill	F. H. Daniel		Dug	16.0		Sand	Al	3.8	July 6, 1950		Dom	Low in summer.[5]
316	do	Estill Daniel		Dug	21		do	Al	4.4	do		Dom	Do.[5]
317	do	F. H. Daniel	Charlie McKenzie.	Dr	80	6	Sandstone	B	10	July 1949	Electric, jet.	Dom	Water stains yellow.
318	do	Marvin Akers		Dug	37	30		Al	12.8	July 6, 1950		D, S	Dug to top of bedrock.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well[1]	Depth of well[2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation[3]	Water level: Below land surface[2] (feet)	Water level: Date of measurement	Method of lift	Use of water[4]	Remarks
8245-3745-319	Hencliff, near Paintsville.	Kentucky-West Virginia Gas Co.		Dr				B			Hand	Dom	
320	Highway 23, near Hager Hill.	Howard May		Dug	24.0		Sandstone	B	21.5	July 7, 1950		Dom	Dry in summer of 1949.[5] Supplies 2 families.
321	do	Russell Borders.		Dr	38	6	do	B	25.0	do		Dom	Dry in summer of 1949. Water stains yellow.
322	Blackberry Branch, near Paintsville.	Gus Hayes		Dr	280	8	do	L	[6]1+	July 11, 1950	Electric, jet.	Dom	Chemical analysis in table 2. Hand pump also on well. Pumped dry in 15 minutes by 15 horsepower F-M centrifugal pump.[5]
323	do			Dug	20		Shale	B				Dom	Water enters through crack in shale.[5]
324	do	Dave Downs	J. H. Fyffe	Dr	50+	6	do	B				Dom	Water stains red, unfit for laundry.
325	do	Dennis Hughes	do	Dr	50	6		B	29	July 11, 1950		Dom	Yields 10.9 gpm.[5]
326	do	Oscar Reed	Frank Wells	Dr	49	6	Shale and coal	B	28	do		Dom	About 12 families use well.[5]
327	Hencliff, near Paintsville.	Mrs. M. Gullett.		Dug	40		Coal	B	7	do	Hand	Dom	Low in dry season of year.[5]
328	do	Paul Gullett	Link Fyffe	Dr	72	6		B			Electric, jet.	Dom	Water high in iron.[5]
329	do	Sam Conley, Jr.		Dug	12		Coal	B	4½	July 11, 1950		Dom	
330	do	William R. Pelphry.		Dug	20			B	7.0	July 12, 1950		Dom	Never dry.[5]
331	do	Whetsel Compton.		Dug	15.0				7.0	do	Electric, piston.	Dom	Supplies 2 homes. Low in dry summer.[5]
332	do	Ralph B. Williams.	Link Fyffe	Dr	30	6		B	1⅘	do	Hand	S	Chemical analysis by chemical company available. Water overflows through pipe 22 inches below surface.

333	do	Matt Sublett		Dug	27			Al	10	do	Electric, jet.	Dom	Low in dry weather.[5] Dug to top of bedrock.
334	do	Everett Rice		Dug	20			Al	8	do		Dom	Low in dry season.[5] Dug to top of bedrock.
335	do	Russell Bradley.	J. H. Fyffe	Dr	40	6	Shale	B	10	do	Hand	Dom	
336	do	Clarence Endicott.	do	Dr	37	6	do	B			do	Dom	
337	do	Buster Baldwin.	do	Dr	37	6	do	B	10	July 12, 1950	do	Dom	
338	do	Fred Baldwin		Dug	27½		do	B	10	do		Dom	Dug to top of shale, hole drilled 2 feet in shale, water entered well through hole under pressure.[5]
339	do			Dug	20			Al	2	July 13, 1950		Dom	Low in dry fall.[5]
340	do	C. L. Lester		Dug	30			Al	3½	do		Dom	Never dry.[5]
341	do	Tom Trimble		Dug					5½	do		Dom	Do.[5]
342	do	Leander Blair		Dug	25		Shale	B	9	do		Dom	Low in dry years.[5]
343	do	Katherine Mason.		Dug	25		do	B	8	do		Dom	Low in fall of year.[5]
344	do	George McFaddin.		Dug					12	do		Dom	Low in dry years.[5]
345	do	Manuel Borders.		Dug	25			Al				Dom	
346	do	Hazel Burton		Dug					5½	July 13, 1950	Electric	A, Dom	Never dry.[5]
347	do	Flora Montgomery.		Dug	18			Al	2½	do		Dom	Do.[5]
348	do			Dug					16	do			
349	do	Mollie Gullett		Dug	30			B	13	do		Dom	Never low.[5]
350	do	Lester Blanton		Dug			Shale	B	8	do		Dom	Dry in dry years.[5] Not dry past 3 years.
351	do	Elmer Webb		Dug					7	do		Dom	Dry July 11, 1950.[5]
352	do	Everett Arms	Pat Ramsey	Dr	132	6	Sandstone	L	50	do		A, Dom	
353	do	Elmer Slone		Dug							Hand	Dom	
354	do	Tom Hazelett		Dr	80	6		B			do	Dom, S	Not sufficient supply for installation of electric pump.[5] Water stains yellow.
355	do	Lick Baldwin		Dug	22.0				16.0	July 14, 1950		Dom	Dry nearly every summer.[5]
356	do	Arthur Pelphry		Dr	[6] 42	6		B	[6] 7½	do		Dom	
357	do	Mildred Franklin.		Dr					15	do	Hand	Dom	
358	Highway 23, Turner Branch.	Link Fyffe		Dr	55	6		L			Electric	Dom	Chemical analysis in table 2.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed		Water level		Method of lift	Use of water [4]	Remarks
							Character of material	Geologic formation	Below land surface [2] (feet)	Date of measurement			
8245-3745-359	Davis Branch	L. H. Tune	Link Fyffe, Jr.	Dr	85	6	Shale?	B	18?	When drilled, 1948.	Electric, jet.	Dom	Chemical analysis in table 2. Bailed dry in 10 minutes when drilled, recovered in about 10 minutes.
360	Preston St., Paintsville.			Dr			Sandstone?	L?	[6] 1+	July 20, 1950		A	Chemical analysis in table 2. Gas test; flowing 60 years.[5] Water salty. Formerly used to supply water for swimming pool.[5]
361	Thelma	Harry Holbrook.		Dug	22			Al	11	July 21, 1950	Hand	Dom	Never dry.[5]
362	do	W. L. Preston		Dug	9			Al	3	do		Dom	Do.[5]
363	do	W. M. Travis	Proctor Fyffe	Dr	175	6	"Gray stone"	L	15	do		Dom	Water has "soda taste." Water overflowed when well drilled but stopped flowing when another well was drilled nearby.[5]
364	do	Edward Travis		Dug	31			Al	23	do	Electric	Dom	Never dry.[5]
365	do	Albert Boyd		Dug	[6] 19				[6] 11	do		Dom	Do.[5]
366	do	Earl Boyd		Dug	[6] 14		Sand	Al	4.0	do		Dom	Dry every summer.[5]
367	do	F. M. Baldridge.		Dug	[6] 25				6.3	do		Dom	Supplies 2 families.
368	do	Mason Blanton		Dug	26.5				11.0	do		Dom	Low each fall.[5]
369	do	Perry Childers.	Link Fyffe	Dr	76			B			Hand	Dom	Could not be bailed dry when drilled.[5] Water stains yellow.
370	do	do		Dug	[6] 22	12			1.5	July 21, 1950		A, Dom	Dry in dry fall.[5]
371	do	Estell Franklin.	Link Fyffe	Dr	45	6	Blue shale	B	30	do		Dom	Sometimes turns "milky" when river high.[5]

372	Off Highway 23 and 460, near Paintsville.	James Ratliff		Dug	24.1				11.3	July 23, 1950		Dom	Never dry.[5]
373	do	Bill Nichols		Dug	11.5				5.1	do		Dom	Do.[5]
374	do	Press Ratliff		Dug	22.8				10.7	do		Dom	Do.[5]
375	do	E. W. Hall		Dug	[6] 24½			Al	9.1	do		A, Dom	Dry every summer.[5]
376	do	do	J. H. Fyffe	Dr	39.0	6		B	7.4	do		A	Water stains laundry.
377	do	Trig Mcken-zie.		Dr	90	6		L				A	Well plugged about 4 feet below top of casing. Water salty.[5]
378	do	Warren Riley		Dug	22.8			B	17.1	July 23, 1950			
379	do	R. Hammond		Dug	20.8				4.9	do		Dom	
380	do	Leander Ratliff.		Dug	24.5				6.9	do		Dom	Low and muddy during summer, 1949.[5]
381	do	Mrs. R. Minty		Dug	17.5		Yellow clay	Al	8.6	do		Dom	Dry 2 or 3 times during last 35 years.[5]
382	do	do	Charlie McKenzie.	Dr	75	6	Shale?	L	20.0	do		Dom	Water and "soft streak" at 74 feet.[5]
383	do	S. F. Collins		Dug	21.7				6.6	do		Dom	Never dry.[5]
384	do	Bradley Meade		Dr	105	6	Sandstone?	L	15.9	do		Dom, S	
385	do	Kennis Fairchild.		Dr		6	do	L	18.8	do		Dom	Supplies 2 families.
386	Highway 23, Turner Branch.	Link Fyffe	Link Fyffe	Dr	90	6	Shale?	L	12	do	Hand	S	
387	do	Charles Cantrill.	do	Dr							Electric	Dom	Sulfur taste.[5]
388	do	Ruth Compton.	J. H. Fyffe	Dr	95+	6		B	13	July 23, 1950	Electric, jet.	Dom	Sulfur taste and odor.[5] Water stains yellow.
389	do	do		Dug	25.2				7.3	do		A, Dom	
390	do	Garland Ealey		Dug	35.9		Sand	Al	8.7	July 25, 1950		Dom	
391	do	W. T. Scott	J. H. Fyffe	Dr	50+	6		B			Electric, jet.	Dom	
392	Davis Branch	Kentucky-West Virginia Gas Co.		Dr	2,850								Gas test. Log available. Altitude 771 feet. Water at 600 feet (filled hole).[5]
393	Millers Creek	do		Dr	2,737								Gas test. Log available. Altitude 631 feet.
394	Highway 23, Fletcher Gap.		Morris Bailey	Dr	2,740								Gas test. Log in table 5. Altitude 635 feet.
395	Millers Creek	Kentucky-West Virginia Gas Co.		Dr	2,866								Gas test. Log available. Altitude 772 feet. Water at 165 feet from sandstone.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed		Water level		Method of lift	Use of water [4]	Remarks
							Character of material	Geologic formation [3]	Below land surface [2] (feet)	Date of measurement			
8245-3745-396	Johns Creek	Kentucky-West Virginia Gas Co.		Dr	2,830								Gas test. Log available. Altitude 643 feet. Water at 48 feet (filled hole), 109 feet, and 150 feet (filled hole).[5]
397	do	do		Dr	2,827								Gas test. Log in table 5. Altitude 645 feet. Water at 62 feet, 495 feet (1 barrel per hour), 580 feet (filled hole), and 675 feet.[5]
398	do	do		Dr	2,959								Gas test. Log available. Altitude 651 feet. Water at 50 feet (filled hole), 142 feet, 540 feet, and 600 feet (filled hole).[5]
399	Near West Van Lear, Millers Creek.	Clyde Preston		Dug	36		Sand	Al	31	Dec. 21, 1950		Dom	Chemical analysis in table 2.
400	Highway 40, near Paintsville.	William McCarty.	Link Fyffe	Dr	106	6	Shale	B	41½	Dec. 26, 1950	Electric, jet.	Dom	Chemical analysis in table 2. Water salty.
401	Highway 40, near Mealey.	John Richmond		Dr	65	6		B	23.4	do		Dom	Water stains red.
402	Chesapeake & Ohio Ry. yards, Paintsville.	Chesapeake & Ohio Ry. Co.	G. T. Williams.	Dr	198	12	Sandstone	L	46			A, In	Chemical analysis furnished by Chesapeake & Ohio Ry. Co. Log in table 5.
403	Site of new filter plant, Paintsville.			Dr	60								Core drill record. Log in table 5.
404	Van Lear, near clubhouse.	Kentucky Water Co.		Dr	115±	6		B	30.32	Apr. 19, 1951		A, Mu	Observation well. Formerly used for municipal supply.

405	Site of swimming pool, Paintsville.			Bored	52		Blue clay and sand.	Al	2				Auger hole record Log in table 5. High water at 25 feet.
406	Davis Branch near Paintsville Country Club.	Simon Daniels (operator).	Simon Daniels.	Dr	1,825	8⅝–6⅝	Coal and sandstone.	B, L	60	Sept. 5, 1950			Gas test. Altitude 670.15 feet. Log available. Water at 32 feet (filled hole), 520 feet (water salty.)[5] Chemical analysis of lower water in table 2.
8245-3750-1	Road Fork, near Tutor Key.	Ida Crider		Dug	15.5		Sandstone?	B	11.4	Sept. 22, 1949	•	Dom	Never dry.[5]
2	do	Sanford Cantrill.		Dug	28.7			B	24.9	do		Dom	Supplies 2 families. Not enough water for laundry.
3	do	Don Castle		Dug	21.1		Sandstone?	B	18.0	do	Hand	Dom	Low in dry weather.[5]
4	do	Guy Van Hoose		Dug	18.7				10.7	do		A, Dom	Never dry but low in dry season.[5]
5	do	W. Van Hoose		Dug	25.4		Sandstone	B	19.7	do		Dom	Dug 6 feet in bedrock.[5] Water enters from hole drilled in bottom. Supplies 2 families.
6	do	Northeast Coal Co.		Dug	17.1			B	9.1	do		Dom	
7	do	Mrs. D. Castle		Dug	25.3			B	11.6	do		Dom	Never dry.[5] Water enters from hole drilled in bottom.
8	Whipporwill Branch	Paris Meade		Dug	11½		Shale?	B	11	do		Dom	Dry every summer.[5]
9	do	do		Dug	8		Sand	Al	3	do		S	Stains red.[5]
10	do	Troy Castle	Link Fyffe, Jr.	Dr	56.0	6		B	19.6	do		Dom	
11	do	Thurman Adams.		Dug	16.7		Sandstone	B	7.7	do		Dom	Low in dry weather.[5] Water enters from crack in sandstone under shale.
12	do	Ray Picklesimer		Dug	26.2			Al	9.7	do		Dom, S	Never dry.[5] Water enters through bottom.
13	do	Milt Meade	Link Fyffe, Jr.	Dr	54.4	6		B	11.6	do		Dom	Water stains yellow.
14	do	Everett Castle		Dug	12.4			B	5.5	do		Dom	Dry in dry season.[5]
15	do	Susie Ward		Dug	31.2				13.8	do		Dom	Never dry.[5]
16	do	Lonnie Dickson.		Dug	21.7		Shale	B	13.2	do		Dom	Do.[5]
17	do			Dug	20.1				15.0	do			
18	do	Bill Meade		Dug	10.5				7.5	do		Dom	Low in dry weather.[5]
19	do	Lonnie Dickson.		Dug	[6]10				8.8	do		A, Dom	

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3750-													
20	Whipporwill Branch	Jonah Castle		Dug	12.6				7.7	Sept. 22, 1949		Dom	
21	do	Martha Meade		Dug	11.7				2.8	do		Dom	Never dry.[5]
22	do	Roby Meade		Dug	11.0				4.2	do		Dom	Do.[5]
23	Linda Branch, Nippa.	Herman Adams		Dr	33.1	6		B	7.5	Sept. 26, 1949		Dom	
24	do	Orsin Music		Dr	32.2	6		B	8.1	do		Dom	Stains laundry yellow.[5]
25	do	Mary Lou Adkins.		Dug	17.0				7.1	do		Dom	
26	do	Irvin Castle		Dug	17.2		Sandstone	B	9.9	do		Dom	Never dry.[5] Hole drilled and bottom shot, water enters from hole.
27	do	Edgar Burns	Link Fyffe	Dr	50.3	6		B	9.5	do		Dom	Water stains yellow.
28	do	Lucy Woods		Dug	16.2				6.3	do		Dom	Never dry.[5]
29	do	John Castle		Dug	17.2		Sand and clay	Al	6.6	do		Dom	Do.[5]
30	do	do		Dr	26.4	6	Shale?	B	13.5	do		S	Water stains yellow.
31	do	Cora Fairchild		Dug	[6] 15				7.6	do		Dom	Low in dry year.[5]
32	do	Mitchy Music		Dug	34.2			B	3.1	do	Hand	Dom	Cannot be bailed dry.[5] Water enters through bottom.
39	Baker Branch	James Prince		Dug	24.9		Sandstone	B	16.7	do		Dom	Never dry.[5]
40	do	do	Link Fyffe	Dr	31.7	6		B	2.3	do	Hand	S	
41	do	James M. Prince		Dr	49	6	Sandstone	B	20	do		Dom	Sulfur water, unfit for laundry.[5]
42	do	Mitch Van Hoose.		Dr	49	6		B	20	do	•	Dom	Do.
43	do	Ruth Prince Carey.		Dr	48.2	6		B	16.9	do	Hand	Dom	Red sediment in water.
44	Toms Creek, Nippa	Roy Scarberry		Dug	18.9		Clay-silt	Al	18.8	Sept. 30, 1949		Dom	Low in dry weather.[5]
45	do	do		Dug	19.1		Quicksand	Al	17.7	do		Dom	Do.[5]
46	do	Marion Grim	Link Fyffe	Dr	62.3	6		B	28.8	do		Dom	
47	do	Arbie Daniels		Dr	49.5	6		B	12.6	do		Dom	Water stains bucket yellow.
48	do	Lawrence Pack		Dr	46.4	6		B	23.9	do		Dom	
49	do	Jim Music		Dr	32.8	6		B	18.2	do		Dom	
50	do	Floyd Stambaugh.		Dug	16			Al	15	do		Dom	Too low for use in fall.[5] Dug to top of bedrock.

51	do	C. B. Van Hoose.		Dug	11.7				11.1	do		Dom	Dry every fall.[5]
52	do	Walter Van Hoose.	Link Fyffe, Jr.	Dr	65	6	Shale	B			Electric, jet.	Dom	Chemical analysis in table 2. Water turns red when heated.
53	do	do		Dug	30.9		Blue clay	Al	12.5	Sept. 30, 1949		Dom	Chemical analysis in table 2.
54	do	Bradely Patrick		Dug	31.7				10.5	do		Dom	
55	do	Tenner Tackett		Dug	26.6			Al	5.8	do		Dom	Well cannot be bailed dry.[5] Water stains bucket yellow.
56	do	Logan Castle		Dug	21.0			B	10.2	do		Dom	Never dry.[5]
57	do	Joseph M. Castle.		Dug									
58	do	do		Dug	23.1				6.1	Sept. 30, 1949		Dom	
59	do			Dr	2,006			L?	Flowing	do		A	Gas well. Altitude 630 feet. Log in table 5. Chemical analysis in table 2.
60	do	Millard Van Hoose.		Dug	15.5			Al	13.3	do		Dom	
61	do	do	J. H. Fyffe	Dr	60	6		B			Electric, jet.	Dom	
62	Baker Branch	Tela Daniel		Dug	14.0				7.2	Oct. 3, 1949		Dom	Never dry.[5]
63	Baker Branch School			Dug	26.1			B	18.3	do		Sc, Dom	Low summer of 1948.[5]
64	Baker Branch	Charles J. Daniels.	J. H. Fyffe	Dr		6		B			Electric, jet.	Dom, S	
65	do	do		Dug	9.2			B	8.4	Oct. 3, 1949		A, Dom	
66	do	Ed Daniels		Dr		6		B			Electric	Dom	Supply not ample for bathroom.
67	do	do		Dug	13.5				10.1	Oct. 3, 1949	do	Dom	Supplies bathroom only.
68	do	Mitchell Van Hoose.		Dug	20.5			B	17.1	do		Dom	Dry in dry season.[5]
69	do	Kelly Adams		Dug	18.7			B	15.3	do		Dom	Never dry.[5]
70	do	do		Dug	21.4			B	[6] 8½	do		Dom	
71	do	Albert Van Hoose.		Dug	19.9				11.0	do	Electric	Dom	Never dry.[5] Supplies 3 families.
72	do	Mrs. Joe Price		Dug	[6] 17			B	[6] 12	do		Dom	Low every summer.[5]
73	do	Herbert Preston.	J. H. Fyffe	Dr	63.6	6		B	36.6	do	Hand	A, Dom	Present occupants have never used well. Gas in well.[5]
74	do	do		Dug	13.6				10.2	do		Dom	Low every summer.[5]
75	do	Rascus Van Hoose.		Dug	17.7			B	13.9	do		Dom	Dug to top of bedrock.[5] Water enters from crack in rock.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3750-76	Baker Branch	Joe Stambaugh		Dug	12.1			B	6.8	Oct. 3, 1949	Electric, jet	Dom	Never dry.[5] Dug to top of bedrock. Water enters from crack in rock.
77	do	H. Stapleton		Dug	14.7			Al	5.5	do		Dom	Never dry.[5]
78	do	Richard Van Hoose.		Dug	16.6			Al	4.5	do		Dom	Do.[5]
79	do			Dug	18.7				9.5	do		A, Dom	Do.[5]
80	do	Edna Mae Van Hoose.		Dug	18.1				11.0	do		Dom	Dry in dry fall.[5]
81	do	Johnson Stapleton.		Dug	18.2				11.0	do		Dom	Never dry.[5]
82	do	Hollie Van Hoose.		Dr	49.6	6	Shale and sandstone.	B	24.7	do			
83	do	Malcolm Wiley		Dug	17.1			Al	6.7	do		Dom	Never dry.[5]
84	do	do		Dug	14.2			Al	9.5	do		A, Dom	Dry in dry season.[5]
85	do	Earl Daniels		Dug	13.4		Sand	Al	6.8	do		Dom	Do.[5]
86	Off Road Fork, near Tutor Key.	Jesse Meade		Dug	15.0				6.8	Oct. 4, 1949		Dom	
87	Long Branch, near Tutor Key.	Walter Preston		Dug	17.3			B	14.2	do		Dom	Hole drilled in rock bottom.[5]
88	do	Fonnie Castle		Dug	14.4				11.3	do		A, Dom	
89	do	do		Dug	15.1		Unconsolidated.				Gravity flow.	Dom	Well dry.
90	do	do		Dug	10.0			Al	6.4	Oct. 4, 1949		Dom	Never dry.[5] Dug in creek bed.
91	do	W. T. Evans		Dug	17.9				13.6	do		Dom	
92	Hanna Branch, near Tutor Key.	Warren Daniels.		Dug	20.3		Sand?	Al?	15.8	Oct. 5, 1949		Dom	Never dry.[5]
93	Toms Creek, near Tutor Key.	Thomas Daniels.		Dug	15.4			Al	10.2	do		Dom	
94	Hanna Branch, near Tutor Key.	Bill Young		Dug	21.2		Blue clay	Al	14.2	do		Dom	Never dry.[5] Supplies two families.
95	do	Willard Castle		Dug	7.2			Al	2.3	do		A	Dug 3 feet from creek.
96	do	Dick Castle		Dug	22.3		Coal?	B	19.2	do		Dom	Never dry.[5]
97	do	Howard Patrick.	J. H. Fyffe	Dr	69.5	6		B	23.4	do	Electric, jet	Dom	Water stains yellow.
98	Tutor Key School		Hasca Dixon	Dr				B			Hand	Sc, Su	Gas in well.[5]
99	Tutor Key	Doke Patrick		Dug	19.5			Al	[6] 9	Oct. 5, 1949		Dom	

100	do	do		Dug	22.9			Al	5.2	do		Dom	
101	do	General Castle		Dug	24.9				13.9	do		Dom	
102	do	Irving Daniels		Dug			Dirt and coal	B	8.2	do		Dom	
103	do	Mrs. James Daniels.		Dug	20.0			B	9.4	do		Dom	
104	do	Frank J. Daniel.	Pat Ramsey	Dr	57.1	6	Shale	B	30.9	do		Dom	Supplies 3 families.
105	do	Randall Daniel		Dug	12.5				8.7	Oct. 6, 1949		Dom	
106	do	Cecil Preston		Dug	16.6				10.5	do		Dom	Never dry.[5]
107	do	Lon Daniels	Link Fyffe	Dr	51.9	6	Shale	B	14.6	do	Electric, jet	Dom	Supplies 2 homes.
108	do	do		Dug	19.5		Quicksand	Al	11.7	do		A, Dom	Not sufficient supply for use of electric pump.
109	do	Clay Preston		Dug	14.1		do	Al	11.6	do		Dom	
110	do	Howard Kerns		Dug	15.0		do	Al	8.5	do		Dom	
111	do	Carl Adams		Dug	12.4			Al	3.7	do		A, Dom	Never dry.[5]
112	do	Bert E. Van Hoose.		Dug	22.9		Shale	B	20.0	do	Electric, jet	A, Dom	Never dry; water stained vessels and plumbing.[5]
113	do	Tommy Adams		Dug	17.9				8.5	do		Dom	Supplies 2 families.
114	do	F. Lyons		Dug	19.7				14.1	do	Electric	Dom	Never dry.[5]
115	do	Elmer Castle		Dug	16.2				10.9	do	do	Dom	Do.[5]
116	do	Tive Daniel		Dug	18				6	do	do	Dom	
117	do	John E. Preston.		Dug	18.1			B	[6] 10	do	Hand	Dom	Not dry past 24 years.[5]
118	do	George C. Preston.		Dr	32.8	6		B	2.2	do		Dom	
119	do	Oliford Church		Dug	11.9		Sand	Al	6.4	Oct. 7, 1949		Dom	Never dry.[5] Water stains vessels.
120	do	Robert Castle		Dug	20.1				11.2	do	Hand	Dom	Never dry.[5]
121	do	Vern Castle		Dug	18.4				15.4	do		Dom	
122	do	Willie Osborne	Link Fyffe	Dr	21.7	6		B	12.2	do		A, Dom	Abandoned because of poor quality, sulfur and iron.
123	do	Lon Arrowood		Dug	14.0				8.0	do		Dom	
124	do	Edward McKenzie.		Dug	29.3				11.0	do	Hand	Dom	Never dry.[5]
125	do	Mrs. Lena Daniel.		Dug	13.9				5.1	do	do	Dom	Do.[5]
126	Toms Creek, Tutor Key.	Guff Preston	Link Fyffe	Dr	52.3	6		B	10.6	do	Electric, jet	Dom	Can be pumped dry in about 1 hour.[5]
127	do	do		Dug	17.2				13.2	do		A, Dom	
128	do	Bert Preston		Dug	24.5				16.8	do	Electric	Dom	Never dry.[5]
129	do	Jay Castle		Dug	16.8				6.3	do		Dom	
130	do	Hoy Van Hoose.		Dug	28.2		Blue Clay	Al	19.8	do	Hand	Dom	Do.[5]
131	do	do		Dug	22.6		Gravel?	Al	5.8	do		S	
132	do	Samuel Burkett.		Dr	48.5	6		B	28.2	do		Dom	
133	do	Virgil Daniels	E. Conley	Dr	62	6	Sandstone	B	18	do	Hand	A, Dom	Chemical analysis in table 2.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed		Water level		Method of lift	Use of water [4]	Remarks
							Character of material	Geologic formation [3]	Below land surface [2] (feet)	Date of measurement			
8245-3750-134	Toms Creek, Tutor Key.	Virgil Daniels	J. H. Fyffe	Dr	82½	6		B	22	Oct. 6, 1949	Electric, jet.	Dom	Chemical analysis in table 2.
135	do	Jess Fletcher		Dug	15.8		Sand and clay	Al	11.5	do		Dom	Dry in 1943.[5]
136	do	do		D	19½	1½	do	Al			Hand	Dom, S	Never dry.[5]
137	do	Johnny Blanton.		Dr	45?	6		B			Electric, jet.	Dom	
138	Toms Creek, near Tutor Key.	Bert Daniels		Dr				B			Hand	Dom	
139	do	Mrs. John Travis.		Dug	20.3			B	14.0	Oct. 11, 1949		Dom	
140	do	do		Dug	26.5			B	14.5	do		Dom	Never dry.[5]
141	do	Roy Daniels		Dug	29.3		Gravel	Al	14.0	do		Dom	Do.[5]
142	do	M. L. Daniels		Dug	33.4				12.5	do		Dom	Do.[5]
143	do	Proctor Davis		Dug	23.3		Sandstone?	B	10.9	do		Dom	Do.[5]
144	do	Lillie Preston	J. H. Fyffe	Dr	47.2	6		B	9.0	do		Dom	Water turns bucket red.
145	do	Wendell Van Hoose.		Dug	17.4				10.8	do		Dom	Never dry.[5]
146	do	Mrs. Fred Van Hoose.		Dug	19.8		Shale	B	13.9	do		Dom	Do.[5]
147	Toms Creek, near Nippa.	Herbert Davis	J. H. Fyffe	Dr		6		B			Electric, jet.	Dom	
148	do	Mrs. Henry Jacobs.		Dug	31.6		Shale	B	9.8	Oct. 11, 1949		Dom	Not dry since dug in 1944.[5]
149	50 feet south of Kentucky Highway 581 (under construction) 0.8 mile southeast of Nippa Post Office.	J. K. Van Hoose.		Dug	16.0			Al	9.8	do		Dom	Observation well.
150	300 feet north of Kentucky Highway 581 (under construction) 0.8 mile southeast of Nippa Post Office.	Jess Burchett	Link Fyffe	Dr	77.6	24-6	Sandstone	B	14.7	do		Dom	Chemical analysis in table 2. Well drilled in bottom of dug well 24 feet deep. Observation well.

151	Toms Creek, near Nippa.	Herschell Van Hoose.		Dug	25.7				15.9	do		Dom	Dry once in past 20 years.[5] Abandoned observation well.
152	do	Quimby Van Hoose.		Dug	30.7			B	25.4	do		Dom	Never dry.[5]
153	do	Gracie Van Hoose.		Dug	21.8		Shale	B	21.8	do		Dom	Never dry.[5] Bottom drilled and shot.
154	do	B. L. Van Hoose.		Dug	14.2		Sand	Al	10.2	do		Dom	Dry almost every summer.[5] Abandoned observation well.
155	do	do		Dug	15.2				5.2	do		A	Never dry.[5]
156	do	Estell Van Hoose.		Dug	23.0			B	15.2	do	Hand	Dom	
157	do	do		Dr	43.6	6		B	10.0	do		Dom, S	
158	do	Vivian Preston		Dug	25.5			B	21.0	do		Dom	Never dry.[5]
159	do	do		Dug	18.8				10.3	do		A, Dom	
160	Nippa	Ulysses Castle		Dug	13.2				7.1	do		Dom	Low in summer of 1946.[5]
161	do	W. H. Davis		Dr	60.3	6		B	18.0	Oct. 12, 1949	Electric	Dom	Pump has run 12 hours without pumping well dry.
162	do	do		Dug	23.1				17.2	do		Dom, S	
163	do	Roy Holbrook		Dr	71.0	6		B	16.3	do		Dom	
164	do	Beulah Van Hoose.		Dug	18.5		Shale	B	13.2	do		Dom	
165	do	Ernest Adams		Dug	22.6		Sandstone	B	17.9	do		Dom	Never dry.[5]
166	do	Freddy Scarberry.	Link Fyffe	Dr	65.7	6		B	33.4	do		Dom	Stains clothing and vessels yellow, unfit for laundry.
167	do	do		Dug	20.8				14.5	do		Dom	Low in summer of 1948.[5]
168	Nippa Post Office	Kennis Van Hoose.		Dug	16.9				10.8	do		Dom	Never dry.[5]
169	Nippa	Loyd Murphy		Dug	32.0			B	11.5	do		Dom	Never dry; water has sweet taste, not used for drinking.[5]
170	do	Sam Ramey	J. H. Fyffe	Dr	112.4	6	Sandstone and shale.	B	47.5	do		Dom	Chemical analysis in table 2. Water stains yellow, unfit for laundry.
171	do	Stella Saddler	do	Dr	55	6	Shale?	B			Hand	Dom	Water leaves red stain when boiled.[5]
172	Williams Fork, near Wittensville.	Billy Bow		Dug	[6]11		Sandstone	B	[6]11	Oct. 13, 1949		A, Dom	Very small supply of water.
173	do	do		Dr	38.9	6		B	12.4	do			
174	do	Milt Meadows		Dug	14.1			B	7.3	do		Dom	
175	do	Frank Ratliff		Dug	22.6		Sandstone	B	8.9	do		Dom	

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3750-176	Williams Fork, near Wittensville.	Clarence Meadows.	Link Fyffe	Dr	40.0	6		B	[6] 22	Oct. 13, 1949		Dom	Red scum on water when boiled.[5]
177	do	Charlie Rice		Dug	26.8			Al	13.7	do		Dom	Dug to top of rock.[5]
178	do	Mrs. Walter Osborne.		Dug	16.2		Clay	Al	9.1	do		Dom	Dry in dry season, not dry 1948 or 1949.[5]
179	do	Harry Hampton.		Dug	16.8		Shale and coal	B	8.9	do		Dom	Never dry; drilled through coal seam (Van Lear coal) 32 inches thick in bottom of well.[5]
180	do	Wilburn Butcher.		Dug	19.9			B	14.8	do		Dom	Not dry since well deepened into bedrock.[5]
181	do	Millard Van Hoose.		Dug	18.4		Gravel	Al	7.4	do		Dom, S	Not dry since dug in 1941.[5]
182	do	Hansford King		Dug	12.9		Sandstone	B	8.0	do		Dom, S	Water enters through crack in sandstone.[5]
183	do	S. B. Williamson.		Dug	27.9				16.1	do		Dom	Not dry past 12 years.[5]
184	do	Homer Castle		Dug	19.0				12.4	do		Dom	
185	do	Cecil Frazer		Dug	21.2				12.0	do		Dom	
186	do			Dug	17.2				9.6	do		A	
187	do	W. M. Rice		Dug	23.3		Shale	B	9.0	do		Dom	Never dry.[5]
188	Near Sitka	J. B. Rice		Dug	17.0		Clay	Al	8.5	do		Dom	
189	do	Bert Stambaugh.		Dug	[6] 24			B	4.9	do		Dom	Never dry.[5]
195	Highway 23, Wittensville.	Jemima Stambaugh.	Charlie McKenzie.	Dr	46.9			B	1.2	Oct. 18, 1949		Dom	
196	do	Jack Patrick		Dr	48.3	6		B	8.5	do		Dom	
197	Off Highway 23, Wittensville.	Mrs. R. L. Wilcox.		Dug	24.2		Sandy rock	B	16.1	do		Dom	Water enters through crack in rock.[5]
198	do	R. L. Wilcox	J. H. Fyffe	Dr	64	6		B	14.1	do		Dom	Bailer wedged in casing.
199	do	Arthur Fairchild.		Dug	20.5		Sandstone and coal.	B	11.0	do		Dom	Dug through coal bloom.[5]
200	do	Russell Fairchild.		Dug	19.1				9.6	do		Dom	

201	Highway 23, Sulfur Springs.	Sulfur Springs Branch Schoolhouse.		Dr	83.8	6		B	12.6	do		Sc, Su	Chemical analysis in table 2.
212	Highway 23, near Wittensville.	Jay Keller	Link Fyffe	Dr	100	6	Shale	B			Electric, jet	Dom	Do.
213	do	do		Dr	[6] 90	6	do	B	[6] 25?	July 25, 1950		A, Dom	
214	Tutor Key	Bert Van Hoose	Williamson	Dr	47	6	do	B	12	Mar. 28, 1950	Electric, jet	A, Dom	Waterstained plumbing and had bad odor.[5]
215	do	do	Link Fyffe	Dr	[6] 133	6	do	B	21	Mar. 29, 1950	do	Dom	Cuttings available. Log in table 5.
216	House No. 241, Thealka.	Howes Land Company.	John Lyons	Dr			do	B			Hand	Dom	
217	House No. 250, Thealka.	do	do	Dr			do	B			do	Dom	
218	Lot No. 200, Thealka.	do	do	Dr			do	B			do	Dom	
219	Lot No. 344, Thealka.	do	do	Dr	300		Sandstone	L				A, In	Once furnished water for washing coal.
220	Highway 23	Henry Rice	Link Fyffe	Dr	80	6		B	27.0	July 25, 1950		Dom	Water stains red.
221	do	Homer Ferguson.	do	Dr	72	6	Sandstone	B	18	1947	Electric, jet	Dom	Coal at 60 feet underlain by sandstone.[5]
222	do	Ed Castle	do	Dr	39.0	6	Shale	B	12.1	July 25, 1950		Dom	
223	do	Herbert Preston.	do	Dr	76	6	Sandstone	B	17.4	do		Dom	Supplies 3 families.
224	do	Alfred Johnson		Dug	14			Al	8	do		S	Never dry.[5]
225	do	do		Dug	30			Al	6	do	Hand	Dom	Dry in 1930.[5]
226	do	do	Link Fyffe	Dr	55	6		B	12	August 1945	Electric, jet	Dom	
227	do	Fred Ward	do	Dr	54.5	6	Sandstone	B	5.5	July 25, 1950		Dom	
228	do	do		Dug	12			Al				A, Dom	
229	do	Alfred Johnson	Link Fyffe	Dr								A	
230	do	Arthur Castle	do	Dr	[6] 55	6	Shale	B	20	July 25, 1950		A, Dom	Water red, unfit for use.[5]
231	do	do	do	Dr	[6] 42	6	do	B	13	do	Electric, jet	Dom	Gas bubbles in water.[5] Water red upon settling.
232	do	Bill Robinson	Pat Ramsey	Dr	96	6		B	86	Aug. 15, 1950	Electric	Dom, S	Can be pumped dry but recovers quickly.[5]
233	do	do	Link Fyffe	Dr	35	6		B	12	do	do	Dom	Supplies 2 homes. Water stains red.
234	do	Jess Burchett	do	Dr	50.3	6		B	17.1	July 25, 1950		Dom	Gas bubbles seen.
235	do	Slick Melvin	J. H. Fyffe	Dr	60	6		B	25	do	Electric, sucker-rod.	Dom	Supplies 4 homes. Once supplied dairy farm having 23 head of cattle.
236	do	Henry Owens	Link Fyffe	Dr				B			Electric, jet	Dom	
237	do	Earl Ratliff		Dug	15.8				5.7	July 25, 1950	Gasoline	Dom	Pump not in use.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3750-238	Highway 23	Earl Ratliff		Dug	7.0			Al		July 25, 1950		Dom	Well dug in marshy ground next to small creek.
239	do	Lane Brown		Dr	64.0	6		B	15.1	do		Dom	
240	do	Francis Rice		Dr	60	6		B	9.3	do		Dom	Well obstructed below water level.
241	do	Hobert Sublett	Charlie McKenzie.	Dr	41	6	Shale	B			Electric	Dom	Pumped dry twice.[5]
242	Highway 201, near Sitka.	Cecil Williams		Dug	30		Shale and coal	B	2.3	July 25, 1950		Dom	Never dry, water under 6-inch coal bed.[5]
243	do	Frank Witten	J. H. Fyffe	Dr	[6] 90	6	Shale	B	29.3	do		Dom	Water stains yellow, unfit for laundry.[5]
244	do			Dug	29.3		do	B	10.7	do		Dom	
245	do	Mrs. Ernest Persinger.	Link Fyffe	Dr	64.1	6		B	30.8	do		Dom	
246	do	do		Dug	21.2				1.9	do		A, Dom	
247	do	Jack Pelphry		Dug	16.2				7.6	do		Dom	
248	do	Frank Turner		Dug	28		Blue clay	Al	18	do		Dom	
249	Highway 201, near Wittensville.	Henry Picklesimer.	Link Fyffe	Dr	40	6		B	18.0	July 27, 1950		Dom	Red sediment on water when boiled.[5]
250	do	James McKenzie.		Dug	22							Dom	Never dry during past 47 years.[5]
251	do		Willie Hayes	Dr	72	6		B			Electric	Dom	Supplies 3 homes.
252	do	J. L. Preston		Dug	15		Quicksand	Al	2	July 27, 1950		Dom	Never dry during past 40 years.[5]
253	do	James Preston	Charlie McKenzie.	Dr	60?	6		B	30?	do	Electric, jet	Dom	
254	Highway 23, near Wittensville.	Keith Conley	J. H. Fyffe	Dr	52.0	6		B	15.9	do		Dom	Water stains yellow, unfit for laundry.[5] Supplies 2 families.
255	do	J. C. Caudill		Dr	53.0	6		B	7.9	do		Dom	White stringy sediment in water. Supplies 4 families.
256	do	W. H. Stambaugh.	Everett Conley.	Dr	72	6		B	30.2	do		Dom	
257	do	Jess Ratliff		Dug	17.0		Shale	B	4.0	do		Dom	Never dry.[5]
258	do	Margaret Dixon.		Dug	35		Coal	B	6.0	do		Dom	Do.[5]

259	Highway 23, Wittensville.	C. V. Fannin		Dr	100+	6		B	37.7	do		Dom	Water stains laundry. Supplies 3 families.
260	do	Raymond Van Hoose.	Link Fyffe	Dr	56.2	6		B	25.2	do		Dom	
261	do	Richard Castle		Dug	13.8				2.7	do			
262	do	do		Dr	[6] 58	6		B	16.4	do		Dom	
263	do	Oscar Castle		Dr	[6] 50	6		B	12.4	do		Dom	
264	do	Vincent Meadows.		Dr	52.5	6		B	28.3	do		Dom	Stringy red sediment in water. Supplies 2 families.
265	do	Edward Nichols.	Link Fyffe	Dr	53.8	6		B	30.0	do		Dom	
266	do	Roy Castle	Charlie McKenzie.	Dr	53	6	Sandstone?	B	28.6	do		Dom	
267	do	Jess Burchett		Dr	54.0	6		B	3.8	do		A, Dom	Water stains red.
268	do	Millard Van Hoose.		Dr	66.1	6		B	11.6	do	Electric, jet.	Dom	Well pumped half a day without pumping dry.[5]
269	do	Clarence Castle	J. H. Fyffe	Dr	115	6		B	37.4	do		Dom	White sediment in water.
270	do	Argilles Witten, Jr.	do	Dr	142	6		B	33.1	do		Dom	Water heard bubbling in well.
271	do	W. R. Conley	do	Dr	59	6		B	10.3	do		Dom	Gas in well.[5]
272	do	W. H. Witten	do	Dr	52	6	Shale	B	12.5	Aug. 2, 1950		Dom	Water turns red upon standing, unfit for laundry.
273	do	Clarence Sadler	do	Dr	58.2	6		B	9.0	do	Electric	Dom	Can be pumped dry but recovers quickly.[5]
274	do	Argilles Witten		Dug	20.1				8.7	do	Electric, jet.	Dom	
275	do	do		Dug	23.1	48	Shale	B	5.0	do		S	
276	do	Hershell Bayes	J. H. Fyffe	Dr	60	6	Sandstone?	B	15	1947	Electric	Dom	
277	Witten Branch, Wittensville.	Bascom Stanley.		Dug	17.8		Sandstone	B	9.5	Aug. 2, 1950			Dry in fall 1949.[5]
278	do	Jesse Wilcox		Dug	21.5			Al	12.0	do		Dom	Dry in summer 1949.[5]
279	do	Everett Wilcox	J. H. Fyffe	Dr	65?	6		B			Electric, jet.	Dom	
280	do	do		Dug	15	18	Blue clay	Al	8.0	Aug. 2, 1950		A, Dom	
281	do	Anthony Dills		Dug	21½		Shale	B	9.8	do		Dom	Supplies 2 families.
282	do	do		Dug	12	48	Clay	Al	.6	do		Dom, S	Dug about 5 feet from creek.
283	do	Ishmael Nelson		Dug	12.0	20		Al	5.9	do		Dom	Dug to top of bedrock.[5]
284	Highway 23, Wittensville.	Belle Salyers	Hasca Dixon	Dr	74		Shale and sandstone.	B			Electric and hand.	Dom	Supplies 4 homes, 1 with electric pump, 3 with hand pumps.
285	do	McKinely Castle.	Link Fyffe	Dr	52	6	Sandstone?	B	9	1949	Electric, jet.	Dom	

See footnotes at end of tables.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed		Water level		Method of lift	Use of water [4]	Remarks
							Character of material	Geologic formation [3]	Below land surface [2] (feet)	Date of measurement			
8245-3750-286	Highway 23, Wittensville.	Walter Osborne	Link Fyffe	Dr	50+	6		B			Electric	Dom	Supplies 2 homes.
287	do	McKinley Rice	J. H. Fyffe	Dr	80	6	Sandstone	B	40.9	Aug. 2, 1950	Electric, jet.	Dom	Do.
288	do	Howard Boyd	do	Dr	35	6	do	B	10	do	do	Dom	
289	do	Rebecca Witten.		Dug	13.6			Al	8.5	do		Dom	
290	do	Mrs. W. C. Bow.		Dug	13.8			Al	9.8	do			
291	do	Tom Akers		Dug	23.1				9.4	do		Dom	
292	do	Bus Atkinson		Dug								Dom	
293	do	Mrs. W. C. Bow.		Dug	24.4			Al	6.3	Aug. 2, 1950		Dom	Never dry.[5]
294	do	do		Dr	62.0	6		B	11.9	do		A, Dom	Stringy, red sediment in water.
295	do	do		Dug							Hand	S	Never dry.[5] Water turns red when boiled.
296	do	Carmel Witten		Dug	13.9				6.8	Aug. 2, 1950		Dom	
297	do	Mrs. W. C. Bow.		Dug	13.6	12		Al	8.2	do		A	
298	do	Ben Combs		Dug	22			Al	9.7	Aug. 3, 1950		Dom	
299	do	do	Link Fyffe	Dr	56.2	6	Shale	B	23.1	do		A, Dom	Water turns red on standing.
300	do	Arbie Combs	Charlie McKenzie.	Dr	45.5	6		B	5.9	do		Dom	Water stains yellow, unfit for laundry.
301	do	Mrs. Shirly Lyons.		Dug	27.5		Sand	Al	4.5	do		A, Dom	
302	do			Dug	19.7				10.8	do			
303	do	Burl Dillon		Dr	57.5	6		B	10.8	do		Dom	
304	do	Foster Walker		Dug	[6] 22		Sandstone	B	10.5	do		Dom	Never dry.[5]
305	do	Joe McKenzie	J. H. Fyffe	Dr		6			35.5	do		Dom	67 or 167 feet deep.[5]
306	do	Dewey McLure.	do	Dr	67.9	6		B	25.8	do		Dom	
307	Highway 23, Nippa	Elizabeth Burchett.		Dug	31.1				6.6	do		Dom	
308	do	John B. Dills		Dug	31½			B	6.2	do	Electric	Dom	Never dry.[5]
309	do	Willis Hamilton.		Dug	14.5			B	5.0	do		Dom	Supplies 4 families.

310	do	Dennis Van Hoose.	Link Fyffe	Dr	38.8	6		B	5.3	do		A, Dom	Water stains yellow.[5]
311	do	W. E. Terry		Dr	50?	6		B	33.5	do	Electric, jet.	Dom	
312	do	Lucian Stambaugh.	Link Fyffe	Dr	50	6	Sandstone	B	20.3	do		Dom	
313	do	Roy Meadows		Dr	75	6	do	B	25.5	do		Dom	
314	do	Oreor Van Hoose.		Dug	18	24	Sand and clay	Al	3.2	do		Dom	
315	do	Earl Castle	Link Fyffe	Dr	60+	6		B	17.7	do	Electric, jet.	Dom	
316	do	do		Dug	16		Coal and sandstone.	B					Well went dry when coal bed mined out nearby.
317	do	do		Dug	13		Sand and clay	Al			Hand	Dom	
318	Highway 23, Whittens No. 1, Rush Fork.	Commonwealth Petroleum Co.		Dr	1,020								Gas test. Altitude 668 feet. Log available.
319	Muddy Branch, Thealka.	Evans Oil and Gas Co.		Dr	1,833								Gas test. Altitude 762 feet. Log available. Little water at 40 feet and 110 feet (filled hole).[5]
320	Road Fork, Tutor Key.	Evans Gas Co.		Dr	1,787								Gas test. Altitude 684 feet. Log available. Water at 60 feet, 150 feet (filled hole), and 525 feet.[5]
321	do			Dr	1,790								Gas test. Altitude 652.8 feet. Log available.
22	Toms Creek, Tutor Key.			Dr	1,811								Gas test. Altitude 639.3 feet. Log available.
323	Road Fork, Tutor Key.			Dr	1,825								Gas test. Altitude 714.3 feet. Log available. Water at 7 and 338 feet (filled hole).[5]
324	Rush Fork			Dr	2,858								Gas test. Altitude 740 feet. Log available. Water at 47 feet, 130 and 250 feet (filled hole).[5]
325	do			Dr	2,517								Gas test. Altitude 750 feet. Log available.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8245-3750-326	Hanna Branch, Tutor Key.	Evans Gas Co.	Oliver Jenkins.	Dr	1,836								Gas test. Log in table 5. Water at 85 feet, 130-135 feet, and 310-318 feet (filled hole).[5]
327	Whipporwill Branch.	Evans, et al.		Dr	1,718½								Gas test. Altitude 660 feet. Log available.
328	do	do		Dr	1,756								Gas test. Altitude 712 feet. Log available.
8250-3745-1	Highway 460 about 2½ miles west of Paintsville.	Harry Davis		Dug	29		Coal	L	14	Aug. 30, 1949	Bucket	Dom	Never dry.[5]
2	do	do		Dr	930							A	Oil test. Water flows at surface. Water salty.[5]
3	Jenny Creek	Jesse Horne	Link Fyffe	Dr	85	6	Sandstone	L	40	Aug. 30, 1949	Electric, jet	Dom	Chemical analysis in table 2.
4	do	do	John Lyons	Dr	45	6		L	40	do	Bailer	Dom	Can be bailed dry.[5]
5	Middle Fork	Con Burke	Link Fyffe	Dr	103	6		B			Electric	Dom	Water tastes slightly salty.[5]
6	do	do		Dr	175	6		B					Well never used.
7	do	Albert Rice		Dug	20				15	Aug. 31, 1949	Bucket	Dom	Low in fall.[5]
8	do	Maggie Conley		Dug	38			B	18	do	do	Dom	Low in fall but never dry.[5] Supplies two families.
9	do	A. N. Salyers		Dug	27				8.0	do	do	Dom	
10	do	Clay Blair		Dug					30	do		Dom	Never dry.[5]
11	do	Basil Woods		Dug	20				15	do	Bucket	Dom	Dry in dry weather.
12	Rockhouse Creek	Rodney Picklesimer.	Link Fyffe	Dr	75	6	Sandstone	L	7.33	May 29, 1950	Bailer	Dom	Chemical analysis in table 2. Abandoned observation well.
13	Left Fork of Rockhouse Creek.	Jose Fairchild		Dug	22		Sandstone?	L	15	Aug. 31, 1949		Dom	Dry in dry weather.[5]
14	do	Crate Rice		Dug	34							Dom	
15	do	do		Dr	220	6	Sandstone	L			Electric	A, Dom, S	Chemical analysis in table 2.

16	do	do	Charlie McKenzie.	Dr	51	6	"Slate"?	B	15	Aug. 31, 1949		Dom	
17	do	Roy Estep		Dug	25		Sand	Al	12.0	do		Dom	Never dry.[5]
18	do	do		Dug	21		do	Al	12.0	do		S	Low when much water withdrawn.[5]
19	do	do		Dug	22				10	do		Dom	Never dry.[5]
20	Line Branch	Mason Johnson		Dug	17.0		"Slate"?	B	10.6	Sept. 1, 1949		Dom	Low in dry weather.[5]
21	do	Mary J. Centers.		Dr	61.0	6		B	11.0	do		Dom	"Sulfur water," unfit for laundry.[5]
22	do	Tom McFaddin.	J. H. Fyffe	Dr	65	6		B			Hand	Dom	Do.[5]
23	do	Ezra Salyers		Dug	15		Sand	Al	[6] 12	Sept. 1, 1949		Dom	
24	do	Cecil Hitchcock		Dug	10.0			Al?	8.0	do		Dom	
25	Jenny Creek, near Denver.	Albert Blanton	Link Fyffe	Dr	75	6		B			Electric, jet	Dom, S	Chemical analysis in table 2.
26	do	John R. Blanton.	Cecil Hitchcock?	Dr	64.9	6		B	55.0	Sept. 1, 1949		Dom	
27	Jenny Creek at Denver.	Clayt Selvage		Dr	80	6		B	4	do		Dom	Water salty and gas in well.[5]
28	do	do	Charlie McKenzie.	Dr	67	6	Shale	B	4	do		Dom	Water tates salty.[5]
29	do	Anne Selvage	Link Fyffe	Dr	50	6	do	B	5	do		Dom	Can be bailed dry.[5]
30	do	Ellis Ratliff		Dr	106			B	7	do		Dom	Gas in well.[5]
31	do	do		Dug	18				4	do		Dom	
32	do	Frank Adams		Dug	30				27	do		Dom	"Sulfur water."[5]
33	do	Don Pelphry	Link Fyffe, Jr	Dr	60	6		B			Hand	Dom	
34	do	Rosalie Blair		Dug	14		Sand	Al	7	Sept. 1, 1949		Dom	
35	do	Andy Blair		Dug	25		do	Al	5	do		Dom	Low in dry fall.[5]
36	At residence, 45 feet southeast of Chesapeake and Ohio railroad tracks, 300 feet northeast of Denver Post Office.	W. M. Senters		Dug	16.7		do	Al	10.21	do		Dom	Chemical analysis in table 2. Well gravel-packed. Observation well.
37	At barn, 100 feet southeast of Chesapeake and Ohio railroad tracks, 300 feet northeast of Denver Post Office.	do	Lawrence Conley and Irving Spradlin.	Dr	53.0	6	Shale? and coal	B	9.73	Nov. 2, 1949	Hand	S	Chemical analysis in table 2. Observation well.
38	Jenny Creek at Denver.	Bailis Baldwin		Dug	22.6				7.6	do		Dom	Low in dry weather. Abandoned observation well.[5]
39	do	Monroe Caudill		Dug	26		Clay	Al	20	Sept. 1, 1949		Dom	Low in dry fall.[5]
40	Jenny Creek, near Leander.	T. H. May		Dug	9				4½	Sept. 2, 1949		Dom	
41	do	Dora Weddington.		Dug	37.1				9.6	do		Dom	Never dry.[5]
42	do	S. H. Patrick		Dug	35				10.0	do		Dom	Do.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3745-43	Jenny Creek at Leander.	Walter Vaughn	Link Fyffe	Dr	75			B				A, Dom	Gas in well.[5]
44	do	do		Dug	38				23	Sept. 2, 1949		Dom	Never dry.[5]
45	do	Elmer May		Dug	25				17	do	Hand	Dom	
46	Rockhouse Creek	A. F. Conley		Dug	18.2				10.4	Sept. 6, 1949		Dom	Goes dry in dry weather.[5]
47	do	Elmer Conley		Dug	27.7		Sandstone	L	20.0	do		Dom	Never dry.[5]
48	do	Espa Fairchild		Dug	19.4				10.0	do	Hand	Dom	Dry in fall.[5]
49	do	Earl Conley	Link Fyffe	Dr	40.1	6	Sandstone	L	22.0	do	Bailer	Dom	"Sulfur water," unfit for laundry.[5]
50	do	C. F. Conley		Dug	[6] 18				15.0	do		Dom	Never dry.[5]
51	do	Robie Horne		Dr	51.5	6	Sandstone	L	13.8	do		A	Well drilled to obtain water for drilling gas well.
52	do	do		Dug	16.9				7.7	do		Dom	Never dry.[5]
53	do	Albert Horne		Dug	22.0		Sandstone?	L	16.0	do		Dom	Never dry.[5] Hole drilled in bedrock in bottom of well.
54	do	B. Baldwin		Dug								Dom	"Gets low." [5]
55	do	Roy Fairchild		Dug	13.0				4.2	Sept. 6, 1949		Dom	Never goes dry.[5]
56	do	H. Ratliff	J. H. Fyffe	Dr	55	6	Sandstone?	L	18	do		Dom	"Slight sulfur water." [5]
57	do	Ruie Hannah		Dug	10.0				8.5	do		Dom	Dry in dry weather.[5]
58	do	Marse Hannah		Dr	40.0	6	Sandstone	L	20	do		Dom	"Sulfur water," unfit for laundry.[5]
59	Lower Twin Branch	Grace Arms		Dug	17.7			B	15.0	do		Dom	Low in dry fall.[5]
60	do	Tom Cofein		Dug	16.4				12.4	do		Dom	Never dry.[5]
61	do	Raymond Spradlin.		Dr	30.0	6		B	7.0	Sept. 7, 1949		Dom	"Sulfur water," unfit for laundry.[5]
62	do	Bill Senters		Dug	15.6				5.3	do		Dom	Never dry.[5]
63	do	Miles Adams		Dug	10.3				8.5	do		Dom	Dry in dry fall.[5]
64	do	B. Baldwin		Dug	22				[6] 12	do		Dom	Dry in dry weather.[5]
65	do	do	Link Fyffe	Dr	48	6		B	24.2	do		Dom	"Sulfur water." [5]
66	do	Jim Blair		Dug	23.6				21.5	do		Dom	Low in dry weather.[5]
67	do	do	Link Fyffe	Dr	64.0	6		B	47.2	do		S	"Sulfur water," unfit for laundry.[5]
68	do	Loyd Baldwin		Dug	21.0				19.5	do		Dom	Low in dry weather.[5]

69	do	Alfred Selvage		Dug	18							Dom	Never dry, "sulfur water," unfit for laundry.[5]
70	do			Dug	11.5				9.9	Sept. 7, 1949			
71	do	Oliver Spradlin.		Dug	15				13.0	do		Dom	Low in dry weather.[5]
72	do	Julie Spradlin		Dug	13		Shale	B	8.0	do		Dom	Do.[5]
73	do	Virgie Spradlin		Dug	10				6	do		Dom	Do.[5]
114	Left Fork of Rockhouse Creek.	Mose Rice		Dug	7.2			Al	3.8	Sept. 13, 1949		Dom	Never dry.[5]
115	do	Crate Rice		Dug	24.5				7.6	do		Dom	
116	do	Ray Bays		Dug	23.2			B	8.6	do		Dom	Never dry.[5] Hole drilled in bottom.
117	do	Tory Fairchild		Dug	16.6				4.4	do		Dom	Never dry.[5]
118	do	R. P. Johnson		Dug	28.7			Al	11.1	do		Dom	Never dry.[5] Dug to top of bedrock.
119	do	Dora Horne		Dug	23.5				22.3	do			Contaminated.[5]
120	Line Branch	Ezra Salyers		Dug	8.7			B	3.2	do		S	Never dry; "sulfur water."[5]
121	do	Payne J. Picklesimer.	Link Fyffe	Dr	68.0	6		B	17.4	do	Bailer	Dom	Water stains bailer yellow.
122	do	Beverly Baldwin.	do	Dr	50.0	6		B	9.4	do	do	Dom	Do.
123	Jenny Creek, near Denver.	W. H. Blair		Dug	26		Shale	B	20	do		S, Dom	
124	Upper Twin Branch	C.B. Spradlin		Dug	19.7				16.2	Sept. 14, 1949		Dom	Low in dry weather.[5] Supplies 3 families.
125	do	C. D. Spradlin		Dug	20		White sand	Al			Hand	Dom	Well never failed.[5]
126	do	Miles Adams		Dug	15.7				10.5	Sept. 14, 1949		Dom	Never dry.[5]
127	do	Rosie Blair		Dug	17.6				7.8	do		Dom	Do.[5]
128	do	Hansel Blair		Dug	12.3			B	6.9	do		Dom	Do.[5]
129	do	do		Dr	18.9	6	Shale	B	4.1	do		A, Dom	
130	do	Ben Hitchcock		Dug	22.9				15.2	do		Dom	Never dry.[5]
131	do	Jess Hitchcock		Dug	7.3		Gravel	Al	7.1	do		Dom	Dry in dry weather.[5]
132	do	Ray Baldwin		Dug	18.6				10.2	do		Dom	Do.[5]
133	do	Alamander Blair.		Dug	9.0		Gravel	Al	8.3	do		Dom	Dry in dry weather. Unfit for drinking.[5]
147	Jenny Creek	Topsy Ratliff		Dr	30.8			B	16.6	do		Dom	"Sulfur water," unfit for laundry.[5]
148	do	do		Dug	13.5				7.5	do		S	Never dry.[5]
149	do	Obie Ratliff		Dug	15.7		Gravel	Al	15.1	do		Dom	
150	Jenny Creek, near Leander.	United Baptist Church.		Dug	23.7				7.2	do		D, P	Do.[5]
151	do	Dora Weddington.		Dr	19.6	6		B	7.5	do		S	
152	Jenny Creek at mouth of Asa Creek.	Hershel Patrick.		Dug	16.7				16.2	Sept. 15, 1949		Dom	Do.[5]
184	Jenny Creek at Leander.	Leander Consolidated School.	Link Fyffe	Dr	91	6	Shale	B			Hand	P	Can be pumped dry. Gas in well.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well[1]	Depth of well[2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation[3]	Water level: Below land surface[2] (feet)	Water level: Date of measurement	Method of lift	Use of water[4]	Remarks
8250-3745-185	Asa Creek, near Leander.	Leander School		Dr				B				A	Oil slick on water.[5]
201	Jenny Creek at Leander.	Walter Vaughn		Dug	26.8				10.4	Sept. 20, 1949		Dom	Never dry.[5]
202	Jenny Creek, near Denver.	Sarah Rice		Dug	14.5		Sand	Al	10.4	do		Dom	Do.[5]
203	Jenny Creek, near Leander.	Hershel Weddington.		Dug	24.3				7.5	do		Dom	Not dry past 10 years "sulfur water."[5]
204	Jenny Creek, near Denver.	Sarah Rice		Dug	[6] 30		Sand	Al	20.9	do		Dom	Never dry.[5] Water gets yellow when low.
205	Upper Twin Branch	Cecil Blair		Dug	18.9		Sand?	Al	9.0	do		Dom	Never dry.[5]
206	do	Bob McCarthy		Dug	18.0				14.8	do		Dom	Low in dry weather.[5]
207	do	Ed Hitchcock		Dug	23.6				17.4	do		Dom	Never dry.[5]
208	Jenny Creek at Denver (site new school).	Denver School		Dr	111.0	6		B	28.5	do		P	Water has salty taste.[5]
209	Paint Creek, near Staffordsville.	Norma Ferguson.	John Lyons	Dr	65.2	6	Sandstone	L	36.7	do		Dom	Chemical analysis in table 2.
210	Paint Creek	Brook Conley		Dug	30.0		do	L	21.2	do		Dom	Low in fall.[5]
211	do			Dr	60.2	6	do	L	59.1	do			Iron precipitate in water.
225	Jenny Creek at Denver.	Bob Caudill		Dug	13.4		Blue Clay	Al	11.33	Oct. 2, 1949		Dom	Never dry.[5] Abandoned observation well.
226	do	do	John Lyons	Dr	90?	6		L?	Flowing.			A, Dom	Well plugged. Chemical analysis in table 2.
227	Highway 460 at Staffordsville Post Office.	Toral Franklin	J. H. Fyffe	Dr		6	Shale	L			Hand	S, P	Gas in well.[5]
228	Highway 460 at Staffordsville.	do	do	Dr	65	6	do	L			Electric, jet	Dom	
229	do	Arnold Ward	do	Dr	65	6	Sandstone?	L			Hand	Dom	Chemical analysis in table 2.
230	Middle Fork			Dug	26.0				8.5	June 7, 1950			
231	do	Irvin Francis		Dug	11.5		Clay?	Al	5.0	do		Dom	Water hard, unfit for laundry.[5]
232	do	Clay Blair		Dug	33.0				3.7	do		Dom	Not dry past 3 years.[5]

233	do	do		Dug	12			Al	1.0	do		S	Dry in dry season.[5] Well dug in swampy ground next to creek.
234	do	Ray L. Salyers		Dug	30			Al	8.8	do		Dom	Well dug to top of bedrock.
235	do	do	J. H. Fyffe	Dr	43.0	6	Shale?	B	17.0	do	Hand	S	Water clear when drawn, red scum after sitting.
236	do	A. N. Salyers		Dug	21.5				10.9	do			
237	do	V. Ratliff		Dug	27.0				5.7	do		Dom	Never less than 6 feet of water in well.[5]
238	do	do		Dug	18.5				5.5	do		S	
239	do	Luther Horne		Dug	[6] 20				4.7	do		Dom	
240	do	B. Williams		Dug	23.0				10.0	do	Hand	Dom	Never dry.[5]
241	Jenny Creek at Denver.	Willis Wells	J. H. Fyffe	Dr	59	6	Shale	B	.4	Apr. 1, 1950		Dom	When water struck, water level in well 8250-3745-226 fell 5 or 6 feet.[5]
242	Jenny Creek	Bill Baldwin		Dug	16.5		Sandstone	L	4.6	June 23, 1950		Dom	Hole drilled in sandstone in bottom of well. Dry in fall of 1947.[5]
243	Jenny Creek, near Denver.	Clayt Selvage	Link Fyffe	Dr	75	6	Sandstone and shale.	B	17.9	Apr. 17, 1950		Dom	Cuttings available. Log in table 5.
244	Rockhouse Creek	Alfred Frazier	Link Fyffe	Dr	75	6	Sandstone	L	60			Dom	Water turns red when boiled.[5]
245	Jenny Creek	Bill Selvage		Dug	21.2			Al	3.7	June 23, 1950		Dom	Not dry past 4 years.[5]
246	do	Work Hazelet		Dug	20.0				6.7	do		Dom	Has gone dry in late summer.[5]
247	do	Norman Horne	J. H. Fyffe	Dr	65	6	Shale	B	30.3	do		Dom	
248	do	Walter Horne		Dug	22.5		Clay	Al	12.5	do		Dom, S	Never dry. Dug to top of bedrock.[5]
249	do	Verne Horne	J. H. Fyffe	Dr	49	6	Sandstone	L	20.7	do		Dom	
250	do	Vern Horne		Dug, Dr			do	L	7.8	do	Hand	A, Dom	Well drilled in bottom of dug well.[5] Depth could not be measured.
251	Stave Branch	Milt Witten		Dug	19.1				7.3	Aug. 24, 1950		A	Low in dry weather.[5]
252	do	do		Dug	16.9				7.4	do		Dom	Never dry.[5]
253	Near Highway 460, Stave Branch.	Mrs. Tobe Dixon.		Dug	28.4		Sandstone	L	8.7	do		S	Do.[5]
254	Highway 460, near Mouth Stave Branch.	do		Dug	28.5		Sandstone?	L	10.8	do	Hand	Dom	Do.[5]
255	do	do	J. H. Fyffe	Dr		6		L			Electric, jet.	Dom	
256	Highway 460 at Staffordsville.	Frank Conley		Dug	18.6	42		Al?	1.5	Aug. 25, 1950		Dom	Cannot be pumped dry; runs over at surface after heavy rain.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well[1]	Depth of well[2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation[3]	Water level: Below land surface[2] (feet)	Water level: Date of measurement	Method of lift	Use of water[4]	Remarks
8250-3745-257	Highway 460 Staffordsville.	Frank Conley		Dug	18.0				10.9	Aug. 25, 1950		S	Cannot be pumped dry.[5]
258	do	Earnest Mayhan.	J. H. Fyffe	Dr	102.5	6	Sandstone and shale.	L	52.9	do		Dom	Can be bailed dry. Supplies 4 families.[5]
259	do	Wayne Spencer.	Link Fyffe, Jr.	Dr	105.5	6	do	L	21.0	do	Bailer	Dom	Water stains bailer yellow.
260	do	Asbury Bentley.		Dr	56.3	6	do	L	40.9	do		A, Dom	Water has milky appearance.
261	do	Hoy Preston		Dr	35.1	6	do	L	17.8	do		Dom	Inadequate supply for 3 families.
262	do	Frank Mahan	Link Fyffe	Dr	132	6	Sandstone?	L	66.7	do		Dom	
263	do	do		Dug	8.7	24	Sandstone	L	4.8	do		Dom	
264	do	James Burkett		Dr		6	do	L	44.1	do		Dom	Well obstructed at 66 feet.
265	do	George Mahan		Dr	109.0	6	do	L	82.2	do		Dom	Supplies 3 families.
266	do	Sam King	Link Fyffe	Dr	125	6	Shale	L	97.8	do		Dom	Inadequate supply for 2 families.[5] Shale walls of well cave, decrease water supply, and cause water to become muddy.
267	do	Ralph Stafford		Dr	77.8	6	Sandstone and shale.	L	47.0	do		Dom	
268	do	Margaret Blevins.		Dug	24		Shale	L	12	do		Dom	Water enters well from crack in shale and alluvial sand.[5]
269	do	Theadore Ealey.	Link Fyffe	Dr	85	6	Sandstone and shale.	L	53.4	do		Dom	Hard water, unfit for laundry.[5]
270	do	do		Dug	30.9		Sandstone?	L	18.4	do		Dom	Low every year.[5]
271	Off Highway 460 at Staffordsville.	Grass Burchett		Dr	41.5	6	Sandstone	L	18.4	do		Dom	Water "lathers" while boiling.[5] Unfit for laundry because of hardness.
272	do	do	Charlie McKenzie.	Dr	64.0	6	Sandstone and shale.	L	46.8	do		S	
273	do	Roy Fairchild		Dr	64.8	6	do	L	42.3	do		Dom	
274	do	Alfred Frazier	Link Fyffe	Dr	115	6	do	L	81.4	do		Dom	

275	do	Lucy Spears		Dr	110	6	do	L	77.8	do		Dom	
276	do	Hershel Blanton.		Dr	36.7	8	do	L	20.3	do		Dom	Well can be bailed dry.
277	Rule Branch at Staffordsville.	Beecher Ealey		Dr	30.8	6	Shale?	L	22.8	Aug. 29, 1950		A, Dom	
278	do	Ralph Oppenheimer.	J. H. Fyffe?	Dr	42.5	6	do	L	11.6	do	Electric	Dom	Never pumped dry.[5]
279	do	James Franklin	J. H. Fyffe	Dr	60+	6		L			do	Dom	Do.[5]
280	do	do		Dug	21.8				9.1	Aug. 29, 1950		Dom	Never dry.[5]
281	do	R. C. Meade		Dug	19		Sandstone?	L	6.1	do		Dom	Dry in 1932.[5]
282	do	do		Dr	85	6	Shale?	L			Hand	S	Water gets muddy when well pumped a few minutes.
283	do	Brooks Pelphry.	J. H. Fyffe	Dr	65	6	"Blue slate"	L	39.0	Aug. 29, 1950		Dom	Water stains red.[5]
284	do	Walter Williams.	do	Dr	85	6		L	54.2	do		Dom	
285	do	Roy Fairchild		Dug	27.3				9.2	do		Dom	Debris floating in well.
286	do	Lewis Blevins	J. H. Fyffe	Dr	57.8	6		L	31.9	do		Dom	
287	do	do		Dug	19.3				9.4	do		Dom	
288	do	Proctor Fyffe	Proctor Fyffe	Dr	40	6	Shale	L	25	When drilled		A, Dom	Well sealed, did not supply sufficient water to pump into house.
289	do	do	do	Dr	49	6	Sandstone	L	40	do	Electric, jet.	Dom	Water stains red.[5]
290	do	J. H. Fyffe	J. H. Fyffe	Dr	40	6	Shale	L	30?			A, Dom	Water stains yellow.[5]
291	do	do	do	Dr	60+	6	do	L	30		Electric	Dom	Supplies 2 homes.
292	do	Courtney Holbrook.	do	Dr	75	6	Shale?	L	37.2	Aug. 30, 1950		Dom	Supplies 2 families.
293	do	Eddie Clay Meade.	Proctor Fyffe	Dr	63.5	6	Shale	L	40.4	do		Dom	Water stains yellow unfit for laundry.[5]
294	do			Dug					5	do			
295	do	Freddie Ratliff	J. H. Fyffe	Dr	38.8	6		L	17.5	do		Dom	"Stirs up" when, much water drawn.[5] Stringy white sediment.
296	Highway 460 at Staffordsville.	James King		Dr	89.0	6		L	69.8	Sept. 6, 1950		Dom	Inadequate supply for 2 families; casing rusted at surface allowing surface water to enter.[5]
297	do	J. B. Pack	Charlie McKenzie.	Dr	92	6	"White sandstone."	L	40	1944	Electric, jet.	Dom	Well drilled 40 feet in shale, did not supply enough water, deepened to 92 feet into sandstone.[5]
298	do	do		Dug	24							Dom	Never dry.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3745-299	Highway 460, near Staffordsville.	W. T. Pelphry	J. H. Fyffe	Dr	50	6	Sandstone	L	26	Sept. 6, 1950	Hand	Dom	Never pumped dry.[5] Water stains yellow.
300	do	Vint Davis		Dr		6	do	L	31.6	do			Unable to measure depth.
301	do	J. W. Davis	Charlie McKenzie.	Dr	68	6	Sandstone?	L	33.6	do		Dom	Could not be bailed dry.[5]
302	do	do		Dr	77.5	6	do	L	34.3	do		A, Dom	Water stains red.[5]
303	do	Ralph Stafford	Phonzo Blanton.	Dr	72	6	do	L	35.5	do		Dom	Could not be bailed dry.[5] Water stains clothes red.
304	do	Edgar Meade	Charlie McKenzie.	Dr		6	do	L	38.8	do	Electric, jet	Dom	Never pumped dry.[5] Water stains yellow. Supplies 2 homes.
305	do	Frank Pratt		Dug	35.4		Sandstone	L	7.2	do	do	Dom	Never pumped dry.[5]
306	do	Dean Williams	Charlie McKenzie?	Dr	80		do	L			Electric	Dom	Water stains plumbing.[5]
307	do	do		Dug	26.3				10.5	Sept. 6, 1950		A	Dry every summer.[5]
308	do	Fred Meade		Dr	69.0	6	Sandstone	L	46.2	do		Dom	Water stains yellow.[5]
309	do	Hysell Burchett.	Charlie McKenzie.	Dr	52	6	do	L	21	When drilled	Electric, jet	Dom	Gas in well. Water stains yellow.[5]
310	do	Smith Blevins		Dr	90	6	do	L	40	Sept. 6, 1950		Dom	Water hard, stains, unfit for laundry.[5]
311	do	Rastus Salyers		Dug	18		Sand	Al			Hand	Dom	Dry in 1937.[5]
312	do	do	Charlie McKenzie.	Dr	72	6	Sandstone	L	22	When drilled	Electric	Dom	Supplies home and service station.
313	do	Smith Blevins		Dr	47	6		L	32.5	Sept. 6, 1950		Dom	"Sulfur water." [5]
314	do	Loy Williams	Link Fyffe	Dr	95	6	Shale?	L	69.8	do		Dom	
315	do	do		Dug	17.0		Shale	L	7.2	do		Dom	Dry in summer 1947.[5]
316	Highway 460 at junction with Highway 172.	Jim Fraser		Dug	23.2			Al	4.3	do		Dom	Dry in "real dry season." [5]
317	Highway 460, near junction with Highway 172.	Frank Pelphry	J. H. Fyffe	Dr	47.0	6	"Blue slate"?	L	24.1	Sept. 15, 1950		Dom	Supplies 4 families.
318	do	George Blevins		Dr	36.0	6		L	19.1	do		A, Dom	Red sediment in water.[5]
319	do			Dug	14.4	36			6.5	do			

320	Highway 460	R. W. Tackett	J. H. Fyffe	Dr	29	6	Sandstone	L			Hand	S	Water red, unfit for laundry.[5]
321	do	do		Dug	25.5		do	L	9.2	Sept. 15, 1950		Dom	Never dry.[5]
322	do	Mrs. Melvin Blair.		Dug	14.3		"Slate"?	L	7.0	do		Dom	
323	do	Harold Stapleton.		Dug	31.0	8	Sandstone	L	19.4	do		Dom	Never dry, water enters well from joint in sandstone.[5]
324	do	Laura Pelphry		Dug	23.3				16.9	do		Dom	
325	do	Willis McKenzie.	Charlie McKenzie.	Dr	51.0	6	Sandstone	L	14.1	do		A, Dom	Water clear when drawn, turns red after standing, unfit for laundry.[5]
326	do	M. Tackett	J. H. Fyffe	Dr	75	6	do	L	25	August 1950?	Electric, jet	Dom	Chemical analysis in table 2. Water stains plumbing and laundry.
327	do	G. Trimble		Dr	65	6	do	L	34.3	Sept. 15, 1950		A, Dom	Well may be partly filled with trash.[5]
328	do	Mitchel McKenzie.	J. H. Fyffe	Dr	90	6	do	L	25 or 30	June 1949	Electric, jet	Dom	Water tastes of gas and turns red when heated.[5] Water left running pumped well dry in 3 hours and 45 minutes.
329	do	Charlie Conley		Dug	30			Al	22.6	Sept. 15, 1950		Dom	Dry in summer.[5]
330	do	do		Dug	30			Al	9.9	do		S	Dry in dry summer.[5]
331	do	do	J. H. Fyffe	Dr	51	6	Sandstone	L	24.0	do	Electric, jet	Dom	Water stains red.[5]
332	do	E. A. Barnett		Dug	36		do	L	19.7	Sept. 18, 1950		Dom	Never dry.[5] Cistern used mostly.
333	do	Shay Spradlin	Charlie McKenzie.	Dr	38	6	do	L	14.3	do			Water stains red.[5]
334	Tiny Branch	Ray Salyers		Dug	32.5		"Blue slate"	B	10.2	do		Dom	Dry every year.[5]
335	do	do	Everett Conley.	Dr	57	6	Sandstone	L	27	do		S	Water stains red, unfit for laundry.[5]
336	Highway 460, near Staffordsville.	Smith Blevins	Link Fyffe	Dr	51	6	Sandy shale	L	33.5	Sept. 6, 1950		A, Dom	Red sediment in water.
337	Middle Fork	Kentucky-West Virginia Gas Co.	Wagoner and Mathews.	Dr	2,378							A	Gas test. Altitude 656.80 feet. Log in table 5. Water at 40-363 feet (filled hole).[5]
338	Jenny Creek	do	Eddie Hitchcock.	Dr	2,429								Gas test. Altitude 737.0 feet. Log available. Water at 355 feet.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3745-339	Jenny Creek	Kentucky-West Virginia Gas Co.		Dr	2,449								Gas test. Altitude 654.5 feet. Log in table 5. Water at 128 feet and 140 feet (filled hole).[5]
340	Jenny Creek at Denver.	do		Dr	2,569								Gas test. Altitude 681 feet. Partial log available.
341	Rockhouse Creek	Inland Gas Co.		Dr	2,319								Gas test. Altitude 680.48 feet. Log available.
342	do	do		Dr	2,415								Gas test. Altitude 713.18 feet. Log available. Water (5½ bailers per hour) at 215-222 feet.[5]
343	Line Branch			Dr	2,455							A	Gas test. Altitude 633 feet. Log available.
344	Rockhouse Creek	Inland Gas Co.	Oliver Jenkins.	Dr	2,357								Gas test. Altitude 654 feet. Log in table 5.
345	do	do		Dr	2,400								Gas test. Altitude 696 feet. Log available. Water 60-70 feet.[5]
346	Jenny Creek	Columbian Fuel Corp.		Dr	2,450								Gas test. Altitude 650 feet. Log available. Water (2 bailers per hour) at 70 feet and 105 feet (filled hole).[5]
347	Highway 460, near Staffordsville.		Reed	Dr	1,532								Gas test. Altitude 745 feet. Log available. Well not plugged.

348	Rockhouse Creek	Inland Gas Co.	Oliver Jenkins	Dr	2,408								Gas test. Altitude 765 feet. Log available.[5] Water at 265 feet.
349	do	do		Dr	2,414								Gas test. Altitude 790 feet. Log available. Water at 180 feet, and 200–547 feet (filled hole).[5]
350	do		Jesse Fairchild	Dr	2,434								Gas test. Altitude 788 feet. Log available. Water, (½ bailer) at 210 feet and (4 bailers each run) at 270 feet.[5]
351	do	Inland Gas Co.		Dr	2,389½								Gas test. Altitude 727 feet. Log available. Water at 68 feet (filled hole) and 295 feet (filled hole).[5]
352	Left fork of Rockhouse Creek.			Dr	2,435								Gas test. Altitude 707 feet. Log available.
353	Rockhouse Creek	Inland Gas Co.		Dr	2,430								Gas test. Altitude 735 feet. Log available.
8250–3750–3	Highway 172 at Volga.	J. W. Prater	Charlie McKenzie.	Dr	69	6	Sandstone	L	40		Electric, jet	Dom	Chemical analysis in table 2. Never pumped dry.[5]
4	do	do		Dr	40	6	do	L	20			A, Dom	Well plugged.
5	do	Mrs. L. McKenzie.		Dug	15.5				10.8	Nov. 7, 1949		Dom	
6	do	Earl Pelphry		Dug	11.8		Shale	B	4.4	do		Dom, S	
7	do	J. W. Prater	Cecil Hitchcock.	Dr	31.7	6	Sandstone	L	26.8	do		A, Dom	Low in dry weather.[5]
8	Stonecoal Branch opposite Volga Post Office.	Cecil Hitchcock.		Dug	22.1		do	L	21.04	do		A	Dug to top of bedrock and hole drilled in bottom of well.[5] Abandoned observation well.
9	Stonecoal Branch west of Volga Post Office.	James McKenzie.	Link Fyffe	Dr	70	6	do	L	20.94	do		Dom	Chemical analysis in table 2. Water heard running into well. Abandoned observation well.
10	do	Ray McKenzie	Charlie McKenzie.	Dr	63.6	6	do	L	20.88	do		Dom	Surface water runs into well. Abandoned observation well.

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3750-11	100 feet south of Kentucky Rural Highway 1030, 0.4 mile west of Volga Post Office.	Mayford E. Estep.		Dr	72	6	Sandstone	L	44.55	Nov. 7, 1949		Dom	Observation well.
12	135 feet north of Kentucky Rural Highway 1030, 0.4 mile west of Volga Post Office.	Homer Picklesimer.		Dug	14.7	36	Shale	B	6.84	do		Dom	Water piped to house by gravity. Observation well.
13	Highway 172, 0.75 mile south of Volga Post Office.	Frank Lemaster.	Charlie McKenzie.	Dr	31.2	6	Sandstone	L	10.5	Feb. 28, 1950		Dom	Chemical analysis in table 2. Observation well.
14	Highway 172, near junction with Highway 460.	Paris Blevins		Dug	18			Al	8	do		Dom	Low in dry season.[5] Supplies 3 families.
15	do	Jesse Jayne		Dug	20		"Fill"	Al				Dom	Low in dry season.[5] Supplies 2 families.
16	Highway 172 north of junction with Highway 460.	Paris Blevins		Dr	62.5	6	Sandstone?	L	11.5	Feb. 28, 1950		A, Dom	"Sulfur water," unfit for cooking or laundry.[5]
17	do	Jim Fraser	Charlie McKenzie.	Dr	[6] 56	6	Sandstone	L	22.5	do		Dom	Chemical analysis in table 2. Well bucket lost in bottom of well.
18	Highway 172	Jim Pickle	John Sluss	Dr	72	6	Sandstone and shale.	L	13.9	do		A, Dom	High in iron, unfit for use.[5] Abandoned observation well.
19	do	do	Charlie McKenzie.	Dr	35	6	Sandstone	L	14.0	do		Dom	"Sulfur water," unfit for laundry.[5]
20	do	Floyd Lemaster.	do	Dr	100	6	do	L				A, Dom	Brownish sediment in water.
21	do	Sam Blair	do	Dr	100	6	do	L			Bailer		Rope and bailer stained reddish brown. Gas in well.[5]
22	do	William C. Taylor.	do	Dr	40.0	6	do	L	22.9	Feb. 28, 1950		Dom	

23	do	Bert Taylor	J. H. Fyffe	Dr	30	6	do	L	13.6	Mar. 1, 1950		Dom	Drilled in sandstone 14–30 feet, "slate" 30–32 feet, last 2 feet (30–32 feet) plugged off with cement.[5]
24	Highway 172, near Volga.	Pluney Blevins	Charlie McKenzie.	Dr	50	6	do	L				A	Well drilled to provide water for drilling gas well. Observation well.
25	do	Charlie McKenzie.	do	Dr	34	6	do	L	26.0	Mar. 2, 1950		Dom	Chemical analysis in table 2. Cuttings available.
26	Highway 172, 0.8 mile south of Volga Post Office.	Sanford Blanton.		Dug	17.2		do	L	15.8	June 5, 1950		Dom	Observation well.
27	Highway 201, Goose Fork.	Steve Branham		Dug	28			Al	4.8	July 25, 1950		Dom	Dry in dry years.[5] Supplies 2 families.
28	Highway 201	Chester Witten		Dug	35		Sand	Al?	5	do		Dom	Dry in dry season.[5]
29	Highway 201, Rush Fork.	Hager Hill Coal Co.		Dr	35	6	Sandstone	B	3	When pump installed 1944.	Electric, jet	Dom	Gas in well, pumped all day without pumping well dry.[5]
30	do	John Cordil		Dug	35			B	2	July 26, 1950		Dom	Dry once in past 15 years.[5]
31	do	Della Rice		Dr	[6] 52	6		B	20.0	July 27, 1950		Dom	Water stains clothing, unfit for laundry.[5] Supplies 2 families.
32	Stave Branch	Herbert Witten		Dug	24.5				8.3	Aug. 24, 1950		Dom	
33	do	Mrs. T. Castle		Dug	20			B	10	do		Dom	Low only once, 1932.[5]
34	do	Milt Witten		Dug	19.2	24		Al	2.9	do	Hand	S	Never dry.[5]
35	Rule Branch, near Staffordsville.	Roy Hamilton	J. H. Fyffe	Dr	59.1	6		L	19.8	Aug. 30, 1950		Dom	
36	do	Homer King		Dr	54.4	6		L	18.4	do		Dom	Water called "white lime water" by tenants.
37	do	Loyd Williams		Dug	16		Sandstone	L	11.9	do		Dom	Water enters well from crack in sandstone; dry once since well dug in 1946.[5]
38	do	D. McKenzie	J. H. Fyffe	Dr	45	6	Shale	L	23	do		Dom, S	Can be bailed dry in short time.[5]
39	do	do	Everett Conley.	Dr	96	6	"Watersand"	L	80	do	Electric, jet	Dom	
40	do	D. McKenzie		Dug	10	12		Al	4.6	do		Dom	Dry every fall.[5]
41	do	Lindsey Williams.	Charlie Hitchcock.	Dr	56.4	6		L	43.4	do		A, Dom	"Sulfur water," unfit for laundry.[5]
42	do	do		Dug	14	40		Al	4.9	do		Dom	
43	do	Estell Hall		Dug	20		Coal	L	4.8	do	Hand	Dom	Never dry.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3750-44	Rule Branch, near Staffordsville.	G. C. Meade	Everett Conley.	Dr	57½	10		L	27.2	Aug. 30, 1954		A, Dom	Water stains red, unfit for laundry or cooking.[5]
45	do	do		Dug	12½						Electric	Dom	
46	do	Walter Jackson		Dug	20		Sandstone	L	16	Aug. 30, 1950	do	Dom	Low every fall.[5]
47	do	do	Link Fyffe	Dr	60	6	do	L	30	When drilled in 1946.	Electric, jet	S, Co	Supplies small dairy.
48	do	do		Dug	16		do	L	[6]4	Aug. 30, 1950		A	Never dry, water enters well from crack in sandstone.
49	do	do		Dug	14			Al	7	do	Hand	S	Never dry.[5]
50	Rule Branch	Sandy King and Joe King.	Charlie McKenzie.	Dr	101	6	Sandstone	L	42.3	Sept. 5, 1950		Dom	Well obstructed at 88.8 feet.
51	Rule Branch, near Staffordsville.	Lottie Perkins		Dug	14		do	L	6.8	do		Dom	Low in fall, dry twice in past 18 years.[5]
52	do	Paris Tackett	Charlie McKenzie.	Dr	85	6	do	L	49.1	do		Dom	
53	do	A. G. Worstell	J. H. Fyffe	Dr	75.7	6	do	L	36.8	do		Dom	
54	Off Rule Branch, near Staffordsville.	A. King	Charlie McKenzie.	Dr	83.5	6	do	L	26.4	do		Dom	
55	do			Dr	67.5	6	do	L	28.9	do			
56	do	Earl King		Dr	165	6							Well obstructed at 35.5 feet.
57	do	Joe Picklesimer	Charlie McKenzie.	Dr	69	6	Sandstone	L	24.3	Sept. 5, 1950		Dom	Well obstructed at 46 feet. Red "dregs" in water when large amounts withdrawn.[5]
58	Rule Branch, near Staffordsville.	Archie Selvage	Link Fyffe	Dr	56	6	do	L	29.4	do		Dom	
59	Little Mudlick Creek	Lizzie Blevins		Dug	30.8		do	L	5.9	do		Dom	Never dry.[5]
60	do	do		Dr	199		do	L			Electric, piston.	Dom	
61	do	Wayne Blevins	J. H. Fyffe	Dr	71.5		do	L	39.8	Sept. 5, 1950		A, Dom	Sulfur taste and odor, unfit for use.[5]
62	do	Lon Butler	do	Dr	140	6	do	L	120			A	Well plugged.
63	do	do		Dug	21.5		do	L	4.8	Sept. 5, 1950		Dom	Dry in dry season.[5]
64	do	Gaius Hamilton	J. H. Fyffe	Dr	50	6	Shale	B	22.8	do		Dom	

65	do	Mary Stambaugh.		Dr	37.3	6		B	9.9	do		Dom	Water stains red.[5]
66	do	Tobe Wheeler	J. H. Fyffe	Dr	58	6		B	8.9	do		Dom	Water stains yellow, unfit for laundry.[5]
67	do	do		Dug	23.2				7.8	do		Dom	Never dry.[5]
68	do	Everett Conley	Everctt Conley.	Dr	30	6	Coal	B	11.8	do		Dom	Could not be bailed dry.[5] Water unfit for laundry or cooking.
69	do	do		Dug	19			Al				Dom	Dug to top of rock, water enters well from crack in rock.[5] Surface water runs into well.
70	Highway 172	Joe Calvin	Charlie McKenzie.	Dr	49	6	Sandstone	L	23.6	Sept. 6, 1950		Dom	Cuttings available. Log in table 5.
71	do	Floyd Lemaster		Dug	18			Al				Dom	Low in dry season.[5]
72	do	Chalmer Blair	Charlie McKenzie.	Dr	53	6	Sandstone	L	17.7	Sept. 6, 1950		A, Dom	Water is red.[5]
73	Little Mudlick Creek			Dr	79.0	6	do	L	46.6	Sept. 7, 1950	Bailer		Bailer and rope stained yellow.
74	do			Dr	93.4	6	do	L	46.7	do			
75	Highway 172	Frank Picklesimer.	Pat Ramsey	Dr	92–94	6	do	L	63.9	Sept. 6, 1950		Dom	Water clear when drawn, turns red with oily skim after standing. Cistern used for most domesic needs.
76	do	Brice Moore		Dr	62.9	6	do	L	18.9	Sept. 7, 1950		Dom	Water stains red.[5]
77	do	W. B. Blevins		Dug	19.0	14	do	L	6.0	do		Dom	Never dry.[5]
78	do	Ralph Conley		Dug	22.0				11.8	do		Dom	Do.[5]
79	do	H. C. Tackett		Dug	20–22		Sand	Al	9.1	do		Dom	Do.[5]
80	do	Leroy Tackett	Link Fyffe, Jr.	Dr	59.9	6	Sandstone	L	36.8	do		Dom	New well not yet used. "Sulfur water."[5]
81	Rocky Knob Branch, near Highway 172.	Oka Tackett		Dug	13.0		Shale	B	4.4	Sept. 14, 1950		Dom	Water enters from 3 holes drilled in bottom of well.
82	do	Floyd Tackett		Dug	20.0		Sandstone	L	11.1	do		Dom	Almost dry in 1948, shot bottom of well and not dry since.[5]
83	Highway 172	do		Dr	34	6	do	L	20	do		Dom	
84	do	Rosa Spradlin	Charlie McKenzie.	Dr	28	6	do	L	14		Electric	Dom	
85	do	do		Dug	21.0		do	L	7.1	Sept. 14, 1950		A, Dom	Low in dry weather.[5] Hole drilled in bottom of well.
86	do	Frank Spradlin	Charlie McKenzie.	Dr	37.0	6	do	L	5.2	do		Dom	Water stains red.[5]
87	do	Ernest Thompson.		Dr	54.0	6	do	L	21.8	do		Dom	Do.[5]

See footnotes at end of table.

TABLE 3.—*Records of wells in the Paintsville area, Kentucky*—Continued

Well No.	Location (see pl. 1.)	Owner or user	Driller	Type of well [1]	Depth of well [2] (feet)	Diameter of well (inches)	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation [3]	Water level: Below land surface [2] (feet)	Water level: Date of measurement	Method of lift	Use of water [4]	Remarks
8250-3750-88	Highway 172	Harold Thompson.	J. H. Fyffe	Dr	70.5	6	Sandstone	L	41.4	Sept. 14, 1950		A, Dom	
89	do	Willard Thompson.	Charlie McKenzie.	Dr	51.4	6	do	L	30.1	do		Dom	Water stains red, unfit for laundry.[5]
90	do	Worth Blevins	do	Dr	46.0	6	do	L	31.6	do		Dom	Water hard, stains red, unfit for laundry.[5]
91	do	do		Dug	21.4		do	L	8.6	do		Dom	Dry nearly every summer.[5]
92	Slate Branch	Dennis Blevins		Dug	14.2		Shale	B	5.5	do		Dom	Dry only once, 1932.[5]
93	Highway 172	Buell Daniels	Charlie McKenzie.	Dr	80	6	Sandstone	L				Dom	
94	do	B. F. Pelphry		Dug	19.0		do	L	10.2	Sept. 14, 1950		Dom	Well went dry before hole was drilled 5 feet into rock in bottom of well.[5]
95	do	Jesse Pelphry		Dug	19		do	L	14	do		Dom	Never dry.[5] Water enters well from cracks in rock.
96	Laurel Branch	Sam Tackett		Dug	16.0			Al	8.0	do		Dom	Dry during 2 or 3 summer months.[5]
97	do			Dug	23.4				5.8	do			
98	do	James Clark		Dug	11.4			B	5.8	do		Dom	Dry during summer of 1948.[5] Supplies 3 families.
99	do	Pat Salyers		Dug	15.5	40		Al	3.9	do		Dom	Well dug to top of bedrock; not dry in past 6 years.[5]
100	Highway 460, near Staffordsville.	Shay Spradlin		Dr	45	6	Sandstone	L	40			Dom	
101	do	do	J. H. Fyffe	Dr	42	6	do	L	25.9	Sept. 18, 1950		S	Well not used much.
102	do	Herbert Blair		Dr	54.0	6	do	L	19.5	do		Dom	Water stains red, unfit for laundry.[5]
103	do	do		Dr			do	L			Hand	A, Dom	
104	Highway 172	Zollie Ward, No. 1.		Dr	1,910								Gas test. Altitude 613 feet. Log available.

105	Little Mudlick Creek	J. P. Butler, No. 1.	-----	Dr	1,798	-----	-----	-----	-----	-----	-----	-----	Gas test. Altitude 830 feet. Log available.
106	Stave Branch-----	J. L. Preston farm, well No. 1.	S. C. Allen---	Dr	2,424	-----	-----	-----	-----	-----	-----	-----	Gas test. Altitude 744 feet. Log available. Water at 20 feet and 185 feet.[5]
107	Little Mudlick Creek	J. W. Leakes farm.	-----do-----	Dr	2,388	-----	-----	-----	-----	-----	-----	-----	Gas test. Altitude 788 feet. Log in table 5.
108	-----do-----	J. G. Rice farm, well No. 1.	Reed-----	Dr	2,531	-----	-----	-----	-----	-----	-----	-----	Gas test. Altitude 759 feet. Log available.
109	Highway 172, near Volga.	W. H. McKenzie farm, well No. 1.	E. M. Conley et al.	Dr	2,380	-----	-----	-----	-----	-----	-----	-----	Gas test. Altitude 668 feet. Log available. Water at 54 feet.[5]

1 Dr, drilled; D, driven.
2 Unless otherwise indicated, figures expressed in feet and tenths are measured; and whole numbers and numbers with proper fractions are reported.
3 Al, alluvium; B, Breathitt; L, Lee.
4 A, abandoned; C, commercial; Dom, domestic; In, industrial; P, public supply; S, stock; Sc, school; Mu, municipal; Co, cooling; W, washing; Su, supply.
5 Reported
6 Measured

TABLE 4.—*Records of springs in the Paintsville area, Kentucky*

Spring No.	Location (see pl. 1)	Owner or name	Topographic situation	Principal water-bearing bed: Character of material	Principal water-bearing bed: Geologic formation	Yield: Gallons per minute	Yield: Date of measurement	Use of water	Temperature (° F)	Remarks
8245-3745-S-1	Richmond Gap at Van Lear.	Richard Bevil	Base of cliff on hillside.	Sandstone and coal.	Breathitt			Domestic		Contact spring, small coal mine opening.
2	do	do	do	do	do			do		Do.
3	Along Levisa Fork, near Van Lear.	Martha Webb	River terrace	Silt	Alluvium			do		Tubular spring or seep. Basin dug about 5 feet. Reported dry in fall.
4	Highway 23, Fletcher Gap.		Road cut on hillside.	Sandstone	Breathitt			do		Joint spring. Chemical analysis in table 2.
5	Burnt Cabin Branch, near Hager Hill.	Walter Blevins	Base hillside	Sandstone?	do			do		Joint spring. Basin shot out and walled with rock.
6	Off Highway 23 and 460, near Paintsville.		Side steep hill	Sandy siltstone.	do			do	65	Joint spring. Basin hollowed out along strike of vertical joint. Supplies 6 families.
8245-3750-S-1	Whippoorwill Branch		Base of steep hillside.	Sandstone or coal.	do					Contact spring or may be caved mine entrance. Iron deposits.
2	Highway 23, Turner Branch.		Base of hillside	Shale	do				66	Pipe driven horizontally into bank leads to storage tub. May be seepage spring.
8250-3745-S-1	Highway 460 at Staffordsville.	Theadore Ealey	Base of bench on hillside.	do	Lee			Stock	64	Seepage spring. Storage basin hollowed out and walled up.
2	Highway 460, near Staffordsville.	Smith Blevins	Base of low cliff at base of hillside.	do	do			Domestic	74½	Joint spring. Storage basin dug about 5 feet deep and wooden box put over basin.
3	Highway 460	Bud Tackett	Hillside	Sandstone	do			do	60	Joint spring. Basin hollowed out under overhanging sandstone roof, walled up, and piped to house by gravity. Reported low in summer.
8250-3750-S-1	Highway 201		Road cut on hill	do	Breathitt	5	July 26, 1950	do	61	Small basin hollowed out for storage. Contact spring.
2	Off Rule Branch, near Staffordsville.		Hillside	do	Lee	¼	Sept. 5, 1950		64	Small basin hollowed out for storage. Joint spring. Slight iron deposit present.
3	do		do	do	do	2	do	Domestic	60	Small channel and storage basin lead from spring. Joint spring.
4	Little Mudlick Creek, near Staffordsville.	Wayne Blevins	Bank of small branch.					do		Spring enclosed in cement box. Water piped to house and barn lot by gravity.

TABLE 5.—*Well logs in the Paintsville area, Kentucky*

Well: 8245-3745-11

Altitude of land surface: 650 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
"Quicksand"	38	38	Hole full of water at 20-40 feet.
Pennsylvanian system:			
Breathitt formation:			
Slate, blue	97	135	
Shale	15	150	
Sand	5	155	
Slate, gray	25	180	
Lee formation:			
Sand, gray	30	210	
Slate, gray	20	230	
Sand, gray	85	315	
Slate, blue	10	325	
Sand, white	25	350	
Slate	2	352	
Sand	75	427	
Slate	5	432	
Sand, white	98	530	Complete record not given here. Well depth 2,745 feet.

Well: 8245-3745-30

Altitude of land surface: Approximately 620 feet above mean sea level
Record by: Driller and author (samples 48-145 feet examined by author)
Static water level: 35.0 feet below land surface, Sept. 15, 1950

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Silt and sand (reported)	48	48	
Pennsylvanian system:			
Breathitt formation:			
Little coal. Sand, probably washed under casing.	2	50	
Shale, gray	80	130	Little water at 75 feet.
Shale, dark, coaly	5	135	
Coal and shale	5	140	
Lee formation:			
Sand, fine-grained, white	5	145	Water, salty, at 140 feet.

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8245-3745-204

Static water level: 13.22 feet below land surface, Apr. 7, 1950

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Soil and sand	10	10	
Clay (reported)	40	50	
Sand (reported)	10	60	Water.
Pennsylvanian system:			
Breathitt formation:			
Shale, sandy, micaceous	25	85	Water tastes slightly salty.

Well: 8245-3745-394

Altitude of land surface: 635 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Surface	65	65	
Pennsylvanian system:			
Breathitt formation:			
Slate and shells	25	90	
Slate	20	110	
Sand	20	130	
Slate	20	150	
Sand	20	170	
Slate	10	180	
Sand	30	210	
Slate	10	220	
Sand	80	300	
Slate	40	340	
Lee formation:			
Sand	100	440	
Slate	10	450	
Sand	248	698	
Mississippian system:			
Pennington formation:			
Slate and shells	55	753	
Maxon sand (of drillers)	17	770	
Little Lime (of drillers)	5	775	
Break	2	777	
Big Lime (of drillers)	93	870	Complete record not given here. Well depth 2,740 feet.

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8245-3745-397

Altitude of land surface: 645 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Drift	28	28	
Pennsylvanian system:			
Breathitt formation:			
Slate	32	60	
Coal	2	62	Water at 62 feet.
Slate	88	150	
Sand	20	170	
Slate	125	295	
Sand	25	320	
Slate	160	480	
Lee formation:			
Sand	120	600	Water at 495 feet, 1 bailer per hour. Water at 580 feet, hole full.
Slate	50	650	
Sand	40	690	Water at 675 feet.
Slate	5	695	
Sand	45	740	
Mississippian system:			
Pennington formation:			
Slate and shells	70	810	
Sand	35	845	
Big Lime (of drillers)	165	1,010	Complete record not given here. Well depth 2,827 feet.

Well: 8245-3745-402

Altitude of land surface: Approximately 615 feet above mean sea level
Record by: Chesapeake and Ohio Railway Co.
Static water level: 46 feet below land surface (reported)

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Clay	10	10	
Clay, sandy	20	30	
Sand, brown, muddy	27	57	
Mud, blue	8	65	
Sand, gray, muddy	20	85	
Pennsylvanian system:			
Breathitt formation:			
Slate	25	110	
Shale, gritty	15	125	Little water.
Slate	43	168	
Shale, gritty	28	196	
Cavity	1	197	Water, salty.
Lee formation:			
Sandstone	1	198	

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8245-3745-403

Altitude of land surface: 600 feet above mean sea level (reported)

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Silt, with some sand. Yellow to ochre. Some plastic zones with a little clay.	22	22	
As above but with some organic matter probably representing a buried soil zone.	4	26	
Sand, 1.0–0.1 millimeter grains, angular to semiangular, mainly clean quartz, some feldspar, limonite, muscovite.	32. 5	58. 5	
Sandstone, medium- to very fine-grained, quartz with much fine interstitial material, mainly mica.	1. 5	60	

Well: 8245-3745-405

Altitude of land surface: Approximately 616 feet above mean sea level
Record by: Mr. Niles of the Frye Engineering Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Clay, "fat," yellow and red	16	16	Water first found at 4½ feet.
Clay, blue	9	25	When blue clay and sand found at 25 feet, water level rose to 2 feet below surface.
Clay, blue, and sand, some fire clay, coal, and organic matter.	27	52	

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8245-3750-59

Altitude of land surface: 622 feet above mean sea level
Record by: Kentucky Geological Survey Bulletin, ser. 5, Bull. 1

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Soil	55	55	
Pennsylvanian system:			
Breathitt formation:			
Slate, black	185	240	
Lee formation:			
Sand, brown	20	260	
Slate, white	30	290	
Sand, gray	103	393	
Slate, white	42	435	
Sand, white	265	700	Base of Pottsville.
Mississippian system:			
Big Lime (of drillers)	150	850	Complete log not given here. Well depth 2,006 feet.

Well: 8245-3750-215

Record by: Driller and author (samples 100-133 feet examined by author)

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Overburden (reported)	17	17	
Pennsylvanian system:			
Breathitt formation:			
Shale (reported)	83	100	
Shale, dark-gray	3	103	
Shale, gray, slightly micaceous.	2	105	
Shale, gray micaceous	2½	107½	
As above	½	108	
As above but with some very fine-grained micaceous sandstone.	2	110	
Shale, gray	5	115	
Shale, gray, slightly micaceous.	5½	120½	
As above	5	125½	
As above	5	130½	
Shale, gray	2½	133	

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8245-3750-326

Altitude of land surface: 685 feet above mean sea level
Record by: Driller

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Sand and gravel	14	14	
Pennsylvanian system:			
Breathitt formation:			
Sand	51	65	
Slate	25	90	Water ½ bailer per hour at 85 feet.
Coal	2	92	
Slate	163	255	More water 130–135 feet. About 1 bailer per hour.
Lee formation:			
Sand	135	390	Water, hole full 310–318 feet.
Slate	15	405	
Sand	200	605	
Sand, broken	33	638	
Mississippian system:			
Lime	10	648	
Slate	8	656	
Lime	6	662	
Slate	28	690	
Little Lime (of drillers)	30	720	Complete log not given here. Well depth 1,836 feet.

Well: 8250-3745-243

Record by: Driller and author (samples examined by author)
Static water level: 17.9 feet below land surface, Apr. 17, 1950

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Soil and mantle (reported)	6	6	
Pennsylvanian system:			
Breathitt formation:			
Sandstone, very fine-grained, iron stains.	9	15	
Sandstone, light-gray	5	20	
Sandstone, very fine-grained, silty, micaceous, yellowish.	4	24	
As above	6	30	
Sandstone (no sample) called "mud seam" by driller as water was muddy and did not clear up when bailed.	5	35	Some water at 35 feet.
Coal (no sample)	1	36	
Sandstone, very fine-grained, gray, some black, micaceous shale, some coal.	5	41	
Sandstone, very fine-grained, some gray shale.	8	49	Some water at 44 feet.
Shale, gray	6	55	
Shale, gray	20	75	

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8250-3745-337

Altitude of land surface: 656.80 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Mud	20	20	
Sand and gravel	10	30	
Pennsylvanian system:			
Breathitt formation:			
Slate	10	40	Water at 40 feet.
Sand	5	45	
Slate, dark	5	50	
Coal	4	54	
Slate, dark	31	85	
Slate, light	30	115	
Sand, light	50	165	
Slate, dark	40	205	
Sand	30	235	
Slate, light	45	280	
Lee formation:			
Sand	85	365	Water, hole full at 363 feet.
Slate	10	375	
Sand	95	470	
Slate and shells	5	475	
Sand	75	550	
Mississippian system:			
Pennington formation?:			
Red rock	10	560	
Slate, light	5	565	
Lime, black	20	585	
Break	10	595	
Sand, dark	5	600	
Slate, dark	30	630	
Lime, black	14	644	
Big Lime (of drillers)	48	692	Complete log not given here. Well depth 2,378 feet. Hole plugged filled up to 720 feet.

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8250-3745-339

Altitude of land surface: 654.5 feet above mean sea level
Record by: Kentucky-West Virignia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Soil and sand	30	30	
Pennsylvanian system:			
Breathitt formation:			
Slate	15	45	
Coal	2	47	
Slate and shells	128	175	Water at 128 feet.
Sand, hard	5	180	Water, hole full at 140 feet.
Slate	100	280	
Lee formation:			
Salt sand	248	528	
Mississippian system:			
Slate and shells	10	538	
Sand	9	547	
Slate	3	550	
Lime shells	7	557	
Slate	10	567	
Lime shells	5	572	
Slate	22	594	
Big Lime (of drillers)	43	637	Complete log not given here. Well depth 2,449 feet.

Well: 8250-3745-344

Altitude of land surface: 654 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Clay	14	14	
Pennsylvanian system:			
Lee formation:			
Sand	6	20	
Slate	2	22	
Sand	133	155	
Slate	5	160	
Sand	265	425	
Slate	2	427	
Sand	13	440	
Slate	11	451	
Mississippian system:			
Little Lime (of drillers)	31	482	
Big Lime (of drillers)	85	567	Complete log not given here. Well depth 2,357 feet.

TABLE 5.—*Well logs in the Paintsville area, Kentucky*—Continued

Well: 8250-3750-70

Record by: Driller and author (samples examined by author)
Static water level: 23.6 feet below land surface, Sept. 6, 1950

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Surface (reported)	20	20	
Pennsylvanian system:			
Lee formation:			
Sand, fine- to very coarse-grained, mostly clean quartz, some smoky quartz, broken pebbles 4 millimeters in diameter crystal faces on some grains.	4	24	
As above with some mica	4	28	
Sand, fine- to medium-grained, poorly sorted, friable.	4	32	
Sand, a very fine- to fine-grained, yellowish, slightly micaceous, angular, some coal or carbonaceous shale.	3	35	
As above, more carbonaceous shale with iron stains on bedding planes.	3	38	
As above	3	41	
As above	3	44	
Sand, medium- to very coarse-grained, yellow, angular quartz, micaceous, iron-stained.	5	49	

Well: 8250-3750-107

Altitude of land surface: 787.67 feet above mean sea level
Record by: Kentucky-West Virginia Gas Co.

	Thickness (feet)	Depth (feet)	Remarks
Recent and Pleistocene:			
Alluvium:			
Surface	12	12	
Pennsylvanian system:			
Breathitt formation:			
Slate	18	30	
Lee formation:			
Sand	120	150	
Slate	30	180	
Sand	250	430	
Slate	10	440	
Sand	65	505	
Slate	5	510	
Mississippian system:			
Little Lime (of drillers)	5	515	
Pencil Cave (of drillers), slate	4	519	
Big Lime (of drillers)	101	620	Complete record not given here. Well depth 2,388 feet.

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*

[Section at steel bridge across Paint Creek about 1 mile north of Manilla Post Office west of the Paintsville area]

	Thickness	
	Feet	Inches
Pennsylvanian system:		
Lee formation:		
Sandstone, fine- to medium-grained, cross-bedded, scattered quartz pebbles, "Bee Rock" weathering	55	0
Shale, dark, lens	2	0
Sandstone, fine-grained, yellow, coarsens upward with scattered quartz pebbles	48	8
Shale, contains thin bank of sandstone	1	6
Sandstone, gray, fine-grained, sugary	----	6
Shale, brown	1	6
Sandstone, conglomeratic, quartz pebbles up to 6 millimeters in diameter	1	0
Sandstone, micaceous, impure	1	0
Sandstone, fine-grained, thin-bedded, cross-bedded	10	7
Sandstone, medium-grained, rare small quartz pebbles, iron oxide concretions, weathered gray, fresh surface yellow, quartz pebbles 3 or 4 millimeters in diameter, sand well sorted, semi-rounded, massive	31	10
Total, about	154	

Base of section at east end of steel bridge.

SECTION 1

[Section of Breathitt formation measured from Club House at Van Lear to top of hill above Richmond Gap. Van Lear section]

	Thickness	
	Feet	Inches
Pennsylvanian system:		
Breathitt formation:		
Sandstone, massive, caps ridge	87	0
Coal bloom, poorly exposed in slump	----	6
Covered interval	95	2
Coal bloom, poorly exposed in prospect ditch	----	10
Covered interval	19	8
Sandstone, top covered	29	0
Coal	1	6
Underclay, gray	3	0
Covered interval	4	7
Sandstone, massive, top covered	8	0
Coal	2	8
Underclay, gray	1	0
Covered interval	1	6
Sandstone, fine-grained, massive, bench-forming, iron-stained bands	2	6
Shale, silty	----	10
Sandstone, very fine-grained	----	9
Shale, silty, platy, grades downward to black, thin-bedded shale	5	8
Ironstone	----	3
Shale, black, silty, fossiliferous	1	1
Iron carbonate ore, silty, fossiliferous, *Spirifer*	----	3½
Shale, black, thin-bedded, platy, fossiliferous, *Lingula* and *Chonetes* shells	4	11

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*—Con.

SECTION 1—Continued

	Thickness	
	Feet	*Inches*
Pennsylvanian system—Continued		
Breathitt formation—Continued		
Sandstone, massive, grades to thin-bedded sandstone	24	1
Shale, black, silty, thin-bedded	5	0
Underclay, brownish-gray, soft, shaly	----	2
Coal	----	11
Clay, gray to brownish, soft, nonplastic	----	2
Coal	----	11
Underclay, light brownish-gray, silty, contains abundant plant stems	----	8
Sandstone, fine-grained, platy in lower part, plant stems in upper part	4	10
Clay, silty, light-gray, well-laminated	1	0
Clay, gray, semiplastic	----	4
Clay, dark-brown to black, hard	----	1
Coal bloom	----	1
Underclay, dark, hard, bituminous	----	5½
Underclay, light-gray, silty, root traces	----	5½
Sandstone, medium-grained, massive	20	1
Shale, black, thin-bedded, carbonaceous	1	7
Coal	1	3
Underclay, gray	----	1½
Coal	----	3
Shale, alternating black and gray clay	1	6
Underclay, gray	----	8
Shale, black, carbonaceous	----	1
Clay, light-gray	----	5½
Coal	----	5½
Underclay, dark-gray to black, hard	----	3½
Coal	----	9
Underclay, light-gray, grades downward into gray siltstone, root stems	5	6
Sandstone, very fine-grained, micaceous, gray, platy	1	6
Sandstone, fine- to medium-grained, light-gray, slightly micaceous	21	5½
Coal bloom, poorly exposed	----	1
Underclay, light-gray, silty	----	11
Siltstone, light-brown, mottled-gray, iron-stained	2	4
Sandstone, fine-grained	1	2
Shale, black, sandy	5	0
Shale, black, micaceous, thin-bedded	12	10
Sandstone, massive	6	0
Covered interval	6	0
Sandstone, thin-bedded, irregularly bedded, contains thin streaks of coal and fossil tree impressions	3	0
Coal, badly weathered, poorly exposed	----	9½
Sandstone, very fine-grained, clayey, contains root traces	1	6
Siltstone, ferruginous, reddish-brown	1	6
Sandstone, fine-grained, greenish, well-indurated, unevenly thin-bedded, platy	11	7
Covered interval	6	0

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*—Con.

SECTION 1—Continued

	Thickness Feet	Thickness Inches
Pennsylvanian system—Continued		
Breathitt formation—Continued		
Sandstone, massive, medium-grained, cliff-former	23	3
Coal	----	2
Silt and clay, fine-bedded, well-indurated	14	5
Sandstone, medium-grained	4	0
Covered interval	13	5
Clay, grading downward into silt and clay, very fine-grained sandstone, and fine-grained sandstone	6	4
Covered interval	1	6
Silt and clay, well-indurated	3	0
Covered interval	29	6
Sandstone, fine-grained	8	7
Ironstone	----	6
Clay	1	6
Sandstone, very fine-grained, with intercalated hard siltstone	2	0
Shale, clayey, greenish-gray	1	0
Covered interval	5	6
Sandstone, massive	3	0
Shale, clayey, greenish-gray to black	2	0
Coal, Van Lear coal	2	10
Total, about	547	

Base of section at old No. 2 mine opening.

SECTION 2

[Section measured on north side of gap between Muddy Branch and Whipporwill Branch near Thealka. Whipporwill section]

	Thickness Feet	Thickness Inches
Pennsylvanian system:		
Breathitt formation:		
Sandstone, light-gray, massive, capping ridge (not measured)	----	-----
Covered interval, may be shale	28	6
Sandstone, massive, pink near top, ironstone nodules, plant fossils	51	4
Covered interval, may contain coal	51	4
Limestone, septarian concretions, slightly fossiliferous, fractured and mineralized along tiny veins, poorly exposed above gap, thickness not determinable	----	-----
Covered interval, may be shale	21	9
Coal	----	6
Clay, plastic, parting in coal	----	3
Coal	----	5
Sandstone, fine-grained, silty, grades downward into sandy siltstone	8	8
Coal, top 6 inches canneloid, dark, hard clay at base	1	1
Underclay, brownish-gray to black	1	5
Sandstone, shaly, micaceous, gray	2	9

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*—Con.

SECTION 2—Continued

	Thickness	
	Feet	Inches
Pennsylvanian system—Continued		
Breathitt formation—Continued		
Sandstone, massive to thin-bedded, fine-grained, micaceous	2	0
Siltstone, shaly, slightly carbonaceous, sandy near top, pencil fracture in siltstone	2	10
Coal	1	6
Underclay, light-gray to white, nonplastic	2	4
Sandstone, massive, fine-grained, micaceous, contains coaly streaks, cross-bedded, brown to gray	23	8
Unconformity		
Coal	----	11
Underclay, gray, sandy, root traces	1	10
Shale, silty, gray, harder and sandy at top, contains ironstone nodules	39	4
Sandstone, very fine-grained, micaceous, iron-stained	----	4
Siltstone, brownish-gray, pencil fractured	4	8
Sandstone, massive, fine- to medium-grained, micaceous, iron-stained, brown- to grayish-white, tight	22	5
Covered interval	6	0
Shale, silty, gray to brownish, poorly exposed in washed bank, slightly fossiliferous	11	0
Coal, thin, poorly exposed	----	-----
Underclay, gray, iron-stained, semiplastic when wet, hard when dry, contains carbonaceous material	----	7
Sandstone, very fine-grained, clayey, very micaceous, contains carbonaceous streaks, plant material, soft on weathered surface, gray	3	2
Sandstone, micaceous, fine-grained, gray to brownish, iron-stained, ironstone nodules, top covered	----	6
Sandstone, black, micaceous, carbonaceous, very fine-grained	----	6
Sandstone, contains ironstone nodules	----	6
Sandstone, fine-grained, iron-stained	2	6
Covered interval	22	5
Sandstone, massive, medium-grained, gray, iron-stained, contains coaly streaks	3	0
Siltstone, gray, slippery when wet	----	2
Coal, Van Lear coal	2	6
Sandstone, fine-grained, gray, micaceous, plant traces	----	6
Sandstone, fine-grained, gray, micaceous, carbonaceous streaks	3	9
Shale, black to brownish, contains thin bands of ironstone, bottom covered	1	11
Total, about	329	

Base of section in ditch at base of hill.

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*—Con.

SECTION 3

[Section measured from outcrop of Van Lear Coal on Baker Branch to top of hill above divide between Baker Branch and Willey Creek. Baker Branch section]

	Thickness	
	Feet	Inches
Pennsylvanian system:		
Breathitt formation:		
Covered to top of hill	35	0
Sandstone, massive, fine- to medium-grain, white, micaceous, cliff-forming	91	0
Covered interval	15	0
Coal bloom, poorly exposed, not measured	----	-----
Covered interval	9	0
Sandstone, top covered, not measured	----	-----
Coal	2	0
Covered interval	25	0
Clay, plastic, tenaceous	----	6
Coal	----	8
Underclay, gray, plastic	1	0
Sandstone, fine-grained, bottom covered	3	6
Covered interval, may be sandstone	17	0
Sandstone, fine- to medium-grained, contains streaks of carbonaceous material	6	0
Coal, canneloid	----	3
Coal	1	1
Shale, contains streaks of bituminous material	----	2
Clay parting, brownish-gray, slightly laminated, nonplastic	1	3
Coal, bottom covered	1	11
Siltstone, brownish-gray, poorly exposed	11	0
Sandstone, thin-bedded, cross-bedded, contains ironstone nodules, very fine-grained	11	3
Coal	----	9
Clay, brownish gray, flinty	----	1
Shale, black, bituminous	----	3
Underclay, gray	----	2
Siltstone, thin-bedded, micaceous, brown to grayish, top 3 feet contains ironstone nodules, may contain coal	11	8
Covered interval	13	9
Siltstone, brown to grayish, thin-bedded	22	5
Sandstone, fine-grained, contains mica, iron-stained, white on fresh surface, brown on weathered surface	9	8
Shale, clayey, brown to black, contains *Lingula*	4	0
Coal bloom, very poorly exposed	----	1
Underclay, grayish-brown, contains plant fossils	----	2
Clay, gray on weathered outcrop, olive-gray on fresh surface, weathered shale outcrop?	5	6
Shale, silty, light-brown, ironstone nodules	9	1
Sandstone, fine-grained, medium-bedded at base, thin-bedded at top, base cross-bedded	8	8
Covered interval	12	10
Shale, sandy, contains ironstone nodules, limestone concretions	4	0
Covered interval	18	0
Sandstone, top covered	1	0

TABLE 6.—*Measured sections in and near the Paintsville area, Kentucky*—Con.

SECTION 3—Continued

	Thickness Feet	Thickness Inches
Pennsylvanian system—Continued		
Breathitt formation—Continued		
Siltstone, laminated and clayey	3	0
Coal, Van Lear coal	3	0
Shale, black	----	6
Total, about	361	

Base of section about 5 feet above creek bed.

SECTION 4

[Section measured about 1 mile up Stave Branch from its mouth. Stave Branch section]

	Thickness Feet	Thickness Inches
Pennsylvanian system:		
Breathitt formation:		
Siltstone, blue-gray, clayey, contains ironstone nodules	10	0
Limestone, door-knob concretions, blue, sandy, dense	1½–2	0
Siltstone	10	0
Coal, Van Lear coal, exposed in strip mine	3	0
Underclay, gray, not measured	----	-----
Covered interval	11	3
Shale, light- to pale-olive, poorly exposed, badly weathered	6	0
Sandstone, very fine-grained, very hard, contains fossil tree impressions	----	2
Clay, greenish-gray, ironstone nodules, not measured	----	-----
Shale, pale-olive, yellow-green, poorly exposed	39	3
Coal bloom, poorly exposed in ditch, not measured	----	-----
Underclay, light greenish-gray	2	0
Shale, pale-olive, slightly sandy, contains thin, hard sandstone stringers, grades upward into soft, very fine-grained, shaly sandstone	19	10
Covered interval	5	7
Shale, pale-olive, becomes increasingly micaceous upward, top covered, poorly exposed	6	0
Coal bloom, poorly exposed, not measured	----	-----
Underclay, light greenish-gray, not measured	----	-----
Shale, top pale-olive, bottom 2 feet grayish-green to black, ironstone nodules in top half, bottom poorly exposed	33	5
Sandstone, hard, forms little ledges in ditch, not measured	----	-----
Shale, grayish-green, iron-stained, streaks of carbonaceous material	10	7
Sandstone, grayish-green, fine-grained, micaceous	----	8
Shale, greenish-gray, clayey, top 7 inches grayish-black and showing pencil fracture	5	7
Sandstone, light greenish-gray, iron-stained, fine- to medium-grained, slightly micaceous, tight	26	0
Shale, pale-green	1	0
Sandstone, light greenish-gray, micaceous, medium- to coarse-grained, not well-indurated, grades upward into shaly sandstone, bottom covered	6	7
Total, about	199	

Base of section at level of Stave Branch road.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky* [1]

WELL 8245-3745-92

[Owned by E. P. Welch]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1951*—Con.		*1951*—Con.	
Nov. 2	44.56	June 26	44.52	Jan. 31	44.38	Nov. 19	46.52
Dec. 6	46.66	July 3	47.10	Feb. 12	42.25	Dec. 3	46.40
		July 17	47.49	Feb. 26	42.99	Dec. 17	40.11
1950		July 26	44.96	Mar. 14	43.85	Dec. 31	44.32
Jan. 3	45.52	July 27	42.44	Mar. 27	43.63		
Feb. 6	37.13	July 31	45.29	Apr. 9	43.51	*1952*	
Feb. 20	44.55	Aug. 14	47.91	Apr. 23	44.94		
Mar. 6	46.24	Aug. 28	48.34	May 7	42.47	Jan. 14	42.80
Mar. 20	44.71	Sept. 11	47.45	May 21	46.44	Jan. 28	37.45
Apr. 1	43.61	Sept. 25	44.19	June 4	47.01	Feb. 11	43.98
Apr. 17	46.51	Oct. 9	47.90	June 18	46.38	Feb. 25	44.89
Apr. 29	47.22	Oct. 23	47.82	July 2	47.46	Mar. 10	44.09
May 3	46.32	Nov. 6	45.21	July 16	48.35	Mar. 24	31.00
May 15	40.76	Nov. 21	46.41	July 30	48.35	Apr. 7	44.98
May 22	46.30	Dec. 5	39.00	Aug. 13	48.83	Apr. 20	45.86
May 24	44.98	Dec. 18	44.13	Aug. 27	49.43	May 5	44.05
May 25	44.62			Sept. 10	48.70	May 19	44.86
May 26	44.82	*1951*		Sept. 24	48.88	June 2	45.31
May 29	45.54			Oct. 8	49.12	June 16	47.82
June 5	44.72	Jan. 2	46.95	Oct. 22	49.38	June 30	47.54
June 19	46.86	Jan. 15	45.24	Nov. 5	47.39		

WELL 8245-3745-93

[Owned by Albert Skauge]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1950*—Con.	
Nov. 2	42.50	Apr. 1	40.58	June 5	41.84	Sept. 11	44.65
Dec. 6	46.34	Apr. 17	43.30	June 19	44.02	Sept. 25	41.62
		Apr. 29	44.47	June 26	41.70	Oct. 9	44.89
1950		May 3	43.84	July 3	44.11	Oct. 23	45.63
		May 15	38.38	July 17	44.89	Nov. 6	43.03
Jan. 3	42.44	May 22	41.56	July 26	42.96	Nov. 21	43.95
Feb. 6	32.84	May 24	42.09	July 27	40.55	Dec. 5	37.33
Feb. 20	41.90	May 25	41.83	July 31	42.44	Dec. 18	41.24
Mar. 6	43.64	May 26	41.96	Aug. 14	45.17		
Mar. 20	41.96	May 29	42.68	Aug. 28	45.63		

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8245-3745-92—Continued

Noon daily water-level in feet below land-surface datum from recorder graph, 1951

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	--------	--------	--------	39.28	43.12	43.70	45.20	46.03	46.84	46.13	46.65	42.95
2	[2] 44.15	--------	--------	39.62	42.87	43.93	44.94	46.06	46.78	46.25	45.35	43.25
3	--------	--------	--------	39.70	42.20	44.14	44.90	46.13	46.73	46.35	44.81	43.46
4	--------	--------	--------	38.23	--------	44.25	45.02	46.28	46.50	46.42	44.94	43.54
5	--------	--------	--------	38.28	--------	43.80	45.28	46.15	46.36	46.47	44.95	43.61
6	--------	--------	--------	38.98	--------	42.48	45.30	46.29	46.40	46.50	44.71	43.79
7	--------	--------	--------	39.62	39.85	42.20	45.17	46.27	46.41	46.55	44.85	43.57
8	--------	--------	--------	40.32	39.36	[3] 42.53	45.28	46.38	46.33	46.55	44.70	42.64
9	--------	--------	--------	40.68	39.26	42.66	45.40	46.45	46.18	46.52	44.45	--------
10	--------	--------	--------	41.05	39.90	42.77	45.55	46.45	46.09	46.48	44.41	--------
11	--------	--------	--------	41.26	40.50	42.47	45.62	46.39	46.25	46.48	--------	39.92
12	--------	[2] 38.39	--------	41.27	41.16	42.48	45.69	46.11	46.21	46.55	--------	40.87
13	--------	--------	--------	40.62	41.58	42.85	45.77	46.25	46.30	46.55	44.73	41.58
14	--------	--------	[2] 41.15	39.36	41.94	42.97	45.71	46.38	46.36	46.57	44.95	41.51
15	[2] 42.88	--------	--------	--------	42.24	42.96	45.77	46.44	45.61	46.58	44.74	40.21
16	--------	--------	--------	40.05	42.47	43.13	45.75	46.42	45.51	46.60	44.66	35.65
17	--------	--------	--------	40.54	42.77	43.37	45.67	46.52	45.52	46.66	--------	--------
18	--------	--------	--------	40.60	43.08	43.60	45.59	46.56	45.64	46.67	--------	38.97
19	--------	--------	--------	40.86	43.32	43.77	45.69	46.60	45.77	46.74	43.82	39.93
20	--------	--------	--------	41.35	43.43	43.98	45.89	46.60	45.92	46.69	44.03	39.66
21	--------	--------	--------	41.45	43.67	44.19	45.92	46.63	46.00	46.82	44.10	38.36
22	--------	--------	--------	41.80	43.76	44.28	45.98	46.74	46.05	46.81	44.27	35.95
23	--------	--------	--------	42.25	43.97	44.52	46.06	46.77	46.28	46.77	44.43	35.72
24	--------	--------	--------	42.20	43.96	44.67	46.14	46.75	46.23	46.94	44.69	38.12
25	--------	--------	--------	42.45	43.85	44.80	45.96	46.77	46.24	46.88	43.75	39.21
26	--------	[2] 39.91	--------	42.62	43.78	44.89	46.06	46.80	46.07	46.83	42.50	40.17
27	--------	--------	[2] 40.68	42.88	43.94	45.06	45.50	46.85	46.06	46.80	41.72	40.45
28	--------	--------	--------	42.94	44.10	45.16	45.61	46.78	46.06	46.84	41.78	40.33
29	--------	--------	--------	43.00	44.07	45.28	45.73	46.76	45.97	46.87	42.38	40.66
30	--------	--------	--------	43.10	43.88	45.27	45.76	46.80	46.03	46.83	42.68	41.02
31	[2] 41.59	--------	40.76	--------	43.62	--------	45.85	46.81	--------	46.86	--------	41.38

Noon daily water-level in feet below land-surface datum from recorder graph, 1952

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	41.83	------------	43.29	40.86	36.70	42.24
2	42.04	------------	42.95	41.37	38.30	42.58
3	41.84	------------	42.51	41.67	39.75	42.77
4	41 27	------------	41.33	41.75	40.46	43.07
5	40.65	39 09	38.84	42.15	41.03	------------
6	40.62	39.10	38.41	42.19	41.59	------------
7	40.84	39.49	39.70	42.32	42.06	------------
8	40.95	39.73	40.33	42.43	42.23	------------
9	41.53	40.38	40.78	42.54	42.57	44.28
10	41.81	40.74	41.16	42.64	42.77	44.43
11	39.54	41.17	41.25	42.94	41.88	44.57
12	38.26	41.45	40.16	42.91	41.47	44.58
13	39.15	41.59	38.91	42.99	40.06	44.69
14	39.87	41.39	39.77	43.25	39.77	44.77
15	40.42	39.47	40.25	43.06	40.57	------------
16	40.82	38.96	40.77	43.05	40.92	45.01
17	40.92	39.22	41.28	42.93	41.28	45.13
18	41.05	39.64	41.51	42.97	41.75	45.36
19	40.12	39.83	41.75	43.05	41.99	45.35
20	40.03	40.18	41.70	43.20	41.13	45.53
21	40.14	40.77	41.50	43.33	39.09	45.65
22	39.95	41.16	40.88	43.44	40.17	45.57
23	37.66	41.31	------------	43.54	40.81	45.02
24	33.99	41.72	------------	43.64	41.32	------------
25	35.18	42.11	28.52	42.57	41.66	------------
26	37.74	42.15	32.30	41.93	42.02	------------
27	38.49	42.39	------------	40.36	42.14	------------
28	35.21	42.48	------------	37.15	42.29	------------
29	33.25	42.91	------------	35.02	42.47	44.67
30	33.28	------------	------------	------------	42.17	44.84
31	------------	------------	------------	------------	42.02	------------

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8245-3745-94

[Owned by John Davis]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1951*—Con.		*1951*—Con.	
Nov. 2	16.27	July 31	9.41	Mar. 27	8.85	Dec. 3	12.42
Dec. 6	15.98	Aug. 14	12.06	Apr. 9	8.87	Dec. 17	9.06
1950		Aug. 28	13.06	Apr. 23	9.74	Dec. 31	9.49
Jan 3	10.60	Sept. 11	11.23	May 7	7.34	*1952*	
Feb. 6	7.64	Sept. 25	8.65	May 21	11.39	Jan. 14	8.68
Feb. 20	9.80	Oct. 9	8.56	June 4	12.14	Jan. 28	6.31
Mar. 6	11.68	Oct. 23	7.50	June 18	11.92	Feb. 11	8.84
Mar. 20	9.33	Nov. 6	8.10	July 2	12.63	Feb. 25	10.00
Apr. 1	10.20	Nov. 21	7.55	July 16	14.26	Mar. 10	9.08
Apr. 17	11.87	Dec. 5	8.05	July 30	14.17	Mar. 24	7.57
Apr. 29	13.44	Dec. 18	9.31	Aug. 13	14.44	Apr. 7	9.46
May 3	12.41	*1951*		Aug. 27	15.62	Apr. 20	11.52
May 15	8.95	Jan. 2	11.19	Sept. 10	14.55	May 5	9.08
May 29	7.53	Jan. 15	7.20	Sept. 24	14.51	May 19	8.62
June 5	7.31	Jan. 31	8.45	Oct. 8	15.65	June 2	9.80
June 19	8.69	Feb. 12	8.63	Oct. 22	14.96	June 16	11.79
June 26	8.57	Feb. 26	8.62	Nov. 5	15.04	June 30	12.74
July 3	10.59	Mar. 14	7.92	Nov. 19	13.84		
July 17	11.35						

WELL 8245-3745-152

[Owned by Mrs. Maria L. Rice]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1950*—Con.	
Nov. 4	46.92	Apr. 17	46.69	June 5	45.31	Aug. 28	49.27
Dec. 6	47.96	Apr. 29	47.97	June 19	47.53	Sept. 11	47.90
1950		May 3	47.72	June 26	45.18	Sept. 25	45.14
Jan 3	46.18	May 15	43.01	July 3	47.35	Oct. 9	48.45
Feb. 6	35.40	May 22	44.50	July 17	48.48	Oct. 23	49.27
Feb. 20	44.58	May 24	45.13	July 26	47.14	Nov. 6	46.96
Mar. 6	47.00	May 25	45.10	July 27	45.15	Measurement	discon-
Mar. 20	45.72	May 26	45.21	July 31	45.86	tinued.	
Apr. 1	44.17	May 29	45.94	Aug. 14	48.68		

WELL 8245-3745-155

[Owned by Mrs. Lucy Hall]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1951*—Con.		*1951*—Con.	
Nov. 4	52.49	June 26	50.39	Jan. 31	49.06	Nov. 5	53.97
Dec. 6	52.02	July 3	53.41	Feb. 12	47.24	Nov. 19	52.60
1950		July 17	49.73	Feb. 26	46.96	Dec. 3	52.45
Jan 3	50.11	July 26	50.57	Mar. 14	46.58	Dec. 17	53.09
Feb. 6	47.24	July 27	52.06	Mar. 27	46.84	Dec. 31	49.71
Feb. 20	47.08	July 31	51.32	Apr. 9	46.57	*1952*	
Mar. 6	47.88	Aug. 14	51.64	Apr. 23	46.13	Jan. 14	48.75
Mar. 20	49.14	Aug. 28	52.07	May 7	47.33	Jan. 28	47.83
Apr. 1	49.64	Sept. 11	50.26	May 21	48.54	Feb. 11	46.69
Apr. 17	50.19	Sept. 25	51.66	June 4	48.99	Feb. 25	47.23
Apr. 29	50.78	Oct. 9	49.73	June 18	49.24	Mar. 10	47.63
May 3	49.67	Oct. 23	50.04	July 2	50.85	Mar. 24	47.72
May 15	51.10	Nov. 6	50.54	July 16	50.52	Apr. 7	46.67
May 22	50.39	Nov. 21	50.25	July 30	51.83	Apr. 20	48.76
May 24	50.77	Dec. 5	51.32	Aug. 13	52.72	May 5	47.89
May 25	50.39	Dec. 18	48.33	Aug. 27	51.83	May 19	47.82
May 26	49.26	*1951*		Sept. 10	52.56	June 2	47.96
May 29	48.92	Jan 2	48.44	Sept. 24	52.05	June 16	50.09
June 5	48.81	Jan. 15	48.59	Oct. 8	52.25	June 30	49.65
June 19	50.58			Oct. 22	52.31		

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8245-3745-404

[Owned by Kentucky Water Co.]

Noon daily water-level from recorder graph, 1951, in feet below land-surface datum

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	----------	26.90	27.09	27.44	27.94	27.94	27.74	27.92	26.52
2	----------	26.92	27.10	27.50	27.95	27.96	27.72	27.72	26.58
3	----------	26.76	27.13	27.52	27.91	27.97	27.72	27.64	26.62
4	----------	26.67	27.19	27.47	28.00	28.00	27.79	27.60	26.56
5	----------	26.66	----------	27.51	28.02	27.96	27.84	27.63	26.61
6	----------	26.70	----------	27.48	27.99	27.89	27.86	27.42	26.86
7	----------	26.57	26.98	27.43	27.87	27.90	27.84	27.27	26.73
8	----------	26.40	26.85	27.43	27.90	27.92	27.94	27.27	26.51
9	----------	26.29	26.72	27.45	27.98	27.86	27.93	27.23	----------
10	----------	26.23	26.68	27.51	28.03	27.81	27.94	27.17	----------
11	----------	26.15	26.71	27.54	28.04	27.86	27.93	27.16	----------
12	----------	26.35	26.76	27.55	28.08	27.81	28.00	27.06	----------
13	----------	26.48	26.77	27.59	28.09	27.73	28.03	27.02	----------
14	----------	26.61	26.81	27.58	28.10	27.72	28.02	27.00	----------
15	----------	26.66	26.82	27.58	28.08	27.63	27.97	27.04	----------
16	----------	26.64	26.86	27.59	28.05	27.56	27.97	26.93	----------
17	----------	26.66	26.94	27.62	28.08	27.53	28.00	26.90	25.92
18	----------	26.74	27.03	27.64	28.10	27.53	28.01	26.84	25.73
19	[2] 26.69	26.81	27.08	27.62	28.12	27.58	28.03	26.83	25.97
20	26.54	26.84	27.10	27.71	28.11	27.63	28.00	26.87	25.82
21	26.52	26.90	27.17	27.73	28.09	27.66	28.04	26.86	25.70
22	26.51	26.92	27.18	27.75	28.16	27.59	28.04	26.87	25.82
23	26.69	26.87	27.27	27.75	28.22	27.72	28.02	26.87	25.85
24	26.63	26.86	27.36	27.76	28.23	27.70	28.06	26.92	26.00
25	26.64	26.84	27.41	27.78	28.22	27.68	28.15	26.81	25.93
26	26.69	26.80	27.39	27.80	28.21	27.66	28.07	26.58	26.07
27	26.78	26.78	27.42	27.80	28.15	27.68	27.98	26.50	26.21
28	26.75	26.84	27.46	27.81	28.07	27.83	27.94	26.42	26.08
29	26.77	26.95	27.46	27.87	28.03	27.83	28.07	26.48	26.04
30	26.82	27.03	27.40	27.91	27.99	27.77	28.02	26.51	26.01
31	----------	27.08	----------	27.90	27.96	----------	28.07	----------	26.16

Noon daily water-level in feet below land-surface datum from recorder graph, 1952

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	26.30	25.78	26.64	26.00	26.07	26.36
2	26.37	25.80	26.65	26.16	26.12	26.45
3	26.33	25.73	26.48	26.31	26.29	26.47
4	25.98	25.67	26.24	26.31	26.38	26.52
5	25.77	25.83	26.39	26.32	26.40	26.62
6	25.69	25.86	26.35	26.43	26.50	26.71
7	25.80	25.97	26.36	26.48	26.65	26.76
8	25.65	25.91	26.31	26.52	26.62	26.84
9	25.78	26.06	26.24	26.54	26.68	26.91
10	25.96	26.10	26.20	26.53	26.63	26.93
11	26.02	26.14	26.15	26.63	26.51	27.02
12	25.93	26.30	26.14	26.54	26.36	27.01
13	25.90	26.34	25.87	26.45	26.28	27.08
14	25.95	26.32	26.09	26.55	26.26	27.14
15	26.04	26.27	26.12	26.65	26.18	27.17
16	26.20	26.12	26.16	26.75	26.12	27.20
17	26.10	26.06	26.26	26.78	26.07	27.24
18	26.21	26.13	26.25	26.76	26.12	27.30
19	26.08	26.05	26.23	26.75	26.10	27.30
20	26.12	25.99	26.26	26.77	25.89	----------
21	26.19	26.15	26.30	26.81	25.67	----------
22	25.94	26.27	26.01	26.82	25.61	----------
23	26.09	26.24	25.44	26.83	25.65	----------
24	26.17	26.27	25.30	26.81	25.73	27.34
25	26.06	26.41	25.36	26.59	25.77	27.28
26	25.96	26.40	25.49	26.35	25.96	27.31
27	25.89	26.41	25.60	26.15	26.11	27.36
28	25.55	26.35	25.75	26.03	26.19	27.42
29	25.56	26.48	25.85	26.00	26.26	27.45
30	25.69	----------	26.00	26.05	26.27	27.42
31	25.76	----------	26.02	----------	26.30	----------

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8245-3750-149

[Owned by J. K. Van Hoose]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1951*—Con.	
Nov. 4	7.67	May 15	6.86	Oct. 23	6.62	Mar. 14	5.09
Dec. 6	7.99	May 29	6.24	Nov. 6	5.08	Mar. 27	5.30
		June 5	4.98	Nov. 21	5.26	Apr. 9	5.62
1950		June 19	6.02	Dec. 5	4.50	Apr. 23	6.53
Jan. 3	5.64	July 3	6.65	Dec. 18	5.80	May 7	6.39
Feb. 6	4.22	July 17	7.11			May 21	7.24
Feb. 20	5.87	July 31	5.74	*1951*		June 4	7.47
Mar. 6	7.44	Aug. 14	7.50	Jan. 2	7.30	June 18	6.45
Mar. 20	6.14	Aug. 28	7.95	Jan. 15	4.55	July 2	7.17
Apr. 1	5.82	Sept. 11	6.42	Jan. 31	5.67	July 16	7.67
Apr. 17	7.28	Sept. 25	4.47	Feb. 12	5.27	Measurement discontinued.	
Apr. 29	7.55	Oct. 9	6.40	Feb. 26	5.42		

WELL 8245-3750-150

[Owned by Jess Burchett]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1951*—Con.	
Nov. 4	6.80	May 15	5.42	Oct. 23	5.65	Mar. 14	3.03
Dec. 6	14.70	May 29	5.55	Nov. 6	2.53	Mar. 27	5.36
		June 5	3.08	Nov. 21	1.76	Apr. 9	5.29
1950		June 19	3.25	Dec. 5	1.80	Apr. 23	5.98
Jan. 3	5.24	July 3	7.32	Dec. 18	5.23	May 7	3.37
Feb. 6	6.60	July 17	7.20			May 21	6.77
Feb. 20	8.98	July 31	6.67	*1951*		June 4	7.27
Mar. 6	6.25	Aug. 14	7.88	Jan. 2	6.00	June 18	6.67
Mar. 20	4.26	Aug. 28	9.77	Jan. 15	1.16	July 2	7.03
Apr. 1	4.96	Sept. 11	6.79	Jan. 31	3.06	July 16	7.69
Apr. 17	6.36	Sept. 25	5.20	Feb. 12	3.58	Measurement discontinued.	
Apr. 29	7.01	Oct. 9	5.38	Feb. 26	4.80		

WELL 8250-3745-36

[Owned by W. M. Senters]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1951*—Con.	
Nov. 2	10.20	May 15	9.22	Nov. 6	7.70	Mar. 27	7.75
Dec. 6	10.29	May 29	8.78	Nov. 21	7.88	Apr. 9	8.12
		June 5	7.90	Dec. 5	6.95	Apr. 23	8.57
1950		June 19	8.03	Dec. 18	7.87	May 7	8.48
		July 3	8.45			May 22	8.90
Jan. 3	9.47	July 17	9.05	*1951*		June 4	9.20
Feb. 6	5.92	July 31	7.94			June 18	9.37
Feb. 20	7.63	Aug. 14	8.92	Jan. 2	8.83	July 2	9.64
Mar. 6	8.48	Aug. 28	9.42	Jan. 15	8.14	July 16	9.84
Mar. 20	8.08	Sept. 11	8.52	Jan. 31	8.09	Measurement discontinued.	
Apr. 1	7.97	Sept. 25	6.55	Feb. 12	7.08		
Apr. 17	8.70	Oct. 9	8.28	Feb. 26	7.64		
Apr. 29	9.00	Oct. 23	8.73	Mar. 14	8.13		

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8250-3745-37

[Owned by W. M. Senters]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1951*—Con.	
Nov. 2	9.73	May 15	9.27	Nov. 6	7.79	Mar. 27	8.18
Dec. 6	10.11	May 29	8.87	Nov. 21	8.04	Apr. 9	8.47
		June 5	7.84	Dec. 5	7.32	Apr. 23	8.99
1950		June 19	8.62	Dec. 18	8.53	May 7	8.48
		July 3	8.52			May 22	9.21
Jan. 3	8.65	July 17	9.61	*1951*		June 4	9.66
Feb. 6	7.10	July 31	8.29			June 18	9.73
Feb. 20	8.30	Aug. 14	9.59	Jan. 2	9.20	July 2	10.10
Mar. 6	9.02	Aug. 28	9.92	Jan. 15	7.85	July 16	10.15
Mar. 20	8.40	Sept. 11	9.00	Jan. 31	8.25	Measurement discontinued.	
Apr. 1	8.33	Sept. 25	7.65	Feb. 12	7.76		
Apr. 17	9.13	Oct. 9	8.99	Feb. 26	8.10		
Apr. 29	9.40	Oct. 23	9.13	Mar. 14	8.37		

WELL 8250-3750-11

[Owned by M. E. Estep]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1951*		*1951*—Con.	
Nov. 7	44.55	June 5	43.06	Jan. 2	43.15	Aug. 13	44.27
Dec. 6	45.22	June 19	43.07	Jan. 15	42.43	Aug. 27	44.37
		July 3	43.07	Jan. 31	42.48	Sept. 10	44.27
1950		July 17	42.96	Feb. 12	42.20	Sept. 24	44.44
		July 31	42.33	Feb. 26	41.83	Oct. 8	44.57
Jan. 3	43.95	Aug. 14	43.10	Mar. 14	41.57	Oct. 22	44.79
Feb. 6	42.74	Aug. 28	43.60	Mar. 27	41.89	Nov. 5	44.72
Feb. 20	43.30	Sept. 11	42.99	Apr. 9	41.51	Nov. 19	44.05
Mar. 6	43.46	Sept. 25	42.82	Apr. 23	42.42	Dec. 3	43.51
Mar. 20	43.52	Oct. 9	42.56	May 7	42.04	Dec. 17	43.41
Apr. 1	42.90	Oct. 23	42.69	May 22	42.09	Dec. 31	42.81
Apr. 17	43.17	Nov. 6	42.61	June 4	42.61		
Apr. 29	43.55	Nov. 21	42.74	June 18	42.14		
May 3	43.44	Dec. 5	42.50	July 2	42.91		
May 15	43.30	Dec. 18	42.69	July 16	43.37		
May 29	43.39			July 30	43.93		

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky* [1]—Con.

WELL 8250-3750-11—Continued

Noon daily water-level in feet below land-surface datum from recorder graph, 1952

Day	Jan.	Feb.	Mar.	Apr.	May	June
1					42.10	41.66
2					42.00	41.84
3					42.27	41.73
4					42.27	41.71
5					42.12	41.83
6					42.15	41.89
7				[2] 42.28	42.38	41.91
8					42.12	41.93
9					42.08	42.00
10			[2] 42.13			42.02
11		[2] 42.08			41.97	42.16
12					42.16	42.14
13					42.28	42.24
14	[2] 42.65				42.36	42.32
15				42.13	42.03	42.35
16					42.14	42.32
17					42.12	42.34
18					42.16	42.57
19					41.97	42.54
20					41.61	42.65
21				42.53	41.94	42.73
22				42.49	41.98	42.78
23				42.42	41.90	42.83
24			[2] 41.93	42.39	41.75	42.76
25		[2] 43.56		42.27	41.54	42.71
26				42.18	41.80	42.78
27				42.05	41.95	42.87
28	[2] 42.04			42.00	41.91	42.98
29				42.00	41.91	42.97
30				42.16	41.44	42.90
31					41.60	

WELL 8250-3750-12

[Owned by H. D. Picklesimer]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1949		*1950*—Con.		*1950*—Con.		*1951*—Con.	
Nov. 7	6.84	May 15	6.63	Oct. 23	6.41	Mar. 14	6.20
Dec. 6	6.80	May 29	6.81	Nov. 6	6.44	Mar. 27	6.59
		June 5	6.14	Nov. 21	5.90	Apr. 9	6.53
1950		June 19	3.46	Dec. 5	5.91	Apr. 23	6.68
Jan. 3	6.43	July 3	7.02	Dec. 18	6.58	May 7	5.61
Feb. 6	6.40	July 17	6.44			May 22	6.86
Feb. 20	6.80	July 31	6.63	*1951*		June 4	6.89
Mar. 6	6.97	Aug. 14	7.13	Jan. 2	6.70	June 18	6.60
Mar. 20	6.42	Aug. 28	7.40	Jan. 15	5.48	July 2	7.07
Apr. 1	6.52	Sept. 11	6.97	Jan. 31	5.62	July 16	7.34
Apr. 17	7.01	Sept. 25	6.55	Feb. 12	6.30	Measurement discontinued.	
Apr. 29	7.08	Oct. 9	6.50	Feb. 26	6.49		
May 3	6.85						

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8250-3750-13

[Owned by Frank Lemaster]

Water levels in feet below land.surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1950		*1950*—Con.		*1951*—Con.		*1952*	
June 5	10.80	Dec. 18	11.34	June 18	11.50	Jan. 14	11.15
June 19	9.26			July 2	11.71	Jan. 28	10.07
July 3	11.83	*1951*		July 16	11.79	Feb. 11	11.19
July 17	11.54	Jan. 2	11.58	July 30	11.98	Feb. 25	11.36
July 26	9.24	Jan. 15	10.27	Aug. 13	11.73	Mar. 10	11.16
July 27	10.61	Jan. 31	10.76	Aug. 27	11.58	Mar. 24	10.57
July 31	11.39	Feb. 12	10.84	Sept. 10	11.87	Apr. 7	11.28
Aug. 14	11.92	Feb. 26	11.14	Sept. 24	11.73	Apr. 20	11.56
Aug. 28	11.95	Mar. 14	10.83	Oct. 8	11.69	May 5	11.46
Sept. 11	11.61	Mar. 27	11.18	Oct. 22	11.91	May 19	11.12
Sept. 25	11.25	Apr. 9	11.21	Nov. 5	11.57	June 2	11.32
Oct. 9	11.35	Apr. 23	11.42	Nov. 19	11.44	June 16	11.67
Oct. 23	10.97	May 7	10.53	Dec. 3	11.51	June 30	11.60
Nov. 6	11.02	May 22	11.55	Dec. 17	10.96		
Nov. 21	10.69	June 4	11.68	Dec. 31	11.28		
Dec. 5	10.82						

WELL 8250-3750-24

[Owned by Pluney Blevins]

Noon daily water-level in feet below land-surface datum from recorder graph, 1951

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	----------	28.70	29.02	29.04	29.54	29.51	----------	29.43	28.57
2	----------	28.53	29.01	29.10	29.57	29.60	29.33	29.30	28.68
3	----------	28.34	29.02	29.09	29.53	29.70	29.37	29.38	28.65
4	----------	----------	29.10	29.07	29.64	29.70	29.41	29.45	28.55
5	----------	----------	28.98	29.13	29.64	29.62	29.47	29.52	28.58
6	----------	28.61	28.88	29.17	29.59	29.51	29.44	29.23	28.65
7	[2] 28.28	28.50	28.79	29.13	29.43	29.59	29.44	29.04	28.71
8	28.39	28.51	28.68	29.17	29.47	29.64	29.50	29.19	27.74
9	28.50	28.43	28.47	29.17	29.56	29.53	29.41	29.19	----------
10	----------	28.33	28.40	29.23	29.59	29.48	29.40	29.13	----------
11	----------	28.29	28.43	29.28	29.62	29.58	----------	29.10	27.86
12	28.44	28.58	28.44	29.23	29.53	29.55	----------	29.01	28.04
13	28.53	28.73	28.40	29.31	29.52	29.48	29.58	29.03	28.36
14	28.56	28.88	28.28	29.29	29.55	29.52	29.57	28.94	28.09
15	----------	28.76	28.29	29.30	29.53	29.49	29.44	29.08	----------
16	----------	28.67	28.34	29.30	29.49	29.49	29.42	28.86	----------
17	----------	28.67	28.39	29.32	29.58	29.42	29.49	28.93	----------
18	----------	28.76	28.46	29.34	29.61	29.42	29.45	28.90	27.95
19	----------	28.77	28.47	29.29	29.65	29.46	29.53	28.95	28.25
20	----------	28.75	28.54	29.44	29.64	29.49	29.41	28.98	28.03
21	----------	28.82	28.64	29.46	29.57	29.49	29.50	28.90	27.60
22	----------	28.78	28.63	29.47	29.67	29.36	29.50	28.91	27.95
23	----------	28.85	28.77	29.43	29.73	29.50	29.42	28.87	27.96
24	28.65	28.92	28.89	29.44	29.70	----------	29.56	28.79	28.16
25	28.63	28.93	28.91	29.49	29.71	29.31	29.63	28.68	28.07
26	28.66	28.77	28.87	29.46	29.63	29.29	29.48	28.41	28.31
27	28.76	28.78	28.92	29.40	29.56	29.31	29.40	28.47	28.44
28	28.66	28.88	28.95	29.48	29.56	----------	29.38	28.45	28.18
29	28.64	28.97	28.99	29.50	29.58	----------	29.57	28.57	28.17
30	28.63	29.06	28.94	29.53	29.54	----------	29.49	28.58	28.25
31	----------	29.08	----------	29.52	29.50	----------	29.57	----------	28.35

See footnotes at end of table.

TABLE 7.—*Water levels in observation wells in the Paintsville area, Kentucky*[1]—Con.

WELL 8250-3750-24—Continued

Noon daily water-level in feet below land-surface datum from recorder graph, 1952

Day	Jan.	Feb.	Mar.	Apr.	May	June
1	28.59	27.98	28.95	28.62	28.77	28.50
2	28.52	28.00	28.87	28.76	28.78	28.62
3	28.43	27.88	28.40	28.87	------------	28.67
4	28.08	27.62	28.21	28.79	------------	28.74
5	27.89	27.97	28.52	28.80	28.92	28.85
6	27.95	27.98	28.56	28.87	29.00	28.92
7	28.11	28.14	28.61	28.89	29.10	28.97
8	27.90	27.98	28.58	28.93	29.02	29.01
9	28.09	28.24	28.55	28.94	29.03	29.09
10	28.37	28.22	28.56	28.94	28.95	28.95
11	28.35	28.31	28.19	29.02	28.88	29.09
12	28.25	28.44	28.27	28.94	28.91	29.05
13	28.19	28.59	28.12	28.88	28.94	29.12
14	28.21	28.61	28.47	29.01	29.01	29.17
15	28.34	28.62	28.49	29.08	28.90	29.19
16	28.48	28.50	28.55	29.15	28.64	29.21
17	28.29	28.50	28.66	29.14	28.60	29.28
18	28.18	28.63	28.63	29.13	28.64	29.35
19	27.96	28.55	28.55	29.12	28.59	29.34
20	27.98	28.47	28.55	29.15	27.35	29.38
21	28.00	28.67	28.59	29.19	27.78	29.38
22	27.71	28.77	27.00	29.19	28.03	29.36
23	28.03	28.68	27.19	29.17	28.20	29.24
24	28.22	28.68	27.64	29.12	28.36	29.09
25	28.02	28.82	27.91	28.68	28.40	29.13
26	27.95	28.74	28.15	28.70	28.61	29.20
27	27.66	28.82	28.27	28.69	28.72	29.25
28	28.39	28.68	28.43	28.66	28.75	29.30
29	27.74	28.83	28.51	28.71	28.46	29.33
30	27.97	------------	28.63	28.77	28.31	29.24
31	28.00	------------	28.63	------------	28.38	------------

WELL 8250-3750-26

[Owned by Sanford Blanton]

Water levels in feet below land-surface datum

Date	Water level	Date	Water level	Date	Water level	Date	Water level
1950		*1950*—Con.		*1951*		*1951*—Con.	
June 5	15.23	Sept. 11	15.51	Jan. 2	14.88	May 7	14.83
June 19	15.61	Sept. 25	14.65	Jan. 15	14.48	May 22	15.19
July 3	15.89	Oct. 9	15.10	Jan. 31	14.47	June 4	15.54
July 17	16.07	Oct. 23	15.01	Feb. 12	13.48	June 18	15.08
July 26	15.82	Nov. 6	14.51	Feb. 26	13.95	July 2	15.47
July 27	15.71	Nov. 21	14.87	Mar. 14	14.23	July 16	15.30
July 31	15.74	Dec. 5	14.57	Mar. 27	14.01	Measurement discontinued.	
Aug. 14	16.26	Dec. 18	14.60	Apr. 9	14.24		
Aug. 28	16.27			Apr. 23	14.16		

[1] Description of wells are in table 3.
[2] Tape measurement.

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