Progress Report on Wells Penetrating Artesian Aquifers In South Dakota

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By R. W. Davis, C. F. Dyer, and J. E. Powell

ABSTRACT

Artesian aquifers underlie most of South Dakota and large areas in adjacent States. About 15,000 wells have been completed since 1881 in these aquifers within South Dakota. Many wells that originally flowed have ceased to flow and have been abandoned, and others have been equipped with pumps. Many thousands, however, continue to flow. This report presents data collected through June 1958 and includes records of 1,045 flowing and nonflowing artesian wells.

Sufficient information is not available at present (1958) to permit a detailed description of the geologic and hydrologic properties of artesian aquifers or their correlation in South Dakota. The description of the various aquifers given in this report is, therefore, necessarily a general one.

INTRODUCTION

PURPOSE AND SCOPE OF THE INVESTIGATION

Most of South Dakota and large areas in adjacent States are underlain by artesian aquifers. These aquifers yield water to flowing or pumped wells for stock-watering, domestic, municipal, and industrial uses.

Approximately 15,000 wells, most of them east of the Missouri River, have been completed in artesian aquifers in South Dakota since 1881. In 1955 the U.S. Geological Survey, in cooperation with the South Dakota State Water Resources Commission began an investigation to determine the present conditions of artesian wells and aquifers. This report presents data collected through June 1958 and includes records of 1,045 wells. Figure 1 shows the number of counties visited and the number of wells inventoried in each county.

The principal artesian aquifers that yield water to wells in South Dakota, together with their approximate ranges in depths of occurrence, in feet below the land surface, are the following geologic units: glacial drift (surficial deposits), Fox Hills sandstone (120–200), Niobrara formation (150–300), Codell sandstone member of the Carlile shale (300–400), Dakota sandstone and Fall River formation

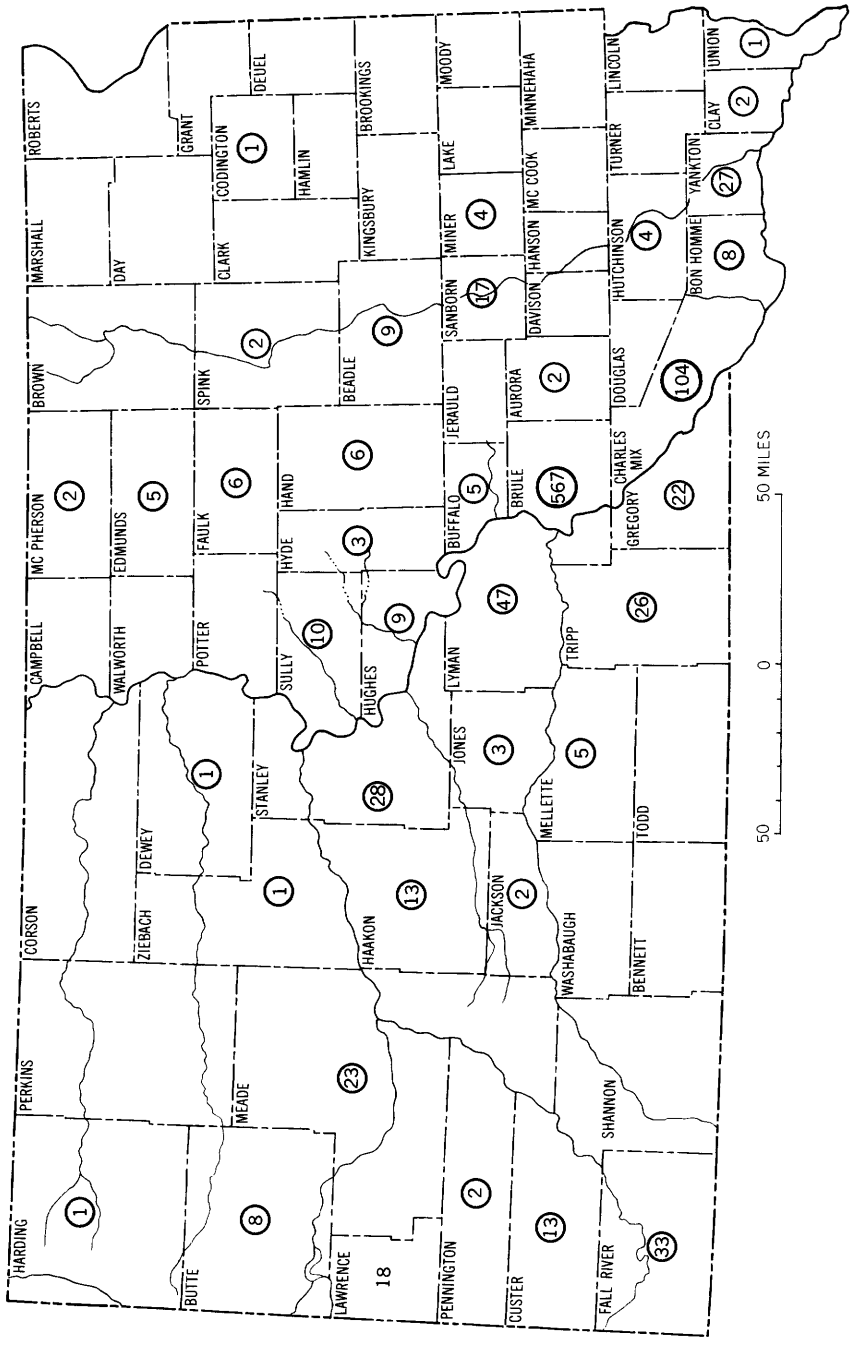

FIGURE 1.—Map of South Dakota showing counties visited and number of artesian wells inventoried in each county.

(600–1,300), Lakota formation (750–1,500), Sundance formation (1,000–1,700), Minnelusa sandstone (1,500–2,000), and Pahasapa limestone (2,000–4,200). Of these units, the Dakota sandstone is the most widely used source of water.

Flowing wells in South Dakota discharge tremendous quantities of water. Many of the flowing wells inventoried in the valley of the Missouri River in Bon Homme, Brule, Buffalo, Charles Mix, Gregory, Lyman, and Yankton Counties are classed as "uncontrolled wells." The uncontrolled discharge from 46 such wells inventoried in these counties is approximately 16 million gallons per day (mgd). For comparison, the total flow from 3,054 wells known or presumed to tap the Dakota sandstone in 3,500 square miles of the James River valley in east-central South Dakota also is approximately 16 mgd.

The piezometric surface of an artesian aquifer is a hypothetical surface to which water will rise in or above a well that penetrates the aquifer. The piezometric surfaces of artesian aquifers in South Dakota have been declining since the first artesian well was drilled in the State in 1881. Continued drilling of wells that tap artesian aquifers and are allowed to flow unrestrained is hastening the day when all the wells will cease to flow.

Except for Brule County, the investigation was concerned chiefly with obtaining data on wells having flows of more than 20 gallons per minute (gpm). In Brule County, however, many low-yield flowing and pumped wells tap the same aquifer as uncontrolled wells having large flows. In order to obtain as many data as possible concerning the effects of large flowing wells on small pumped or flowing farm wells, all artesian wells in Brule County were inventoried.

Sufficient information was not available at the time the report was prepared (1958) to permit a detailed description of the geologic and hydrologic properties of artesian aquifers in South Dakota. The general physical properties of the principal artesian aquifers in the State are given in the following table. All aquifers penetrated by wells listed in the table are discussed in the text.

PREVIOUS INVESTIGATIONS AND ACKNOWLEDGMENTS

Earlier geologic and ground-water investigations of broad scope were made in South Dakota by Todd (1895, 1896), Darton (1896, 1905, 1909), and Rothrock (1943). The report of the South Dakota State Planning Board (1937) contains general information on artesian wells and maps showing the location of these wells throughout the State. Information on flowing and nonflowing wells is presented in county reports by the South Dakota State College Extension Service (1940).

Physical properties of principal artesian aquifers in South Dakota

Era	System and series		Formation	Character	Thickness (feet)	Approximate depth (feet below land surface)	Water supply
Cenozoic	Quaternary		Glacial drift	Clay, sand, gravel	0–100	Surficial deposits	Variable.
Mesozoic	Cretaceous	Upper Cretaceous	Fox Hills sandstone	Sandstone	25–200	120–200	Yields moderate amounts of soft water.
			Niobrara formation	Impure limestone or chalky shale	100–225	150–300	Locally yields moderate amounts of water.
			Carlile shale, Codell sandstone member	Sandstone	0–25	300–400	Locally yields small amounts of water.
		Lower Cretaceous	Dakota sandstone and Fall River formation	Sandstone and shale	10–550	600–1,300	Yields moderate to large amounts of water of variable quality.
			Lakota formation	Sandstone and shale	25–485	750–1,500	Yields small to moderate amounts of water of variable quality.
	Jurassic		Sundance formation	Shale, containing lenses of sandstone and limestone	70–450	1,000–1,700	Yields highly mineralized water under strong pressure.
Paleozoic	Carboniferous	Pennsylvanian	Minnelusa formation	Sandstone, clay, and gypsum	300–850	1,500–2,000	Yields water of variable quality in western South Dakota.
		Mississippian	Pahasapa limestone	Limestone, in part dolomitic	300–650	2,000–4,200	Lagrely undeveloped; potential source of large supplies of water.

The cooperation of the many farmers and ranchers throughout the State whose properties were visited during the course of the field investigation is gratefully acknowledged.

CLASSIFICATION OF WELLS

In this report the term "uncontrolled," when applied to a well, means that the well is flowing out of control and indicates that it could not be easily brought under control. Whereas the terms "not controlled" or "unrestrained" mean that the well is flowing at full capacity but its flow might be restricted by the addition of a valve at the well head. The term "uncontrolled" is used exclusively to refer to cratered wells having no visible casing or to wells in which the water is rising outside, as well as inside, the casing.

WELL-NUMBERING SYSTEM

Wells are numbered in accordance with the United States Bureau of Land Management's system of land subdivision. The first numeral of a well designation indicates the township; the second, the range; and the third, the section of the township in which the well is situated. Lowercase letters after the section number indicate the location of the well within the section: the first letter denotes the 160-acre tract; the second, the 40-acre tract; the third, the 10-acre tract; and the fourth, the 2½-acre tract. The letters *a*, *b*, *c*, and *d* are assigned to the tracts in a counterclockwise direction, beginning in the northeast corner of each tract. The number of lowercase letters indicates the accuracy of the well location; if the well can be located within a 2½-acre tract, four letters are shown in the well number. To distinguish between two or more wells situated within the same tract, consecutive numbers, beginning with 1, are added as a suffix to each well number. Well numbers preceded by the capital letters *A* and *D* designate wells in the northeast and southeast quadrants of the Black Hills meridian and base-line system. Well numbers not preceded by capital letters designate wells in the fifth and sixth principal meridian and base-line systems. The method of designating the location of wells is shown in figure 2.

GEOLOGY AND OCCURRENCE OF GROUND WATER

PRINCIPLES OF OCCURRENCE OF GROUND WATER

Practically all ground water is derived from precipitation. Rain and meltwater from snow enter the ground by direct percolation or by percolation from streams and lakes that lie above the water table.

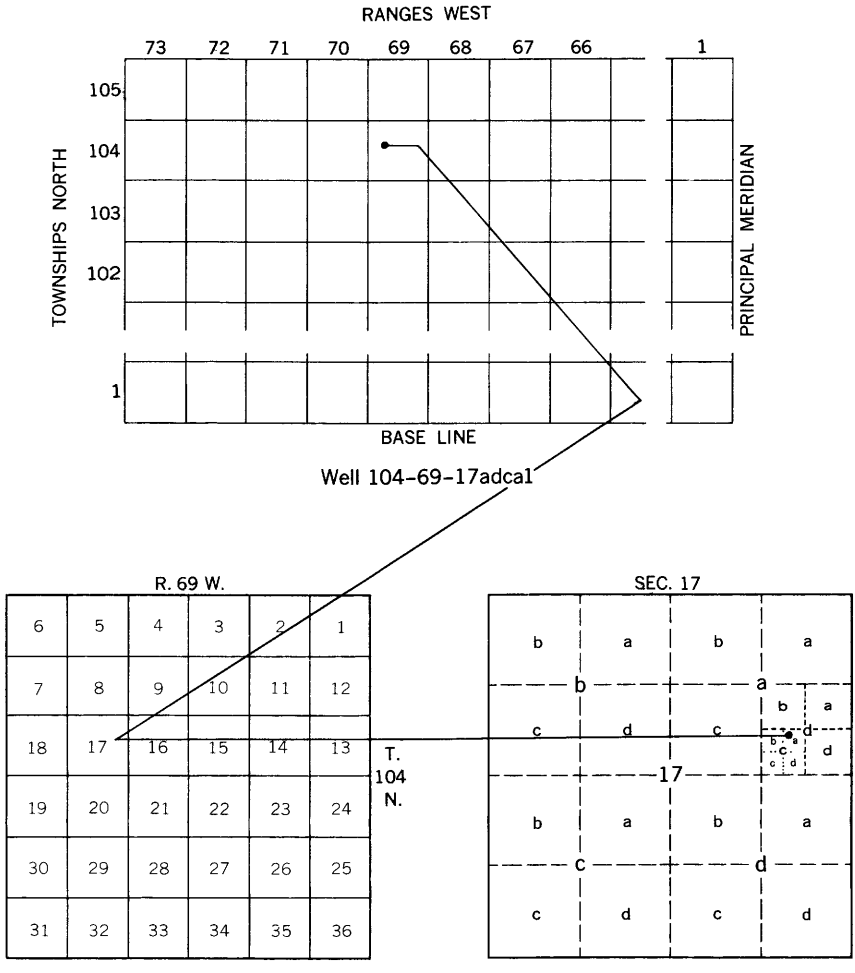

FIGURE 2.—Sketch showing system of well identification.

Ground-water discharge occurs through transpiration by plants, by evaporation from the soil where the ground-water level is at or near the land surface, by seepage into surface-water bodies, and by discharge from wells or springs.

Any rock formation or stratum that will yield water in sufficient quantity to be important as a source of supply is called an aquifer (Meinzer, 1923, p. 52). Water moving in an aquifer from recharge areas to discharge areas may be considered to be in "transient storage."

The amount of water that a rock can hold is determined by its porosity. Unconsolidated materials, such as clay, sand, and gravel generally are more porous than consolidated rocks, such as sandstone and limestone; however, some consolidated rocks are very porous.

The frictional resistance to the movement of water through pore spaces that are relatively large, such as those in coarse gravel, is not great and the material is said to be highly permeable. However, the resistance to the movement of water through small pore spaces such as those in clay or shale may be very great and the material is said to be relatively impermeable or to have low permeability.

If the water in an aquifer is not confined by overlying impervious strata, it is said to be under water-table conditions. Under these conditions, the water can be obtained from the aquifer by lowering the water level, for example, by pumping from a well.

Water is said to be under artesian conditions if it is confined in an aquifer by an overlying relatively impermeable stratum. Under artesian conditions, the water in a well penetrating the aquifer will be raised by hydrostatic pressure to a level above the top of the aquifer. As with water under water-table conditions, water can be obtained from the aquifer if the water level is lowered by pumping or if the hydrostatic pressure is lowered by natural flow. However, when water under artesian conditions is released from storage, as it is in all the aquifers described in this report, the aquifer remains saturated and yields water from storage by the expansion of the water and compression of the aquifer as the head is decreased. Gravity drainage, such as occurs with water under water-table conditions, does not occur as long as artesian conditions exist.

GENERAL STRATIGRAPHIC RELATIONSHIPS

PALEOZOIC FORMATIONS

ENGLEWOOD AND PAHASAPA LIMESTONES

The Englewood and Pahasapa limestones of Mississippian age crop out around the Black Hills and may underlie much of western South Dakota. Inasmuch as drill cuttings from the Pahasapa and Engle-

wood limestones cannot easily be distinguished from one another, it is common practice to list both as the Pahasapa limestone in drillers' logs.

Much of the Pahasapa is a fine-grained massive light-gray to buff-colored limestone or dolomite containing numerous caverns. Many of the caverns in this formation in the Black Hills are lined with calcite crystals. Near the Black Hills the Pahaspa ranges in thickness from 300 to 630 feet. The formation thins eastward, and in the central and southwestern parts of the State it pinches out against Precambrian quartzite, schist, and granite.

The Pahasapa yields water to wells in Fall River, Pennington, Meade, Hughes, Butte, and Dewey Counties. If a well penetrates a cavernous part of the formation, large supplies of water under high pressure commonly are obtained (well A–9–3–27addb1). Where wells do not intercept cavernous passages, they are essentially dry holes. A well drilled on a structural dome at Bear Butte in 1956 (well A–6–6–19 bbcd1) obtained a large flow from the Minnelusa sandstone; however, this well penetrated more than 400 feet of the underlying Pahasapa limestone with no increase in flow.

MINNELUSA SANDSTONE

The Minnelusa sandstone of Pennsylvanian age consists mainly of white and reddish calcareous sandstone; locally, limestone beds occur in the middle and lower parts of the formation. The base of the formation is characterized by bright-red shale and thin layers of white limestone. The formation ranges in thickness from 300 to 850 feet in the outcrops around the Black Hills. It thins to the east and northeast but the areal extent of the formation in those directions is indefinite. Probably the Minnelusa pinches out against the Precambrian rocks, roughly along a line extending northeastward through the southeastern part of Hyde County and the northwestern part of Hand County (Erickson, 1954, p. 40).

Near the Black Hills the Minnelusa yields abundant supplies of water to flowing wells. In the central part of the State a coarse unconsolidated sand that is equivalent in age to the lower part of the Minnelusa locally yields large supplies of water under high pressure. Erickson (1954, p. 40) refers to this sand as the Millstone grit. A well at the Pierre airport, reported to tap this sand, flowed 600 gpm and was sealed off for fear that the flow might become uncontrollable. Railroad and municipal wells at Edgemont (wells D–9–2–1aabd2 and D–9–2–1acdb1) were considered by Darton (1918, p. 98) to tap the Deadwood formation of Cambrian age, but information obtained from more recent drilling indicates that these wells tap the Minnelusa sandstone and perhaps part of the Pahasapa limestone.

Other wells inventoried tap the Minnelusa sandstone in Butte, Lawrence, Custer, and Meade Counties.

MINNEKAHTA LIMESTONE

The Minnekahta limestone of Permian age is dense thin bedded, light pink gray to dark lavender and very hard. Its thickness ranges from 30 to 50 feet at the outcrop in the Black Hills area. The areal extent of the Minnekahta limestone is not known.

Ordinarily the Minnekahta is not considered to be an aquifer, but at Hot Springs and Cascade Springs in the southern Black Hills, and northwest of Spearfish near the South Dakota-Wyoming border, the Minnekahta yields large amounts of water of good quality under artesian conditions. However, this water is probably moving upward from the Minnelusa and Pahasapa formations along faults and other fissures.

The occurrence of a large supply of water in the Minnekahta limestone near Piedmont (wells A–3–6–15ba1 and A–3–6–15ba2) also may be attributed to the upward movement of water along fissures resulting from the flexing and folding of Paleozoic and Mesozoic strata along the eastern flanks of the Black Hills uplift.

SPEARFISH FORMATION

The Spearfish formation, of Permian and Triassic age, consists of red sandy shale and soft red sandstone and siltstone containing masses and stringers of gypsum. The thickness of the formation at its outcrop in the Black Hills ranges from 350 to 700 feet. The formation thins rapidly to the east, but its eastern boundary has not been definitely established. In general, the Spearfish formation is not very permeable. Locally along the outcrop it contains highly mineralized water.

In T. 7 N., R. 1 E., in Lawrence County, several artesian wells are reported to obtain large flows of water from the Spearfish formation. Well A–7–1–20cddd1 is reported to obtain water from a cavity at the base of the Spearfish. This well is in an area of artesian springs northwest of the city of Spearfish, where the possible leaching of gypsum deposits of the Spearfish formation by movement of water to springs, may have created the cavities that now yield water to wells. No other artesian wells within the State are reported to tap the Spearfish formation.

MESOZOIC FORMATIONS

Mesozoic formations contain the most widely tapped artesian aquifers in South Dakota. The Dakota sandstone in central and eastern South Dakota is the most productive artesian aquifer in the State.

Stratigraphic nomenclature in this area has become complicated by the introduction of formation names formerly used only in the Black Hills and other western areas. The terms Fuson shale, Lakota sandstone, Sundance formation, and "Detrital" zone have been applied to strata believed by some authors to lie below or in the lower part of the strata commonly considered to form the Dakota sandstone. The problem of correlation and nomenclature, far from being a purely academic matter, is of importance to interpretation of the subsurface stratigraphy and determination of the quantity and quality of available ground-water supplies in South Dakota.

SUNDANCE FORMATION

The Sundance formation of Jurassic age is composed of gray-green shale and small lenses of sandstone and limestone, bluff sandstone, and red sandstone and shale. At the outcrop in the Black Hills area the thickness of the formation ranges from 70 to 450 feet. Water in the Sundance formation is reported to be highly mineralized, although locally, near its outcrop, the formation yields less mineralized water that is suitable for domestic use. Water in the Sundance formation in central and northern South Dakota occurs under high artesian pressure and is very corrosive. Consequently only strong, corrosion-resistant casings and screens can be successfully used in wells that obtain water from this formation.

In central and north-central South Dakota a sandstone, or a rock reported as "grit", that is deeper than the Dakota sandstone has been tapped by wells that yield water under high pressure. This rock has been logged as the Sundance formation by Baker (1947, p. 6, 10) and by Erickson (1954, p. 38 and 1955, p. 7). Most drillers log this deeper aquifer as the Sundance formation. Glauconite, a mineral not common in the younger Cretaceous aquifers, in the drill cuttings is generally indicative of this aquifer or facies. The correlation of the sandstone with the Sundance formation of the Black Hills has not been established in the field. Gries (1954, p. 447) stated that the Skull Creek shale, containing a thin but conspicuous glauconitic zone, can be traced to east-central South Dakota and has been reported as Sundance shale in that area.

Erickson (1955, p. 16) described a "detrital" zone that underlies the Sundance formation, but none of the wells listed in table 1 are reported to tap this aquifer.

DAKOTA SANDSTONE AND INYAN KARA GROUP

In eastern South Dakota, a fine- to medium-grained sandstone with interbedded silt and clay, underlies the Graneros shale. It has been known as the Dakota sandstone since early geologic studies were made

at its outcrop in northeastern Nebraska, and is now considered to be Late Cretaceous in age. The Dakota has yielded water to thousands of flowing and nonflowing artesian wells throughout the Dakotas and adjacent States; wells tapping this aquifer are especially abundant in eastern and central South Dakota.

In the outcrops in the Black Hills, the Inyan Karan group includes the Lakota and Fall River formations. The Fall River formation of Early Cretaceous age underlies the Graneros shale. The Fuson member of the Lakota formation, containing shale and minor sandstone units, underlies the Fall River formation and separates it from the rest of the Lakota formation. The Fall River and Lakota formations are lithologically similar to the Dakota sandstone of eastern and central South Dakota and are important aquifers in the western part of the State. The total thickness of the Inyan Kara group ranges from 45 to 900 feet near the Black Hills.

Correlation of the Lakota and the Fall River with the Dakota from their respective areas of outcrop to central and eastern South Dakota is uncertain at present. Gries (1954, p. 447) reported that the Dakota sandstone of eastern and central South Dakota is the time equivalent of parts of the Graneros shale and that the Fall River formation may be traced eastward into the lower part of the Dakota. According to this interpretation, the Lakota through Graneros sequence of beds is a western facies of the Dakota sandstone, that is, the Dakota sandstone of the east grades westward into shale and tongues of sandstone that have been given different names at their outcrops in the Black Hills; the eastern and western facies are both buried beneath younger formations.

In central and eastern South Dakota there are two aquifers in the Dakota. The deeper aquifer, commonly called "second flow" by residents and drillers, has been correlated by some authors with the Lakota sandstone on the basis of a reportedly traceable key horizon in the overlying Fuson shale. Baker (1948, p. 2) reported that a zone of manganese-bearing pellets at the top of the Fuson shale can be traced from its outcrop at Sergeant Bluff south of Sioux City, Iowa, westward to the Black Hills. He concluded, therefore, that the Fuson shale, the underlying Lakota sandstone, and the overlying Dakota sandstone were continuous throughout the Dakota artesian basin and that the Dakota sandstone of eastern and central South Dakota could be correlated with the Fall River sandstone in the Black Hills area. Gries (1954, p. 448), however, believed that the pellets are a product of the environment under which the clays were deposited and are not necessarily an index to the presence of the Fuson formation. He based this belief on the fact that in wells in the central part of the State, where both the Dakota and the Fall River are well defined, a zone of

pellets occurs in association with the buff or varicolored clay in each sandstone.

Additional field studies, test drilling, and quality-of-water studies would be necessary to establish definitely the stratigraphic relationship of Lower Cretaceous aquifers in eastern and central South Dakota to those in the western part of the State.

In this report the names "Lakota" and "Fall River" are used for areas near the Black Hills (the name "Fall River" is used mainly for the area within several miles of the outcrop of the formation), whereas for central and eastern South Dakota the names "Dakota" and "Lakota" are used.

OTHER CRETACEOUS FORMATIONS

Other formations of Cretaceous age that yield water under artesian conditions are the Codell sandstone member of the Carlile shale, the Niobrara formation, and the Fox Hills sandstone.

The Codell sandstone member occurs near the top of the Carlile shale. It consists of fine angular to subangular quartz sand, a few of the grains being frosted or etched. The extent of the Codell sandstone member is not definitely known, but it has been reported to be present in wells in an area extending from Pennington County in western South Dakota to the vicinity of Huron in the east-central part of the State. Elsewhere the Codell grades into clay or is missing.

The Niobrara formation is an impure limestone or chalky shale. It underlies the entire State with the exception of the Black Hills area in the western part, the vicinity of the ridge of Sioux quartzite in the extreme eastern part, and areas where it was removed by preglacial erosion.

In the western part of South Dakota the Niobrara formation ranges in thickness from 100 to 225 feet. The formation thins to the east and pinches out against the Sioux quartzite ridge in eastern South Dakota.

Several wells in Brule and Charles Mix Counties in southeastern South Dakota are reported to tap the Codell sandstone member and several other wells tap the Niobrara formation. Water in the Codell and the Niobrara is not under sufficient pressure to flow at the land surface in these counties, but both units are important sources of water for pumped wells in the east-central and southeastern parts of the State.

The Fox Hills sandstone is separated from the Niobrara formation by 1,200 to 2,500 feet of the Pierre shale. The Fox Hills is composed of grayish-white to yellow sandstone and crops out north and northeast of the Black Hills in Butte, Meade, and Ziebach Counties. In Harding County, well A–17–4–16bdc1 obtains a small flow of water from the Fox Hills(?) sandstone, but the formation is not considered

A. CORRODED "TEE" FROM CASING OF WELL 105–70–11dbbb1 IN BRULE COUNTY
This fixture had been on the casing approximately 3 years. Scale is indicated by 6-inch rule.

B. UNUSED WELL A–93–27addb1, A FORMER OIL-TEST HOLE IN BUTTE COUNTY
Flow is reported to be 2,000 gpm, from the Minnelusa and Pahaspa formation.

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A. POND FORMED BY BULLDOZING AN EMBANKMENT AROUND THE WELL SITE

The casing of the well is now completely destroyed and the approximate location of the former well head is slightly to the left of the midpoint of the right margin of the photograph.

B. FLOW DISCHARGING THROUGH CULVERT PIPE IN EMBANKMENT AROUND POND

Almost none of the water of the 1,500 gpm flow discharging through the 29-inch culvert pipe is being used.

CRATERED WELL 100–71–26abbb1 IN BRULE COUNTY

WELL 98-68-31dbbb1 IN CHARLES MIX COUNTY

View of unused well, illustrating method of measuring flow from unrestrained wells by use of a Parshall flume. Flow of 247 gpm discharges from 6-inch opening at top of the casing, approximately 8 feet above the land surface.

A. UNRESTRAINED WELL 95–65–35adddl IN CHARLES MIX COUNTY
The well casing is reported to vibrate strongly when flow is restricted. Note deterioration of casing immediately above valve.

B. SMALL CRATER OF UNUSED WELL 97–68–29abcl IN CHARLES MIX COUNTY
The flow, about 600 gpm, is discharged over land surface in lower left of photograph and eventually enters Fort Randall reservoir, visible in background. The stake in front of kneeling man marks the location of the badly corroded casing.

A. BOTTOM OF SMALL CRATER
Note break in casing about 1 foot above base; flow of well is 177 gpm.

B. CHARACTERISTIC SLUMPING OF PIERRE SHALE ON SLOPE OF SMALL CRATER
View to the northeast; slumping at upper right.

VIEWS OF UNCONTROLLED WELL 102–72–5dbc1, SHOWING METHOD OF CRATER FORMATION

A. POOL AT BOTTOM OF CRATER

Casing is not visible and is presumed to be completely destroyed. Flow of 241 gpm is discharged over land surface in lower right of photograph.

B. VIEW OF CRATER FROM NORTHWEST RIM

Scale is indicated by car in background and by stump, which is about 4 feet in height.

WELL 103–72–18adda1, A COMPLETELY CRATERED WELL IN BRULE COUNTY

to be an important aquifer for flowing wells. The Fox Hills sandstone is a source of water for many pumped wells in northern South Dakota, however.

CENOZOIC FORMATIONS—GLACIAL-DRIFT AQUIFERS OF QUATERNARY AGE

Water in buried glacial deposits of stratified sand and gravel east of the Missouri River generally occurs under artesian conditions, but flowing wells are obtained in only a few areas.

Along Choteau Creek, in Charles Mix County, glacial-drift aquifers consisting of stratified sand and gravel furnish water to both flowing and nonflowing wells. Probably the Niobrara formation, which (according to drillers' logs) is not present in this area, was removed by erosion prior to the deposition of sand and gravel. Flint's map (1955, pl. 7) of preglacial drainage shows a former valley along the site of present Choteau Creek.

Water from the sand and gravel deposits underlying the valley of Choteau Creek is under low artesian pressure, is cooler than water from the deeper Dakota sandstone, and, although reported to be somewhat mineralized, has a more agreeable taste than water from the Dakota. These glacial-drift aquifers constitute a potential source of water for irrigation, but quality-of-water studies are necessary to determine if the water is suitable for that purpose.

RECHARGE TO ARTESIAN AQUIFERS IN SOUTH DAKOTA

The piezometric surfaces of the various Paleozoic and Mesozoic artesian aquifers in South Dakota slope away from the Black Hills, indicating that this area is a source of recharge. Streams flowing outward from the Black Hills are reported to lose large amounts of water where they pass over cavernous Paleozoic limestone. This stream loss indicates that water is moving underground from the Black Hills to recharge artesian aquifers; however, when viewed on a regional scale (Darton, 1905, p. 192), the piezometric surface of the Dakota sandstone near the Black Hills is seen to have the shape of a mound beneath which water moves outward in all directions, superimposed on the generally eastward sloping piezometric surface. Thus, recharge to the Dakota sandstone occurs along the flanks of the Rocky Mountains, as well as around the Black Hills.

The Codell sandstone member of the Carlile shale, the Niobrara formation, and the Fox Hills sandstone probably are recharged more locally than is the Dakota sandstone. For example, at the Fort Randall dam in south-central South Dakota, the Niobrara formation occurs immediately below the Missouri River valley floor and is

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underlain by the Codell sandstone member. Water seeping into and through fractures in the Niobrara probably recharges both these aquifers in this area. Possibly the Codell is recharged in a similar manner at other locations in the Missouri River valley.

The Fox Hills sandstone probably receives small amounts of recharge in its outcrop areas in Butte, Meade, and Ziebach Counties.

Because little water appears to enter the Fall River formation at its outcrop in the Black Hills, except from precipitation, it becomes apparent that the water in the principal artesian aquifer must have moved into the aquifer by some method other than direct recharge at the outcrop. The strata immediately underlying the aquifer are relatively impermeable and act as a barrier to the upward movement of water from deeper aquifers that have greater artesian pressure than the Dakota. However, where there is a considerable difference in pressure between two aquifers, very slow movement of water can occur through even relatively impermeable confining material to the aquifer having the lower pressure. The principal artesian aquifer may receive a part of its recharge by such a method.

Water may also enter an aquifer from a deeper aquifer where both are penetrated by wells and neither flow is cased off. This situation may occur also if the casing of a well passing through two or more aquifers is sufficiently corroded to permit leakage. The amount of water from deeper aquifers entering the Dakota in this manner is not known; however, in areas having a large number of uncontrolled wells that tap deeper aquifers in addition to the Dakota, the amount may be large. Cratering or caving of the wells at the surface would increase the amount of water transferred from one aquifer to another.

DISCHARGE FROM ARTESIAN AQUIFERS IN SOUTH DAKOTA

Flowing wells throughout the State discharge a tremendous quantity of water. Many of the flowing wells inventoried in the valley of the Missouri River in Bon Homme, Brule, Buffalo, Charles Mix, Gregory, Lyman, and Yankton Counties are classed as uncontrolled wells. The flow from 46 of these wells is more than 16 mgd, most of it unused. For comparison, the total flow from 3,054 wells known or presumed to tap the Dakota sandstone in 3,500 square miles of the James River valley area is approximately 16 mgd (U.S. Geol. Survey unpublished records).

The many pumped wells that penetrate artesian aquifers yield relatively insignificant amounts of water.

Water is also discharged from artesian aquifers by flow from artesian springs. In the vicinity of the Black Hills artesian springs occur

in the Hot Springs area and in an area northwest of Spearfish, S. Dak. Near the city of Hot Springs the water issues from the Minnekahta limestone and northwest of Spearfish, it flows from the Spearfish formation. However, it is not definitely known whether the water originates in these formations or in some deeper aquifer. No artesian springs are positively identified as issuing from the Fall River and Lakota formations in the Black Hills, but Spring Creek in T. 6 N., R. 5 E., is reported to be fed by natural leakage from the Dakota sandstone, which crops out along the stream in this area.

Several springs in the valley of the Missouri River are believed to yield water from the Dakota sandstone. This belief is based on the similarities in temperature and chemical quality of water from the springs and water from wells tapping the Dakota sandstone in this area. Barkley (1952, p. 39) reported analyses of three such springs. It is possible that these springs may be old uncontrolled artesian wells. However, reports on the regularity of their flow and on the character of the springs themselves, indicate that they probably are natural springs. The most likely reason for the occurrence of springs in the valley is that the overburden above the Dakota sandstone is thinner than in the adjacent plain, thus permitting easier escape for water confined in that formation.

SUMMARY OF DISCHARGE, BY COUNTIES

SOUTH DAKOTA

A total of 38 counties were visited during the present study. The yields of selected wells inventoried in each county are briefly discussed on the following pages.

The location of wells having flows in excess of 20 gpm is shown on plate 1. Flows of these wells were measured by a portable aluminum Parshall flume. The flume was placed in the discharge channel 5 to 30 feet from the wellhead and the height of the water column passing through the flume was measured in a stilling well at the side of the flume. (See plate 2.) Discharge was calculated from the measurement in the stilling well.

Aurora County.—Well 104–63–28bbbbl, a former oil-test hole, flows 31 gpm. Only one other well was inventoried in the county, and this flow is not known to be representative of other flows in the county.

Beadle County.—Wells in Beadle County generally have small flows, ranging from less than 1 to 15 gpm. Well 113–61–28adcal, however, flows 209 gpm—the largest known rate of flow in the James River valley area.

Bon Homme County.—One large uncontrolled well (93–60–23ddcd1) in the city of Springfield flows approximately 500 gpm. The flow may affect the head of the city wells, which are believed to tap the same aquifer.

Near wells 92–60–3ba1 and 92–60–3ba2, west of Springfield, iron casings are reported to deteriorate in about 3 years. This deterioration is due to the amount of flow, pressure, and chemical quality of the water. The "tee" shown in plate 4, *A* illustrates the corrosive properties of some of the water from the Dakota sandstone.

In the same area, water from undeveloped springs at the base of a bluff of marly chalk of the Niobrara formation has a temperature of 65° F. and a specific conductance of 1,980 micromhos, about the same conductance as water from artesian wells that are at a higher elevation and tap the Dakota sandstone. These springs are probably fed by artesian leakage from old wells in the same area. A spring known to yield water from the Niobrara formation about a mile south has a temperature of 55° F. and a specific conductance of 1,820 micromhos. Although artesian leakage into other aquifers has been reported at some places elsewhere in the State, and undoubtedly occurs unseen and unknown at many others, this is the only known locality where it is reasonably certain such leakage occurs and is visible at the surface.

Brule County.—Locations of artesian wells inventoried in Brule County are shown on plate 2. In the valley of the Missouri River, nine uncontrolled wells flowing 5 to 2,570 gpm yield a total of about 3,400 gpm. Well 103–70–17ccbc1, which flows into Red Lake, yields 1,250 gpm. Of 108 flowing wells, less than 9 percent—that is, the 9 uncontrolled wells and the well feeding Red Lake—yield 87 percent, or about 4,650 gpm, of the total discharge from all flowing wells in the county. Of the 563 wells in the county that probably tap the Dakota sandstone, 108, or 19 percent, are flowing wells. The remaining 455 nonflowing wells, either are pumped or are abandoned. The total flow of the 108 flowing wells is about 5,370 gpm. Well 104–71–10abd1 at the time of the inventory was reported to be normally shut off and is not included in the 108. If every one of the 455 known nonflowing wells in the Dakota sandstone in the county were pumped continuously at the rate of 1 gpm (1,440 gallons per day) they would yield 655,000 gallons per day, the same amount of water that flows unused from 3 of the uncontrolled wells (102–71–6babb1, 102–72–2aadc1, and 107–72–2cbda1). However, this amount is less than a fifth as much as the 3,700,000 gpd of water that flows from abandoned wells (104–71–15abac1 and 104–71–15abac2) at the former electric plant at Chamberlain, S. Dak.

Much of Brule County depends on the Dakota sandstone for the only continuously available supply of ground water. It is evident that large unused flows in this and adjacent counties are depleting this supply and are lowering the water levels in all wells.

Buffalo County.—Only the Fort Thompson area in Buffalo County has been inventoried. An unrestrained well (107–72–22dbbc1) flows 183 gpm and a cratered well (107–72–23bdab1) flows 94 gpm.

Butte County.—Well A–9–3–27addb1, a former oil-test hole, flows unused and unrestrained at an approximate rate of 2,000 gpm (pl. 4,*B*). Because this well taps deep aquifers that may be important for future supplies of water, bringing it under control should be worthwhile. Other wells inventoried in Butte County tap the Fall River or the Lakota formation. Well A–8–3–25ddcb1, used for irrigation, has no control mechanism and flows continuously.

Charles Mix County.—In the valley of the Missouri River in Charles Mix County, the flow from many wells is unused. In this area 13 uncontrolled or unrestrained wells flowing 25 to 1,500 gpm have a total discharge of about 4,200 gpm. Cratered well 100–71–26dbbb1 furnishes a good example of wasteful flow. (See pl. 5.) The water rises at an undetermined point in a crater 80 feet in diameter and flows down a gully to the nearby Missouri River. Occasionally a few cattle drink from the approximately 2 million gallons of water per day wasted from this well The well is estimated to have flowed more than 50 billion gallons of water since it was drilled in 1895; this volume is slightly greater than the normal maximum storage of Angostura Reservoir near Hot Springs, S. Dak.

A map showing the location of artesian wells inventoried in Charles Mix and Gregory Counties is shown on plate 3. Well 98–68–31dbbb1 is shown on plate 6. Well 95–65–35addd1 (pl. 7,*A*) is an example of a well having an unrestrained flow.

Codington County.—Well 116–52–2cbbb1 is the only well reported to tap a deep artesian aquifer in Codington County. This well does not flow, and it is not used because of the poor chemical quality of the water.

Custer County.—The main area of artesian flow in Custer County is in the valley of the Cheyenne River. Flows from individual wells in this area are generally moderate (less than 40 gpm).

Dewey County.—The municipal well in the city of Eagle Butte obtains a reported flow of 115 gpm from the Pahasapa limestone. Flowing wells that tap the Dakota sandstone are reported to be along the Moreau River.

Edmunds and Faulk Counties.—No unused wells having large flows are reported for Edmunds County or Faulk County.

Fall River County.—In Fall River County the main area of flowing wells is in the valley of the Cheyenne River. These wells tap sandstones in the Fall River and Lakota formations. Flows are nominal but usually exceed minimum needs.

In Edgemont, flowing wells tap the Minnelusa sandstone, and at the Black Hills Ordnance Depot at Igloo, wells have obtained flows from the Pahasapa and Englewood limestones.

Gregory County.—There are several unused flowing wells in the valley of Whetstone Creek. Uncontrolled well 97–68–29abc1 (pl. 7, *B*), with a flow of about 600 gpm, and cratered well 97–69–25bcda1, with a flow of 97 gpm, are the largest known flowing wells along Whetstone Creek. Well 97–68–28dd1, now inundated by Fort Randall reservoir, flowed about 300 gpm in 1949. Flows in other parts of the county generally are greater than needed. However, in most of the county, wells tapping the Dakota sandstone must be pumped.

Haakon County.—Water from flowing wells in Haakon County generally is warmer than 100° F. and commonly contains combustible gas. Most flowing wells in the county discharge more water than is used. An unrestrained flow of more than 30 gpm from one well is permitted so as to prevent the accumulation of algae in the adjacent stock tank.

Hand County.—No flowing wells of large yield are reported for Hand County.

Harding County.—Few wells in Harding County tap deep artesian aquifers. Well A–17–4–16bdc1 flows an estimated 1 gpm.

Hughes County.—The two artesian wells at the State Capitol have the largest flows of wells visited in Hughes County. Water from the Dakota sandstone in this part of the State generally contains gas and is not potable.

Hutchinson County.—The main area of artesian flow in Hutchinson County is in the valley of the James River. Well 97–58–10abbd1 flows 116 gpm and well 97–59–2adbd1 flows 93 gpm, the largest flows observed in the county.

Hyde County.—The altitude of the land surface of most of Hyde County is too great to permit water to flow from wells in the Dakota sandstone. No wells of large flow are reported for the county.

Jackson and Jones County.—No wells of large flow are reported for Jackson County or Jones County.

Lawrence County.—Irrigation wells penetrating the Minnekahta limestone and the Spearfish formation can produce large flows but are usually shut off when water is not needed. However, wells A–7–1–21dca1 and A–7–2–19cca1 flow 43 gpm and more than 300 gpm, respectively, throughout the year.

Lyman County.—The valley of the White River near its junction with the Missouri River in Lyman County, is an area of extensive waste of water from flowing wells. Thirteen wells in this area flow a total of about 1,700 gpm. Almost all the water is unused, and the casings of most of the wells are in poor condition. Eighty-six percent of the water (1,450 gpm) comes from only six wells. Two of these wells are shown on plates 8 and 9.

McPherson County.—No large-capacity flowing wells are known to pentrate the Dakota sandstone in McPherson County; however, wells drilled to deeper artesian aquifers should be capable of yielding large quantities of water under high pressure.

Meade County.—The important areas of artesian flow in Meade County are in the valley of the Cheyenne River and along the east side of the Black Hills near the outcrop area of most of the formations previously discussed. Flows are small and moderate except in the eastern part of the county where some wells of large flow are reported.

Mellette County.—The Dakota sandstone is penetrated by five wells in Mellette County. At the time of inventory three of these wells were flowing much more water than was used.

Miner County.—No wells having large unused flows are reported for Miner County.

Pennington County.—Few wells tap the Dakota sandstone in Pennington County. Near Rapid City older strata are reported to supply artesian water.

Sanborn County.—Few wells having large unused flows are reported to tap the Dakota sandstone in Sanborn County. In some areas shallow wells about 100 feet deep tap glacial-drift aquifers that yield water by natural flow. Throughout the county many abandoned wells flow small amounts of unused water.

Spink County.—No wells of large flow are reported for Spink County.

Stanley County.—Because of its high salinity and dissolved gases, most of the water from the Dakota sandstone in Stanley County is unfit for human consumption. However, there are several wells of large flow in the valleys of the Bad River and its tributaries and in the valley of the Missouri River.

The Pahasapa and Minnelusa formations, of Paleozoic age, and apparently the Sundance formation, of Mesozoic age, underlie most of Stanley County and in the future may prove to be important artesion aquifers. These deeper aquifers have been reached only by oil-test holes to date (1958).

Sully County.—Few wells of large flow tap the Dakota sandstone in Sully County. However, wells penetrating deeper aquifers yield large quantities of water under high artesian pressure. Well 114–77–2–dca1, at Onida, which is reported to tap the Sundance formation, is classed as uncontrolled, owing to a broken casing and high artesian pressure.

Tripp County.—Few wells of large flow are reported to be in Tripp County. However, several wells in the valleys of streams tributary to the White River have flows in excess of 20 gpm.

Union County.—Artesian pressure in the Dakota sandstone apparently is not great enough to force water to flow to the land surface in Union County.

Yankton County.—About 560 gpm of water is wasted from three of five unused wells in the city of Yankton. In other parts of the county, flows are nominal, but a few wells in the James River valley flow more water than is used. Three unused wells at the abandoned cement plant near Yankton discharge about 115 gpm.

Ziebach County.—At the time of the inventory, well A–9–19–6–a1 had a large but unmeasured flow of unused water.

WYOMING

Crook County.—Well 53–60–28cc3 is believed to be the best available well for measuring the water level in the Minnekahta limestone. Several artesian irrigation wells tap the Minnekahta in nearby Lawrence County, S. Dak.

Weston County.—Wells 41–60–7dad1 and 41–60–7dbbb1 have a combined flow of about 500 gpm, most of which is unused.

CONCLUSIONS

Unused flowing wells in South Dakota are discharging large quantities of water that is reducing the artesian pressure and decreasing the area in which other flowing wells can be obtained. Although these uncontrolled wells of large discharge are the major cause of waste of water, any well whose flow is only slightly in excess of the need is contributing to the depletion of a vital natural resource.

The decrease in artesian pressure in aquifers penetrated by flowing wells will bring about a corresponding decline in the water levels of nonflowing wells that tap the same aquifer at higher elevations. As the water levels in these wells decline, pumping costs increase. Decline of the water level may necessitate the purchase of new pumping equipment or even the drilling of a new well.

The piezometric surfaces of the major artesian aquifers in South Dakota have been declining since the first wells were drilled; the

earliest, in 1881. Contiinued drilling of wells that tap artesian aquifers has lowered the piezometric surface until in many areas there are now no flowing wells. This is the ultimate result of the waste of water in any artesian basin. Continued discharge of water from unused flowing wells is hastening the day when all artesian wells in the State will cease to flow.

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RECORDS OF SELECTED ARTESIAN WELLS

Table 1—*Records of selected artesian wells in South Dakota*

Well number: See figure 2.
Owner or user: SDGFP, South Dakota Dept. Game, Fish, and Parks; USBIA, U. S. Bur. Indian Affairs; USCE, U. S. Corps Engineers; USDA, U. S. Dept. Agriculture; USFWS, U. S. Fish and Wildlife Service.
Year drilled: a, about; b, before.
Reported geologic source of water: Js, Sundance formation; Kc, Codell sandstone member of Carlile shale; Kd, Dakota sandstone, undifferentiated; in some wells it includes the Lakota formation; Kd1, Dakota sandstone, "first flow" (driller's term); Kd2, Dakota sandstone, "second flow" (driller's term); Kf, Fall River formation; Kfh, Fox Hills sandstone; Kl, Lakota formation; Kn, Niobrara formation; Me, Englewood limestone; Mp, Pahasapa limestone; Pm, Minnelusa sandstone; Pm, Minnekahta limestone; Q, Quaternary sediments, undifferentiated; Qal, alluvium; Qg; Glacial drift; Trs, Spearfish formation.
Method of lift: A, air lift; C, centrifugal pump; Cy, cylinder pump; J, jet pump; N, none; P, pitcher pump; T, turbine pump. Yield: F, natural flow in gallons per minute; Fs, slight flow; Fu, flow undetermined; e, estimated; m, measured; r, reported.
Type of power: E, electric; G, gasoline engine; H, hand; N, none; Tr, tractor; W, wind.
Use of water: D, domestic; G, garden, lawn, and trees; I, irrigation; In, industrial; L, lake-level maintenance; N, none; O, observation of water level; u, unverified apparent use.
Temperature: Listed for wells known or presumed to tap the Dakota sandstone. Generally the temperature of water from a flowing well increases with the depth of the aquifer below land surface. However, in north-central South Dakota wells may tap a succession of sandstone aquifers both above and below the typical Dakota sandstone. For some wells this causes listed temperatures to appear erratic for wells of approximately the same depth.
Specific conductance: Expressed in micromhos per centimeter (micromhos/cm) at 25°C. An approximation of the dissolved solids in parts per million (ppm) may be obtained as follows: specific conductance (micromhos/cm) x 0.65 = dissolved solids (ppm).
Water level: Measured water levels given in feet, tenths, and hundredths; reported water levels given in feet.
Remarks: Fx, formerly flowed naturally at land surface.

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
Aurora County														
103-66-10dddd1	City of White Lake	1952	876	8,6	Kd	T	E	P	----	------	-----	-72	8-29-56	

104-63-28bbbb1	Dr. Post & Associates	1945	1,082	6	------	F,31m	-------	S	61	2,710	3.4	------	6–27–56	Leaks around casing; flow reported to have been large until 1954. Former oil-test hole.[1]
						Beadle County								
110-61-5baad1	Starlite Drive-in	1949	750	2	Kd	F,4m	-------	P	----	2,710	-3.7	+44m	4–22–57	
111-64-2dbc1	S. Osmanson	1927	1,198	r8	Kd	F,2e	-------	N	----	-------	.0	------	10– 2–55	Well now filled with rocks at land surface, no casing visible. Oil-test hole.[2]
112-60-31dadc1	F. Robinson	1897	779	3	Kd	F,7.5m	-------	D,S	62	2,040	4.0	------	10–31–57	Casing in poor condition.[3]
112-64-22bc1	E. Pribyl	a1935	a900	$2\frac{1}{2}$,1	Kd	F,0.9m	-------	D,S	59	2,720	2.0	+53m	1–30–57	Water level measured +53 feet on May 3, 1957.
22bc2	------do	1957	932	$2\frac{1}{2}$,$1\frac{1}{2}$	Kd	F,15m	-------	D,S	64	2,680	3.4	+58m	5– 3–57	
25cc1	K. Sargent	-----	-------	2,$\frac{3}{4}$	Kd	F,7.5m	-------	D,S	66	1,620	3.4	+26m	5– 3–57	Flow measured with control valve removed.
113-61-28ad1	SDGFP	-----	m530	6	-----	N	N	N	----	-------	-----	.0	11– 9–56	(4)
28adca1	------do	1948	881	6	Kd	F,209m	-------	L	64	2,850	-----	------	5– 1–56	(5)
33ddaa1	D. Tschetter	-----	-------	3	-----	F,15e	-------	S	61	2,930	-----	------	11– 3–55	(6)
						Bon Homme County								
92-60-3ba1	C. Cooley	1937	705	$1\frac{1}{2}$	Kd	F,10r	-------	D,G,S	65	1,980	2.5	+131+	7–16–57	Pressure measured with slight flow through control valve. Flow restricted; full flow reported to be 33 gpm. Recased with red-brass pipe.[7]

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
92-60-3ba2	C. Cooley	------	-------	------	Kn	F,50e	------	S	65	1,980	-----	------	7–16–57	Undeveloped springs at base of cliff of limestone of the Niobrara formation. Springs began flowing about 1930 and are believed fed by leakage from nearby destroyed wells. Note the identical temperature and specific conductance of the springs and well 3ba1.
4dbb1	-----do-------	1957	719	2,1¼	Kd	F,20m	------	S	65	1,900	3.0	+103m	7–16–57	New well, flow measured with no reducing valve on casing; owner reports flow will be reduced after well is developed.
9dbd1	C. Belfany	------	-------	------	Kn	F,5e	------	S	55	1,820	-----	------	7–16–57	Developed spring about 1½ miles southwest of spring 3ba2.
93-60-23ddcd1	City of Springfield swimming pool	a1900	640	8,6	------	F,500m	------	N	63	2,340	2.8	------	6–28–56	Attempts to plug well have been unsuccessful.[8]

93-62-23acbc1	V. Kodes	a1942	500+	-----	------	F,18m	------	S	64	1,780	3.8	------	6-28-56	(9)
94-59-6dd1	City of Tyndall	1949	733	12	------	F,100r,C	E	P	62	2,430	-----	------	7-16-57	Reported to pump 400 gpm with about 17 feet drawdown.[10]
20bdca1	M. Eggers	------	-------	2	------	F,10e	------	S	61	2,400	-----	------	7-16-57	(11)
						Brule County								
101-67-1cbbb1	D. Bakes	a1926	900+	3	------	Cy	W	S	---	------	-----	-25	8- 9-56	
2aa1	----do	------	a950	3	------	Cy	W	S	---	------	-----	-30	8- 9-56	
3ddcc1	A. Vold	------	-------	2	------	Cy	W	D,S	---	------	-----	-30	8- 9-56	
4baac1	T. Goehring	------	a900	2	------	F,0.5r,Cy	H	D,S	---	------	-----	------	8-16-56	Water pumped as needed.
4cccc1	O. Hanson	------	-------	4	------	Cy	E,W	S	---	------	-----	-30.39	8- 9-56	
5bbcb1	R. Luke	------	-------	4	------	Cy	H,W	S	---	------	-----	-25	8-16-56	
8addd1	W. Lomica	1948	927	3	------	Cy	W	D,G,S	---	------	-----	------	8-16-56	Water level reported to to be -16 feet in 1948.
8bbbb1	W. Munger	1943	847	3,2	------	C	E	D,G,S	---	------	-----	-18	8-16-56	
8dddb1	A. Ericson	1906	-------	3	------	Cy	W	N	---	------	-----	------	8-16-56	Well caved and ceased to yield about 1938.
9bbcc1	A. Gabrielson	1912	890+	3,2	------	Cy	W	D,S	---	------	-----	-18	8-16-56	Water level reported to have been -9 feet.
9cd1	M. Strand	1926	870	4,2	------	Cy	E	D,S	---	------	-----	-10	8- 9-56	
11babd1	J. Bakes	------	-------	3	------	Cy	W	D,G,S	---	2,630	-----	-30	8- 9-56	(12)
13cccd1	E. Gorman	------	-------	3	------	Cy	W	S	---	------	-----	-25.40	8- 9-56	
14bcbd1	A. Strand	1916	a900	3	------	Cy	E	D,S	---	------	-----	-20	8-10-56	Water level reported as about -10 feet in 1946.
14cccb1	O. Knutson	1893	900	10.8	------	Cy	W	G,S	---	------	-----	-35	8-10-56	Fx until about 1902.[13]
15bbbc1	L. Strand	1931	a900	3	------	Cy	E	D,S	---	------	-----	-20	8-10-56	Fx slightly when drilled.
15dadd1	O. Knutson	a1918	850	3,1¼	------	Cy	H,W	S	---	------	-----	-30	8-10-56	
17adaa1	Ellingson Bros	1919	850+	3	------	Cy	W	S	---	------	-----	------	8-16-56	
18cccd1	C. Munger	------	-------	3	------	Cy	G	D,G,S	---	------	-----	------	8-15-56	
19cdcd1	R. Pulse	a1916	840	3	------	Cy	E	D,S	---	------	-----	------	8-15-56	
19aaab1	H. Scholl	a1921	980+	2½	------	Cy	W	D,S	---	------	-----	-12	8-15-56	
20ccdd1	----do	a1938	a950	3	------	N	N	N	---	------	-----	------	8-15-56	Fx, dry to obstruction at 21.6 feet.
21daba1	Ellingson Bros	------	-------	3	------	Cy	W	S	---	------	-----	------	8-10-56	
22bacd1	J. Ellingson	------	-------	3	------	Cy	W	N	---	------	-----	------	8-10-56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
101-67-														
22cbab1	B. Ellingson	-----	------	3	-----	Cy	W	S	----	-------	-----	------	8–10–56	
23aabd1	E. Gorman	-----	------	3	-----	Cy	W	S	----	-------	-----	-30	8– 9–56	
23dddc1	O. Knutson	-----	------	3	-----	Cy	H,W	uN	----	-------	-----	------	8–10–56	
24babb1	E. Gorman	-----	------	3	-----	Cy	W	N	----	-------	-----	------	8– 9–56	
25dccc1	D. Hanson	-----	------	3	-----	Cy	W	N	----	-------	-----	------	8– 9–56	Reported plugged.[14]
25dddd1	L. Hanson	-----	------	4	-----	F,5e	------	D,S	66	2,550	-----	------	8– 9–56	
27bddd1	M. Van Dusseldorf	-----	------	r3	-----	Fu	------	S	----	-------	-----	------	8–10–56	Apparently water flows into brick tank, from which it is pumped.
27cddd1	N. Backes	1955	850+	3	-----	Cy	W	S	----	-------	-----	-36.82	10–17–57	
28accc1	S. Vold	1910	789	3,2	-----	Cy	W	S	----	-------	-----	-40	8–16–56	Fx until fall of 1915.
29adab1	K. Olsen	1939	a900	3	-----	Cy	E,W	G,S	----	-------	-----	-30	8–16–56	
30ddcd1	S. Sybesma	1951	950	3	-----	Cy	W	D,G,S	----	-------	-----	-64	8–15–56	Water reported to be very hard.
31bd1	B. Olson	1955	a950	3	-----	Cy	W	S	----	-------	-----	-60	8–15–56	
32bddd1	S. Sybesma	1947	950	3	-----	Cy	W	S	----	-------	-----	-64	8–15–56	
34aaba1	----------	-----	------	3	-----	Cy	G	S	----	-------	-----	-26.39	8– 9–56	
36bbba1	----------	-----	------	3	-----	N	N	N	----	-------	-----	------	8–21–56	Dry to obstruction at 32.8 feet.
101-68-														
1bada1	Miller Bros	1940	882	2,1¼	Kd1	Cy	E,H,W	D,S	52.5	-------	-----	------	8–20–56	Water level reported as -48 feet in 1940.
1cdcc1	J. Paulson	1931	a800	3,1¼	Kd1	Cy	W	S	----	-------	-----	-25	8–20–56	(15)

2baba1	H. Christenson--	1923	825	3,1¼	Kd1	Cy	W	N	----	-------	-----	-32.37	9–15–57	Water level reported by driller as -20 feet on 4–26–23. Bottom 30 feet perforated.
2dddd1	F. Lomaic------	1911	927	3	-----	Cy	E	S	----	-------	-----	-50	8–20–56	
3aabb1	Stoops ---------	-----	------	3(?)	-----	Cy	G	S	----	-------	-----	------	8–20–56	
3cdcc1	L. Kubal -------	1927	a700	3,1¼	Kd1	Cy	E	D,S	----	-------	-----	-50	8–20–56	
5dcdd1	O. Kott---------	a1946	a900	3,2	Kd1	Cy	E	S	----	-------	-----	------	8–21–56	
7bacb1	M. Holoubek ----	1933	865	3,2	Kd	Cy	G,W	S	----	-------	-----	-29.36	9–15–57	
8	A. Wojciechowski	1920	303	4	------	Cy	W	S	----	-------	-----	-170	8–21–56	Does not tap the Dakota sandstone.
8aabb1	O. Kott---------	a1946	a900	3	------	Cy	E,W	S	----	-------	-----	------	8–21–56	
8babd1	S. Stanek ------	1906	a900	3	------	Cy	W	D,S	----	-------	-----	-25	8–21–56	
11dcdc1	I. Chenowith ----	a1910	------	3	------	Cy	H	D,S	----	-------	-----	------	8–21–56	Water level reported as -100+ feet in 1955.
13cddd1	R. Duba --------	-----	a900	3	------	Cy	W	S	----	-------	-----	-60	8–21–56	
14bcbb1	G. Schmela -----	a1906	-------	3	------	Cy	E,H	D,S	----	-------	-----	-80	8–21–56	
15bccb1	J. Schmela -----	-----	-------	3	------	Cy	H,W	S	----	-------	-----	------	8–21–56	
15dddd1	E. Schmela -----	-----	-------	3	------	Cy	E,W	D,S	----	-------	-----	------	8–21–56	
21aaac1	D. Christensen --	a1900	-------	r8	------	Cy	W	S	----	-------	-----	------	8–20–56	Fx. Reported to be former township irrigation well.
21bbbc1	J. Novak -------	-----	-------	3	------	Cy	W	N	----	-------	-----	------	8–20–56	Ceased to yield.[16]
22aaad1	A. Houska ------	-----	-------	3	------	Cy	W	N	----	-------	-----	------	8–20–56	Windmill, broken.
23bbbd1	J. Patula ------	-----	-------	3	------	Cy	E,W	D,S	----	-------	-----	------	8–20–56	
24aada1	H. Scholl ------	1906	980	3	------	Cy	E	D,S	----	-------	-----	-8	8–15–56	
24aada2	-----do--------	-----	-------	------	------	Cy	E,H	D,S	----	-------	-----	------	8–21–56	
24baad1	----------	-----	-------	3	------	Cy	W	N	----	-------	-----	------	8–21–56	Do.
26aada1	F. Mika--------	a1943	900	3,2	------	Cy	E,W	G,S	----	-------	-----	-22	8–20–56	
27ccdc1	J. Mika --------	-----	a1,000	3,2	------	Cy	E	S	----	-------	-----	-30	8–20–56	
27dddb1	----------	-----	-------	3	------	Cy	W	S	----	-------	-----	------	8– 7–56	
29abbc1	Parker --------	-----	-------	3	------	Cy	G,W	D,S	----	-------	-----	------	8–20–56	
29dbca1	J. Nepodal -----	1955	a1,000	4,2	------	Cy	W	S	----	-------	-----	-28	8–17–56	
29dcdb1	-----do--------	1929	890	4,2	------	Cy	E,W	G,S	----	-------	-----	-17	8–17–56	Water level reported as -11 feet in 1929.
30abbd1	L. Victoria-----	-----	-------	------	------	Cy	E,W	S	----	-------	-----	------	8–20–56	Casing hidden by concrete curb.
31bddb1	J. Bilka--------	-----	-------	3	------	Cy	W	S	----	-------	-----	------	8–20–56	
32cbbb1	V. M'lady ------	1924	860	4,2	------	Cy	W	S	----	-------	-----	-57.89	8–17–56	Water level reported as -40 feet in 1924.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
101-68-														
33addc1	J. Vasicka	-----	-------	-------	------	Cy	W	S	---	------	-----	-----	8–17–56	Casing hidden by concrete curb.
33cccd1	R. DeJong	-----	-------	3	------	Cy	E	D,G	---	------	-----	-----	8–17–56	
35accd1	J. Vasicka	a1914	875	3	------	Cy	W	D,S	---	------	-----	-35	8–20–56	Water level reported to be -20 feet when drilled.[17]
101-69-														
2aaaa1	L. Jalich	1936	900	3	Kd	Cy	E,W	S	---	------	-----	-15	6–25–56	
2ccda1	J. Bravek	1943	896	3	------	Cy	E,W	S	---	------	-----	-90	6–25–56	
12cl	Bravek Bros	1950	900	3	Kd1	Cy	W	S	---	------	-----	-70	6–22–56	
13aaaa1	A. Martin	1929	870	3	Kd1	Cy	E	D,S	---	------	-----	-36	6–25–56	
13dcbd1	P. Lenz	1918	857	3	------	Cy	Tr,W	S	---	------	-----	-60	6–25–56	
17bbaa1	C. Zeman	1926	960	3,1¼	Kd1	Cy	E	D,S	---	------	-----	-----	6–25–56	Cleaned to 912 feet in 1955.
18ad1	J. Forman	a1929	960	3	------	Cy	W	D,S	---	------	-----	-----	6–25–56	
18ba1	J. Suret	-----	-------	3	------	Cy	E	D,S	60.5	2,470	-----	-----	6–25–56	
24adbc1	R. Kott	1948	958	3	------	Cy	W	S	---	------	-----	-----	6–25–56	Water level reported as -68 feet in 1948.
24dada1	B. Nepodal	1948	958	4,2	------	Cy	E	S	---	------	-----	-----	6–25–56	Do.
24dada2	------do	a1903	1,025	3,1¼	------	N	N	N	---	------	-----	-81.39	10– 9–57	Water level reported at surface when drilled.
25dabc1	J. Brtna	1955	1,010	3,2½	------	J	E	D,G,S	---	------	-----	-80	6–25–56	(18)
34adbd1	J. Houska	-----	-------	4	------	Cy	E	D,G,S	---	------	-----	-105.79	10–10–57	

101-70-													
1abad1	C. Beby	a1915	960	3,1	Kd1	Cy	W	S	---	------	-----	-----	5–31–56	
1dadc1	-----do	1914	960	3,1¼	Kd1	Cy	W	S	---	------	-----	-100	5–31–56	
2bcad1	J. Lebeska	1929	a1,000	3	Kd1	Cy	E,W	S	---	------	-----	-100+	5–31–56	
4dbbd1	H. Gray	1914	1,005	4,2	Kd1	Cy	W	S	---	------	-----	-234	5–31–56	Water level reported by driller as -124 feet on Oct. 17, 1914. Bottom 20 feet perforated.
9aaa1	Olson	-----	-------	3	Kd1	N	N	N	---	------	-----	-----	5–31–56	Obstructed and ceased to yield about 1946.
9bbda1	H. Hintze	1915	1,050	4	Kd1	Cy	E	S	---	------	-----	-200.00+	5–31–56	
9cccc1	F. Kiehn	1917	1,100	4,2	Kd1	Cy	W	S	---	------	-----	-300+	5–31–56	(19)
11bbcd1	S. Wagner	1928	980	3,2	Kd1	Cy	E,W	S	---	------	-----	-130	5–31–56	
12aabb1	J. Hrdina	1949	975	3,2	------	Cy	Tr	S	---	------	-----	-----	5–31–56	
12cbaa1	H. Wagner	a1916	960	3,2	Kd1	N	N	N	---	------	-----	-----	5–31–56	
12ccad1	D. Urban	-----	960	3	Kd1	Cy	W	S	---	------	-----	-----	5–31–56	
15cbbc1	S. Gunderson	1914	1,063	4,3	------	Cy	W	S	---	------	-----	-218.65	9–30–57	Water level reported by drilled as-172 feet on Sept. 29, 1914. Bottom 50 feet perforated.
17aaab1	V. Kiehn	1917	1,000+	-------	Kd1	Cy	W	S	---	------	-----	-300	5–31–56	
18d1	G. Kiehn	1948	a800	3,1¼	Kd1	F,5r	------	S	---	------	-----	-----	5–31–56	(20)
23dcda1	J. Hoover	1933	1,020	3,2	Kd1	Cy	W	N	---	------	-----	-----	5–31–56	(21)
101-71-														
1aaaa1	G. Pearson	1955	1,088	3,2	------	A	E	S	---	------	-----	-120	5–31–56	
1aaaa2	-----do	1928	1,042	3,1¼	Kd1	N	N	N	---	------	-----	-----	5–31–56	
2b1	-----do	1942	726	2½,1½	Kd1	F,4r	------	S	---	------	-----	-----	5–31–56	
11bcad1	L. Keiner	a1910	-------	3	------	F,5e	------	S	---	------	a5	-----	5–31–56	(22)
11bcad2	-----do	a1910	-------	3	------	Fu	------	S	---	------	-----	-----	5–31–56	(23)
102-67														
1aa1	F. Krell	1956	852	2½,1½	Kd1	F,25e	------	D,S	---	------	-----	-----	8–29–56	(24)
2bccc1	E. Geppert	1946	-------	3	------	F,2m	------	S	60	2,620	-----	-----	7–31–56	
3daaa1	J. Mairose	-----	-------	1	------	F,2.1m	------	D,G,S	60	------	-----	-----	7–31–56	
6babc1	P. Lenz	a1926	a1,000	4	Kd1	Cy	W	S	---	------	-----	-220	7–31–56	
6dadd1	C. Hahn	1953	200	3	------	Cy	H,W	S	---	------	-----	-----	7–31–56	May not tap the Dakota sandstone. Water level reported as -1 foot in 1953.
7abab1	W. Griffin	1916	875	3,2	------	Cy	E	S	---	------	-----	-50	8– 1–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
102-67-														
8cdcd1	F. Olson	1952	a900	3,2		Cy	W	S					8- 1-56	Water level reported as -25 feet in 1952.[25]
8cdcd2	do	1952	a900	3,2		Cy	W	S				-25	8- 1-56	Do.
9daaa1	do		a800	3		Cy	H,W	S					8- 1-56	Fx.
10bcbb1	W. Falor	1913	a800	3,2		Cy	H,W	D,S				-8.03	9-14-57	Fx.
11cdcd1	E. Olson			3		Cy	E	D,S				-33.98	8-10-56	
11cddc1	L. Tucker	1916	820	3,2	Kd	Cy	E	D,S				-6	8- 1-56	Fx.
12bbba1	L. Puetz	1948	1,000+	2½		F,9.2m		D,S	64	2,630	3.7		7-31-56	Maintains pond.
13cabb1	R. Wells			3		F,7.7m		S	63	2,600	2.1		7-31-56	
17baba1	V. Munger	1953	860	3,2	Kd	Cy	W	D,S				-25	8- 1-56	
18aaaa1	L. Petula	a1916	985	4,2	Kd	Cy	H,W	D,S				-22	8- 1-56	
18accl	do			10,6		N	N	N					8- 1-56	Fx. Reported to be former county irrigation well.
19dddc1	C. Hodwalker		a800	3	Kd	Cy	W	D,G,S				-15	8- 1-56	
21dddd1	H. Benda	a1915	a800	3		Cy	W	S				-20	8- 1-56	
25cbcc1	B. Barrett	1953	932	3		A	E	S				+1.42	7-31-56	Water level reported as -1 foot in 1953.
27bbbb1	S. Falor	a1916	a800	3	Kd	Cy	E,W	S				-30	8- 1-56	
27cdaa1	D. Skluzak	a1912		3		Cy	G,W	D,S				-32	8-21-56	Water level reported to be about -28 feet in 1951.
27cdcd1	W. Falor	1950	800+			Cy	E,W	S					7-31-56	
28abbb1	H. Benda	1916	858	3,2		Cy	E,W	S				-30	8- 1-56	Fx, flow reported by driller as 8 gpm in 1917.

													Bottom 40 feet perforated.
28babb1	-----do-------	a1915	a800	3	------	N	N	N	----	-------	-----	-21.24	8- 1-56	
29bccc1	E. Kott -------	a1926	800+	3	Kd	Cy	H,W	S	----	-------	-----	-15	8- 1-56	
30adddl	A. Martin -----	-----	a850	3	------	Cy	E,W	D,G,S	----	-------	-----	-----	8- 1-56	
30daad1	W. Munger ----	-----	845	3,1½	------	Cy	W	S	----	-------	-----	-16	8- 1-56	
34	R. Carter -----	a1916	a800	4	------	Cy	H,W	S	----	-------	-----	-15	8- 1-56	
34daaa1	-----do-------	a1916	800	3	------	Cy	W	S	----	-------	-----	-15	7-31-56	
102-68-														
2aaaa1	----------	-----	-------	3	------	Cy	H,W	S	----	-------	-----	-----	8-22-56	
3ddac1	C. Ekstrum ---	1951	a950	3	------	Cy	E,W	S	----	-------	-----	-----	8-22-56	
6cdbd1	----------	-----	-------	3	------	Cy	W	S	----	-------	-----	-----	8-22-56	
6ddbb1	Flaherty Bros -	-----	a900	3	------	Cy	W	S	----	-------	-----	-80	8-22-56	
7	D. Christianson	1955	800	------	------	-------	------	-----	----	-------	-----	-----	8-22-56	
9ccba1	M. Maresh ----	1918	875	3,2	------	Cy	W	D,S	----	-------	-----	-----	8-22-56	Water level reported by driller as -55 feet on July 9, 1918. Bottom 35 feet perforated.
9daad1	Smith Bros ---	1944	905	3,2	Kd1	Cy	W	D,S	----	-------	-----	-----	8-21-56	Water level reported as -70 feet in 1944.
9daad2	-----do-------	1901	1,063	3	Kd	N	N	N	----	-------	-----	-90.32	8-21-56	Water level reported as -90 feet in 1942.
12aaaa1	----------	-----	-------	3	------	Cy	H,W	S	----	-------	-----	-----	8-22-56	
12cccb1	E. Kunzweiler -	1921	950	3,2	Kd1	Cy	E,H	S	----	-------	-----	-70	8-21-56	
14aaba1	H. Hartung ----	1921	950	3	Kd1	Cy	E,W	D,S	----	-------	-----	-----	8-21-56	Water level reported as -70 feet in 1955.
15bccd1	T. Conley -----	1946	949	2½	Kd1	Cy	E,W	S	----	2,860	-----	-140+	8-21-56	(26)
16abbb1	-----do-------	a1900	-------	6	------	Cy	W	N	----	-------	-----	-115+	5-16-56	Fx, dry to obstruction at 115 feet. Former township irrigation well. Windmill is broken.[27]
18cddc1	E. Maresh ----	1924	882	3,1¼	------	Cy	E,W	D,G,S	----	-------	-----	-----	8-22-56	Water level reported by driller as -32 feet on Feb. 15, 1924. Bottom 60 feet perforated.
19abbc1	L. Maresh ----	1913	a950	4	------	Cy	G,W	D,S	----	-------	-----	-38	8-21-56	Water level reported as -8 feet about 1935.
19cccd1	C. Sebesta ----	-----	-------	4	------	Cy	E,W	S	----	-------	-----	-----	8-21-56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
102-68-														
20cccb1	S. Gullickson	1912	a975	4,2	-----	Cy	W	S	----	-------	-----	-----	8-21-56	Fx. Water level reported as about -30 feet "several years ago."
21aaad1	F. Butterfield	-----	-------	3	-----	Cy	H,W	S	----	-------	-----	-----	8-21-56	
22ddda1	-----	-----	-------	4	-----	Cy	H,W	D,S	----	-------	-----	-----	8-21-56	
23aadb1	C. Weisflock	-----	-------	4	-----	Cy	E,H,W	S	----	-------	-----	-----	8-22-56	
24cccb1	E. Steintebeck	-----	-------	2½	-----	Cy	H,W	S	----	-------	-----	-----	8-22-56	
25daac1	D. Westergreen	a1936	973	4	-----	Cy	Tr,W	S	----	-------	-----	-40	8-22-56	
26aaab1	J. Patula	-----	-------	3	-----	Cy	G,W	S	----	-------	-----	-----	8-22-56	
27bbbd1	-----	-----	-------	------	-----	Cy	G,W	D,G,S	----	-------	-----	-----	8-21-56	
29dddb1	D. Roberts	-----	-------	4	-----	Cy	E,W	D,G,S	----	-------	-----	-----	8-21-56	
30bbac1	H. Maresh	-----	-------	3	-----	Cy	E	G,S	----	-------	-----	-----	8-21-56	
31aadb1	J. Kott	a1936	a1,000	3	-----	C	E	D,G,S	----	-------	-----	-----	8-21-56	
31bbab1	-----	-----	-------	3	-----	Cy	W	N	----	-------	-----	-----	8-21-56	Windmill is broken.
31ddac1	B. Niehus	-----	a1,000	3	-----	Cy	H,W	D,S	----	-------	-----	-----	8-21-56	
32ddcd1	H. Kott	a1921	-------	3	-----	Cy	G,W	D,S	----	-------	-----	-50	8-21-56	
33a1	D. Skluzak	-----	a900	3	-----	Cy	W	N	----	-------	-----	-----	8-21-56	
33cccd1	J. Kott	-----	-------	3	-----	Cy	H,W	N	----	-------	-----	-----	8-21-56	Do.
102-69														
2aaaa1	A. Korzan	1925	900	4,2	-----	Cy	W	S	----	-------	-----	-17	6- 1-56	
2aabd1	----- do	1912	832	4,2	-----	Cy	W	S	----	-------	-----	-18	6- 1-56	
2cacc1	P. Konechne	b1916	960	3,2	Kd	-------	------	-----	----	-------	-----	-----	6-21-56	Destroyed. Water level reported to have been -60 feet.

2cdcb1	-----do--------	1947	1,019	3	-----	Cy	E	D,G,S	----	-------	-----	-85	6-21-56	
3bacc1	C. Konechne----	1934	940	3	-----	Cy	E	D,S	----	-------	-----	-75	6-21-56	
4ccca1	J. Soulek-------	-----	-------	3	-----	Cy	E	S	----	-------	-----	-25	6-21-56	
6dddd1	F. Pazour------	1924	915	3,2	-----	Cy	E	S	----	-------	-----	-30	6- 1-56	Water level reported by driller as -1 foot in 1924; bottom 60 feet of casing perforated; recased with copper pipe in 1950.
8cdda1	M. Brown ------	1918	924	3,1¼	-----	Cy	E	D,S	----	-------	-----	-30	6-21-56	Well did not flow when drilled.
11cbdc1	J. Paclik ------	1940	900	3,2	-----	Cy	E	D,S	----	-------	-----	-----	6-21-56	
13bcbb1	H. Koss--------	1924	924	3,1¼	Kd	Cy	E,W	D,S	----	-------	-----	-65	6-22-56	(28)
14bacd1	L. Nichols -----	1925	927	4,2	Kd	Cy	W	S	----	-------	-----	-96.28	10-15-57	May have been pumped recently.
20ddba1	A. Toupal------	1927	900+	3,2	-----	Cy	W	S	----	-------	-----	-67	6-22-56	
21ccbb1	L. Skluzak -----	1926	900+	3,1¼	-----	Cy	W	S	----	-------	-----	-67	6-22-56	
23ddbb1	P. Sebesta -----	-----	-------	2	-----	Cy	W	S	----	-------	-----	-----	6-22-56	Fx.
25dacb1	A. Koss--------	1946	-------	3,1	Kd1	Cy	W	D,G,S	----	-------	-----	-----	6-22-56	
28adcb1	----------	-----	-------	3	-----	Cy	W	S	----	-------	-----	-----	6-22-56	
31bbdb1	L. Tarabetz ----	b1923	800+	-----	-----	Cy	E,H	S	----	-------	-----	-----	6-22-56	Recased; original casing was 4 inches in diameter.
32dabc1	H. Toupal------	-----	-------	3	-----	Cy	W	D,G,S	----	-------	-----	-----	6-22-56	
33aaca1	Bravek Bros ---	1936	890	3,2	Kd1	Cy	W	D,S	----	-------	-----	-70	6-22-56	
33bbda1	-----do--------	1935	a920	3,2	Kd1	Cy	W	S	----	-------	-----	-60+	6-22-56	
35dabd1	C. Koss--------	-----	-------	3,1	-----	Cy	E	S	----	-------	-----	-----	6-22-56	
102-70-2abdd1	J. Olinger------	a1895	a1,280	8	-----	J	E	S	----	-------	-----	-125	5-16-56	Fx. Former irrigation well. Data on depth and date drilled from driller's records, Aug. 8, 1916.[29]
2dadc1	W. Andrea -----	1916	883	4,2	-----	Cy	E,W	D,S	----	-------	-----	-----	5-23-56	
3aaaa1	T. Flaherty ----	1918	900	3	-----	N	N	N	----	-------	-----	-----	5-23-56	
3aaad1	-----do--------	-----	-------	-----	-----	Cy	H	N	----	3,590	-----	-200+	5- 9-56	May not tap the Dakota sandstone. Very strong sulfurous odor.
3cddb1	D. Petersen----	1905	-------	4	-----	Cy	E,H,W	G,S	----	-------	-----	-----	5-23-56	
4cadd1	F. Andrea------	1936	960	4	-----	Cy	E,W	D,S	----	-------	-----	-----	5-23-56	

See footnotes at end of table.

Table 1 —*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
102–70–														
4dddd1	D. Petersen	1916	980	3	-----	Cy	H,W	N	----	-------	-----	-----	5–23–56	Water level reported by driller as -55 feet on Sept. 20, 1916. Bottom 55 feet perforated.
5aaab1	C. and G. Bloussick	-----	-------	4	-----	Cy	H,W	N	----	-------	-----	-----	5–23–56	
6ccaa1	W. Petrak	a1915	1,000	4	-----	Cy	H,W	S	----	-------	-----	-----	5–23–56	
6daaa1	L. Leiferman	a1915	900+	4	-----	N	N	N	----	-------	-----	-----	5–23–56	
8ccaa1	D. Rosenberger	1916	1,000	4	-----	Cy	E	S	----	-------	-----	-----	5–23–56	
10dac1	J. Petrak	-----	-------	3	-----	Cy	E,H,W	S	----	-------	-----	-----	5–23–56	
11cdac1	P. Olson	1953	-------	3	-----	Cy	E	S	----	-------	-----	-----	5–23–56	
12cbbb1	----do	-----	-------	3	-----	Cy	W	S	----	-------	-----	-----	5–23–56	
13ddbb1	R. Rosenberger	-----	-------	-----	-----	Cy	W	S	----	-------	-----	-20	5–23–56	
15cbac1	W. Houska	-----	-------	-----	-----	Cy	E,H,W	S	----	-------	-----	-----	5–23–56	
15cccc1	----------	-----	-------	6	-----	N	N	N	----	-------	-----	-----	5–16–56	Fx, dry to obstruction at 9.1 feet; former township irrigation well.
19bccd1	E. Priebe	1914	900	4	Kd1	Cy	E,W	S	----	-------	-----	-300	5–24–56	Owner reports "have to add pipe [to pump column] every few years."
21bdad1	C. Swenson	1916	1,140	4,1¼	-----	Cy	E	S	----	-------	-----	-----	5–24–56	
23ddbd1	W. Houska	1906	1,200	3,2	-----	Cy	W	G,S	----	-------	-----	-----	5–23–56	
24bdaa1	----do	1914	-------	3	-----	Cy	W	S	----	-------	-----	-----	5–23–56	

24daad1	R. Houska	1924	965	3,2		Cy	W	S				5–24–56	Water level reported by driller as -24 feet on Mar. 2, 1924; bottom 60 feet perforated.
25bbaa1	V. Bebo	1916		4		Cy	E	S				5–23–56	
25daba1	F. Hrabe	1929	945	3		Cy	E,W	G,S				5–24–56	(30)
26ccbc1	R. Hosek	1915	a950	3,1¼		Cy	H,W	D,S				5–24–56	
26cccd1	do	1924	980	3,1¼		N	N	N				5–24–56	
26dccd1				3		Cy	W	S				5–24–56	
27dacc1	G. Bairey	1942	840	3,2	Kd1	Cy	E,W	S				5–24–56	
27dacc2	do	1917	860	3,1¼	Kd1	N	N	N				5–24–56	Fx.
31bbbb1	A. Powell		900+	3		Cy	W	N			-100	5–24–56	
32aada1	R. Keimer	1929	970	4,2		Cy	E,W	S			-80	5–24–56	
33dacb1	J. Heinrich	1929		3,2		Cy	E	S				5–24–56	Water level reported as -80 feet in 1950.
34aacb1	M. Hosek	1929	960	3,2		Cy	E	D,S			-80+	5–24–56	
34baaa1	R. Keimer			3,2		Cy	E,W	S				5–24–56	
35aca1	R. Hosek			3		N	N	N				5–24–56	Fx.
102-71-													
1cbbc1	J. Olinger	1951	800	3		Cy	E	S			-134.40	5-22-56	
2adac1	do		a1,200	8		J	E	G,S			-120	5-22-56	
2bbaa1	Rasch Bros	1925	1,050	3,1½	Kd	Cy	E,W	S			-80	5-22-56	
2dbbb1	J. Olinger	a1895	a1,300	8		N	N	N				5–16–56	Fx, dry to obstruction at 19.3 feet. Former township irrigation well.
5bdcb1	USCE	a1900				F,102m		uN		2,580		5–15–56	Flows from bottom of pond.[31]
6babb1	A. Creamer					F,54m		S	76	2,660		5–21–56	Casing not visible; may be on USCE land.[32]
10dbdd1	E. Bergner	1918	1,130	3,1½	Kd1	N	N	N			-145	5-22-56	Ceased to yield about 1950. Owner reports one length of pipe added to pump column since 1918.
10dbdd2	do	1950	1,130	3,2	Kd1	A	E	G,S			-145	5–22–56	
11dcdd1	C. Arp			3		Cy	G,W	G,S				5–22–56	
12bbbb1	M. Eastman	1911	1,118	4½,2		Cy	E,W	S			-100	5–22–56	(33)
12ccad1	W. Stolte	1938	963	2	Kd	T	E	D,S			-63	5–22–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
102-71-														
13ccbb1	H. Petersen	1914	1,010	4,1¼	Kd	Cy	W	D,G,S	----	-------	-----	-80	5–22–56	Water level reported by driller as -26 feet on May 30, 1914. Bottom 50 feet perforated.
14bcad1	H. Otto	1912	1,215	3	------	Cy	E	S	----	-------	-----	-78.59	10–21–57	Water level reported as -85 feet in 1952.
14dabc1	W. Randall	1946	1,085	3	Kd	T	E	S	----	-------	-----	-80	5–22–56	(34)
34ad1	I. Eastman	------	-------	3,1½	------	F,3e	------	uS	77	-------	-----	------	5–22–56	
35acba1	W. Randall	1955	850	4	------	F,98m	------	S	84	-------	[illegible]	------	5–24–56	
102-72-														
2aadc1	A. Creamer	------	-------	------	------	F,126m	------	S	----	2,590	-----	------	5–21–56	Probably cratered; flow within pond; may be on USCE land.[35]
2cbda1	----do	------	-------	------	------	F,275m	------	N	79	2,660	-----	------	5–21–56	Cratered; casing not visible; may be on USCE land.[36]
103-67-														
1dddb1	----------	------	-------	3	------	Cy	W	N	----	-------	-----	-19.60	7–25–56	
2aadb1	V. Satterlee	------	a900	------	------	Cy	W	D,S	----	-------	-----	-45	7–25–56	
4abac1	A. Miller	------	-------	4	------	Cy	G,W	S	----	-------	-----	------	7–25–56	
5abab1	B. Moline	a1944	a1,000	3	------	Cy	E	D,S	----	-------	-----	------	7–24–56	
5cccal	F. Murley	------	-------	3	------	Cy	H,W	S	----	-------	-----	------	7–24–56	
5daab1	I. Hoffman	a1945	-------	3	------	Cy	E,W	G,S	----	-------	-----	-60	7–25–56	
7bbac1	R. Kunzweiler	------	-------	3	------	Cy	G,W	S	----	-------	-----	-80	7–25–56	

7dcbd1	B. Kindig	1909	970	3		Cy	W	S					7–24–56	
8abac1	F. Murley	1933	946	3,2	Kd2	Cy	E,W	S				-60	7–24–56	
8abac2	do	a1915		3									7–24–56	Fx when drilled. Now destroyed; sand cut cylinder.
9cbab1				3		Cy	W	S					7–25–56	
13bbaa1	A. Marirose	a1918	a900	3		Cy	W	D,S				-40	7–25–56	
13cbdb1	E. Nielsen			4		Cy	W	S				-20	7–25–56	
15abbc1	A. Geppert	a1915		3		Cy	W	S					7–25–56	
17aaba1	M. Lenz		1,000+	4		Cy	H,W	D,G,S				-62.26	9–14–57	Casing in poor condition.
17bbad1	J. Zingler			3		Cy	G,W	D,S					7–25–56	
18bbaa1	J. Geppert			4		Cy	W	S		2,620		-70	7–25–56	Fx. Reported to be former irrigation well.
18cbcc1	R. Geppert		600	4		Cy	E	G,S				-32	8–31–56	May not tap the Dakota sandstone.
19bb1	do		500	4		Cy	W	S					8–31–56	Do.
20bbbc1	A. Raish			3		Cy	E	D,S					8–16–56	
20dddc1	C. Smith			2		Cy	H,W	S				-14.15	8–16–56	Do.
21aabd1	D. Christenson			4		Cy	W	S					8–16–56	
21bbcc1	do			3		Cy	E	S					8–16–56	
22bccc1	W. Hauger	1908		3	Kd1	Cy	H,W	S				-8	7–26–56	Fx until 1950.
23dddc1	C. Glissendorf	a1944	a900					S				-12	7–26–56	
24bbab1	B. Thiry	a1925	840	4		Cy	E,W	G,S				-20	7–25–56	Water level reported to have been about -6 feet.
24cdc a1	J. Foley	1947	900	3,1½		Cy	W	S				-9	7–26–56	Fx until 1948.
25babc1	Thiry Bros.	a1950	840	3,2	Kd	Cy	E	S				-4.10	9–14–57	Fx, slightly when drilled.
25babc2	do	1900	864	2	Kd								7–26–56	Fx, flow reported to have been 60 gpm when drilled. Well is now destroyed.
27aaad1	W. Johnson		800+	3,2		Cy	W	S				-12	7–26–56	
27ccdc1	Boughton			4	Kd1	F,12m		D,G,S	62	2,670	2.4		7–26–56	
29cbba1	H. Labrecque		945	3		Cy	W	D,S				-13	7–26–56	
30abbc1	J. Stadler			4		Cy	E,H	S					8–16–56	
30cccb1	R. McGivins			3		Cy	Tr,W	S					7–26–56	
31abac1	E. Stepton			3		N	N	N				-57.50	7–26–56	Water level measured -56.68 on May 27, 1957.
31cbbc1	E. Kunzweiler			3		Cy	W	S				-40	7–26–56	
34daad1	Nielsen			3		F,1.8m		S	61	2,620	2.5		7–26–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
103-68-														
1bcbb1	R. Urban	a1953		3		Cy	E,H,W	S				-153.76	9-19-57	
3adcc1	City of Kimball	1912	1,250+	10,4½	Kd,Kl	T	E	P				-165	8-29-56	
3adcc2	do	1951	1,050	10,5	Kd	T	E	P				-165	8-29-56	Reported to pump sand.
7aaba1	C. Raish	a1929	a950	4		Cy	E,W	S				-50	8-23-56	Water level reported -40 feet when drilled.
8abaa1	F. Wattowa			3		Cy	H,W	G,S					8-23-56	
8ccbc1	C. Raish	1915	945	4		Cy	W	S				-100	8-23-56	Water level reported by driller -75 feet on Oct. 19, 1915. Bottom 20 feet perforated.
9baad1	D. Geppert			4		Cy	E	S					8-23-56	
13aaaa1	T. Olson	1926	915	3,2	Kd1	Cy	E	D,S					8-22-56	Water level reported -75 feet in 1954.
13cdcc1	H. Christenson	1953	a1,000	3		Cy	W	N					8-22-56	(37)
15daad1	R. Geppert	1923	980	3,2	Kd1	Cy	E	D,S				-80	8-22-56	
17bbca1	L. Raish	1930	a960	4		Cy	E,W	G,S				-60	8-23-56	
17cbbd1	J. Leiferman			3		Cy	E,W	G,S					8-23-56	
21aaad1	M. Smith	a1925	970	3,2		Cy	G,H,W	S				-85	8-22-56	Water level reported as -70 feet when drilled.
22adaa1	R. Geppert	a1910	950	3,2	Kd1	Cy	W	S				-75	8-22-56	
22adad1				4		Cy	H,W	S					8-22-56	
24aaad1	W. Rebensdorf			3		Cy	G,H,W	S					8-22-56	
25bbca1	R. Cook			3		Cy	W	S				-10	8-22-56	

25dccc1	E. Stepton	-----	a900	4	------	Cy	W	S	----	-------	-----	------	8–22–56	Caved at depth. Reported to yield from aquifer at about -300 feet.
26bbbc1	R. Cook	a1930	a960	3	------	Cy	W	S	----	-------	-----	-70	8–22–56	
27aaad1	N. Pierce	1905	a960	10	------	N	N	N	----	-------	-----	-84.75	8–22–56	Fx. Former township irrigation well.
27daba1	W. Pierce	1931	965	3,2	------	Cy	W	S	----	-------	-----	-75	8–22–56	(38)
28abad1	E. Konechne	-----	-------	3	------	Cy	E,H,W	D,S	----	-------	-----	------	8–22–56	Owner reports yield decreasing.
29cccd1	J. Konechne	1954	a1,000	3½	------	Cy	H,W	S	----	-------	-----	------	8–22–56	
30bbbc1	-----do	-----	-------	3	------	Cy	E,W	S	----	-------	-----	------	6– 1–56	
31abbc1	Flaherty Bros	a1936	a900	3	------	Cy	W	D,S	----	-------	-----	------	8–22–56	
32aaaa1	V. Korzan	1925	-------	3	------	Cy	H,W	D,S	----	-------	-----	-30	8–22–56	
34addd1	W. Kleinhaus	1930	-------	3	------	Cy	H,W	D,G,S	----	-------	-----	------	8–22–56	
35aaba1	G. Konechne	a1925	890	4,2	------	Cy	W	D,G,S	----	-------	-----	-50	8–22–56	Water level reported -18 feet when drilled.
103-69-														
1cdab1	L. Ryan	1909	960	3,2	Kd1	Cy	E,W	S	----	-------	-----	------	6– 1–56	
5cccc1	W. Westendorf	1920	960	4,2	Kd1	Cy	W	S	----	-------	-----	------	6– 1–56	
7babc1	L. Priebe	1938	a650	3,2	Kd1	Cy	W	G,S	----	-------	-----	------	6– 1–56	
7bbaa1	E. Speckels	1930	a980	3,2	------	Cy	E	S	----	-------	-----	-70+	8–28–56	
10dada1	R. Bickner	1931	900	4	Kd1	Cy	H,W	S	----	-------	-----	-60.05	9–15–57	
11abbb1	D. Bickner	1920	1,000	4,1¼	Kd1	Cy	E	S	----	-------	-----	------	6– 1–56	
12badd1	-----do	1925	1,000	3	------	Cy	W	S	----	-------	-----	------	6– 1–56	
14dccc1	C. Larsen	1955	987	3,2	Kd1	Cy	W	D,S	----	-------	-----	------	6– 1–56	
15bbdb1	L. Korzan	1910	900	4,2	Kd1	Cy	W	N	----	-------	-----	------	6– 1–56	
17baab1	H. Korzan	1928	850	3,1¼	Kd1	Cy	E	D,S	----	-------	-----	------	6– 1–56	
17dddc1	R. Sullivan	1941	900+	3	------	Cy	W	S	----	-------	-----	-90	6– 1–56	
20aadc1	-----do	a1913	950+	4	------	Cy	E	S	----	-------	-----	-54	6– 1–56	Fx.
21bbdc1	F. Korzan	a1913	950+	4	------	Cy	E,W	S	----	-------	-----	-100	6– 1–56	
24dccd1	R. Woodreska	-----	-------	4	------	Cy	E	D,S	----	-------	-----	-88.94	9–15–57	
25abad1	J. Konechne	a1910	-------	4	------	Cy	E,W	S	----	-------	-----	------	6– 1–56	
26abbc1	C. Helma	1948	-------	3	------	Cy	G	D,G,S	----	-------	-----	-54	6– 1–56	(39)
34ac1	J. Soulek	a1920	940	4	------	Cy	W	S	----	-------	-----	-80+	6– 1–56	
103-70-														
2aacc1	H. Larson	1943	860	3	Kd	Fs	------	N	----	-------	3.0	------	5– 8–56	
2acca1	-----do	1948	290	2½	------	Cy	G,W	S	23	6,630	-----	------	9–19–57	
2daba1	-----do	1953	a860	3,2	Kd	N	N	N	----	-------	-----	------	5– 8–56	Fx until April 1956.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
103-70-														
4dccb1	A. Kasulka	-----	-------	2	------	F,20m	-------	S	67	2,570	1.8	-----	5- 8-56	
9bbad1	W. Stolte	1943	-------	3	------	-------	-------	-----	----	-------	-----	-----	5-22-56	Fx.
12ccbb1	H. Larson	1942	902	3	------	A	G	S	----	-------	-----	-21.27	9-19-57	Water level measured -20.47 feet on Nov. 14, 1957.
13cbcd1	L. Palmer	-----	-------	1	------	F,0.9m	-------	S	60	2,660	2.3	-----	5- 9-56	
14bbba1	K. Anderson	-----	-------	10	------	F,2e	-------	N	----	-------	-----	-----	5-10-56	Casing broken off below land surface.[40]
14cbdd1	-----do	-----	-------	2	------	F,4.1m	-------	G,S	61	2,900	1.9	-----	5- 9-56	
14dabc1	H. Rossman	1917	840	3,2	Kd	F,3.3m	-------	S	61	2,740	2.2	-----	5- 9-56	
17bbbd1	R. Stemmerman	1955	890	4,3	Kd	F,6m	-------	D,G,S	70	2,860	1.0	+11.4m	5- 7-56	Brass casing.
17bbcd1	-----do	1925	860	3,2	Kd1	F,10r	-------	S	69	2,820	-----	-----	5- 8-56	Flow reported to have been 60 gpm when new.
17ccbc1	SDGFP	a1946	1,010	10,8	Kd2	F,1,250m	-------	L	73	2,740	-----	-----	5- 7-56	Supplies Red Lake, about 250 feet south of well.
18bccc1	M. Van Zante	1918	811	8	Kd1	F,15.5m	-------	D,S	73	2,770	2.6	-----	5- 8-56	
18ddd1	-----do	1929	935	1½	Kd1	F,12m	-------	D,S	72	2,870	1.6	+29m	5- 7-56	
19ccba1	P. Reimer	-----	a850	3	------	F,10m	-------	uN	72	2,880	-----	-----	5-10-56	
19dcdd1	-----do	-----	800+	2,1	------	F,4.2m	-------	S	69	2,780	2.8	-----	5-10-56	
24aaba1	G. Nelson	1914	923	4	------	Cy	E,W	D,S	----	2,820	-----	-48	5- 9-56	Fx. Water level measured by owner on June 14, 1956 Owner reported well stopped flowing when

													wells at Red Lake were drilled. Bottom 60 feet perforated.
26dabd1	F. Kitzma	1918	780	3,2		F,2.7m		G,S		2,800			5–10–56	Water level reported as +20 feet; flow to have been 40 gpm in 1918.
28babd1	L. Kaufmann			3,2		F,10m		S	69	2,830			5–10–56	(41)
29cbcd1	P. Konechne			3		F,7.5m		D,G,S	70	2,790	2.1		5–10–56	Water not used for drinking.
30cbac1	P. Reimer		875	2		F,6.4m		G,S	64	2,870			5–10–56	
32bbdc1				4		F,2.9m		S		2,830			5–10–56	
33bbba1				4		F,6m		S	66	2,830	3.0		5– 9–56	
33cdad1	C. Blazek	1929		4	Kd	N	N	N					5– 9–56	Fx, ceased between 1945 and 1950.
33cdad2	do	1948		3		Cy	E	D,S		2,670			5– 9–56	May not tap the Dakota sandstone.
35bbca1	P. Meyer			2,3	Kd	F,6m		S	66	2,800	2.8		5– 9–56	Recased with copper pipe.
35cbda1	W. Andrea	1932		3		P	H	D,S					5– 9–56	
103-71-														
1baaa1	A. Martin	1935	850+	4	Kd1	Cy	W	S				-100	5–17–56	Water level reported to be at land surface in 1935.
1ddcb1	D. Glaus	1943	700			F,24m		S		2,980	0.5		5–22–56	
3addd1	M. Brown	1918	a900			Cy	W	S					5–19–56	
7bd1	M. Bailey	1951	a850	3,2		F,37m		S	77	2,560	1.8		5–22–56	
8addd1	A. Speckels	1947	900	3		Cy	W	G,S					5–22–56	
8addd2	do		900	$1\frac{1}{4}$		N	N	N					5–22–56	
8dccb1	D. Wieczorek	1948	1,000	3		A	E	D,G,S					5–22–56	
9bccc1	J. Glissman	1916	900+	4		Cy	W	S					5–22–56	
10dadd1	W. Biskeborn	1950	1,051	$2\frac{1}{2}$		Cy	E	S					5–19–56	
12bdbc1	Kaufman Estate	1900	800+	4		Cy	E	S				-50	5–17–56	
13bbba1	A. Martin	1900	970	4	Kd1	F,0.5m		S	60	2,580			5–17–56	(42)
13bbba2	do	1953	1,170	$3,1\frac{1}{2}$	Kd2	F,13.6m		D,G,S	71	2,650			5–17–56	(42)
14bbca1	G. Biskeborn		850+	$3,1\frac{1}{4}$		Fs		N					5–17–56	Small flow when drilled.
14cabd1	G. Otto	b1916	a850	3	Kd1	Cy	H	N					10–24–56	
14dcdb1	G. Biskeborn		881	4,2	Kd	F,0.4m		S	69	2,360			5–12–56	Owner reports that flow is greater in the fall.
15ddad1	G. Otto	1950	962	3	Kd1	Fs,J	E	D,G,S					10–24–56	Water not used for drinking.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
103-71-														
17adc1	S. Metcalf		1,022	3,1¼		Cy	W	N				-41.91	5–18–56	(43)
18daaa1	L. Feltman	1955	979	3,2	Kd1	J	E	D,S				-35	5–18–56	
19caad1	do	1952		4	Kd1	Cy	E	D,G,S				-20	5–18–56	
20cdcd1	V. Randall	1953	1,121	4	Kd2	F,20m		G,S	77	2,720		+23m	10–24–56	
20cdcd2	do	b1930		4		N	N	N					5–18–56	
22dccb1	R. Brugner	1949	1,000+	3,2	Kd2	F,8.1m		S	75	2,710			5–17–56	
23bcac1	G. Biskeborn		800+	4	Kd1	Fs		N			0.5		5–17–56	
24ccba1	J. Landis			2,½		F,3m		S	70	2,500			5–17–56	
25abba1	H. Feltman		750	4,1		F,0.5m		S	60	2,860			5–17–56	
25dcac1	do	1950	936	4,3	Kd1	F,1.3m		S		2,830			5–17–56	
26cda1	G. Purcell	1941	800			A	E	G,S					5–19–56	
28abbd1	D. Brugner			3		Fs		N			.8		5–17–56	
29bbdc1	M. Yeaton			4		N	N	N				-7.37	5–18–56	Water level measured as -9.24 feet on Oct. 24, 1956; as -8.66 feet, on Feb. 27, 1957; as -7.03 feet, on Apr. 17, 1957. Obstruction at 130 feet.
30dddd1	L. Cable			8		Cy	W	G,S					5–18–56	
31baac1	SDGFP		900+	3,1		Cy	W	D,G,S					5–18–56	
31badb1	do			3		N	N	N					5–18–56	Dry to obstruction at 8 feet.
32bbbb1	L. Feltman		900+	3,1	Kd1	Cy	W	N					5–18–56	(44)

33aaba1	C. Johnson	1925	960	3,1½	Kd1	N	N	N					5–18–56	Fx until 1948.
33caaa1	L. Feltman	1952	800+	4	Kd1	J	E	D,G,S				-4	5–18–56	
34badd1	A. Stolte	1943	1,050	3	Kd	Cy	E	D,G,S				-12	5–12–56	
103-72-														
25ccad1	A. Creamer					F,5e		S					5–21–56	Water flows from bottom of stock tank; casing not visible.
34cccc1	L. Feltman	1951	750+	4,2	Kd1	Cy	W	S				-30	5–21–56	Fx, flow reported to have been large when drilled; well reported to be leaking beneath land surface.
104-67-														
1dcdc1				3½		Cy	W	S					7–23–56	
2cddd1	A. Hoing	1931	1,055	3	Kd2	T	E	D,G,S				-150	7–23–56	
3addc1	do	1912	1,105	3	Kd2	Cy	W	D,G,S		2,630		-180	7–23–56	
7cdcc1	D. Christenson	a1920	a1,000	3	Kd2							-110	7–23–56	
8ddaa1	E. Dorwart	a1953	1,000+	3	Kd2	Cy	E	S				-115	7–23–56	
10addd1	L. Hoing	1911	a1,000	3	Kd2	Cy	E	S				-120	7–23–56	
11dccc1	N. Hoing	1948	1,025	3	Kd2	Cy	E,W	S				-120	7–23–56	
12ddca1	T. Meier	1952	950	3		Cy	H,W	S				-70	7–24–56	
13cddd1	L. Wojciechowski	1952	971	3,2		Cy	E	D,S				-104.61	9–17–57	
15ddda1				3		Cy	E	S					7–24–56	May not tap the Dakota sandstone.
17cdcc1				3		Cy	W	S					7–24–56	
21ddcc1	J. Goss	1945	998	3,2	Kd1	Cy	E	D,S				-75	7–23–56	
21ddcc2	do	1953	980	3,2	Kd1			S				-60	7–23–56	
27acbb1	I. Luke	1953	1,180	3,2	Kd	Cy	E	S				-60	7–23–56	
27cccd1	J. Moline	1922	960	3,1¼	Kd1	Cy	E,W	D,S				-144	7–23–56	
28addd1	C. Soulek	1938	1,000	3,2	Kd1	Cy	W	S					7–23–56	
28bccd1				3		Cy	H,W	S					7–24–56	
31cddc1	S. Pekarek	a1916	960	3,1¼		Cy	W	D,S				-80	7–23–56	
31dcdd1	J. Lytle	1910	890	3,1¼	Kd1	Cy	W	G,S					7–23–56	
32cddb1	M. Reuland	1940	1,000	3		Cy	E	S					7–23–56	
34bbbb1	County of Brule	1887		8		N	N	N					5–17–56	Fx, dry to obstruction near land surface. Reported to have maintained lake and supplied irrigation water.

See footnotes at end of table.

553972 O–61–4

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of power	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
104-67-														
34bbbb2	County of Brule	-----	-------	6½	------	N	N	N	----	-------	-----	------	5-17-56	Fx, dry to obstruction near land surface. Reported to have maintained lake and supplied irrigation water.
34ccbc1	E. Moeller	1938	1,000	3	------	Cy	E	S	----	-------	-----	------	7-23-56	
104-68-														
1bdab1	C. Paulson	a1916	947	1¼	------	Cy	E	S	----	-------	-----	-40	7-20-56	
1dadc1	H. Schlepuetz	a1950	970	3	------	Cy	E	S	----	-------	-----	------	7-20-56	
2cbbb1	C. Janish	1943	960	3,2	Kd	Cy	W	S	----	-------	-----	-60	7-19-56	
2dcbc1	H. Christensen	-----	-------	4	------	Cy	W	D,G,S	----	-------	-----	-25.30	7-20-56	
3bcba1	P. Walsh	1952	919	3,2	Kd	A	E	D,G,S	----	-------	-----	-20	7-19-56	(45)
3ccdb1	C. Sullivan	-----	-------	3	------	Cy	W	S	----	-------	-----	------	7-20-56	
9adda1	J. Kott	a1946	-------	4	------	Cy	E	S	----	-------	-----	-64	7-20-56	
15ddda1	W. Schlepuetz	-----	-------	3	------	Cy	E	S	----	-------	-----	------	7-20-56	
19dada1	----------	-----	-------	3	------	Cy	W	S	----	-------	-----	------	7-26-56	
21aaac1	V. Parriott	-----	-------	3	------	Cy	G	D,S	----	-------	-----	------	7-20-56	May not tap the Dakota sandstone.
21adab1	V. Lassen	1930	1,000	-----	------	Cy	E,W	S	----	-------	-----	+26	7-20-56	
21dddc1	----------	-----	-------	4	------	Cy	W	S	----	-------	-----	------	7-20-56	
22bbac1	J. Havlik	a1930	a1,000	3	------	Cy	W	D,S	----	-------	-----	+30	7-20-56	
22ddbb1	R. Cole	-----	-------	3	------	Cy	E,W	D,S	----	-------	-----	------	7-20-56	

23bbcd1	A. Blosius		a1,000	3		Cy	H,W	S					7–20–56	
24cbba1	C. Larson	a1944	950+	3		A	E	D,S					7–20–56	
27ddbb1	H. Konechne			3		Cy	E	S				-300+	7–20–56	Do.
32adad1	M. Dixon			3		Cy	W	S					7–20–56	
35addd1	W. Swanson	1923	1,100	4		Cy	E	S				-180	7–20–56	
35ddcd1	A. Olson		a1,100	4		T	E	D,S					7–20–56	
36caaa1	do	1949	1,100+	3		Cy	W	S				-118	7–20–56	
104-69-														
2daad1	J. Nelson	1916	900	4		Cy	H,W	S					5–16–56	
3cddc1	R. Lakes		875	4		Cy	H,W	S					5–16–56	
6acbc1	B. Dill					Cy	H,W	S					5–16–56	
6badc1	D. Anderson	1926	1,111	4		Fs,Cy	W	S					5–16–56	
9aadd1	M. Banse		940	4		F,0.8m		S	58	2,610			5–16–56	
9cadb1	W. Lakes	1926	a850	4,2		F,3.8m		S	63	2,630			5–16–56	(46)
11daab1	A. McKim	1953	780			F,12.5m		S	65	2,560			5–18–56	
12cadd1	J. Spier					Cy	E,W	S					5–18–56	
14adbd1	G. Ashley			3,1½		F,0.5e		D,S	61		3.4		5–16–56	
17adca1	R. Lake	1925		3	Kd1	F,2.5m		S	68	2,680			5–16–56	(47)
20baad1	G. Sharping	1952	815	3	Kd1	F,35r		S	65.5	2,570			5–16–56	
21aabc1	H. Lantz			4		Cy	E,W	D,S				-37.84	9–19–57	
22ccab1	E. Swanson	1953	980	3	Kd1	Cy	W	D,S				-55	5–16–56	
23abcb1	R. Mashek			3		Fs,P	H	D					5–16–56	
26cdca1	G. Ashley			4,1¼		Cy	W	S					5–16–56	
26cddb1	G. Purcell	1943	856	3,2	Kd1	Cy	E	G,S				-6	5–16–56	(48)
27adba1	E. Swanson			4		Cy	W	S					5–16–56	
30cbcb1				4		F,20m		S	65	2,500			5–14–56	
31cbbb1	R. Swanson	1952	855	3		F,6m		D,G,S	64	2,540			5–19–56	
34cdda1	G. Ashley	1952	910	3,2		Cy	E,W	D,G,S		2,510			5–19–56	(49)
35cdcd1	L. Korzan	1936	1,000	3		Cy	E,W	S		2,470			5–19–56	
104-70-														
2dbbb1	C. Richter	1918	1,120	3,2		Cy	W	S		2,540		-120	5–14–56	
3dccc1	E. Lulf	1952	1,120	3	Kd2	J	E	D,G,S				-37	5–15–56	
4cbda1	F. Hade		1,000+			Cy	E	S				-150+	5–15–56	
5dcda1	R. Moore		1,100+	3		Cy	W	N					5–15–56	Ceased to yield in 1955.
6ccdb1	G. Speckels	1934	1,000+	3	Kd1	Cy	E,W	S					5–15–56	
6dcac1	A. Priebe	1949	1,100	3	Kd2	Cy	E	S				-120	5–15–56	
8abbd1	L. Stransky		1,040	3,2	Kd1	Cy	G,W	S				-140	5–15–56	
8daaa1	R. Lloyd	1945	1,040	3,2	Kd1	Cy	W	G,S				-100	5–15–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
104-70-														
9accb1	J. Westre	1943	900+	3,1¼	Kd1	Cy	E	S				-44	5-15-56	Water level reported to be -4 feet when drilled.
10bacd1	R. Priebe			3,1½		Cy	E	S					5-15-56	
12bad1	A. Knutson	1954			Kd2	Cy	E	G,S		2,430			5-15-56	
13cddd1	W. Clutter	1951		3		F,5m		G,S	66	2,550	3.0		5-15-56	
14bdac1	R. Healy	1947	918	3,1½	Kd1	Cy	W	S				-27	5-15-56	
14dcab1	W. Clutter	1913		3,1		F,4m		G,S		2,530			5-14-56	
17daaa1	E. Healy	a1933		3,¾		F,1.1m		S	61	2,490	2.1		5-15-56	(50)
19ddba1	Holstein Bros	1936	900	3	Kd1	Cy	W	S				-30	5-15-56	
20ccad1	do	1935	800+	2½	Kd1	Cy	W	S				-30	5-15-56	
23dbba1	A. Ohlragge	1912	845	3		N	N	N				-34.50	5-14-56	Fx until about 1947.
26acbd1	Town of Pukwana				Kd	F,22m		P	62			+72m	6-26-56	(51)
26dccb1	do				Kd	Fu		P				+53m	6-26-56	(51)
28dadb1	I. Myers	1949	935	2		Cy	E	D,G,S					5-15-56	(52)
30aabd1	D. Cook	1910	1,000	3,1¼		Cy	W	I					5-15-56	
31cdaa1	L. Speckels					Cy	E,W	S					5-15-56	
33cccc1	W. Larsen	1914	885	3,2		N	N	N					5-15-56	Fx.
33cccd1	do	1951	905	3,2		A	E	S	60	2,510			5-15-56	
34bbcc1	County of Brule	1895	930	8,6		N	N	N					5-15-56	Fx, dry to obstruction at land surface.
34daaa1	W. Speckels			2		Fs		N					5-15-56	
34daab1	do	1955	865	3,2	Kd1	F2.5m		D,G,S	67	2,540	1.8	+53m	5-15-56	Flow restricted, full flow reported to be 70 gpm.

35dcdb1	E. Rossman	1896	907	10	Kd	F,69m		S	68	2,540	4.0	5– 8–56	Maintains pond. Former irrigation well.[53]
104-71-10abd1	St. Joseph's Indian School	1953	940	6,3	Kd,Kl	F,900r		L	72		+164	8–28–57	Hole reported in casing below land surface. Flows very muddy water; water level reported as +162 feet in 1953.
13ddbd1	S. Heikes		785	4		F,15m		G,S	67	2,500	4	5–28–56	
15abac1	City of Chamberlain	1900	645	8	Kd	(54)		N				10–22–56	(54)
15abac2	do	1897	670	8	Kd	(54)		N				10–22–56	(54)
15bbcc1		a1900				F,165m		N				10–22–56	Buried by riprap.[55]
15dbcb1	City of Chamberlain					F,0.5e		N	62	2,920		6–11–56	A "spring" is fed by leakage from the well.[56]
21abcb1						F,3e		N				5–11–56	Uncontrolled flow from marshy area on edge of reservoir. Exact location of well is uncertain.
25aabb1	W. Schreiber			3		Cy	E	G,S				5–28–56	
25bcba1	McLaughlin		1,100	3		Cy	W	S			-140	5–28–56	
25ccbc1	S. Metcalf		975	3		Cy	W	S			-100	5–29–56	
27aaa1	R. Feltman			6		Cy	E,W	S			-160	5–29–56	
28dddd1	O. Wieczorek	1955		4		A	E	G,S				5–29–56	
31ddaa1	J. Glaus	1922	850			Cy	E,W	S				5–21–56	
32add1	do	1938	1,025	4		Cy	E,W	S			-98.52	10–16–57	(57)
33aaaa1	A. Glaus	1914	900+			Cy	H,W	S				5–21–56	
35bbbc1	E. Weidemann			3		Cy	E,W	S			-90	5–29–56	May not tap the Dakota sandstone.
105-67-2ccbb1	Eckstein Bros		a1,100	3	Kd1	Cy	E	S				7–23–56	
8abbb1	J. Zastrow			3		C	E	D,G,S				7–23–56	
8abbb2	do			2		C	E	D,S			-3.36	9–17–57	Recased; original casing was 4 inches in diameter.
8ddca1	R. Young	1948	980	4,2		A	E	D,S				7–23–56	Water level reported at land surface in 1951.[58]

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of power	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
105-67-														
10bccb1	C. Altwicker	1939	1,050	3,2	Kd1	Cy	E	S	----	------	-----	-90	7–23–56	Water level reported as -80 feet in 1939.
10cbcd1	L. Boesen	1953	a1,100	3	------	Cy	E	S	----	------	-----	-90	7–23–56	
20dddd1	M. Gould	1952	a1,000	4	Kd1	Cy	E	G,S	----	------	-----	-80.61	9–17–57	
25abac1	D. Cudmore	-----	a1,000	3	Kd1	Cy	W	D,S	----	------	-----	187.8	9–17–57	
31c1	Johnson Bros	a1910	929	4,2	------	Cy	E	S	----	------	-----	-30	7–23–56	
105–68														
4bbcd1	J. Piskule	1926	960	3,1¼	Kd1	Cy	E	D,S	----	------	-----	120	7–18–56	Water level reported as -40 feet in 1926.
4caaa1	A. Kingery and L. Hamilton	a1911	900	4	------	Cy	W	S	----	------	-----	-65	7–18–56	
5aaca1	G. Havlick	1925	930	3,1¼	Kd	Cy	E	S	----	------	-----	------	9–20–57	
5aaca2	G. Havlick	1957	955	4,2	Kd	N	N	N	----	------	-----	-57.39	9–20–57	New well for domestic and stock use; pump not yet installed. Driller reports very hard rock at 955 feet. Bottom 80 feet of casing perforated.
5dcca1	L. Urban	a1919	850+	3	------	Cy	E	D,S	----	------	-----	-25	7–18–56	Water level reported as -2 feet when drilled.
6daca1	A. Burian	-----	-------	3	------	N	N	N	----	2,110	2.3	+2.3m	7–18–56	
7aacc1	C. Viereck	1913	800+	3	------	F,3.3m	------	S	62	2,510	3.1	------	7–18–56	
11ccdc1	B. Bely	-----	900+	------	Kd1	F,1.5m	------	S	60	2,590	2.2	------	7–19–56	

15aaca1	D. Will	1954	a1,020	3,2	Kd	Fu		D,S	62	2,560			7–19–56	Flow reported to have been 20 gpm in 1954.
22ddbb1	D. Christensen			4		F,5e		N	63	2,540			7–19–56	
27aaca1	R. Nelson			3		F,1m		S	67	2,600			7–19–56	
27cbcb1	M. Holon			3		N	N	N			2.8	-9.92	7–19–56	
28bbba1	O. Kroupa	1927	a900	4,1½		F,5r		S		2,570			7–19–56	
28bbbb1	do	1953	920	2½,1½		F,10r		D,G,S		2,690			7–19–56	Flow reported to have been about 50 gpm in 1953.
30caca1	A. Goodman	a1926	a900	4	Kd1	F,4.5m		D,G,S	66	2,610	3.5		7–19–56	
31ddbd1	B. Heath			3		Fu		D,G,S	62	2,660	2.4	+8.97	9–19–57	Flow controlled by valves.[60]
33caba1	A. Brehan	1941	980	4,2	Kd1	F,4r,J	E	D,G,S		2,600			7–19–56	
33ddda1	K. Brehan	1924	a900	3	Kd1	F,3m		N	61	2,660			7–19–56	(61)
34adba1	E. Speir	1950	a1,000	3,2		Cy	W	S				-15	7–19–56	
35cbad1	R. Janisch	a1926	950+	3,2		Cy	W	S				-15	7–19–56	Water level reported as about -12 feet when drilled.
105-69-														
1aaaa1	F. Urban					Cy	W	S					6–18–56	
5dddd1	M. Thompson	1927	801	1¼,1	Kd1	F,2.1m		S	62	2,620	2.4		6–18–56	(62)
7bdbc1	W. DuVall	1920	870	2½,¾	Kd1	F,1.8m		D,G,S	62	2,700			6–18–56	
7cadd1	E. DuVall	1935	a850	2½,1	Kd1	F,2m		N	62	2,620			6–18–56	
7dbca1	D. Clark	1935	a850	2½,1	Kd1	F,3m		G,S	63	2,670	1.9		6–18–56	
7dddc1	Foster Estate	a1930	860	3,1	Kd1	F,4.8m		S	64	2,630	2.5		6–18–56	
15daad1	I. Sorenson	1936	870+	3,1¼	Kd2	F,8m		S	68	2,620			6–18–56	(63)
20cabb1	W. Graves	1954	952	4,2	Kd2	A	E	S				-53.31	10–23–57	Water level measured -53.29 feet on Nov. 13, 1957.
21abcb1	A. Gruenig	1949	1,009	2		Cy	E	D,S					6–18–56	Water level reported as -10 feet in 1949.
29aaba1	J. Piskule	1919	1,010	2,4		Cy	W	S					6–18–56	Water level reported as -30 feet in 1936.
31abbb1	O. Swanson	1951	1,050	3,2		A	E	S				-150	6–18–56	
35aaaa1	B. Banek	a1926	a1,000	3		Cy	W	S					6–19–56	
35dddd1	R. Lakes	1917	962	3,2		Cy	W	S					6–18–56	Water level reported to have been -46 feet in 1917. Bottom 40 feet of casing perforated.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
105-70-														
4cccb1	C. Steckelberg	1946	------	------	------	Cy	E	S	----	-------	-----	------	6-21-56	
5cbba1	D. Grinnel	1926	1,540	4,2½	------	Cy	W	S	----	-------	-----	-30	6-21-56	May enter Precambrian rocks.
7bbdc1	P. Ommen	1916	1,250	3,1¼	Kd2	Cy	W	S	----	-------	-----	------	6-20-56	Water level reported as -80 feet in 1946.
7ccdc1	H. Sampson	1916	1,200	3	------	N	N	N	----	-------	-----	-141.62	9-20-57	Water reported to contain gas.
11dbbb1	W. Dusseau	1944	860	3,2	Kd1	F,11m	------	S	70	2,520	3	+40m	6-20-56	Furnishes water of small stream.
13bbba1	----do	1952	1,100	2	Kd2	F,25m	------	S	72	2,580	2.5	+34m	6-20-56	Furnishes water of large stock pond.[64]
17abba1	L. Bailey	1924	1,060	3	------	Cy	W	S	----	-------	-----	------	6-21-56	
18daad1	L. Sampson	1917	1,200	------	------	Cy	E	D,S	----	-------	-----	------	6-20-56	
25bbdb1	W. Dusseau	-----	1,100	------	Kd1	A	E	S	----	-------	-----	-140	6-20-56	
25ccdc1	A. Swanson	1927	1,020	3,2	Kd1	A	E	S	----	-------	-----	------	6-20-56	Water level reported as -160 feet in 1927.
28accd1	I. Steckelberg	1916	1,100	3	------	N	N	N	----	-------	-----	------	6-21-56	
31aa1	J. Roberts	1916	------	3	------	F,5.5m	------	S	66	2,550	-----	------	6-18-56	(65)
33baad1	H. Schwiesow	1928	1,180	3,1¼	Kd	N	N	N	----	-------	-----	------	6-21-56	Water level reported as -180 feet in 1928.
35baab1	H. Giedd	1926	1,100	3	------	N	N	N	----	-------	-----	-107.20	9-20-57	
105-71-														
1bdbb1	K. Dusseau	1951	1,320	3,2	------	A	E	S	----	-------	-----	-104.08	9-20-57	
3ccbd1	L. Pease	-----	------	4	------	F,1m	------	N	58	4,280	2.1	------	5-28-56	

10daaa1	V. Rose	1947	900	3,2		F,8m		G,S	70	2,510			5–28–56	Casing leaks below surface.[66]
11dcca1	K. Dusseau	1947	860	3,2	Kd1	F,8m		S	68	2,650		+79m	6–19–56	(67)
11ddbd1	do			4		F,0.5e		N	54	3,560	3.2		5–28–56	
12cdc1	B. Svoboda	1951	650	1,1¼		F,3.5m		S	68	2,560	1.8		5–28–56	(68)
14adda1	do	1951	900	2,1½		F,10m		S	68	2,660	3.8		5–28–56	
24aa1	do	1953	933	3,2	Kd	F,38m		S	69	2,420	1.5		5–28–56	Flow reported to have been 60 gpm in June 1953.
24aa2	do	a1920				Fs		N					5–29–56	Destroyed. Water seeps from hillside near former well site.[69]
24cbda1	J. Roberts	1954	630	2	Kd1	F,25m		D,G,S	65	2,720	3.6	+59m	5–29–56	Owner reported flow to have been 50 gpm and water level about +116 feet in 1954. Well leaks slightly around casing.
							Buffalo County							
107-72-13bbba1	L. Christiansen	1953	a1,470	2		F,3.7m		S	66	2,570	-10	+15m	5–10–56	
22dbbc1	USBIA			3		F,183m		S	69.5	2,530	3.3		5–10–56	(70)
23bbbc1	Christian Alliance Mission	1955	860	3,2	Kd	F,150e		D,P	69.5	2,600	3.2		5–10–56	Water level reported by driller about +175 feet in 1955.
23bdab1	USBIA			6	Kd	Fs		N	63.5	2,950	3.6		5–10–56	(71)
23cbab1	do	a1900				F,94m		uN	66	2,540			5–10–56	Cratered; well flows from bottom of small pond.[72]
							Butte County							
A-8-3-11dccc1	G. Erickson	a1920	a600			F,35e		S	69	1,180	5.5		7–30–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
A-8-3-14dbdd1	T. Cobb	1909	------	6	------	F,350r	------	I,S	66	1,240	2.0	-----	7–30–56	Reported depth ranges from 400 to 1,200 feet. Obstruction at 100 feet. Flow reported to have been 1,000 gpm in 1909.
25ddcb1	-----do------	a1902	600	4	Kf	F,43m	------	I	66	1,260	2.2	-----	7–30–56	Flow uncontrolled.
A-8-5-7aaba1	Town of Nisland	1938	2,250	6	Kl	C	E	P	90	1,210	-----	-----	9–25–56	Fx, flow reported to have been 15 gpm when drilled.
A-8-6-28ccab1	R. Dutton	1956	2,300	$6\frac{7}{8}$,4	Kf	F,42r	------	P	82	877	2.3	+139m	3– 4–57	Supplies the town of Vale.
A-9-3-27addb1	R. P. Harmon & Associates, Inc.	1952	4,016	-------	Mp,Pm	F,2,000r	------	N	126	2,010	-----	-----	10– 7–56	Casing leaks. Water level reported +590 feet when drilled. Oil-test hole.
A-9-5-24a1	USDA	1935	4,400	$12\frac{1}{2}$,3	Pm	F,40r	------	S	115	2,980	-----	-----	9–25–56	Water of better quality in Fall River sandstone is sealed off; casing reported to be deteriorating.[73]

A-9-6-30adab1	City of Newell	-----	a2,650	10,6	Kf	N	N	N	----	------	-----	-22.92	3- 3-57	Fs when drilled; former municipal well.
						Charles Mix County								
93-62-17cbc1	G. Lippolt	1936	384	3	Kn	N	N	N	----	------	-----	-----	6-14-56	
17cccd1	-----do	1949	160	4	Qg(?)	Cy	E	D,S	----	------	-----	-75	6-14-56	
94-62-2	R. W. Beeson	-----	240	3	Kn	Cy	W	D,S	----	------	-----	-223	6-14-56	
94-64-5ab1	St. Paul's Indian Mission (Marty)	1940	994	8,4	Kd	F,4r	------	S	68	2,060	-----	-----	6-28-56	Flow reported to have been 500 gpm in 1940; water level reported to be +69 feet when well was fully cleaned (no date given).[74]
5ab2	-----do	-----	a300	------	Kc	C	E	P	----	2,350	-----	-----	6-28-56	
26cdda1	USBIA	-----	------	6	------	Fs	------	S	----	------	-----	-----	10-19-55	Reported formerly to have supplied town of Greenwood.[75]
27ddcd1	-----do	a1895	651	------	K1(?)	F,400e	------	N	----	------	-----	-----	10-19-55	Cratered. Water level reported as +275 feet, flow to have been 3,000 gpm when drilled.[76]
95-62-1aaab1	E. Lukkus	1953	528	3,2	------	Cy	E	D,S	----	------	-----	-----	6-13-56	May tap sandstone in the lower part of the Graneros shale; water level reported as -224 feet in 1953.
3abba1	T. Sykora	1910	290	2	------	Cy	W	S	----	------	-----	-----	6-13-56	
6ccbb1	D. McGuire	1956	110	3½,1	Qg	F,7.5m	------	D,S	54	1,900	-----	-----	6- 7-56	
7bbbd1	G. Sima	b1927	a100	2	Qg	F,18m	------	S	52	2,010	-----	-----	6- 7-56	
18cdca1	J. Duiromier	1954	176	3	Qg(?)	Cy	H,W	D,S	----	------	-----	-60	6-14-56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
95-62-23bccd1	H. Raebe	1953	250	2	------	Cy	E	D,S	----	------	-----	------	6–14–56	Aquifer reported as "sand rock."
28bbbb1	R. Kucha	1916	208	4	------	Cy	E	D,S	----	------	-----	------	6–14–56	
95-63-1abcd1	F. Kaberna	1930	90	2	Qg	F,0.8m	------	S	55	1,970	-----	------	6– 7–56	
95-64-2dcdd1	R. Doty	1925	150	2	------	Cy	E,W	D,S	----	------	-----	------	6–13–56	
95-65-4da1	USCE	1947	854	$8\frac{5}{8}$, $4\frac{1}{2}$	Kd	Fu	N	O	----	------	-----	+44m	11– 2–56	Pressure recorder installed Nov. 6, 1952 by U.S. Geological Survey.[77]
35addd1	USBIA	a1938	a575	10,5	Kd1	F,482m	------	S	72	2,000	2.3	------	6–28–56	Flow reported to have decreased in about 1950 to about 120 gpm; flow spontaneously increased in fall of 1955. Casing reportedly vibrates when control valve is partly closed. Drilled for irrigation.
96-62-32cacc1	N. Thaler	1945	188	2	------	Cy	W	S	----	------	-----	------	6–13–56	

96-63-														
3acaa1	Chas. Ahrens	1957	156	18	Qg	T		I			.8	-25.95	11- 8-57	
3dddc1	C. Ahrens	1946	614	3,1¼	Kd	F,10m		S	62	2,320			6- 7-56	
9dddd1	E. Jesperson	1926	680	4,2	Kd	Fu		D,G,S	66	1,970	3.0		6- 7-56	
15ccaa1	L. Holzbauer	1957	172	18	Qg			I				-26	11- 8-57	
19daad1	J. Honomichl	1940	108	1½		Cy	W	S					6-12-56	
20cccc1	F. Cihak		200	2		Cy	W	D,S					6-12-56	
21cddd1	C. Stillion	1954	130	2	Qg(?)	Cy	E	D,S					6-12-56	
21dadb1	L. Gale	1936	155	2	Qg(?)	J	E	D,S					6-12-56	
24cdcc1	J. Soukup	a1905	205	3		Cy	W	D,S					6-12-56	
25babb1	F. Honomichl	1905	198	2		Cy	E	D,S					6-12-56	
27baaa1	B. Lyons	1936	150	2	Qg(?)	Cy	E	S					6-12-56	
27ccbc1	E. Fechner			2		Fs		S		2,170			6-12-56	
28baab1	J. Slaba	1924	120	2	Qg	F,4m		D,S	53	2,290	2.0		6-12-56	
28baab2	do	1955	125	2	Qg	Fs		S	54		1.0		6-12-56	
30dabd1	J. Pozinek	1953	930	3,2		F,1m		D,S	59	2,650			6- 7-56	Reported to be one of few deep flowing wells in the area.
31dddd1	H. Kaney	1947	200	2		Cy	E	D,S				-180	6-13-56	
32ddcc1	W. Uecker	1936	120	2	Kn	Cy	W	D,S				-100	6-13-56	
33cbcd1	Town of Wagner			6		F,2e		N	62				6- 7-56	Formerly supplied swimming pool.
34ddca1	do			4	Qg(?)	F,1m		S	52	2,150			6- 7-56	Former municipal well.
35bbcb1	C. Dahlberg	1920	120	2	Qg	Fs		S	53	2,050			6-13-56	
96-64-														
5daba1	SDGFP	1947	982	8,6	Kd2	F,20e		L	70	2,280	2.8		11-17-56	(78)
5daba2	do	1934		6		N	N	N				-3e	6- 6-56	Fx, water visible in bottom of crater. Cratered in December 1943.[79]
6ccad1	H. Miller	1947	361	2,1¼	Qg	Cy	E	D		2,460			6- 6-56	Deepened from 200 feet; water reported "harder" after deepening.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*— Continued

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96-64-6ccaa1	SDGFP	1897	802	8,6	Kd	Fs		N		2,280			6- 6-56	Well now filled with rocks at land surface. Formerly supplied swimming pool and operated electric generator; originally drilled to supply Lake Andes.[80]
7abcd1	do	1947	964	4	Kd2	F,25m		L	69	2,190			6- 6-56	Obstruction at 307 feet. Recased. Attempt to clean well with compressed air in August 1956 did not increase flow. Supplied fish-rearing pond.[81]
7abcd2	do	1926		6		Fs		N			0.6		6- 6-56	Flow reported to have been large. Fs since before 1943. Obstruction at about 44 feet. Driller who attempted to clean well reported a large cavity.
33dccd1	E. Juran	1918	500	2		Cy	W	D,S					6-13-56	Aquifer reported as "chalk rock"; bottom of well is deeper than the Niobrara limestone

														which is commonly called "chalk rock" by drillers.
34cbbc1	S. Bergen	1936	200	2	Kn	Cy	E	D,G,S	----	------	-----	------	6-13-56	
35bbbb1	G. Davies	a1906	a198	--------	------	Cy	E	D,S	----	------	-----	------	6-13-56	
96-65-														
4d1	City of Lake Andes	a1935	-----	--------	------	N	N	P	----	------	-----	------	8-21-56	Fx until late June 1956; flow of 106 gpm measured 6-7-56 by U.S Geological Survey; obstruction at 483 feet; formerly supplied swimming pool.
9dc1	J. Krell	1916	800	3	------	F,10m	------	D,G,In, P,S	70	2,080	-----	+74m	6- 6-56	
9dc2	-----do	a1920	380	2	Kc(?)	J	E	D,In	----	3,900	-----	-100	6- 6-56	
29bbda1	G. Seheas	1952	740	3	------	F, 4m	------	S	74.5	1,880	2.4	------	6-28-56	Controlled by valve; full flow is 38 gpm, measured.
96-66-														
27abd1	L. Booher	1948	800	3	------	F,7m	------	S	73	1,730	-----	------	6-28-56	
27acad1	-----do	1921	792	4,2	------	F,7.7m	------	S	75	1,840	4	------	6-28-56	
27cdcc1	-----do	1918	905	1¼	------	F,4m	------	S	72	1,730	3.7	------	6-28-56	
36aaad1	W. Eldridge	-----	-----	--------	------	F,1m	------	S	68	1,790	-----	------	6-28-56	
96-67-														
4dadb1	----------	1920	700	2	------	F,12m	------	S	74	1,770	-----	------	6-27-56	May be on USCE land.
96-68-														
1abbb1	J. Dehaan	1914	635	2,1¼	Kd1	F,20m	------	G,S	76	1,750	-----	------	6-27-56	
97-63-														
15ccab1	M. Eitemiller	1906	210	2	Qg(?)	Cy	H,W	D,S	----	------	-----	-40	6-15-56	
27baac1	L. Donnelson	a1926	150	2	Qg	Cy	W	D,S	56	1,910	-----	-20	6-15-56	
33cad1	N. Richman	1954	126	2	Qg	F,0.5e	------	S	----	1,830	-----	------	6- 7-56	
34ccbb1	M. Richman	1916	900+	2	------	F,2.2m	------	S	64	1,990	-----	------	6- 7-56	
34ccbb2	-----do	1955	126	2	Qg	Cy	E	S	----	------	-----	-8	6-14-56	Water level reported -8 feet in 1955.[82]
34dcbb1	P. Wiechman	1957	157	18	Qg	T	------	I	----	------	-----	-18.81	11- 8-57	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
97-64-														
11caaa1	R. Kietzmann, Jr	1957	201	18	Qg	T	G	I	----	2,100	1.0	-77.56	11- 8-57	
16bcba1	J. Ehrisman	1953	746	3	-----	F,7.5m	------	S	66	2,440	2.0	------	6- 7-56	
17adad1	----------	-----	------	7	-----	N	N	N	----	------	-----	------	6- 7-56	Fx, dry to obstruction at land surface.
18dbc1	E. Frandsen	-----	------	2	-----	F,15m	------	S	69	2,380	5.2	------	6- 7-56	
27cccb1	J. Schmidt	1954	860	2,1¼	Kd1,Kd2	F,2.1m	------	S	62	2,080	2.5	+51m	6- 6-56	
97-68-														
5babb1	USCE	a1890	a650	4(?)	-----	F,6m	------	S	74	1,890	2.8	------	6-15-56	Casing enclosed by brick curbing. Well reported to be one of oldest in the country.
25bbdd1	J. Dehaan	1952	995	2	Kd2	F,43m	------	S	79	2,000	-----	------	6-27-56	
98-68-														
31dbbb1	N. Bultsma	-----	------	8	Kd1	F,247m	------	S	78	1,830	10	------	6- 5-56	Former irrigation well. (83)
31ddda1	USCE	1904	640	2	-----	F,0.5e	------	S	62	2,080	2.2	------	6-15-56	
33accc1	J. Dehaan	-----	------	3,2	-----	F,5m	------	S	75	1,900	-----	------	6- 5-56	Recased with copper pipe.
34c1	-----do	1937	665	2,1¼	-----	F,16r	------	S	----	------	-----	------	6-27-56	
98-69-														
2ccba1	A. Wynia	-----	------	2,1½	-----	F,2m	------	S	75	2,140	2.8	------	6-11-56	
2dcdd1	R. Gray	-----	------	2	-----	F,7.6m	------	S	76.5	2,060	2.7	------	6-11-56	
6daab1	V. Wynia	-----	------	------	-----	F,4.1m	------	S	79	2,050	3.8	------	6-12-56	Visible casing consists of two nail kegs and one 5-gallon bucket.

7ba1	USCE	-----	------	3	-----	F,1m	------	S	77	2,010	1.8	------	6–12–56	
10acbb1	C. Wynia	1951	725	$3\frac{1}{2}$,2	-----	F,28m	------	D,S	82	------	3.0	------	6–11–56	
10acbb2	----do	-----	------	8(?)	-----	F,1e	------	N	73	2,110	-----	------	6–11–56	
17db1	USCE	a1900	644	6	-----	F,600m	------	uN	79	1,970	-----	------	10–19–56	Water flows from opening in ground covered by stones and brush; casing not visible.[84]
18aadd1	USCE	-----	------	------	-----	F,5e	------	N	79	2,000	-----	------	6–12–56	Cratered; flows from bottom of pond.
25bddd1	N. Bultsma	1948	------	4	Kd1	Cy	W	D,S	----	1,990	-----	0	6– 5–56	
26ddad1	H. Arshem	-----	960	8	-----	F,337m	------	I,S	81	1,900	-----	------	6– 5–56	Cratered, casing not visible. Water reported to be used extensively during growing season.
35abbd1	----do	-----	960	2,$\frac{3}{4}$	-----	F,4m	------	D,S	79	2,050	-----	------	6– 5–56	[85]
36bbad1	N. Bultsma	-----	------	3	-----	N	N	N	----	------	-----	------	6– 5–56	Fx, dry to obstruction at 8.1 feet.
99-68-														
18ccbd1	O. Mason	1932	850+	2,1$\frac{3}{4}$	Kd2	F,1m	------	S	----	2,390	1.8	------	6–12–56	
19bbcb1	----do	1954	840	2,1$\frac{3}{4}$	Kd2	F,4m	------	G,S	77	2,390	2.7	------	6–12–56	
99-69-														
13dddd1	----do	1930	900	2,1$\frac{3}{4}$	Kd2	F,12m	------	S	78.5	2,410	2.2	------	6–12–56	
99-70-														
10cdca1	USCE	a1947	a735	3,2	Kd2	F,50m	------	S	83	2,130	-----	------	6–13–56	Flow reported to have been 100 gpm when drilled.
15cbaa1	----do	-----	700+	3	-----	F,25m	------	uN	76	2,890	4.0	------	6–12–56	Water has a strong sulfurous taste and odor.
22aaa1	J. Qualm	-----	------	8	-----	F,135m	------	uN	82	2,150	3	------	6–12–56	Obstruction at 656 feet.
24cb1	E. Qualm	-----	------	------	-----	F,8m	------	S	80	2,230	5	------	6–12–56	
25bcbb1	USCE	-----	------	------	-----	F,44m	------	uN	78	2,650	1.7	------	6–12–56	Casing not visible, 5-inch tile projects above land surface. Water has a very strong sulfurous taste and odor.
26abad1	----do	-----	------	------	-----	F,8.6m	------	uN	88	2,130	2.5	------	6–21–56	Probably former irrigation well.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurment or visit	Remarks
100-70-30cacc1	Platte Colony	-----	-----	-----	-----	F,10e	-----	S	86	2,150	-----	-----	6–13–56	Cratered; casing not visible.
100-71-17bcaa1	-----	-----	-----	3	-----	F,10.8m	-----	S	81	2,320	2.5	-----	6–14–56	
18dbad1	-----	1895	770	r8	Kd	F,312m	-----	S	82	-----	-----	-----	6–14–56	Cratered; flows from pond 4 feet wide and 6 feet long. Original flow reported to have been 2,350 gpm.[86]
20cacc1	-----	-----	-----	3	-----	F,20m	-----	S	89	2,510	2.0	-----	6–13–56	
25acca1	-----	-----	-----	3	-----	F,6m	-----	S	80.5	2,300	2.2	-----	6–13–56	Casing leaks.
26dbbb1	D. Turgeon	1895	688	r8	Kd	F,1,500e	-----	S	89	2,110	-----	-----	6–13–56	Cratered; flow of 1,576 gpm measured June 14, 1950 by Surface Water branch, U.S. Geological Survey.[87]
28acad1	USCE	-----	-----	3	-----	F,34m	-----	S	90	2,090	2.6	-----	6–14–56	
29aacc1	do	1895	785	r8	Kd	F,73m	-----	S	88	2,070	-----	-----	6–14–56	Cratered; flows from bottom of pond.
Clay County														
92-52-10ccc1	K. Samsel	-----	200+	3	-----	F,2.5m	-----	D	55	1,540	2.8	-----	7–19–57	

93-53-27bccc1	B. Buel	-----	-----	2	-----	F,6.7m	-----	S	55	1,560	3.0	+26m	7–19–57	(88)
Codington County														
116-52-2cbbb1	USBR	1952	1,301	6,2½	Kl	N	N	N	----	5,100	-----	-155.76	2– 9–57	Water level measured -155.96 feet on April 11, 1957. Water is not potable.[89]
Custer County														
D-4-7-25dddd1	V. Smith	1949	2,824	4½	Pm	F,60m	-----	I,S	103	2,800	2.0	-----	8– 2–56	Irrigates pasture; no control. Former oil-test hole.[90]
D-5-7-6cc1	J. Dow	a1945	310	6	Pm	F,1.2m	-----	D,S	64	600	-----	-----	8–22–57	
D-6-1-6ccab1	D. Hawthorne	a1949	132	6	Kf	F,35m	-----	uI	53	1,350	2.9	-----	8– 1–56	Casing may leak, ground around well swampy.
17bbdd1	-----do-----	a1946	134.9	6⅝	Kf	Fs	-----	N	61	1,200	1.4	-----	8– 1–56	Casing may leak. Possibly former irrigation well.
17cbbb1	C. Taylor	-----	-----	6½	-----	Fs	-----	N	61	2,340	.7	-----	8– 1–56	
18acda1	L. Darrow	a1949	287	6	Kf, Kl (?)	F,40m	-----	D,S	51	1,260	15.5	-----	8– 1–56	Lower aquifer may be "second flow" of the Fall River formation.
18adab1	T. Linton	-----	128	6	Kf	F,2m	-----	D,G	52	1,300	6	-----	8– 1–56	
18adbd1	C. Taylor	1948	126	6	Kf	Fu	-----	D,G	51	1,280	-----	-----	8– 1–56	
18adcb1	C. Wicker	1946	115	6	Kf	F,1e	-----	D,G	53.5	1,270	3.2	-----	8– 2–56	Reported 30 grains hardness.
19adcd1	G. Darrow	a1930	250	3	-----	F,2.5m	-----	S	59	1,330	-----	-----	8– 2–56	Casing may leak.
D-6-6-14cc1	7-11 Ranch	-----	-----	-----	-----	Pm	F,1,000e	-----	S	65	2,200	-----	-----	8–21–57	Undeveloped artesian springs.
15aa1	Streeter Ranch	1949	930+	8	Mp	F,1e	-----	S	66	500	-----	+82m	8–22–57	Flow restricted, full flow, measured, 103 gpm.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*— Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
D-6-7-29ccdc1	Town of Buffalo Gap --	1937	1,500	6	Kf	T	E	P	----	860	-----	-109.34	8–21–57	(91)
						Dewey County								
A-12-24-17bcd1	Town of Eagle Butte-----	1956	4,322	10,5	Mp	F,115r	------	P	128	2,520	-----	+139r	7–23–56	(92)
						Edmunds County								
121-68-10bbbb1	F. Griffith ----	1925	a1,120	2	------	F,1e	------	S	56	9,160	3.6	------	7–31–57	
121-70-21ad1	Town of Loyalton-----	a1910	a1,400	3	------	Cy	E	P	----	6,910	-----	-20	8– 1–57	Fx until about 1947.
123-66-22add1	E. Rudolph----	a1946	a1,400	¾	------	F,9r	------	D,S	66	2,560	2.3	------	8– 1–57	
123-69-27bbc1	Town of Ipswich-----	1940	1,700	2½	------	F,50e	------	P	----	2,370	-----	------	7–31–57	Copper casing.
123-71-24dddc1	Town of Roscoe -----	1947	1,500	12	------	T	E	P	----	3,550	-----	------	8– 1–57	Well drilled for and

														formerly used by CM St. PP RR. Water level reported as -145 feet Sept. 27, 1947. Reported drawdown of 55 feet pumping at 100 gpm.
Fall River County														
D-7-1-														
9adca1	C.B. & Q. RR	1892	550	3	------	F,20m	------	uN	56	1,460	3.8	------	8- 2-56	Former railroad well.[93]
16ddbb1	F. Peterson	a1930	640	6,4	K1	F,15m	------	D,G,S	57	1,690	-----	------	8- 2-56	
19bbbc1	C. Tubbs	a1930	a700	12,6 5/8	K1	F,20m	------	S	69	------	3.6	------	9-19-56	Former oil-test hole.[94]
20ccdd1	A. Nelson	-----	------	-------	------	F,1m	------	S	65	------	2.6	------	9-19-56	
23bbbd1	McCloud	-----	------	6	Kf	F,6m	------	uN	53.5	2,150	2.9	------	8- 2-56	
27cddd1	A. Nelson	-----	------	4	------	F,0.3m	------	S	60	------	1.5	------	9-19-56	
35acbb1	-----do	-----	------	5	------	F,7.5m	------	S	55	------	2.0	------	9-19-56	
35dacc1	C. Tubbs	-----	------	9	------	F,7.5m	------	uN	52	1,600	1.3	------	9-19-56	
35ddad1	-----do	-----	------	7	------	F,3.8m	------	S	56	1,450	3.0	------	9-19-56	
D-7-2-														
12ba1	R. Robinson	1953	170	6	Js	C	E	D,S	48	2,540	-----	------	12-15-55	Water level reported as -30 feet in 1953; well is situated on outcrop of Sundance formation.
32dddb1	E. Gow	1942	125	2	Kf	F,2e,C	E	D	55	2,680	-7	------	8- 2-56	
32dddc1	-----do	1920	600	8	K1	F,4e	------	G,S	55	2,620	1.0	------	8- 2-56	Casing in poor condition. Bottom of well is deeper than Lakota formation.
D-7-5-														
13bcc1	Evans Plunge	-----	------	-------	Pm(?)	F,5,000r	------	In	87	1,620	-----	------	3-15-56	Indian Spring, developed, maintains swimming pool.
13cbda1	U. S. Veterans Admin. Battle Mountain Sanitarium	1954	264	10	Pm	F,250e	------	N	88	2,330	3.7	------	8-21-54	Capped prior to Oct. 6, 1955.[95]

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
D-8-1-														
1abdd1	C. Tubbs	-----	380	4½	K1	F,20m	------	S	56.5	1,460	1.7	------	9–20–56	(96)
D-8-2-														
5aadd1	E. Dow	1920	600	8	K1	F,1.5e	------	S	55	2,600	.4	------	8– 2–56	Casing in poor condition. Bottom of well is deeper than Lakota formation.
6cbcb1	C. Tubbs	-----	-------	5	------	F,23m	------	S	58	1,750	2.2	------	9–20–56	Sulfurous taste and odor.
6cddb1	-----do	1950	360	5	Kf	F,6m	------	S	57.5	1,840	1.6	+32m	3– 1–57	Do.[97]
6dbba1	E. Benton	1946	285	5	------	F,23m	------	I,S	55	1,700	1.7	------	9–20–56	Aquifer reported "below first sand."
6dbbc1	-----do	1946	260	-------	------	Fs,Cy	E	D	55.5	1,570	-----	------	9–20–56	Aquifer reported as "first sand."
20dacc1	D. Heldman	1950	410	5	Kf	Cy	W	S	----	-------	-----	-22.78	9–20–56	Water level reported as -40 feet in 1950; measured -22.59 feet on Mar. 1, 1957.[98]
28dadd1	C. Tubbs	1945	400	6	Kf	T	E	D,S	----	5,100	-----	------	3– 1–57	
36acaa1	V. Childers	1948	320	5	Kf	Cy	W	D,S	----	------	-----	-58.70	3– 2–57	
D-8-3-														
8dbba1	J. Bell	1944	500	14	K1(?)	F,4m	------	S	64	3,160	2.5	+4.3m	3– 2–57	Oil-test hole drilled to 1,900 feet, back-filled to 500 feet.
D-8-5-														
20cda1	State of South Dakota	-----	-------	-------	Pm	F,5,000e	------	Un	66	2,470	-----	------	8–21–57	Called "Cascade Springs,"

														4 artesian springs, 1 partially developed.
D-8-6-21bdcd1	USBR	1950	632	6	Kf	N	N	O	----	------	-----	-110.67	10-20-57	Top of Fall River formation reached at 560 feet.
D-9-2-1aabd1	C.B. & Q.RR	1946	2,955	6	------	F,725r,C	E	In,P	125.5	1,260	-----	------	9-19-56	Flow used jointly by City of Edgemont and uranium-concentrating mill.
1aabd2	-----do	1907	2,980	------	Pm	F,60r	------	N	119	1,810	.8	+200m	9-19-56	(99) (100)
1acdb1	City of Edgemont	1913	2,983	6	Pm	F,200r,C	E	P	126	1,640	3.6	+206m	9-19-56	(99) (101)
1bcdc1	-----do	1936	3,183	13,7	Pm	F,170r	------	P	127	------	4.3	+94m	9-19-56	(102)
D-10-2-3acba1	Black Hills Ordnance depot	1943	3,846	16,8 5/8	Mp,Me	Fu,T	E	In,P	138	------	-----	------	9-19-56	(103)
3daa1	-----do	1942	3,991	16,8 5/8	Mp,Me	F,165r,T	E	In,P	138r	------	-----	------	9-19-56	(104)
D-11-3-1aa1	M. Kern	1926	1,400	6	Kl(?)	Cy	E	S	----	2,290	-----	-374+	3- 1-57	Dakota sandstone reported sealed off.
							Faulk County							
117-66-31dbc1	Town of Rockham	-----	a1,100	3	Kd	Fu	------	P	57	3,100	1.0	------	7-31-57	
117-69-36ddbb1	Town of Orient	1915	------	4	------	Cy	E	P	----	2,760	-----	-75	7-30-57	
118-69-14bcb1	Town of Faulkton	1949	1,266	10,6	------	T	E	P	----	3,080	-----	-91.68	7-31-57	Used as auxiliary supply well.
15ada1	-----do	1954	1,281	12,8	------	T	E	P	----	3,100	-----	-103m	7-31-57	
120-67-31abcb1	Town of Cresbard	1943	1,150	3	------	F,20r	------	P	67	2,600	-----	------	7-31-57	
31abcc1	-----do	a1948	1,300	1½	------	F,30r	------	P	----	------	-----	------	7-31-57	Copper casing.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

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						Gregory County[105]								
96-67-														
29dd1	E. Shipman	1949	834	4,2	Kd2	F,100m	------	G,S	82	1,960	-----	------	7–17–56	Flow measured with control valves open.[106]
33aaba1	USCE	-----	------	6	-----	F,15m	------	N	79	1,810	2.5	------	7–19–56	
97-68-														
16ab1	C. Haisch	1941	603	3	Kd	F,15m	------	S	78	1,900	2.6	------	7–19–56	
16ac1	----do	1953	800	------	Kd2	F,38m	------	D,G,S	81	1,930	-----	------	7–19–56	
21aacc1	USCE	-----	------	------	-----	F,3e	------	uN	76	1,810	.0	------	8– 2–57	
28dd1	----do	1913	680	6	Kd	Fu	------	N	----	------	-----	------	5–18–56	(107)
29abc1	----do	-----	------	8	-----	F,600e	------	S	83	------	.0	------	9–16–56	(108)
30accd1	A. Qualm Estate	-----	------	2	-----	F,31m	------	S	83	1,920	.0	------	5–18–56	Casing in poor condition.[109]
30adac1	O. Qualm	a1900	------	6	-----	F,15m	------	S	83.5	1,900	.5	------	5–18–56	
30adcc1	USCE	1910	730	8	Kd	N	N	N	----	------	-----	-10	5–18–56	Fx. Leaks below land surface; maintains swampy area at foot of hill near well.
97-69-														
25bcda1	O. Qualm	-----	------	------	-----	F,97m	------	S	85	1,920	-----	------	5–18–56	Cratered; casing not visible.
34aa1	G. Balcon	1951	672	2	-----	F,30r	------	D,S	81	1,820	-----	------	7–19–56	
36adcb1	----------	1956	------	4	-----	F,42m	------	S	81.5	------	2.5	------	8–16–56	

99-70-17cdba1	USCE	-----	-------	2½	-----	F,5e	-------	uN	81	2,060	1.3	------	8- 2-57	(110)
20aba1	-----do------	-----	-------	------	-----	F,10e	-------	N	85	2,050	.0	------	6-20-56	Flows from hole in concrete-filled bucket.
99-72-2ca1	L. Donnelly---	-----	-------	------	-----	F,18m	-------	S	110+	2,010	-5	------	7-26-56	
15ca1	-----do------	1955	1,240	2	-----	A	E	S	----	------	-----	------	7-26-56	
22ba1	R. Lundberg--	1948	1,200+	3	Kd1	Cy	E	S	----	------	-----	------	7-26-56	Water level reported as -187 feet in 1948.
22ba2	-----do------	1918	-------	3,2	-----	Cy	W	N	----	------	-----	------	7-26-56	Water level reported -200 feet in 1948 when well ceased to yield.
22da1	-----do------	1946	840	3	-----	F,50m	-------	S	100	------	2.3	------	8-16-56	Slight use by stock.
23bb1	L. Donnelly---	-----	-------	------	-----	F,25e	-------	S	99	2,060	-----	------	7-26-56	
35d1	E. Sperl -----	1946	1,080	3	Kd2	F,1m	-------	S	78	------	-----	------	8-16-56	Casing leaks.
							Haakon County							
A-1-22-13adaa1	P. Roseth ----	1956	2,006	3	Kd	F,32m	-------	D,S	117	4,580	2.0	+47m	8- 8-57	Penetrates Dakota sandstone from 1,850 to 2,006 feet.
A-1-23-13bdbc1	C. & N.W. Ry.-	-----	-------	------	-----	F,50e	-------	D	113	3,770	2.8	-----	7- 9-57	
A-5-18-8bbab1	C. Price -----	1955	2,383	3	Kd	F,5m	-------	S	70.5	3,080	1.6	+36m	8- 8-57	
12bcd1	Western Cattle Co.----------	1955	2,370	3	Kd	F,1.3m	-------	S	77	4,260	1.6	-----	8- 8-57	
A-6-18-31abdc1	W. McIlravy--	1957	2,334	3,2	Kd	F,37m	-------	S	119	3,180	2.6	+116m	8-18-57	Penetrates Dakota sandstone from 2,258 to 2,334 feet. Driller reported "sand," loose from 2,258 to 2,282 feet, "hard" to bottom.

See footnotes at end of table.

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A-6-21-11aab1	E. Bierwagen	1926	1,920	3,1¼	Kd	N	N	N	----	-------	-----	-10.98	7–17–57	Fx until 1955.
A-6-22-2dda1	C. Roseth	1952	1,900	3,1¼	Kd	F,7.5m	------	S	102	6,070	-----	------	7–16–57	Leaks around casing, when flow is reduced.
13acc1	R. Schofield	1950	1,950	3,2	Kd	F,23m	------	D,S	113	6,560	3.0	------	7–17–57	Water level +40 feet in 1950.
A-6-23-5cdab1	R. Roseth	-----	-------	5,2	-----	A	E	S	----	-------	-----	-48	7–16–57	
30cbdb1	----------	-----	-------	3	-----	A	E	S	----	8,080	-----	------	7–17–57	
A-7-22-21adca1	Buchholtz Ranch	1956	1,910	5,2	Kd	F,30m	------	S	112	9,990	3.2	+87.7	8– 8–57	Water contains gas. Pohle-Government No. 1 oil-test hole.
A-7-24-8bdad1	W. Hickman	1956	a2,000	3	-----	F,30m	------	D,S	105	9,150	2.1	------	7–16–57	Water contains gas; owner plans to use gas for domestic purposes.
A-9-24-32ddbd1	-----do	-----	-------	------	Kd	F,21m	------	D,S	101	9,700	3.8	------	7–16–57	Water contains gas that is used for domestic purposes.

112-69-12daca1	G. Smith	1917	1,177	1¼	Kd1	F,0.9m,Cy	E	D,S	58	3,000	2.2		8- 6-57	
112-70-2bcaa1	J. Renner	1949	1,300	3		Cy	W	D,S		2,780		-20	8- 6-57	(111)
113-70-23dddd1	E. Kost	1946	1,365	3		F,7.3m		D,G,S	66	2,840	2.3		8- 6-57	(112)
114-68-30aaad1	R. Ames	1949	1,221	2½		F,1.7m		D,S	60	3,730	2.4	+30m	7-30-57	(113)
115-68-22ddcd1	Hardes Bros		a1,150	3		F,2m		D,S	70	2,920	3.0		7-30-57	
116-67-31bcbb1	J. Creagh	1951	1,130	1¼		F,1r		D,S	59	2,670	2.0		7-30-57	
Harding County														
A-17-4-16bdc1	State of South Dakota	1954	119.0	8	Kfh(?)	F,1e		S	52	2,520			7-26-56	Drilled to supply water for drilling Richfield-State "A" No. 1 oil-test hole.
Hughes County														
108-74-23adaa1				3		F,50m		S	63	2,370	3.2		7-25-57	(114)
108-75-17cbbd1	W. Arch	1925	a1,400	1½		F,20m		D,S	74.5	2,980			6-19-56	Water contains gas.
109-76-3dadb1	G. Schmitt	1944	816	3,2	Kd1	F,2.9m		D,S	72	5,300	2.2	+94m	7-25-57	(115)
110-79-4baba1	State of South Dakota	1910	a1,225	7	Kd	Fu		On,L	95	6,610			5-20-56	Large flow of water emerges from bottom of lake.[116]
5abad1	Locke Hotel	a1900		4		Fu		In		6,380	14		7-19-57	Gas, separated from water, supplies heat for hotel.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
111-76-3bccc1	E. Stewart	a1923	1,200	2	------	Fs	------	D,S	----	8,270	-----	------	7-25-57	(117)
111-79-33cdcc1	State of South Dakota	1944	1,500	7,4	Kd,K1	F,206m	------	On,L	94	6,210	6	------	5-20-56	Gas, separated from water, formerly heated part of the South Dakota Capitol Building.[118]
112-74-4bcbb1	E. Hoffman	1952	1,457	3	------	F,9.4m	------	D,S	92	2,750	1.3	------	7-25-57	
112-80-22babc1	R. Hood	-----	-------	4	------	F,6.7m	------	D,S	88	6,850	3.0	------	8-14-57	(119)
						Hutchinson County								
97-58-10abbd1	J. Jochims	1946	420	3,2	Kd2	F,116m	------	S	54	2,510	-----	------	8- 9-56	Casing reported to leak at 210 feet.[120]
36ca1	Maxwell Colony	------	-------	3	------	F,7.5m	------	S	56	2,620	2.9	------	8- 9-56	Casing leaks.
97-59-2adbd1	R. Gall	1948	558	2	Kd2	F,93m	------	S	56	2,640	4.0	+105	7-20-57	Recased; 3-inch casing deteriorated in 5 years.
8ccca1	O. Siegler	------	-------	2	------	Fu	------	D,S	52	2,620	-----	------	8- 9-56	Flow controlled, full flow reported large.

Hyde County														
112-71-10adab1	L. Thompkins	1942	1,490	2		Cy	E	D,S		2,970		-100+	8- 6-57	
114-72-35cbbb1	L. Ankrum			3		Fs		S	57	10,470	2.5		8- 1-57	
115-71-17ba1	L. Stoley	1954	1,505	3,2		Cy	E	S		2,760			8- 1-57	Water level measured as -75 feet in 1954 by owner.
Jackson County														
D-2-22-32abad1	City of Kadoka	1950	2,956	11,5½		T	E	P	130	2,060		-150	12-13-55	Casing perforated from 2,550 to 2,610 feet.[121]
D-3-22-32bbba1	A. Hansen	1935	3,640	4 or 6		F,10r		D,S	rl10	2,790			9-27-56	Former oil-test hole.[122]
Jones County														
A-1-29-6abd1	F. Olsen	1954	1,727	3	Kd	F,6.6m		S	94	4,040	2.0		7-18-57	Temperature of water is reported to vary.
A-2-28-6dbcd1	B. Callihan	1952	1,500	6,3	Kd	Fu		D,S	101	5,620	1.1		7-18-57	Casing leaks below land surface.
34bdac1						F,2e		uN	84	5,950			7-18-57	
Lawrence County														
A-6-2-9d1	Black Hills State Teachers College	b1918	300	3	Pm	N	N	N				-17.74	9-26-56	Fx. Water level measured -16.90 feet on Mar. 3, 1957.[123]

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
A-6-2-10a1	A. Gray	a1910	380	3	Pm	N	N	N	----	------	------	------	9-25-56	Fx until about 1954; lower part of casing has deteriorated.
23bbab1	Homestake Mining Co	a1904	m264	8	Pm	N	N	N	----	------	------	-74.15	9-25-56	Fx. Water level measured -75.65 feet on Mar. 4, 1957.[124]
A-7-1-14ccdc1	O. Anderson	a1914	460	6	Pm	F,90m	------	I	55	2,310	4.3	------	7-28-56	Flow controlled by valve. Salts reported to form on ground when water is applied for more than 4 days continously.
20cddd1	G. Papousek	1955	580	6	Trs	F,800r	------	I,S	53	1,660	------	+18r	7-28-56	Flow controlled by valve. Water reported to come from cavern at base of Spearfish formation.
21cbb1	USFWS	1949	220	8	Trs	F,1,600r	------	In	52	790	------	------	7-27-56	Supplies McNenny Fish Cultural Station.
21dcda1	SDGFP	-----	400	6 5/8	Pm	F,43m	------	D,P	53	650	.0	------	7-27-56	Casing reported to leak below land surface. Apparently little used.
22bad1	J. Schenk	a1914	------	6	Pm(?)	F,128m	------	I,S	52	1,770	------	------	7-28-56	Flow controlled by valve.

														Much sediment in water; water reported "not very good for irrigation."
23bc1	A. Sleep -----	1954	585	6	Pm	F,1.5e	------	I	53	714	.5	------	7–26–56	Water flows onto field irrigated by well A-7-1-23cb1.
23cb1	-----do------	1955	465	12,8	Pm	F,1,100r	------	I	52.5	666	-----	------	7–26–56	Flow controlled by valve. Pressure of well directly operates sprinkler-irrigation system.
29aa1	G. Papousek--	a1916	397	7	Ks	N	N	N	----	------	-----	Or	7–28–56	Fx. Reported cased to 120 feet, Fs in spring of year. Well plugged by silt at 119 feet.
29aa2	-----do------	a1954	411	8	Ks	F,300e	------	I	52	648	2.5	------	7–28–56	Flow controlled by valve. Reported cased to 360 feet.
29aa3	-----do------	1955	430	7	Pm	F,150m	------	I	52	694	2.3	------	7–28–56	Flow controlled by valve. Reported cased to 395 feet, water level +42 feet in 1955.
30bd1	G. Giltner----	1951	406	6,8	Pm	F, 408m	------	I	54	972	2.1	------	7–29–56	Flow controlled by valve.[125]
30bd2	-----do------	1952	402	10,8	Pm	F,700r	------	I	54	1,100	2.1	------	7–29–56	(126)
30ca1	-----do------	1943	498	6,5	Pm	F,5m	------	S	----	670	-----	------	7–29–56	(127)
A-7-2-														
19cca1	A. Evans-----	1954	412	6,5	Pm(?)	F,850m	------	I,S	55.5	2,520	4.7	------	7–28–56	Flow for stock use during winter is reported about 300 gpm. Casing reported not seated in cement.
22ccdd1	T. Henwood---	1955	680	4	Pm	F,400r	------	I,S	53	1,410	1.1	------	7–28–56	Owner reports well is shut down when water not needed.

Lyman County[128]

101-73-													
22cc1	W. Rohwer ---	1919	980	4	Kd1	F,16m	------	S	99	------	0.0	------	7–25–56
28bcaa1	H. Hanneft ---	1952	1,200	2	Kd2	F,65m	------	D,G,S	101	2,530	4.7	------	7–25–56

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
101-73-29dddd1	W. Rohwer	1939	1,000	3	Kd1	F,7.5m		D,G,S	96	2,140	3.7		7–25–56	
102-72-5dcbc1	USCE			5		F,177m		S	85.5	2,680			5–15–56	Casing in poor condition.[129]
102-73-1bbcc1	F. Reis		a650	3		F,5e		D,S	70	8,400	4.2		8– 8–57	Local residents do not consider this well to be a "true artesian well." Water contains gas.
3baaa1	M. Swanson			4		F,4m		S	90	2,730	3.3		8– 8–57	Water contains gas.
103–72–5dadd1	S. Reis	a1935	a750	4		F,20m		uN	83	2,810			6–25–56	Flows from bottom of 10 ft x 10 ft concrete retaining tank; casing not visible. May have been an irrigation well.[130]
5dbbc1	do	a1935				F,54m		S	83	2,680			5– 9–56	Cratered; casing not visible.[131]
6bbab1	D. Reis					F,5e		S					8–22–56	Flows from marshy area.
7addb1	SDGFP	a1935				F,638m		S	84	2,730			5– 9–56	Flows from bottom of 20 ft x 20 ft concrete tank; overflow maintains 2-acre pond, thence it flows into the White River.

													Former irrigation well.[132]
7addd1	-----do-------	------	------	------	------	Fs	------	N	58.5	2,720	10.6	------	5–11–56	Water flows from top of 4 ft x 4 ft x 11 ft concrete stand pipe.
7bdda1	-----do-------	a1900	------	------	------	F,198m	------	N	86	2,740	-----	------	5–11–56	Cratered; flows from bottom of small pond. Former irrigation well.
8abcb1	S. Reis-------	a1935	------	------	------	F,2e	------	S	70	2,740	-----	------	5– 9–56	Flows from bottom of concrete tank; casing not visible.[133]
8bdcc1	SDGFP-------	a1900	------	------	------	F,69m	------	uN	82.5	2,790	-----	------	6–25–56	Flows from bottom of 8 ft x 8 ft concrete and wood tank; casing not visible.[134]
18adda1	USCE--------	a1900	------	------	------	F,241m	------	N	86	2,640	-----	------	5–23–56	Flows from 40 ft x 70 ft crater, 30 ft deep. Former irrigation well.[135]
22acac1	----------	------	------	------	------	F,41m	------	uN	82	2,950	-----	------	6–22–56	Cratered; casing not visible.
22adac1	----------	------	------	------	------	F,18m	------	N	82	2,700	-----	------	6–22–56	Flows from bottom of pond; casing not visible.
29dbaa1	USCE--------	------	------	6	------	F,100m	------	N	84	------	-----	------	8–23–56	Beginning to crater.[136]
103-74 1a1	M. Sharpe-----	------	------	3	------	F,23e	------	S	91	3,190	1.6	------	8– 7–57	Water is very turbid and contains pieces of shale, indicating that the casing has deteriorated. Water contains hydrogen sulfide gas. Flow of 20 gpm measured, additional flow of 3 gpm estimated.
10bcaa1	A. Schooler----	1953	860	3	Kd	F,100m	------	G,S	88.5	2,610	2.0	------	7–26–57	Water reported to have flowed from around casing until spring of 1957.
10dbac1	J. Burull------	1945	860	6	Kd2	F,30m	------	S	90	2,610	3.5	------	7–26–57	Driller was unable to insert more than 32 feet of casing in the well.
10dbac2	-----do-------	1937	a18	------	Qal	--------	------	D	----	2,820	-----	------	7–26–57	Reported contaminated by artesian leakage from well 10dbac1.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

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104-71-4aaba1	USCE	1920	480	1¼	-----	Fs	------	N	59	5,860	3	------	5-28-56	Brick curb around well site.
9bccb1	----------	-----	------	3	-----	F,25m	------	S	71	2,710	1.9	------	5-17-56	
18cc1	A. Muller	1955	790	2	-----	F,250r	------	In	----	-------	-----	------	5-31-56	Flow controlled by valve.
104-72-9acbc1	M. Sharpe	1941	873	6,4	Kd	F,234m	------	S	----	2,420	-----	------	5- 6-56	Casing in poor condition; water formerly used in manganese mining and milling; is now reported to supply 600 cattle.[137]
23abbc1	A. Werner	1952	680	4,1½	Kd	F,43m	------	D,S	73	2,330	3	------	5- 5-56	
23dcbb1	J. Bice	1953	650	4,2	Kd	F,104m	------	I,S	77	2,490	-----	------	6-21-56	Casing broken below land surface.[138]
23dcbb2	do	a1905	615	3	-----	F,1m	------	S	64.5	3,750	2.4	------	6-21-56	
24bdac1	----------	-----	------	-------	-----	F,100e	------	P	----	-------	-----	------	7- 5-56	Municipal water-supply well for Oacoma. Estimated flow is the overflow from the town water-supply tank.
26bbbb1	J. Bice	a1945	------	-------	-----	F,12m	------	I,S,L	----	2,810	-----	------	6-21-56	Well flows from bottom of stock pond; casing not visible.
26bcbb1	USCE	-----	------	3½	-----	F,5e	------	uN	78	2,770	-----	------	5-28-56	

27aaad1	B. Wilbur	-----	-----	3	-----	F,65e	-----	S	80.5	2,560	.6	-----	5-28-56	Flow, 60 gpm measured; additional flow of 5 gpm estimated.
104-73-21aabc1	H. Wagner	1919	1,132	3,1¼	Kd	Cy	W	G,S	-----	2,450	-----	-----	8- 8-57	(139)
104-74-22bcdb1	E. Schelske	1946	1,195	3,2	Kd	A	G	D,G,S	-----	-----	-----	-----	7-26-57	Water level measured as -60 feet in August 1957.
28cdca1	----do----	1945	1,205	3,2	Kd	F,17e	-----	S	95	2,610	3.3	-----	7-26-57	Casing leaks; flow of 15 gpm measured, additional flow of 2 gpm estimated.
105-71-5cbac1	A. Rohrbuck	1947	612	1¼	Kd	F,15m	-----	S	66	2,580	2.3	-----	5-31-56	
18cc1	B. Prchal	-----	-----	-----	-----	N	N	N	-----	-----	-----	-----	8- 6-57	Dry to obstruction at 44 feet.
19cbb1	M. Prchal	-----	-----	4,3	Kd	Cy	E	S	-----	2,260	-----	-125.41	8- 6-57	
34acdc1	A. Dinehart	1910	960	1¼	-----	F,10m	-----	S	66	3,180	2.6	-----	5-28-56	Former irrigation well.[140]
105-77-34dd1	J. Jenson	1953	2,352	3,2	-----	F,9m	-----	D,S	106	2,780	1.8	+166m	2-27-57	Flow restricted, full flow measured 25 gpm.[141]
106-71-17dbaa1	C. Thompson	1939	800	1½	Kd2	F,12e	-----	D,S	71.5	2,730	-----	-----	5-31-56	Leaks around casing.
28ccbd1	USCE	-----	-----	3	-----	F,30m	-----	S	71	2,480	2.6	-----	5-31-56	
106-72-12cc1	C. Thompson	-----	a1,000	1½	-----	F,20m	-----	S	75	2,440	2	-----	6- 4-56	
25aad1	Lower Brule Enterprises	a1938	-----	3	-----	F,0.5e	-----	S	62	4,980	3	-----	5-31-56	
25add1	----do----	-----	-----	10	-----	Fs	-----	S	63.5	4,840	6	-----	5-31-56	
108-76-20da1	L. Langdeau	a1920	1,100	3	-----	F,30m	-----	D,S	82	2,450	2.2	-----	6- 1-56	
							McPherson County							
125-67-32aaaa1	A. Nelson	1910	1,185	1¼	Kd	F,3r	-----	D,S	66	3,530	2.7	-----	7-31-57	Water reported as soft.

See footnotes at end of table.

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126-66-12dddd1	L. Geffret	a1920	------	1¼	------	Fu	------	D,S	74	2,430	-----	------	7–31–57	Aquifer reported as "third flow," probably equivalent to Sundance(?) formation.
						Meade County								
A-2-7-5dbbc1	C. Eastman	------	616	------	Pm	F,10m	------	D,G,S	54	900	2.2	------	7– 8–57	Flow controlled.
8addc1	O. Alders	1957	775	6,4½	Pm	F,37m	------	-----	53	1,160	-----	------	7– 8–57	Well completed on date of visit. Top of Minnelusa reported at -710 feet.
A-3-6-15ba1	W. Sloan	1956	113	8	Pm	Fs	------	D,G,P	54	793	1.8	a5	9–22–56	Flow reported to have been large when well was drilled.
15ba2	----do----	1956	115	8	Pm	--------	------	D,G,P	----	------	-----	+.60	9–22–56	Reported to pump at rate of 750 gpm with 5 feet of drawdown.
A-4-6-3cbbb1	Jarvis Bros	1955	515	5½	Kl(?)	F,4m	------	S	53	742	1.1	------	7–24–56	
4abdb1	Jordan Bros	1953	360	2½	Kf	Fu	------	D,G,S	51	790	3.0	------	7–24–56	Flow reported to have been 27 gpm in 1953.

9abbc1	-----do------	1953	440	--------	Kf	F,1.5m	------	G,S	51	1,020	-----	------	7–24–56	
10bccb1	-----do------	1953	255	2½	Kf	F,20m	------	D,S	51	778	-----	------	7–24–56	
A-4-7-														
18dbbc1	L. Bryant ----	1936	840	2	Pm	F,0.3m	------	D,G,S	57	670	2.9	------	7– 8–57	
27cbbb1	G. McFarland_	1956	------	2½	-----	F,3e	------	D,G,S	54	1,250	2.8	------	7– 7–57	
A-5-6-														
17caab1	P. Gruble ----	1931	558	6	Kl	F,10r	------	D,S	51	530	2.5	------	3– 3–57	Casing reported in poor condition.[142]
18dcaa1	-----do------	1954	390	3	Kl	F,4r	------	D,S	50	353	1.8	37m	3– 3–57	Cased to 358 feet. Water level measured as +37 feet on May 30, 1957.[143]
18dcaa2	-----do------	1954	------	3+	Kf	F,0.8m	------	S	49.5	1,280	0	------	3– 3–57	Flows from the annular opening around the 3-inch casing.[143]
A-6-5-														
15ddda1	G. Gullikson__	1936	248	3	Kf	F,30e	------	S	55	820	2.5	------	8–17–57	Flow is only slightly controlled.
22aadb1	C. Baker-----	1906	377	2	Kf	F,8e	------	D,G,S	54	800	4.7	------	8–17–57	
22ddbc1	A. Baker-----	1947	920	3,2	Kl	F,25m	------	D,G,S	54	640	1.3	+60m	8–20–57	Casing perforated from 880 to 920 feet; top of Lakota formation at 890 feet.
A-6-6-														
19bbbc1	SDGFP--------	1919	------	6	Pm	F,100r	------	L,S	----	1,650	7.5	------	7–26–56	Feeds Bear Butte Lake; formerly Bear Butte oil-test hole.[144]
19bbca1	H. Millin------	a1953	477	2	Pm	F,9m	------	S	57	2,200	3.5	------	7–26–56	
19bbcd1	SDGFP--------	1956	1,358	8,6	Pm	F,225r	------	L	56	2,330	-----	------	7–26–56	Reported cased to 905 feet; no flow from below base of Minnelusa sandstone at 915 feet.
A-6-17-														
5cccc1	C. Hughes-----	1957	2,412	3,2	Kd	F,46m	------	S	123	3,620	3.6	+100m	8–22–57	Water is soft and contains gas.
A-7-5-														
29bbd1	F. Berger-----	-----	------	2	Kd	F,0.3m	------	D,S	53.5	990	2.9	------	8–17–57	
A-7-17-														
20aa1	W. Richardson-	1956	2,445	3	Kd	Fu	------	S	----	4,350	2.9	+88m	8–19–57	Flow of 35 gpm reported; temperature 110°F. measured Sept. 22, 1956.

See footnotes at end of table.

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A-7-17-32cdda1	Western Cattle Co	------	2,383	3	Kd	F,40m	------	S	125	4,170	-----	------	8-18-57	Water contains some gas.
						Mellette County								
40-25-12bd1	C&N.W. Ry	1929	1,681	8	Kd	N	N	N	----	------	-----	------	7-23-57	
41-27-25ca1	do	1930	1,836	8	Kd	N	N	N	----	------	-----	-184.44	2-28-57	(145)
42-25-1ca1	P. McDill	1951	1,342	3½,2	Kd1	F,98m	------	S	111.5	------	3.1	+183m	9-13-56	
43-26-16ca1	do	1951	1,515	3½,2	Kd1	F,67m	------	D,S	113	2,790	3.5	+131m	9-13-56	
43-27-11ad1	R. Edwards	a1952	1,700	2	Kd	F,40m	------	S	122	3,060	3.0	------	9-14-56	
						Miner County								
106-57-19ad1	SDGFP	------	------	3½	------	F,15m	------	L	52	2,860	-----	------	5- 2-56	
19ad2	do	------	------	3	------	F,10e	------	L	53	2,800	-----	------	5- 2-56	Water replenishes fish-rearing basin, thence flows to lake.

19da1	SDGFP					F,23m		L,S	52	2,820	.0		5- 2-56	Casing not visible.[146]
106-58-6cccb1	D. Jones			2		F,14m		S	50	2,500			5- 2-56	Maintains small pond.
Pennington County														
A-4-7-7bbcc1	C. Erickson	1956	2,195	4,1½	Kd	F,2m		D,G,S	71	3,870	2.2	+19m	8-15-57	Temperature was greater during period of pumping to develop the well.
A-5-17-3dccc1	A. McIlravy	1955	2,335	3,2	Kd	F,30m		S	121	2,840			8-16-57	Dakota sandstone penetrated from 2,240 to 2,335 feet. Water does not taste saline.
Sanborn County														
105-61-15dbdd1	Town of Letcher			6		F,18m		uN	60	2,400	0.0		5- 2-56	Formerly supplied swimming pool; flows in into lake. Well reported to have caved during attempt to recase; obstruction at 33.5 feet.
106-59-11aaba1			a90			F,10e		S		2,190			11-18-55	Maintains marshy area.[147]
11bbbb1			a90	3		F,10e		S	49.5	2,200			11-18-55	Do.
106-60-4cccb1	L. Nelson			2		F,25m		S	59	2,670			5- 2-56	Maintains small pond.
106-62-30bb1	SDGFP	a1942	760		Kd1	Fu		L					10- 6-56	Throws sand; supplies fish-rearing pond.
30bd1	do	a1926	760	8,6	Kd1	F,50e		L					10- 6-56	Casing in poor condition.
107-60-9ab1				2		F,10e		S					10-27-55	Maintains marshy area.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
107-61-														
27dabc1	----------	-----	-------	2½	------	F,7m	------	D,S	58	2,980	-----	-------	11- 8-55	
107-62-														
21dcdb1	Town of Woonsocket---	1954	735	4	Kd	F,60e	------	L	60.5	2,490	1.9	+58m	1- 8-58	Flow controlled by valve; F, 500 gpm (r) in 1954; Dakota sandstone penetrated from 695 to 735 feet.
108-59-														
16cccb1	----------	-----	-------	2	------	F,5m	------	S	59	2,820	-----	-------	11- 8-55	Maintains pond.
108-60-														
27cddd1	----------	-----	-------	2	------	F,5m	------	S	50	2,200	-----	-------	11- 2-55	Do.
30dada1	----------	-----	-------	2	------	F,2e	------	S	58	2,850	-----	-------	11- 8-55	
108-61-														
2aa1	S. Pearson	1950	870	3	------	F,16m	------	D,S	66	------	-----	-------	10-11-55	
2aa2	-----do------	a1927	a700	-------	------	F,2e	------	S	----	------	-----	-------	10-11-55	Incompletely plugged by large block of concrete poured around casing.
15daaa1	M. and L. Olson	1955	-------	2½	------	F,27m	------	S	62.5	2,850	2.9	-------	10-27-55	
25daa1	A. Peterson ---	a1915	-------	1	------	F,12m	------	S	60	2,960	-----	-------	10-27-55	Reported to be one of the oldest continuously flowing wells in the area.
27dcdc1	----------	-----	-------	3	------	F,15m	------	S	61.5	2,700	-----	-------	11- 8-55	Maintains large pond.[148]

Spink County

115-64-9ca1	SDGFP	-----	-----	4	-----	Fs	-----	N	----	-----	-----	-----	11-13-55	Obstruction at about 385 feet.[149]
120-64-26cc1	M. Swain	-----	-----	2	Kd	Fu	-----	O	----	-----	2.8	+26.4	11- 6-57	Pressure gage installed May 1953 by U.S. Geological Survey.

Stanley County

A-3-29														
5cbda1	C. & N.W. Ry	-----	-----	6	-----	F,38m	-----	S	91	6,060	2.2	-----	7-23-57	Water contains gas.
20d1	Iverson Estate	a1948	-----	4,2	-----	F,54m	-----	S	----	5,100	13	-----	7-23-57	
A-4-28														
10acbb1	Rankine Ranch	1904	a1,500	4,2	-----	F,30m	-----	S	92	6,990	3.8	-----	7-24-57	Water contains gas that is used for domestic purposes.
24cdb1	D. Iverson	1952	1,400+	4,2	-----	F,60m	-----	S	95	6,090	2.2	-----	7-23-57	Water is very turbid and contains pieces of shale as large as a half dollar, indicating that the casing has deteriorated below land surface.
A-4-30-26dcbb1	Fischer Bros	a1950	a2,000	3	-----	F,15m	-----	S	86	-----	2.7	-----	8-15-56	Water contains gas.
A-4-31														
32d1	Carlisle Bros	1914	1,700+	4	-----	F	-----	S	----	-----	-----	-----	7-23-57	
A-5-28-														
4bdd1	Rankine Ranch	1950	a1,500	4,2	-----	F,3.8m	-----	S	84	7,210	3.1	-----	7-24-57	
35bb1	-----do-----	1956	1,530	2	-----	F,50m	-----	S	95	6,930	1.1	+13+	7-24-57	Casing leaks.
A-5-29-3ccbc1	P. Downs	a1917	a1,900	2	-----	F,10m	-----	D,S	91	8,790	-----	-----	7-10-57	Water contains gas that is used for domestic purposes.
8bbcc1	A. Ziemann	-----	a1,850	4	-----	Cy	W	D,S	----	-----	-----	-16	7-10-57	Fx until about 1930. Water level reported to be at land surface in 1942.[150]
22dddd1	Phillip Ranch	1909	1,600	3	-----	N	N	N	----	-----	-----	-64.50	7-10-57	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
A-5-30-														
12dbdd1	S. Phillips Ranch	-----	-------	3½	------	N	N	N	----	------	1.22	-65.70	7–10–57	
21cbda1	Bar L Ranch	-----	-------	4	------	F,18m	------	S	87	7,690	4.1	------	7–11–57	
A-5-31-														
33abdd1	Town of Ft. Pierre	1905	1,169	4	Kd	F,176m	------	N	91	6,790	7.1	------	7–12–57	Water contains gas.[151]
A-6-29-														
20cdda1	P. Downs	-----	-------	2	------	Cy	H	N	----	------	-----	------	7–10–57	
A-7-27-														
10bccc1	B. Barrick	-----	3,508	8	Mp(?)	F,2e	------	S	86	3,260	3.2	------	7–11–57	Leaks around casing; water contains gas; Standing Butte oil-test hole.
20bdaa1	----do	-----	-------	2	------	N	N	N	----	------	-----	-41.4	7–11–57	Obstruction at 105.5 feet.
A-7-28-														
28dcbd1	----do	-----	-------	3	------	F,15m	------	S	87	9,320	6.8	------	7–11–57	
35bddd1	----------	-----	-------	------	------	N	N	N	----	------	-----	-15.85	7–11–57	
109-76-														
14aacc1	C. Clark	-----	a1,000	3	------	F,3m	------	S	71	5,750	2.5	------	6–18–56	Water contains gas.
14cad1	----do	1943	a1,000	2	------	F,3.5m	------	S	71.5	5,510	2.9	------	6–18–56	
16acdb1	----do	1944	a1,000	3	------	F,4.1m	------	S	74.5	5,450	1.4	------	6–18–56	Do.
26accb1	----do	1944	900	3,1¼	------	F,3.5m	------	S	71	5,450	2.0	------	6–18–56	Do.
26bdbd1	----do	1941	a1,000	3,1¼	------	F,4m	------	S	72	5,190	2.7	------	6–18–56	

109-79-4cbba1	J. Kirley	-----	1,600	3	------	Cy	E	S	----	6,060	-----	-100	7-24-57	
7d1	W. Wyly	-----	------	4	------	F,2r	------	N	----	------	-----	------	7-24-57	Reported as drilled in early 1900's; ceased flowing many years ago, was resumed in 1955.
21babb1	-----do	-----	a1,600	2	------	Cy	W	S	----	------	-----	-60	7-24-57	Recased in 1955.
27bccd1	F. Whalan Estate	-----	------	4	------	Cy	G	D,S	----	5,190	-----	------	7-24-57	Recased.
						Sully County								
113-75-34ccda1	A. Lappe	-----	------	3	------	F,5m	------	D,G,S	74	3,600	2.1	------	7-25-57	
113-76-31abcc1	J. Zebroski	a1951	1,400	3	------	F,5.5m	------	D,G,S	68	3,950	3.0	------	7-25-57	
31abcc2	-----do	-----	a1,400	3	------	Fs	------	S	----	3,950	-----	------	7-25-57	
113-79-32dddb1	D. Barton	-----	------	4	------	F,7e	------	D,S	86r	6,530	3.9	------	8-14-57	Water contains gas that is used for domestic purposes.
113-81-22dcab1	USCE	1934	1,375	3,1½	------	F,40m	------	S	86	9,920	3.2	------	8-14-57	Flow reported to have decreased in late July 1956 and 1957.
114-77-2dca1	Town of Onida	1954	2,111	8,4	Js(?)	F,400+r	------	P	85	2,440	-----	------	7-25-57	Reported to flow through and around casing, which was broken at 176 feet in February 1955. Attempts to plug this well have been unsuccessful. Water level reported as +589 feet in 1954.
2dca2	-----do	1933	1,650	6,4	Kd1	J	E	P	78	2,830	-----	-100	7-25-57	Pumps sand if pumped at a rate of more than 90 gpm.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

Well	Owner or user	Year drilled (reported)	Reported depth (feet)	Diameter of casing, in descending order from land surface (inches)	Reported geologic source of water	Method of lift and yield	Type of power	Use of water	Temperature of water (°F)	Specific conductance of water (micromhos/cm at 25°C)	Height of discharge pipe above land surface (feet)	Water level above (+) or below (-) land surface (feet)	Date of measurement or visit	Remarks
114-80-5accd1	J. Bush	1955	3,150	2	------	F,60m	------	G,S	90	2,790	1.6	------	8- 7-57	
115-80-21adad1	G. Smith	1954	2,284	1	------	F,25e	------	D,G,S	90	2,710	-----	------	8- 7-57	Recased in 1956; original casing was 2 inches in diameter; water contains gas.
28ddbd1	E. Bush	1955	a2,300	2	------	F,4m	------	D,S	69	2,750	2.2	------	8- 7-57	
Tripp County														
99-74-1baba1	C. Sibley	1928	1,500	3	------	Cy	W	S	----	1,930	-----	------	7-24-57	
99-77-11baba1	F. Daughters	1927	1,480+	4	------	Cy	W	S	----	2,060	-----	------	7-23-57	
101-74-3abab1	C. Sheld	------	a1,200	3,1½	------	F,14e	------	S	110.5	------	2.2	------	9-11-56	
3bcbc1	L. Gish	1943	a2,000	3	------	F,24m	------	G,S	111.5	2,330	3.5	------	9- 9-56	Flow reported to have been 60 gpm in 1943.
5ccda1	O. Anderson	1913	1,290	-------	------	Cy	E,W	-----	----	------	-----	-60	9-11-56	Fx slightly in 1913.
6abbd1	E. Hammerbeck	a1955	1,225	3	------	F,10r	------	G,S	105.5	2,330	.4	------	9-11-56	
101-77-28addd1	----------	1917	1,490	3	Kd	F,1.0m	------	uN	84	2,060	1	------	7-23-57	

101-78-33cccd1	G. Rowe	1917	a1,600	4	Kd	Cy	W	N				-27.64	7–23–57	
102-74-7cccc1	E. Swedlund		1,220	3,2		F,22m		S	110		2.2		9–14–56	
17aadb1	A. Nelson					F,3.3m		S	96	2,870	3.0		7–27–56	
29cccc1	C. Ekberg		1,183	2		F,3.3m		S			3.1		9–13–56	Recased in 1940. Initial flow reported to have been 70 gpm.
29ccdd1	E. Swedlund	a1954		3		F,30m		G,S	112	2,460	2.4		9–13–56	
31cddd1	E. Hammerbeck	1912	1,195	2		F,5.5m		S	106	2,270	1.8	+8+m	9–11–56	
32dccb1	A. Ekberg		a1,200	1¼		A	N	N					9–13–56	Fx, water level reported as -20 feet in 1955; flow reported to have been about 35 gpm when drilled.
32dccd1	do	a1951	1,229	3,2	Kd1	A	E	D,S					9–13–56	Fx, flow reported to have been 8 gpm when drilled.
34cbba1	F. Klima	a1928	1,245	1¼		F,5m		G,S	110	2,460	2.4		9–11–56	Recased in 1933.
102-75-12bccc1	R. Schuyler	a1906	1,100	¾		F,5m		S	105		2.5		9–14–56	
24aaad1				3		F,4m		S	115		3.0		9–14–56	
102-76-15cccc1	M. Lantz	1916	a1,400	3	Kd1	Fu		D,G,S	85	2,200			7–30–56	
102-77-5bcdd1	M. O'Conner	1918	1,460	4		F,4m		D,G,S	95.5	2,140	5.4		9–13–56	Casing leaks; flow reported to have been large when drilled.
5caba1	do	1956	34.8	24	Q	Cy	G	S		4,150		-2.60	9–13–56	Reported to be supplied by artesian leakage from well 5bcdd1. Water level measured as -2.67 feet on Feb. 27, 1957.
33dddd1	B. Kelly	1910	1,510	3	Kd	Cy	W	N					7–23–57	Fx.
102-78-23ad1	H. Swedlund Estate	1950	1,280	2		F,50m		S	112		1.0		9–13–56	

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

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103-74-21dbad1	H. Erickson	1921	1,215	3,1¼	Kd	N	N	N	----	-------	-----	-10.54	7-27-56	Fx, water level reported as +15 feet in 1951.
21dbad2	----do	1956	1,215	3,2	Kd	S	A	E	----	2,550	-----	------	7-24-57	
31cba1	R. Schuyler	1947	------	3	-----	F,1e	------	S	----	-------	-----	------	9-14-56	
Union County														
92-50-10cbbd1	M. Albin	1951	236	3,1¼	Kd	Cy	E	S	----	2,140	-----	-110.05	7-19-57	
Yankton County														
93-54-7adc1	V. White	-----	------	6	-----	F,60r	------	L,S	57.5	2,060	-----	------	11-14-56	
12cdb1	W. Foster	a1887	a300	------	-----	F,1.0m	------	D,S	56	1,990	2.2	------	7-19-57	
14acb1	C. Holock	1947	601	3,2	-----	F,6.7m	------	S	57	1,880	2.7	+28m	7-19-57	
93-55-18c1	Northwest Public Service	1945	526	6	Kd	F,450r	------	In	64	1,740	3.7	------	8-10-56	Throws sand.[152]
18c2	----do	1935	a585	6	Kd	F,100e	------	N	62	1,760	-----	------	8-10-56	Flows entirely outside casing; discharges into storm sewer; recased in 1943; flow reported to have been 600 gpm in 1935.

18c3	Gurney's Inc---	1892	493	8	Kd	F,161m	------	N	60.5	1,810	-----	------	8–10–56	Well under building; water flows into sewer. Well formerly powered flour mill.[153]
18c4	Schenley Distillers Inc-------	1942	a500	4	-----	F,4.3m	------	N	58	1,680	-----	------	8–10–56	
18c5	-----do-------	1943	a500	4	-----	Fs	------	N	----	------	-----	------	8–10–56	
18c6	-----do-------	1951	a500	4	-----	F,300e	------	N	61.5	1,710	-----	------	8–10–56	Flow, 260 gpm, measured; additional flow, 40 gpm estimated.
93-56-														
13a1	City of Yankton -	1914	942	8 or 10	-----	Fu	------	In	62	1,840	7.5	------	7–17–57	
13ac1	-----do-------	1953	678	12,6	Kd,Kl	F,43m	------	L	61	1,770	.0	+7m	7–17–57	Casing reported to be perforated from 439 to 528 feet in Dakota sandstone and from 541 to 678 feet in Lakota sandstone.
17aa1	----------	------	------	8	-----	F,85m	------	N	61.5	1,850	-----	------	11–14–55	The northwestern of three wells at abandoned cement plant.[154]
17aa2	----------	------	------	8	-----	F,4e	------	uN	----	1,810	7	------	11–14–55	The southwestern of three wells at abandoned cement plant.[154]
17aa3	----------	------	------	6	-----	F,25e	------	N	----	1,830	-----	------	11–14–55	The southeastern well at old cement plant.
94-55-														
9dacc1	N. Mellegard --	------	------	4	-----	F,44m	------	D,S	57	2,410	3.0	------	8–10–56	(155)
95-56														
12bdbb1	G. Geraldson --	1955	480	2,1¼	Kd2	F,8.5m	------	D,S	56	2,220	-----	------	8– 9–56	Copper casing.
12bdbb2	-----do-------	1939	505	2,1¼	Kd	F,2m	------	S	56	2,260	-----	------	8– 9–56	(156)
96-56-														
28dcdd1	Jamesville Colony-------	1945	428	2	Kd2	F,12m	------	S	54	2,010	-----	------	8–10–56	Recased with iron pipe in 1948; recased with copper pipe in 1953.[157]
29bcbb1	B. Simple -----	a1940	a250	4	Kd1	F,5.4m	------	S	54	2,220	-----	------	8– 9–56	(158)
29da1	Jamesville Colony-------	1942	------	3,2	-----	N	N	N	----	------	-----	------	8– 9–56	Fx.

See footnotes at end of table.

Table 1—*Records of selected artesian wells in South Dakota*—Continued

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96-56-28dacc1	Jamesville Colony	1956	565	2	Kd2	Fu		D,S	58	2,300			8–10–56	
29dbda1	do	1951	476	3	Kd2	Fu		S	57	2,220	1.0		8–10–56	
32baab1	do	1942	430	3,2	Kd2	F,2.5m		S	57	2,250	2.5		8–10–56	Recased in 1951 and 1953.
33ab1	do			3		F,2.5m		S	54	1,960	2.9		8–10–56	
96-57-4cddd1	B. Biorseth	1936	420	2,1¼	Kd2	F,17m		S	55	2,470	2.5		8– 9–56	(159)
11bb1	W. Libakken	1926	420	1¼	Kd2	F,16m		S	54	2,450	3.0		8– 9–56	(160)
13ad1	A. Mueller		400+	3	Kd	F,16m		D,S	56.5	2,360	2.7		8– 9–56	
Ziebach County														
A-9-19-6a1	USBIA	1934	2,385	6¼	Kl	Fu		D					10–25–55	(161)
Crook County, Wyoming[162]														
53-60-28cc1	E. Reimecke	1916	640	6	Pm	J	E	G,S	57.5	984		-6	7–29–56	(163)
28cc2	do	1916	900	2,4	Pm	F,0.2m,J	E	D		997			7–29–56	(163)
28cc3	do	a1906	450	6	Pm	C		N				-13.17	7–29–56	Water level measured as -11.32 feet on Mar. 4, 1957.

41-60-7bdad1	G. Darrow----	a1930	a2,200	12	-----	F,200e	------	uN	59	1,650	0.0	------	8- 1-56	Flows from open hole at land surface; reported to be former producing oil well, known locally as the Conway well.
7dbbb1	-----do------	a1930	a1,200	11	-----	F,300e	------	D	59	1,860	-----	------	8- 1-56	Local residents obtain water from this well. Well has no operating control valve. Former oil test-hole, known locally as the Darrow well.

[1]Loucks (1952, p. 51) reported well reached quartzite at 953 ft; "strong flow" with no control, water flowing between the different size casings. Barkley (1953, p. 60, well 279) reported water level +46 ft; flow of 100 gpm.

[2]Well penetrates Precambrian rocks. South Dakota State Planning Board (1937, p. 15, 30, well 21) reported flow, 150 gpm. U.S. Geological Survey unpublished records (1947) show temperature, 70° F.; estimated flow, 5 gpm. Bolin and Petsch (1954), p. 1) published driller's log (granite at 1,191 ft).

[3]U.S. Geological Survey unpublished records (1897) show water level, +276 ft; flow, 400 to 600 gpm.

[4]Loucks (1940, p. 106) reported Game and Fish Dept. well, depth, 860 ft; drilled, 1940. Well 28ad1 is probably Dept. Game, Fish and Parks well.

[5]Loucks (1948, p. 43) reported well perforated from 804 to 881 ft; flow, 309 gpm, Apr. 8, 1958.

[6]U.S. Geological Survey unpublished records (1947) show measured flow as 17 gpm.

[7]Owner reported that iron well casings deteriorate within 4 years in this area and that 3 wells have ceased to flow. Barkley (1952, p. 54, well 74) reported: water level, +139 ft; flow, 120 gpm (1951); drilled, 1936.

[8]Loucks (1952, p. 155) reported flow about 100 gpm. "This well last repaired in 1948. A charge of 150 pounds of dynamite was set off at 300 ft; blast was lowered on 300 ft of 2-inch line, 100 ft of which was recovered after the blast. Mr. Frye, a city employee, believes the well casing was 6 inches in diameter for a total depth of 620 ft. During one of the repair jobs, the 6-inch casing was reached. It is believed that it was bent and twisted to some extent, perhaps enough to block an attempt to reach the bottom of the hole. Top of Niobrara chalk is at 80 ft."

[9]Barkley (1952, p. 56, well 87) reported water level, +46 ft (1951), flow, 20 gpm.

[10]Barkley (1952, p. 56, well 88) reported flow of 140 gpm (1951).

[11]Barkley (1952, p. 56, well 91) reported depth, 696 ft; water level, about +69 ft (1951), drilled, 1942.

[12]Barkley (1953, p. 56, well 206) reported depth reported to be 1,000 ft, water level, -20 ft (1952), drilled, 1940.

[13]Water reported to have raised 18 inches above casing for first 3 or 4 years (flow computed to have been about 2,000 gpm). Probably former irrigation well.

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[14] Barkley (1953, p. 56, well 207) reported: depth, 821 ft; water level, -7 ft (1952); drilled, 1909.
[15] Barkley (1953, p. 56, well 209) reported: depth, about 950 ft; water level, -50 ft (1952); drilled, about 1922.
[16] Barkley (1953, p. 56, well 210) reported: depth 800 ft, water level; -45 ft (1952).
[17] Barkley (1953, p. 56, well 211) reported: depth, 885 ft; water level, -35 ft (1952); drilled, 1942.
[18] Barkley (1953, p. 56, well 212) reported: in the SE¼ sec. 25; depth, 950 ft; water level, -47 ft (1952).
[19] Barkley (1953, p. 56, well 213) reported: depth, 1,160 ft; water level, -260 ft (1952).
[20] Barkley (1953, p. 56, well 214) reported: depth, 716 ft; flow, 20 gpm (1952); drilled, 1948.
[21] Barkley (1953, p. 56) reported: well 215, in the NE¼ sec. 23, owned by Joe M'lady; depth, 1,040 ft; water level, -200 ft (1952); drilled, 1927.
[22] Casing projects about 5 ft above the surface of a small pond, which is also fed by well 101-71-11bcad2.
[23] Well flows from the bottom of a small pond (casing not visible) and reported to flow more than adjacent well, 11bcad1. South Dakota State Planning Board (1937, p. 15, 28, well 34) reported: depth, 1,000 ft; 4-inch casing; "Wild well in southwestern Brule county and another old well [101-71-11bcad1], now almost dry, which is located about 14 ft from it, are running at least 200 gpm into a small creek...practically the entire output of the wells is wasted."
[24] South Dakota State Planning Board (1937, p. 15, 32) reported: well 33 is in sec. 1; 3-inch casing; depth, 800 ft; flow, 12 gpm.
[25] Barkley (1953, p. 56) reported: well 217 as in SE¼ sec. 8, owned by Fred Olson; depth, 900 ft; water level, -18 ft (1952); drilled, 1952.
[26] Barkley (1953, p. 56) reported: well 218, in SE¼ sec. 15, owned by John Chmella; depth, 900 ft; water level, -64 ft (1952); drilled, about 1912.
[27] Barkley (1953, p. 56, well 219) reported: water level, -110 ft.
[28] Barkley (1953, p. 57) reported: well 220, in SE¼ sec. 13, owned by Ed Pospichal; depth, 860 ft; water level, -65 ft (1952); drilled, 1924.
[29] Barkley (1953, p. 57, well 221) reported: depth, 826 ft; water level, -6 ft (1952); drilled, 1918.
[30] Barkley (1953, p. 57, well 222) reported: depth, 929 ft; water level, -54 ft (1952).
[31] Barkley (1953, p. 57, well 223) reported: depth, 750 ft; flow, 60 gpm; drilled before 1930.
[32] Barkley (1953, p. 57, well 224) reported: depth, 780 ft; drilled, 1940.
[33] Barkley (1953, p. 57, well 225) reported: depth, 1,118 ft; water level at land surface (1952); drilled, 1907.
[34] Barkley (1953, p. 57, well 226) reported: depth, 1,090 ft; water level, -81 ft (1952); drilled, 1947.
[35] South Dakota State Planning Board (1937, p. 15, 30, well 32) reported: "same age, depth, size and condition as no. 31 well [well 2cbda1]," flow, 75 gpm.
[36] South Dakota State Planning Board (1937, p. 15, 30, well 31) reported: location, sec. 2, T. 102 N., R. 70 W. [apparently a typographical error]; depth, about 850 ft; drilled, about 1897; flow, 75 gpm; "many years ago the casing of this well rusted out." Barkley (1953, p. 57, well 227) reported: depth 775 ft; drilled before 1930.
[37] Barkley (1953, p. 57) reported: well 228 in SW¼ sec. 13, owned by Al Urban; depth, 960 ft; water level, -133 ft (1952); drilled, 1913.
[38] Barkley (1953, p. 57, well 229) reported: depth, 960 ft; water level, -66 ft (1952); drilled, 1930.
[39] Barkley (1953, p. 57, well 230) reported: depth, 960(?) ft; water level, -87 ft (1952).
[40] South Dakota State Planning Board (1937, p. 15, 24) reported: well 30, in sec. 16; 6-inch casing; depth, 1,200 ft; flow, 50 gpm. Sec. 16 is inundated by Red Lake. Well 14bbba1 may be well 30.
[41] Barkley (1953, p. 57, well 231) reported: depth, 956 ft; water level, +18 ft (1952); flow, 12.1 gpm; drilled, 1907.
[42] Barkley (1953, p. 57) reported: well 233, in NW¼ sec. 13; owned by Art Martin; depth, about 1,000 ft; water level, +4 ft (1952); flow, 3.7 gpm; drilled, 1950.
[43] Loucks (1952, p. 159) reported: well repaired June 28, 1952.
[44] Barkley (1953, p. 57, well 232) reported: depth, 970 ft; water level, -25 ft (1952); drilled, about 1922.

[45] Loucks (1952, p. 160) published log.

[46] Barkley (1953, p. 57, well 234) reported: depth, 860 ft; water level, +35 ft (1952); flow, 4.6 gpm; drilled, 1915.

[47] Barkley (1953, p. 57, well 236) reported: depth, about 850 ft; water level, +41 ft (1952); flow, 3 gpm; drilled, 1921.

[48] Barkley (1953, p. 58, well 237) reported: water level, at land surface (1952).

[49] Loucks (1952, p. 159) published log.

[50] Barkley (1953, p. 58) reported: well 238 in NE¼ sec. 17, owned by Kenneth Sabin; depth, about 900 ft; water level, +25 ft (1952); flow, 1.8 gpm; "old well."

[51] South Dakota State Department of Health (1956, p. 14, 15) reported: well No. 1, 6-inch casing; depth, 900 ft; drilled, 1910; well No. 2, 2-inch casing; depth, 830 ft, drilled in 1916. Rothrock (1946, p. 12) published log of well No. 2 and reported: depth, 830 ft; water level, +113 ft [probably in 1912]; temperature, 60°F.; drilled, 1912. Local sources report that the well with 2-inch casing is the older. The confusion in identities was not resolved in the field.

[52] Barkley (1953, p. 58, well 239) reported: depth, 1,030 ft; water level, -5 ft (1952); drilled, 1950.

[53] U.S. Geological Survey unpublished records (1897) show flow, 1,386 gpm. Darton (1909, p. 75) published log.

[54] Combined flow of 2,567 gpm measured Feb. 18, 1957 by Surface Water Branch, U.S. Geological Survey. The wells formerly powered generators at the city of Chamberlain electric plant. Flow of both wells was uncontrolled before completion of Fort Randall Dam. Their water enters American Creek from many springs east of the bridge on State Route 47, supplying almost the entire flow of the creek during dry weather; the wells keep the creek ice-free all winter. Darton (1909, p. 74) reported: wells had a combined flow of 4,500 gpm; water level, more than +231 ft. South Dakota State Planning Board (1937, p. 15, 24, well 12) reported: well on south side of American Creek; depth, reported as 1,000 ft; original flow, 1,000 gpm; flow, at least 150 gpm (1937).

[55] Reported to be two wells that formerly powered a flour mill. At low stages in the reservoir the flow can be seen issuing from the lower part of the riprap west of the Verschoor Chevrolet Company building in Chamberlain. U.S. Geological Survey unpublished records state that H. Quarnberg drilled 5 wells between 1894 and 1903 within a radius of 150 ft at this approximate locality. The records indicate: well No. 1, 6-inch casing; depth, 600 ft; flow, 5,000 gpm [probably in 1894]; flow, decreasing; drilled: 1894; well No. 2, 4-inch casing; depth, 540 ft; drilled, 1896; flowed 4 years, then ceased; well No. 3, 6-inch casing; depth, 548 ft; flow declined for 2 years, then ceased; drilled, 1897 (?); well No. 4, 6-inch casing; depth, about 540 ft; flow, 1,450 gpm [probably in 1901] drilled, 1901; well No. 5, 6-to 4½-inch casing; depth, 960 ft; water level, +416 ft; flow, 2,350 (?) gpm when drilled; temperature, 74°F.; drilled, 1903. South Dakota State Planning Board (1937, p. 15, 26, well 29) reported: "When first drilled the 1,000 gpm flow operated a waterwheel which furnished power for an elevator and mill. The soil gradually softened from leakage and a slide finally broke off the casing and buried the well which now breaks through the dirt and debris from the old mill foundation at a point about 30 ft below the surface of the ground. The large stream, issuing as a spring, is estimated to run close to 100 gpm."

[56] Loucks (1952, p. 160–161) reported details of plugging by the U. S. Corps of Engineers in 1951 that was considered successful.

[57] Barkley (1953, p. 58) reported: well 240 in NE¼ sec. 32, owned by John Glaus; depth, 900 ft; water level, -60 ft (1952); drilled, 1940.

[58] Barkley (1953, p. 58, well 241) reported: water level, -1 foot (1952); drilled, 1950.

[59] Barkley (1953, p. 58, well 242) reported: depth, about 900 ft; water level, +39 ft (1952); flow, 4 gpm.

[60] Barkley (1953, p. 58, well 243) reported: depth, 840 ft; water level, +22 ft (1952); flow, 5.8 gpm; drilled, 1940.

[61] Barkley (1953, p. 58, well 244) reported: depth, 890 ft; water level, +23 ft (1952); flow, 5.8 gpm.

[62] Owner reported that cleaning tool punctured casing at 400 ft. Water now flows around casing to 400 ft and through casing to surface.

[63] Barkley (1953, p. 58) reported: well 245 in SW¼ sec. 15, owned by Ike Sorenson; depth, about 1,000 ft; water level, +76 ft (1952); "old well."

[64] Barkley (1953, p. 58, well 246) reported: depth, 1,108 ft; water level, +69 ft (1952); flow, 30 gpm; drilled, 1949.

[65]South Dakota State Planning Board (1937, p. 15, 28, well 28) reported: depth, about 900 ft; flow, 10 gpm.

[66]Loucks (1952, p. 162–163) reported: "When this well was completed, it flowed an estimated 400 gpm. On Aug. 11, 1950 the well was measured by carpenter-square method and showed 250 gpm." Well is cased with 800 ft of 3-inch black pipe and 60 ft of 2-inch black pipe. "There is no seal between different size pipes and no lap." Barkley (1953, p. 58, well 248) reported: flow, 130 gpm.

[67]Barkley (1953, p. 58, well 249) reported: water level, +92 ft (1952); flow, 10 gpm.

[68]Barkley (1953, p. 58, well 250) reported: water level, +115 ft (1952); flow, 12 gpm; drilled, 1950.

[69]South Dakota State Planning Board (1937, p. 15, 26, well 27) reported: "Wild well...was drilled about 35 years ago [about 1902] on a side hill; it is said to be about 1,000 ft in depth with an original flow of 550 gpm. After flowing at that rate for about ten years, the well developed a leak around the casing and washed out the gumbo soil from the hillside, causing a landslide that broke off the casing and covered the well which now bubbles up like a large spring at a rate of 150 gpm... As the well is practically underground and in the middle of a quagmire, it probably would be difficult to plug or control it."

[70]Barkley (1953, p. 55, well 197) reported: depth, 1,350 ft; water level, +138 ft (1952); flow, 150 gpm; drilled, 1942.

[71]The Crow Creek Indian Agency well in use during 1934. Rothrock (1934, p. 6) reported: flow, 180 gpm.

[72]U. S. Corps of Engineers unpublished records (1949) show this to be the former Agency well. Rothrock (1934, map following p. 9) showed a former Agency well about half a mile south of 23bdab1. According to Darton (1909, p. 76), the Agency well had a pressure, when closed, in 1896 that exceeded +416 ft, the capacity of the gauge.

[73]Rothrock and Robinson (1938, p. 81, well 5) reported: depth, 2,600 ft [well deepened since their inventory], water level of Dakota sandstone, 250 ft below discharge pipe (1935); drilled, 1935; water, unused. Rothrock (1946, p. 17–18) published log.

[74]Barkley (1952, p. 48, well 5) reported: water level, +51 ft (1951); flow, 4 gpm.

[75]Barkley (1952, p. 48, well 9) reported: depth, 796 ft; drilled, 1946.

[76]South Dakota State Planning Board (1937, p. 16, 33, well 39) reported: depth, 651 ft; flow, 400 gpm; "Some years ago the 8-inch casing rusted off and a deep gulch has been washed out with water issuing from a deep basin." Baker (1948, p. 7) and Darton (1909, p. 83–84) published logs.

[77]Barkley (1952, p. 49, well 17) reported: water level, +25 ft (1951); flow, 60 gpm. Baker (1948, p. 8) and Loucks (1948, p. 45) published logs.

[78]Flow was slight prior to cleaning in May 1956; flow increased when cleaning equipment reached depth of about 350 ft. U.S. Geological Survey measured flow of 120 gpm June 6, 1956. Flow increased about Nov. 10, 1956 to estimated 20 gpm; many breaks in casing; obstruction at 330 ft. Barkley (1952, p. 50, well 23) reported: flow, 500 gpm (1951). Loucks (1948, p. 44) published log.

[79]South Dakota State Planning Board (1937, p. 15, 18, well 2) reported: 8-inch casing, in good condition; depth, about 900 ft; flow, 500 gpm.

[80]South Dakota State Planning Board (1937, p. 15, 28, well 16) reported: "A strongly flowing well...runs approximately 450 gpm to supply a swimming pool. The well should have a new casing as the present one is not in good condition and may prove expensive later if neglected."

[81]Barkley (1952, p. 50, well 22) reported: flow, 1,100 gpm (1951). Loucks (1948, p. 44) and Baker (1951, p. 14–15) published logs.

[82]Barkley (1952, p. 51, well 34) reported: depth, 650 ft; water level, +12 ft (1951); flow, 3 gpm; drilled, 1926.

[83]Barkley (1952, p. 52, well 46) reported: water level, about +18 ft (1951); flow, 3 gpm.

[84]U. S. Corps of Engineers unpublished records (1949) show: flow has been uncontrolled since about 1900. Local residents report that cattle broke the casing at land surface more recently. Barkley (1952, p. 52, well 45) reported: flow, about 200 gpm.

[85]Barkley (1952, p. 52, well 47) reported: water level, +18 ft; flow, 5 gpm.

[86]South Dakota State Planning Board (1937, p. 15, 22) reported: well 9 in sec. 28, T. 100 N., R. 71 W.; casing lying in pond with well; flow, 300 gpm. Well 18dbad1 best fits the description of well 9; no well of this description was found in sec. 28.

[87] The well has the largest known flow of any well in the Missouri River valley in South Dakota; it has flowed more than 50 billion gallons since it was drilled. U.S. Geological Survey unpublished records (1895) show: well drilled by O. Turgeon for irrigation use; well completed with 640 ft of "solid iron drivepipe;" original flow, 1,700 gpm. D. Turgeon, son of O. Turgeon, reported (oral communication): strong pressure raised the water 11.5 ft above the 8-inch casing (a flow calculated to be about 4,000 gpm), the pressure of the well blew the casing from the hole "in the spring of the year after drilling and the roar was heard in Academy [about 9 miles northeast];" well cratered about 1915 and since has flowed uncontrolled from a large pond into the Missouri River. Well 1 of South Dakota State Planning Board (1937), p. 15, 18).

[88] Barkley (1952, p. 57, well 99) reported: depth, 387 ft; water, +28 ft (1951); flow, 8.5 gpm; drilled, 1946.

[89] Erickson (1955, p. 24) published log.

[90] Loucks (1952, p. 164–165, 173–174, Von W. Smith No. 1) published log and history of well and reported: cased to 2,412 ft; water coming in at or near base of casing; depth, 2,824 ft; hole logged to 2,960 ft; measured flow, 208 gpm in May 1951; temperature, 108° F.; approved as water well.

[91] Rothrock and Robinson (1938, p. 71–72, well 16) reported: depth, 1,538 ft; water level, -33.75 ft Aug. 16, 1935; drilling completed, August 1935.

[92] Casing perforated from 3,900 to 4,322 ft in Pahasapa limestone. Flow reported to have increased from 32 to 115 gpm after well was acidized.

[93] Darton (1918, p. 61–62) published chemical analysis and reported: "quality [of the water] is not satisfactory for locomotives."

[94] Loucks (1952, p. 181) reported: recased Apr. 8, 1950 with 6 5/8-inch casing to a depth of 350 ft; flow, 22.0 gpm [1950 (?)].

[95] U. S. Veterans Administration correspondence (1954) shows: casing set and cemented at 244 ft; 10-inch screen set from 228 to 264 ft; flow, 636 gpm [prior to installation of casing]; temperature, 92°F.

[96] Loucks (1952, p. 180) reported: cased to 275 ft; flow, 40.6 gpm [1950(?)].

[97] Loucks (1952, p. 180) reported: cased to 298 ft; flow, 28.4 gpm on May 9, 1951.

[98] Owner reported that well can be pumped dry by pumping about 300 gallons; pump cylinder set at 160 ft.

[99] Darton (1918, p. 59) considered these wells to tap the Deadwood formation. Current geologic opinion, based on deep-well logs, considers the Deadwood in the southern part of the Black Hills to be thin and to yield little water. Well D-10-2-3daa1 (about 6 miles south) was drilled to Precambrian granite and penetrated only 15 ft of Deadwood formation, but about 1,000 ft of sandstone and limestone in the Minnelusa sandstone. The Edgemont wells are now considered to obtain water from the Minnelusa sandstone (J. P. Gries, oral communication).

[100] Darton (1918, p. 55–57) published log and reported: water level, about +173 ft; flow, 300 gpm; temperature, 122°F. Baker (1947, p. 68) published log [date of drilling not stated] and reported: "the well obtained its water in the upper Pahasapa limestone at 2,980 ft depth." See footnote[99] for current interpretation of the aquifer.

[101] Darton (1918, p. 55, 58–59) published log and reported: water level, +217 ft; flow, 575 gpm; temperature, 126°F. Rothrock (1946, p. 37–39) published driller's log.

[102] Log and history of well are on file at Edgemont City Hall.

[103] Well was acidized to increase the flow. Loucks (1944, p. 39–40) published details of well construction [datum 9 ft above land surface].

[104] Loucks (1942, p. 53–54) published log [datum 9.4 ft above land surface] and details of well construction, and reported: well was acidized after which it flowed 165 gpm and produced 506 gpm by pumping with 165 ft of drawdown; a reported potential capacity of 1,182 gpm. Baker (1947, p. 72) published log.

[105] South Dakota State Planning Board (1937, p. 20) reported: "To get an insight into the problem of controlling wells in the southeastern section of Lyman County, it should be explained that most of them are cased only a few feet down. A bed of chalk rock is encountered from 10 to 25 feet below the surface and the practice has been to put in casing only a foot or two into this chalk rock. When the flow is reduced by valves or by reducer plugs, the water forces its way up outside the casing and in a very short time the casing is washed out. This slip-shod way of finishing a well is responsible for most of the water waste in this area, as it makes it practically impossible to control these wells." [These comments apply also to the area near the mouth of Whetstone Creek in Gregory County].

[106]Loucks (1952, p. 185) reported: 3-to 2-inch casing; depth, 827 ft; flow, 17.7 gpm when control valve is closed; approximate flow, of 80 gpm when valve is open; drilled, 1951.

[107]Well inundated by Fort Randall reservoir. U. S. Corps of Engineers unpublished records (1949) show: estimated flow, 300 gpm; temperature, 70°F.; "according to Mr. Qualm [former owner] there is no casing left in the well; has tremendous flow; has blown a crater at the top about 10 ft in diameter." South Dakota State Planning Board (1937, p. 16, 28, well 18) reported: "...cased only a short distance from the top. The casing washed out and a large cement retaining tank was built around the well...As there is no casing in the well, it is thought locally that the rush of water [about 1,200 gpm] is wearing the chalk rock walls away and that the flow is slowly increasing."

[108]Obstruction at 316+ ft; breaks in casing from 316+ to 313 and 40 to 38 ft; most of the flow enters the well at about 315 ft, part of the flow escapes at about 40 ft. South Dakota State Planning Board (1937, p. 16, 32, well 23) reported: large hole in 8-inch casing; depth, 1,000 ft; flow, 250 gpm; not used.

[109]U.S. Geological Survey unpublished records (1906) show: well in NE$\frac{1}{4}$ sec. 30, owned by Andrew Qualm. Mr. Qualm reported the following data: 3-inch casing; depth, 730 ft; flow; 278 gpm; temperature, 80+°F; drilled, 1903. Of particular interest is the fact that only 90 ft of the well is cased. Well 30accd1 is probably the one described.

[110]South Dakota State Planning Board (1937, p. 16, 20, well 5) reported: "Wild well...about 800 ft deep and was finished with a 4-inch casing which has since rusted off." The flow is 550 gpm.

[111]Erickson (1954, p. 97, well 473) reported: water level, -20 ft (1953).

[112]Erickson (1954, p. 97, well 475) reported: depth, 1,345 ft; water level, +32 ft (1953); flow, 8 gpm.

[113]Erickson (1954, p. 98, well 495) reported: water level, +25 ft (1953); flow, 1.2 gpm.

[114]Erickson (1954, p. 92) reported: well 402 in NE$\frac{1}{4}$ sec. 23, owned by B. A. Gregg, depth, 1,025 ft; water level, more than +138 ft (1953); flow, 40 gpm; drilled, 1953.

[115]Erickson (1954, p. 91, well 381) reported: water level, +42 ft (1953); flow, 18 gpm.

[116]Loucks (1946, p. 34) reported: flow, 2,205 gpm (1910), with yield of estimated 84,960 cubic ft of gas per day; gas sold to City of Pierre.

[117]Erickson (1954, p. 91, well 384) reported: water level, +19 ft (1953); flow, 6 gpm.

[118]Loucks (1946, p. 34–45) gives log, history of the well, and chemical analyses and reported: flow, 172.5 gpm; yield of 4,320 cubic ft of gas per day.

[119]Erickson (1954, p. 90, well 368) reported: depth, about 1,400 ft; flow, 6 gpm; "old well."

[120]Barkley (1952, p. 59, well 125) reported: water level, +162 ft (1951); flow, about 150 gpm.

[121]Identity of the aquifer is disputed. Baker (1951, p. 34–35) published analysis and log which indicates the aquifer is the Lakota formation. Others believe it is the Dakota sandstone (J. P. Gries, personal communication). See footnote [1] p. 50.

[122]Rothrock and Robinson (1938, p. 81–82, well 17) reported: depth, about 3,200 ft; water level, +210+ ft (July 1935); estimated flow of 450 gpm; drilling in progress July 1935. Rothrock (1946, p. 64) published the driller's log which showed: "Sand which we called the 'Dakota' with streaks of shale here and there," 1,950–2,400 ft; "sand with streaks of shale, 'Lakota', big water," 2,610–3,000 ft. Owner's records show that the Dakota sandstone and Lakota formation were cased off. Identity of the aquifer is uncertain. ["Lakota" is apparently the same aquifer tapped by well D-2-22-32abad1.]

[123]Darton (1918, p. 49–50, Fairgrounds well) reported: water level, +35 ft; flow, 115 gpm.

[124]U. S. Geological Survey unpublished records (1907) show: Spearfish Electric Light and Power Co. well; 4-inch casing to 300 ft; depth, 415 ft; water level, +15 ft (1907); flow, 50 gpm; used for generation of steam and to provide domestic water supplies.

[125]Loucks (1952, p. 199) published log and reported: 8-inch casing to 361 ft; flow estimated 1,000 gpm (before plugging); "A break developed in the casing at 222 ft. This break was sealed off with concrete with the bottom 45 ft of the hole being filled with gravel. The well was wasting water into the red bed just above the limestone prior to sealing of the break." In 1955 the plug was drilled out and the well was recased with 6-inch casing to 354 ft.

[126]Loucks (1952, p. 198) published log and reported: water level, +21 ft; flow, 800 gpm; temperature, 51°F.

[127]Loucks (1952, p. 198–199) published details of well construction and reported: flow, 30 gpm.

[128]See footnote 104, p. 44.

[129]South Dakota State Planning Board (1937, p. 16, 30, well 19) reported: 4-inch casing; depth, 700 ft; flow, 175 gpm; no use.

[130]Probably well 6 of South Dakota State Planning Board (1937, p. 16, 20).

[131]Probably well 11 of South Dakota State Planning Board (1937, p. 11, 24).

[132]Casing deteriorated; obstruction at 190 ft; most of flow escapes between 183.5 and 180 ft, additional flow escapes between 110 and 80 ft, flow from between 60 and 40 ft is retained, flow escapes between 40 and 10 ft; water enters tank from outside of casing. South Dakota State Planning Board (1937, p. 16, 34, well 45) reported: "Wild well in eastern Lyman County, is about 800 ft deep. It was finished with a short piece of 4-inch casing but this has washed out and a wooden tank now serves as the retaining medium. The ranch owner is planning to recondition this well and may install another short piece of casing. The well flows a strong 250 gpm, practically all of which is wasted by running into the White River. At times it is utilized to a limited extent for irrigation."

[133]South Dakota State Planning Board (1937, p. 16, 33–34, well 44) reported: "Wild well in eastern Lyman County has no visible casing as the flow comes up in the center of a large stock tank...The total flow from the well appears to be about 35–40 gpm, most of which is lost, although for a limited time it assists in an irrigation project. Under present conditions, it is doubtful if this well could be recased and controlled for a reasonable amount."

[134]South Dakota State Planning Board (1937, p. 16, 34, well 46) reported: "[The well] is about 800 ft deep and has no casing; it issues from a deep pool with a board enclosure. The overflow of approximately 150 gpm is carried through a pipe to a ditch leading into a cultivated field. The rate of flow is reported as having been fairly constant for over 30 years, this well being one of the oldest in Lyman County."

[135]South Dakota State Planning Board (1937, p. 16, 28, well 17) reported: "This well is known locally as the Mortenson well. Some years ago the short piece of casing was washed out and a deep gulch has resulted, with the water running out from the pool in the form of a small waterfall, carrying approximately 250 gpm into a creek leading to the White River."

[136]South Dakota State Planning Board (1937, p. 16, 34, well 49) reported: "Wild well...about 700 ft deep and is finished with a short piece of 4-inch casing. The casing is badly rusted and water issues around it, making the well beyond control in its present condition. The estimated flow is from 150 to 175 gpm." Rothrock and Robinson (1938, p. 79–80, well 68) reported: 3-inch casing; depth, 750 ft; estimated flow, 125 gpm (1935); temperature, 85°F.

[137]Loucks (1942, p. 52) published log and reported: water level, +83 ft (1941); flow, 391 gpm; Rothrock (1946, p. 77) published log.

[138]Casing has leaked since 1953; water leaking through break in casing has waterlogged an alfalfa field; flow reported to have been 200 gpm when new.

[139]Rothrock and Robinson (1938, p. 79–80, well 66) reported: water level, about -50 ft in 1919; -83.60 ft on July 11, 1935; -84.50 ft on Aug. 28, 1935.

[140]Rothrock and Robinson (1938, p. 77–78, well 63) reported: depth, 1,140 ft, drilled, 1934.

[141]Aquifer reported as Sundance formation; correlation is very uncertain.

[142]Rothrock and Robinson (1938, p. 81–82, well 14) reported: 3-inch casing; water level, +108 ft on Aug. 12, 1935; flow reported as 50 gpm when drilled; temperature reported as 48°F.

[143] Essentially two wells, one within the other. The 3-inch casing taps the Lakota formation from 358 to 390 ft, the annular opening taps the Fall River formation below 250 ft.

[144] Reported to leak below land surface; leakage reaches surface through a group of springs in a small creek. Rothrock and Robinson (1938, p. 54, 81–82, well 12) reported: depth, 690 ft; flow, 3,000 gpm when drilled; estimated flow, 700 to 800 gpm (1935); temperature, 58°F. (1935). May be Milin No. 1 well of Rothrock (1946, p. 81), who published log.

[145] Rothrock and Robinson (1938, p. 75–76, well 46) reported: water level, -160.5 ft; measured Feb. 27, 1930 by C. & N. W. Ry.

[146] South Dakota State Planning Board (1937, p. 17, 26, well 14) reported: 4-inch casing in good condition; depth, 300 ft; flow, 275 gpm, with no control valve; water feeds Twin Lakes.

[147] South Dakota State Planning Board (1937, p. 17, 26, well 13) reported: 3-inch casing; depth, 300 ft; flow, 25 gpm; "It is on an abandoned farm close to an uninhabitable dwelling. [The water] runs directly into a shallow pond where it is of no great value. Sanborn County has a considerable number of similar wells."

[148] Barkley (1953, p. 62, well 304) reported: depth, 950 feet; water level, +80 feet (1952); flow, 42.8 gpm; drilled, 1952.

[149] South Dakota State Planning Board (1937, p. 17, 24, well 10) reported: depth, 1,100 ft; flow, 200 gpm, no control valve; water feeds Twin Lakes.

[150] Rothrock and Robinson (1938, p. 73–74, well 39) reported: water level, -54.35 feet on July 27, 1935; "originally flowed 20 gpm, ceased between 1923 and 1925."

[151] Rothrock and Robinson (1938, p. 75–76, well 41) reported: estimated flow, 300 gpm; temperature, 90°F. on July 1, 1935; well "recased in 1909 and again 1920, only the gas carried in the water is utilized."

[152] Elmer Leckrone (oral communication) reported: cavity from 514 to 525 feet was believed by driller to have been caused by nearby abandoned well; water level, +35 to +44 ft and flow, 600+ gpm in 1945.

[153] Darton (1909, p. 144, Excelsior Mill well) reported: flow, 3,000 gpm.

[154] Darton (1909, p. 144, 146) reported: well at "Yankton Cement Works," depth, 500 ft; flow, 1,300 gpm. The identity of the well is uncertain. South Dakota State Planning Board (1937, p. 17, 30, 35) reported: well 20; depth, about 500 ft; flow, 300 gpm (1936); well 56; depth, about 450 ft; flow, 20 gpm (1936); both wells at abandoned portland-cement plant. Well 93-56-17aa2 may be well No. 20 of the Planning Board; identity of the other two wells is less certain.

[155] Barkley (1952, p. 64, well 173) reported: water level, +34 ft (1951); flow, 45 gpm.

[156] Barkley (1952, p. 65, well 186) reported: water level, about +35 ft (1951); flow, 18 gpm. Well 12bdbb2 is probably well 186.

[157] Barkley (1952, p. 65, well 183) reported: water level, +80 ft (1951); flow, 20 gpm. Well 28dcdd1 is probably well 183.

[158] Barkley (1952, p. 65, well 182) reported: water level, +12 ft (1951); flow, 5 gpm.

[159] Barkley (1952, p. 65, well 180) reported: water level, +37 ft (1951); flow, 20 gpm.

[160] Barkley (1952, p. 65, well 184) reported: water level, +12 ft (1951); flow, 15 gpm.

[161] Rothrock and Robinson (1938, p. 73–74, well 25) reported: water level, +276 ft; flow, 500 gpm; and temperature, 120°F. in February 1935. U.S. Geological Survey unpublished records (1937) show flow, 170 gpm, through 5-inch pipe; temperature, 118°F.; and a daily yield of 15,000 cubic ft of gas, which had a net heating value of 930 Btu per cubic foot. Baker (1948, p. 38–40) published log and chemical analysis.

[162] All townships listed in Wyoming are North, ranges West.

[163] Essentially two wells, one within the other: one, having 2-inch casing, taps the Minnelusa sandstone; the annular 6-inch casing taps the shallower Minnekahta limestone.

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41-60-7bdad1	G. Darrow----	a1930	a2,200	12	-----	F,200e	------	uN	59	1,650	0.0	------	8- 1-56	Flows from open hole at land surface; reported to be former producing oil well, known locally as the Conway well.
7dbbb1	-----do------	a1930	a1,200	11	-----	F,300e	------	D	59	1,860	-----	------	8- 1-56	Local residents obtain water from this well. Well has no operating control valve. Former oil test-hole, known locally as the Darrow well.

[1]Loucks (1952, p. 51) reported well reached quartzite at 953 ft; "strong flow" with no control, water flowing between the different size casings. Barkley (1953, p. 60, well 279) reported water level +46 ft; flow of 100 gpm.

[2]Well penetrates Precambrian rocks. South Dakota State Planning Board (1937, p. 15, 30, well 21) reported flow, 150 gpm. U.S. Geological Survey unpublished records (1947) show temperature, 70° F.; estimated flow, 5 gpm. Bolin and Petsch (1954), p. 1) published driller's log (granite at 1,191 ft).

[3]U.S. Geological Survey unpublished records (1897) show water level, +276 ft; flow, 400 to 600 gpm.

[4]Loucks (1940, p. 106) reported Game and Fish Dept. well, depth, 860 ft; drilled, 1940. Well 28ad1 is probably Dept. Game, Fish and Parks well.

[5]Loucks (1948, p. 43) reported well perforated from 804 to 881 ft; flow, 309 gpm, Apr. 8, 1958.

[6]U.S. Geological Survey unpublished records (1947) show measured flow as 17 gpm.

[7]Owner reported that iron well casings deteriorate within 4 years in this area and that 3 wells have ceased to flow. Barkley (1952, p. 54, well 74) reported: water level, +139 ft; flow, 120 gpm (1951); drilled, 1936.

[8]Loucks (1952, p. 155) reported flow about 100 gpm. "This well last repaired in 1948. A charge of 150 pounds of dynamite was set off at 300 ft; blast was lowered on 300 ft of 2-inch line, 100 ft of which was recovered after the blast. Mr. Frye, a city employee, believes the well casing was 6 inches in diameter for a total depth of 620 ft. During one of the repair jobs, the 6-inch casing was reached. It is believed that it was bent and twisted to some extent, perhaps enough to block an attempt to reach the bottom of the hole. Top of Niobrara chalk is at 80 ft."

[9]Barkley (1952, p. 56, well 87) reported water level, +46 ft (1951), flow, 20 gpm.

[10]Barkley (1952, p. 56, well 88) reported flow of 140 gpm (1951).

[11]Barkley (1952, p. 56, well 91) reported depth, 696 ft; water level, about +69 ft (1951), drilled, 1942.

[12]Barkley (1953, p. 56, well 206) reported depth reported to be 1,000 ft, water level, -20 ft (1952), drilled, 1940.

[13]Water reported to have raised 18 inches above casing for first 3 or 4 years (flow computed to have been about 2,000 gpm). Probably former irrigation well.

[14] Barkley (1953, p. 56, well 207) reported: depth, 821 ft; water level, -7 ft (1952); drilled, 1909.
[15] Barkley (1953, p. 56, well 209) reported: depth, about 950 ft; water level, -50 ft (1952); drilled, about 1922.
[16] Barkley (1953, p. 56, well 210) reported: depth 800 ft, water level; -45 ft (1952).
[17] Barkley (1953, p. 56, well 211) reported: depth, 885 ft; water level, -35 ft (1952); drilled, 1942.
[18] Barkley (1953, p. 56, well 212) reported: in the SE¼ sec. 25; depth, 950 ft; water level, -47 ft (1952).
[19] Barkley (1953, p. 56, well 213) reported: depth, 1,160 ft; water level, -260 ft (1952).
[20] Barkley (1953, p. 56, well 214) reported: depth, 716 ft; flow, 20 gpm (1952); drilled, 1948.
[21] Barkley (1953, p. 56) reported: well 215, in the NE¼ sec. 23, owned by Joe M'lady; depth, 1,040 ft; water level, -200 ft (1952); drilled, 1927.
[22] Casing projects about 5 ft above the surface of a small pond, which is also fed by well 101-71-11bcad2.
[23] Well flows from the bottom of a small pond (casing not visible) and reported to flow more than adjacent well, 11bcad1. South Dakota State Planning Board (1937, p. 15, 28, well 34) reported: depth, 1,000 ft; 4-inch casing; "Wild well in southwestern Brule county and another old well [101-71-11bcad1], now almost dry, which is located about 14 ft from it, are running at least 200 gpm into a small creek...practically the entire output of the wells is wasted."
[24] South Dakota State Planning Board (1937, p. 15, 32) reported: well 33 is in sec. 1; 3-inch casing; depth, 800 ft; flow, 12 gpm.
[25] Barkley (1953, p. 56) reported: well 217 as in SE¼ sec. 8, owned by Fred Olson; depth, 900 ft; water level, -18 ft (1952); drilled, 1952.
[26] Barkley (1953, p. 56) reported: well 218, in SE¼ sec. 15, owned by John Chmella; depth, 900 ft; water level, -64 ft (1952); drilled, about 1912.
[27] Barkley (1953, p. 56, well 219) reported: water level, -110 ft.
[28] Barkley (1953, p. 57) reported: well 220, in SE¼ sec. 13, owned by Ed Pospichal; depth, 860 ft; water level, -65 ft (1952); drilled, 1924.
[29] Barkley (1953, p. 57, well 221) reported: depth, 826 ft; water level, -6 ft (1952); drilled, 1918.
[30] Barkley (1953, p. 57, well 222) reported: depth, 929 ft; water level, -54 ft (1952).
[31] Barkley (1953, p. 57, well 223) reported: depth, 750 ft; flow, 60 gpm; drilled before 1930.
[32] Barkley (1953, p. 57, well 224) reported: depth, 780 ft; drilled, 1940.
[33] Barkley (1953, p. 57, well 225) reported: depth, 1,118 ft; water level at land surface (1952); drilled, 1907.
[34] Barkley (1953, p. 57, well 226) reported: depth, 1,090 ft; water level, -81 ft (1952); drilled, 1947.
[35] South Dakota State Planning Board (1937, p. 15, 30, well 32) reported: "same age, depth, size and condition as no. 31 well [well 2cbda1]," flow, 75 gpm.
[36] South Dakota State Planning Board (1937, p. 15, 30, well 31) reported: location, sec. 2, T. 102 N., R. 70 W. [apparently a typographical error]; depth, about 850 ft; drilled, about 1897; flow, 75 gpm; "many years ago the casing of this well rusted out." Barkley (1953, p. 57, well 227) reported: depth 775 ft; drilled before 1930.
[37] Barkley (1953, p. 57) reported: well 228 in SW¼ sec. 13, owned by Al Urban; depth, 960 ft; water level, -133 ft (1952); drilled, 1913.
[38] Barkley (1953, p. 57, well 229) reported: depth, 960 ft; water level, -66 ft (1952); drilled, 1930.
[39] Barkley (1953, p. 57, well 230) reported: depth, 960(?) ft; water level, -87 ft (1952).
[40] South Dakota State Planning Board (1937, p. 15, 24) reported: well 30, in sec. 16; 6-inch casing; depth, 1,200 ft; flow, 50 gpm. Sec. 16 is inundated by Red Lake. Well 14bbba1 may be well 30.
[41] Barkley (1953, p. 57, well 231) reported: depth, 956 ft; water level, +18 ft (1952); flow, 12.1 gpm; drilled, 1907.
[42] Barkley (1953, p. 57) reported: well 233, in NW¼ sec. 13; owned by Art Martin; depth, about 1,000 ft; water level, +4 ft (1952); flow, 3.7 gpm; drilled, 1950.
[43] Loucks (1952, p. 159) reported: well repaired June 28, 1952.
[44] Barkley (1953, p. 57, well 232) reported: depth, 970 ft; water level, -25 ft (1952); drilled, about 1922.

[45] Loucks (1952, p. 160) published log.

[46] Barkley (1953, p. 57, well 234) reported: depth, 860 ft; water level, +35 ft (1952); flow, 4.6 gpm; drilled, 1915.

[47] Barkley (1953, p. 57, well 236) reported: depth, about 850 ft; water level, +41 ft (1952); flow, 3 gpm; drilled, 1921.

[48] Barkley (1953, p. 58, well 237) reported: water level, at land surface (1952).

[49] Loucks (1952, p. 159) published log.

[50] Barkley (1953, p. 58) reported: well 238 in NE¼ sec. 17, owned by Kenneth Sabin; depth, about 900 ft; water level, +25 ft (1952); flow, 1.8 gpm; "old well."

[51] South Dakota State Department of Health (1956, p. 14, 15) reported: well No. 1, 6-inch casing; depth, 900 ft; drilled, 1910; well No. 2, 2-inch casing; depth, 830 ft, drilled in 1916. Rothrock (1946, p. 12) published log of well No. 2 and reported: depth, 830 ft; water level, +113 ft [probably in 1912]; temperature, 60°F.; drilled, 1912. Local sources report that the well with 2-inch casing is the older. The confusion in identities was not resolved in the field.

[52] Barkley (1953, p. 58, well 239) reported: depth, 1,030 ft; water level, -5 ft (1952); drilled, 1950.

[53] U.S. Geological Survey unpublished records (1897) show flow, 1,386 gpm. Darton (1909, p. 75) published log.

[54] Combined flow of 2,567 gpm measured Feb. 18, 1957 by Surface Water Branch, U.S. Geological Survey. The wells formerly powered generators at the city of Chamberlain electric plant. Flow of both wells was uncontrolled before completion of Fort Randall Dam. Their water enters American Creek from many springs east of the bridge on State Route 47, supplying almost the entire flow of the creek during dry weather; the wells keep the creek ice-free all winter. Darton (1909, p. 74) reported: wells had a combined flow of 4,500 gpm; water level, more than +231 ft. South Dakota State Planning Board (1937, p. 15, 24, well 12) reported: well on south side of American Creek; depth, reported as 1,000 ft; original flow, 1,000 gpm; flow, at least 150 gpm (1937).

[55] Reported to be two wells that formerly powered a flour mill. At low stages in the reservoir the flow can be seen issuing from the lower part of the riprap west of the Verschoor Chevrolet Company building in Chamberlain. U.S. Geological Survey unpublished records state that H. Quarnberg drilled 5 wells between 1894 and 1903 within a radius of 150 ft at this approximate locality. The records indicate: well No. 1, 6-inch casing; depth, 600 ft; flow, 5,000 gpm [probably in 1894]; flow, decreasing; drilled: 1894; well No. 2, 4-inch casing; depth, 540 ft; drilled, 1896; flowed 4 years, then ceased; well No. 3, 6-inch casing; depth, 548 ft; flow declined for 2 years, then ceased; drilled, 1897 (?); well No. 4, 6-inch casing; depth, about 540 ft; flow, 1,450 gpm [probably in 1901] drilled, 1901; well No. 5, 6-to 4½-inch casing; depth, 960 ft; water level, +416 ft; flow, 2,350 (?) gpm when drilled; temperature, 74°F.; drilled, 1903. South Dakota State Planning Board (1937, p. 15, 26, well 29) reported: "When first drilled the 1,000 gpm flow operated a waterwheel which furnished power for an elevator and mill. The soil gradually softened from leakage and a slide finally broke off the casing and buried the well which now breaks through the dirt and debris from the old mill foundation at a point about 30 ft below the surface of the ground. The large stream, issuing as a spring, is estimated to run close to 100 gpm."

[56] Loucks (1952, p. 160–161) reported details of plugging by the U. S. Corps of Engineers in 1951 that was considered successful.

[57] Barkley (1953, p. 58) reported: well 240 in NE¼ sec. 32, owned by John Glaus; depth, 900 ft; water level, -60 ft (1952); drilled, 1940.

[58] Barkley (1953, p. 58, well 241) reported: water level, -1 foot (1952); drilled, 1950.

[59] Barkley (1953, p. 58, well 242) reported: depth, about 900 ft; water level, +39 ft (1952); flow, 4 gpm.

[60] Barkley (1953, p. 58, well 243) reported: depth, 840 ft; water level, +22 ft (1952); flow, 5.8 gpm; drilled, 1940.

[61] Barkley (1953, p. 58, well 244) reported: depth, 890 ft; water level, +23 ft (1952); flow, 5.8 gpm.

[62] Owner reported that cleaning tool punctured casing at 400 ft. Water now flows around casing to 400 ft and through casing to surface.

[63] Barkley (1953, p. 58) reported: well 245 in SW¼ sec. 15, owned by Ike Sorenson; depth, about 1,000 ft; water level, +76 ft (1952); "old well."

[64] Barkley (1953, p. 58, well 246) reported: depth, 1,108 ft; water level, +69 ft (1952); flow, 30 gpm; drilled, 1949.

[65]South Dakota State Planning Board (1937, p. 15, 28, well 28) reported: depth, about 900 ft; flow, 10 gpm.

[66]Loucks (1952, p. 162–163) reported: "When this well was completed, it flowed an estimated 400 gpm. On Aug. 11, 1950 the well was measured by carpenter-square method and showed 250 gpm." Well is cased with 800 ft of 3-inch black pipe and 60 ft of 2-inch black pipe. "There is no seal between different size pipes and no lap." Barkley (1953, p. 58, well 248) reported: flow, 130 gpm.

[67]Barkley (1953, p. 58, well 249) reported: water level, +92 ft (1952); flow, 10 gpm.

[68]Barkley (1953, p. 58, well 250) reported: water level, +115 ft (1952); flow, 12 gpm; drilled, 1950.

[69]South Dakota State Planning Board (1937, p. 15, 26, well 27) reported: "Wild well...was drilled about 35 years ago [about 1902] on a side hill; it is said to be about 1,000 ft in depth with an original flow of 550 gpm. After flowing at that rate for about ten years, the well developed a leak around the casing and washed out the gumbo soil from the hillside, causing a landslide that broke off the casing and covered the well which now bubbles up like a large spring at a rate of 150 gpm... As the well is practically underground and in the middle of a quagmire, it probably would be difficult to plug or control it."

[70]Barkley (1953, p. 55, well 197) reported: depth, 1,350 ft; water level, +138 ft (1952); flow, 150 gpm; drilled, 1942.

[71]The Crow Creek Indian Agency well in use during 1934. Rothrock (1934, p. 6) reported: flow, 180 gpm.

[72]U. S. Corps of Engineers unpublished records (1949) show this to be the former Agency well. Rothrock (1934, map following p. 9) showed a former Agency well about half a mile south of 23bdab1. According to Darton (1909, p. 76), the Agency well had a pressure, when closed, in 1896 that exceeded +416 ft, the capacity of the gauge.

[73]Rothrock and Robinson (1938, p. 81, well 5) reported: depth, 2,600 ft [well deepened since their inventory], water level of Dakota sandstone, 250 ft below discharge pipe (1935); drilled, 1935; water, unused. Rothrock (1946, p. 17–18) published log.

[74]Barkley (1952, p. 48, well 5) reported: water level, +51 ft (1951); flow, 4 gpm.

[75]Barkley (1952, p. 48, well 9) reported: depth, 796 ft; drilled, 1946.

[76]South Dakota State Planning Board (1937, p. 16, 33, well 39) reported: depth, 651 ft; flow, 400 gpm; "Some years ago the 8-inch casing rusted off and a deep gulch has been washed out with water issuing from a deep basin." Baker (1948, p. 7) and Darton (1909, p. 83–84) published logs.

[77]Barkley (1952, p. 49, well 17) reported: water level, +25 ft (1951); flow, 60 gpm. Baker (1948, p. 8) and Loucks (1948, p. 45) published logs.

[78]Flow was slight prior to cleaning in May 1956; flow increased when cleaning equipment reached depth of about 350 ft. U.S. Geological Survey measured flow of 120 gpm June 6, 1956. Flow increased about Nov. 10, 1956 to estimated 20 gpm; many breaks in casing; obstruction at 330 ft. Barkley (1952, p. 50, well 23) reported: flow, 500 gpm (1951). Loucks (1948, p. 44) published log.

[79]South Dakota State Planning Board (1937, p. 15, 18, well 2) reported: 8-inch casing, in good condition; depth, about 900 ft; flow, 500 gpm.

[80]South Dakota State Planning Board (1937, p. 15, 28, well 16) reported: "A strongly flowing well...runs approximately 450 gpm to supply a swimming pool. The well should have a new casing as the present one is not in good condition and may prove expensive later if neglected."

[81]Barkley (1952, p. 50, well 22) reported: flow, 1,100 gpm (1951). Loucks (1948, p. 44) and Baker (1951, p. 14–15) published logs.

[82]Barkley (1952, p. 51, well 34) reported: depth, 650 ft; water level, +12 ft (1951); flow, 3 gpm; drilled, 1926.

[83]Barkley (1952, p. 52, well 46) reported: water level, about +18 ft (1951); flow, 3 gpm.

[84]U. S. Corps of Engineers unpublished records (1949) show: flow has been uncontrolled since about 1900. Local residents report that cattle broke the casing at land surface more recently. Barkley (1952, p. 52, well 45) reported: flow, about 200 gpm.

[85]Barkley (1952, p. 52, well 47) reported: water level, +18 ft; flow, 5 gpm.

[86]South Dakota State Planning Board (1937, p. 15, 22) reported: well 9 in sec. 28, T. 100 N., R. 71 W.; casing lying in pond with well; flow, 300 gpm. Well 18dbad1 best fits the description of well 9; no well of this description was found in sec. 28.

[87] The well has the largest known flow of any well in the Missouri River valley in South Dakota; it has flowed more than 50 billion gallons since it was drilled. U.S. Geological Survey unpublished records (1895) show: well drilled by O. Turgeon for irrigation use; well completed with 640 ft of "solid iron drivepipe;" original flow, 1,700 gpm. D. Turgeon, son of O. Turgeon, reported (oral communication): strong pressure raised the water 11.5 ft above the 8-inch casing (a flow calculated to be about 4,000 gpm), the pressure of the well blew the casing from the hole "in the spring of the year after drilling and the roar was heard in Academy [about 9 miles northeast];" well cratered about 1915 and since has flowed uncontrolled from a large pond into the Missouri River. Well 1 of South Dakota State Planning Board (1937), p. 15, 18).

[88] Barkley (1952, p. 57, well 99) reported: depth, 387 ft; water, +28 ft (1951); flow, 8.5 gpm; drilled, 1946.

[89] Erickson (1955, p. 24) published log.

[90] Loucks (1952, p. 164–165, 173–174, Von W. Smith No. 1) published log and history of well and reported: cased to 2,412 ft; water coming in at or near base of casing; depth, 2,824 ft; hole logged to 2,960 ft; measured flow, 208 gpm in May 1951; temperature, 108° F.; approved as water well.

[91] Rothrock and Robinson (1938, p. 71–72, well 16) reported: depth, 1,538 ft; water level, -33.75 ft Aug. 16, 1935; drilling completed, August 1935.

[92] Casing perforated from 3,900 to 4,322 ft in Pahasapa limestone. Flow reported to have increased from 32 to 115 gpm after well was acidized.

[93] Darton (1918, p. 61–62) published chemical analysis and reported: "quality [of the water] is not satisfactory for locomotives."

[94] Loucks (1952, p. 181) reported: recased Apr. 8, 1950 with 6 5/8-inch casing to a depth of 350 ft; flow, 22.0 gpm [1950 (?)].

[95] U. S. Veterans Administration correspondence (1954) shows: casing set and cemented at 244 ft; 10-inch screen set from 228 to 264 ft; flow, 636 gpm [prior to installation of casing]; temperature, 92°F.

[96] Loucks (1952, p. 180) reported: cased to 275 ft; flow, 40.6 gpm [1950(?)].

[97] Loucks (1952, p. 180) reported: cased to 298 ft; flow, 28.4 gpm on May 9, 1951.

[98] Owner reported that well can be pumped dry by pumping about 300 gallons; pump cylinder set at 160 ft.

[99] Darton (1918, p. 59) considered these wells to tap the Deadwood formation. Current geologic opinion, based on deep-well logs, considers the Deadwood in the southern part of the Black Hills to be thin and to yield little water. Well D-10-2-3daa1 (about 6 miles south) was drilled to Precambrian granite and penetrated only 15 ft of Deadwood formation, but about 1,000 ft of sandstone and limestone in the Minnelusa sandstone. The Edgemont wells are now considered to obtain water from the Minnelusa sandstone (J. P. Gries, oral communication).

[100] Darton (1918, p. 55–57) published log and reported: water level, about +173 ft; flow, 300 gpm; temperature, 122°F. Baker (1947, p. 68) published log [date of drilling not stated] and reported: "the well obtained its water in the upper Pahasapa limestone at 2,980 ft depth." See footnote[99] for current interpretation of the aquifer.

[101] Darton (1918, p. 55, 58–59) published log and reported: water level, +217 ft; flow, 575 gpm; temperature, 126°F. Rothrock (1946, p. 37–39) published driller's log.

[102] Log and history of well are on file at Edgemont City Hall.

[103] Well was acidized to increase the flow. Loucks (1944, p. 39–40) published details of well construction [datum 9 ft above land surface].

[104] Loucks (1942, p. 53–54) published log [datum 9.4 ft above land surface] and details of well construction, and reported: well was acidized after which it flowed 165 gpm and produced 506 gpm by pumping with 165 ft of drawdown; a reported potential capacity of 1,182 gpm. Baker (1947, p. 72) published log.

[105] South Dakota State Planning Board (1937, p. 20) reported: "To get an insight into the problem of controlling wells in the southeastern section of Lyman County, it should be explained that most of them are cased only a few feet down. A bed of chalk rock is encountered from 10 to 25 feet below the surface and the practice has been to put in casing only a foot or two into this chalk rock. When the flow is reduced by valves or by reducer plugs, the water forces its way up outside the casing and in a very short time the casing is washed out. This slip-shod way of finishing a well is responsible for most of the water waste in this area, as it makes it practically impossible to control these wells." ['These comments apply also to the area near the mouth of Whetstone Creek in Gregory County].

[106]Loucks (1952, p. 185) reported: 3-to 2-inch casing; depth, 827 ft; flow, 17.7 gpm when control valve is closed; approximate flow, of 80 gpm when valve is open; drilled, 1951.

[107]Well inundated by Fort Randall reservoir. U. S. Corps of Engineers unpublished records (1949) show: estimated flow, 300 gpm; temperature, 70°F.; "according to Mr. Qualm [former owner] there is no casing left in the well; has tremendous flow; has blown a crater at the top about 10 ft in diameter." South Dakota State Planning Board (1937, p. 16, 28, well 18) reported: "...cased only a short distance from the top. The casing washed out and a large cement retaining tank was built around the well...As there is no casing in the well, it is thought locally that the rush of water [about 1,200 gpm] is wearing the chalk rock walls away and that the flow is slowly increasing."

[108]Obstruction at 316+ ft; breaks in casing from 316+ to 313 and 40 to 38 ft; most of the flow enters the well at about 315 ft, part of the flow escapes at about 40 ft. South Dakota State Planning Board (1937, p. 16, 32, well 23) reported: large hole in 8-inch casing; depth, 1,000 ft; flow, 250 gpm; not used.

[109]U.S. Geological Survey unpublished records (1906) show: well in NE$\frac{1}{4}$ sec. 30, owned by Andrew Qualm. Mr. Qualm reported the following data: 3-inch casing; depth, 730 ft; flow; 278 gpm; temperature, 80+°F; drilled, 1903. Of particular interest is the fact that only 90 ft of the well is cased. Well 30accd1 is probably the one described.

[110]South Dakota State Planning Board (1937, p. 16, 20, well 5) reported: "Wild well...about 800 ft deep and was finished with a 4-inch casing which has since rusted off." The flow is 550 gpm.

[111]Erickson (1954, p. 97, well 473) reported: water level, -20 ft (1953).

[112]Erickson (1954, p. 97, well 475) reported: depth, 1,345 ft; water level, +32 ft (1953); flow, 8 gpm.

[113]Erickson (1954, p. 98, well 495) reported: water level, +25 ft (1953); flow, 1.2 gpm.

[114]Erickson (1954, p. 92) reported: well 402 in NE$\frac{1}{4}$ sec. 23, owned by B. A. Gregg, depth, 1,025 ft; water level, more than +138 ft (1953); flow, 40 gpm; drilled, 1953.

[115]Erickson (1954, p. 91, well 381) reported: water level, +42 ft (1953); flow, 18 gpm.

[116]Loucks (1946, p. 34) reported: flow, 2,205 gpm (1910), with yield of estimated 84,960 cubic ft of gas per day; gas sold to City of Pierre.

[117]Erickson (1954, p. 91, well 384) reported: water level, +19 ft (1953); flow, 6 gpm.

[118]Loucks (1946, p. 34–45) gives log, history of the well, and chemical analyses and reported: flow, 172.5 gpm; yield of 4,320 cubic ft of gas per day.

[119]Erickson (1954, p. 90, well 368) reported: depth, about 1,400 ft; flow, 6 gpm; "old well."

[120]Barkley (1952, p. 59, well 125) reported: water level, +162 ft (1951); flow, about 150 gpm.

[121]Identity of the aquifer is disputed. Baker (1951, p. 34–35) published analysis and log which indicates the aquifer is the Lakota formation. Others believe it is the Dakota sandstone (J. P. Gries, personal communication). See footnote [1] p. 50.

[122]Rothrock and Robinson (1938, p. 81–82, well 17) reported: depth, about 3,200 ft; water level, +210+ ft (July 1935); estimated flow of 450 gpm; drilling in progress July 1935. Rothrock (1946, p. 64) published the driller's log which showed: "Sand which we called the 'Dakota' with streaks of shale here and there," 1,950–2,400 ft; "sand with streaks of shale, 'Lakota', big water," 2,610–3,000 ft. Owner's records show that the Dakota sandstone and Lakota formation were cased off. Identity of the aquifer is uncertain. ["Lakota" is apparently the same aquifer tapped by well D-2-22-32abad1.]

[123]Darton (1918, p. 49–50, Fairgrounds well) reported: water level, +35 ft; flow, 115 gpm.

[124]U. S. Geological Survey unpublished records (1907) show: Spearfish Electric Light and Power Co. well; 4-inch casing to 300 ft; depth, 415 ft; water level, +15 ft (1907); flow, 50 gpm; used for generation of steam and to provide domestic water supplies.

[125]Loucks (1952, p. 199) published log and reported: 8-inch casing to 361 ft; flow estimated 1,000 gpm (before plugging); "A break developed in the casing at 222 ft. This break was sealed off with concrete with the bottom 45 ft of the hole being filled with gravel. The well was wasting water into the red bed just above the limestone prior to sealing of the break." In 1955 the plug was drilled out and the well was recased with 6-inch casing to 354 ft.

[126]Loucks (1952, p. 198) published log and reported: water level, +21 ft; flow, 800 gpm; temperature, 51°F.

[127]Loucks (1952, p. 198–199) published details of well construction and reported: flow, 30 gpm.

[128]See footnote 104, p. 44.

[129]South Dakota State Planning Board (1937, p. 16, 30, well 19) reported: 4-inch casing; depth, 700 ft; flow, 175 gpm; no use.

[130]Probably well 6 of South Dakota State Planning Board (1937, p. 16, 20).

[131]Probably well 11 of South Dakota State Planning Board (1937, p. 11, 24).

[132]Casing deteriorated; obstruction at 190 ft; most of flow escapes between 183.5 and 180 ft, additional flow escapes between 110 and 80 ft, flow from between 60 and 40 ft is retained, flow escapes between 40 and 10 ft; water enters tank from outside of casing. South Dakota State Planning Board (1937, p. 16, 34, well 45) reported: "Wild well in eastern Lyman County, is about 800 ft deep. It was finished with a short piece of 4-inch casing but this has washed out and a wooden tank now serves as the retaining medium. The ranch owner is planning to recondition this well and may install another short piece of casing. The well flows a strong 250 gpm, practically all of which is wasted by running into the White River. At times it is utilized to a limited extent for irrigation."

[133]South Dakota State Planning Board (1937, p. 16, 33–34, well 44) reported: "Wild well in eastern Lyman County has no visible casing as the flow comes up in the center of a large stock tank...The total flow from the well appears to be about 35–40 gpm, most of which is lost, although for a limited time it assists in an irrigation project. Under present conditions, it is doubtful if this well could be recased and controlled for a reasonable amount."

[134]South Dakota State Planning Board (1937, p. 16, 34, well 46) reported: "[The well] is about 800 ft deep and has no casing; it issues from a deep pool with a board enclosure. The overflow of approximately 150 gpm is carried through a pipe to a ditch leading into a cultivated field. The rate of flow is reported as having been fairly constant for over 30 years, this well being one of the oldest in Lyman County."

[135]South Dakota State Planning Board (1937, p. 16, 28, well 17) reported: "This well is known locally as the Mortenson well. Some years ago the short piece of casing was washed out and a deep gulch has resulted, with the water running out from the pool in the form of a small waterfall, carrying approximately 250 gpm into a creek leading to the White River."

[136]South Dakota State Planning Board (1937, p. 16, 34, well 49) reported: "Wild well...about 700 ft deep and is finished with a short piece of 4-inch casing. The casing is badly rusted and water issues around it, making the well beyond control in its present condition. The estimated flow is from 150 to 175 gpm." Rothrock and Robinson (1938, p. 79–80, well 68) reported: 3-inch casing; depth, 750 ft; estimated flow, 125 gpm (1935); temperature, 85°F.

[137]Loucks (1942, p. 52) published log and reported: water level, +83 ft (1941); flow, 391 gpm; Rothrock (1946, p. 77) published log.

[138]Casing has leaked since 1953; water leaking through break in casing has waterlogged an alfalfa field; flow reported to have been 200 gpm when new.

[139]Rothrock and Robinson (1938, p. 79–80, well 66) reported: water level, about -50 ft in 1919; -83.60 ft on July 11, 1935; -84.50 ft on Aug. 28, 1935.

[140]Rothrock and Robinson (1938, p. 77–78, well 63) reported: depth, 1,140 ft, drilled, 1934.

[141]Aquifer reported as Sundance formation; correlation is very uncertain.

[142]Rothrock and Robinson (1938, p. 81–82, well 14) reported: 3-inch casing; water level, +108 ft on Aug. 12, 1935; flow reported as 50 gpm when drilled; temperature reported as 48°F.

[143] Essentially two wells, one within the other. The 3-inch casing taps the Lakota formation from 358 to 390 ft, the annular opening taps the Fall River formation below 250 ft.

[144] Reported to leak below land surface; leakage reaches surface through a group of springs in a small creek. Rothrock and Robinson (1938, p. 54, 81–82, well 12) reported: depth, 690 ft; flow, 3,000 gpm when drilled; estimated flow, 700 to 800 gpm (1935); temperature, 58°F. (1935). May be Milin No. 1 well of Rothrock (1946, p. 81), who published log.

[145] Rothrock and Robinson (1938, p. 75–76, well 46) reported: water level, -160.5 ft; measured Feb. 27, 1930 by C. & N. W. Ry.

[146] South Dakota State Planning Board (1937, p. 17, 26, well 14) reported: 4-inch casing in good condition; depth, 300 ft; flow, 275 gpm, with no control valve; water feeds Twin Lakes.

[147] South Dakota State Planning Board (1937, p. 17, 26, well 13) reported: 3-inch casing; depth, 300 ft; flow, 25 gpm; "It is on an abandoned farm close to an uninhabitable dwelling. [The water] runs directly into a shallow pond where it is of no great value. Sanborn County has a considerable number of similar wells."

[148] Barkley (1953, p. 62, well 304) reported: depth, 950 feet; water level, +80 feet (1952); flow, 42.8 gpm; drilled, 1952.

[149] South Dakota State Planning Board (1937, p. 17, 24, well 10) reported: depth, 1,100 ft; flow, 200 gpm, no control valve; water feeds Twin Lakes.

[150] Rothrock and Robinson (1938, p. 73–74, well 39) reported: water level, -54.35 feet on July 27, 1935; "originally flowed 20 gpm, ceased between 1923 and 1925."

[151] Rothrock and Robinson (1938, p. 75–76, well 41) reported: estimated flow, 300 gpm; temperature, 90°F. on July 1, 1935; well "recased in 1909 and again 1920, only the gas carried in the water is utilized."

[152] Elmer Leckrone (oral communication) reported: cavity from 514 to 525 feet was believed by driller to have been caused by nearby abandoned well; water level, +35 to +44 ft and flow, 600+ gpm in 1945.

[153] Darton (1909, p. 144, Excelsior Mill well) reported: flow, 3,000 gpm.

[154] Darton (1909, p. 144, 146) reported: well at "Yankton Cement Works," depth, 500 ft; flow, 1,300 gpm. The identity of the well is uncertain. South Dakota State Planning Board (1937, p. 17, 30, 35) reported: well 20; depth, about 500 ft; flow, 300 gpm (1936); well 56; depth, about 450 ft; flow, 20 gpm (1936); both wells at abandoned portland-cement plant. Well 93-56-17aa2 may be well No. 20 of the Planning Board; identity of the other two wells is less certain.

[155] Barkley (1952, p. 64, well 173) reported: water level, +34 ft (1951); flow, 45 gpm.

[156] Barkley (1952, p. 65, well 186) reported: water level, about +35 ft (1951); flow, 18 gpm. Well 12bdbb2 is probably well 186.

[157] Barkley (1952, p. 65, well 183) reported: water level, +80 ft (1951); flow, 20 gpm. Well 28dcdd1 is probably well 183.

[158] Barkley (1952, p. 65, well 182) reported: water level, +12 ft (1951); flow, 5 gpm.

[159] Barkley (1952, p. 65, well 180) reported: water level, +37 ft (1951); flow, 20 gpm.

[160] Barkley (1952, p. 65, well 184) reported: water level, +12 ft (1951); flow, 15 gpm.

[161] Rothrock and Robinson (1938, p. 73–74, well 25) reported: water level, +276 ft; flow, 500 gpm; and temperature, 120°F. in February 1935. U.S. Geological Survey unpublished records (1937) show flow, 170 gpm, through 5-inch pipe; temperature, 118°F.; and a daily yield of 15,000 cubic ft of gas, which had a net heating value of 930 Btu per cubic foot. Baker (1948, p. 38–40) published log and chemical analysis.

[162] All townships listed in Wyoming are North, ranges West.

[163] Essentially two wells, one within the other: one, having 2-inch casing, taps the Minnelusa sandstone; the annular 6-inch casing taps the shallower Minnekahta limestone.

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