Ground Water in the Crow Creek-Sand Lake Area Brown and Marshall Counties South Dakota

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GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1425

Prepared as part of the program of the Department of the Interior for development of the Missouri River basin

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By F. C. KOOPMAN

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By F. C. Koopman

ABSTRACT

The Crow Creek–Sand Lake area is in the northeastern part of South Dakota and consists of flat to gently rolling land. It is roughly 25 miles square and is bounded on the west by the James River, on the north by the North Dakota State line, and on the south and east by arbitrary land lines. Natural drainage, which is very poor, is augmented by a now very dilapidated system of manmade drains; undrained or poorly drained potholes and sloughs are common. Most of the report area is in the drainage basin of Crow Creek, a tributary of the James River. About 60 square miles along the west border of the area is drained directly by the James River; and about 36 square miles in the northeastern corner of the area is drained by the Wild Rice River, a tributary of the Red River of the North.

Granite and other related rocks of Precambrian age underlie the entire area below a depth of about 1,100 to 1,200 feet. Under part of the area these rocks are overlain by the Sioux quartzite, also of Precambrian age. Next above is the Dakota sandstone of Cretaceous age, which is about 250 feet thick and is the aquifer tapped by more than 600 deep wells in the area. The Dakota sandstone in turn is overlain by younger formations of Cretaceous age, which include the Graneros shale, Greenhorn limestone, Carlile shale, Niobrara formation, and Pierre shale. These younger formations have an aggregate thickness of about 700 to 950 feet and generally do not yield water. Mantling the consolidated stratified rocks are unconsolidated deposits of Quaternary age that are absent locally but in places are as much as 200 feet thick. These deposits consist principally of glacial outwash, glacial till, and lake sediments and are the source of water for all shallow wells in the area.

Precipitation is the principal source of recharge to the ground-water reservoir tapped by the shallow wells. The water table ranges in depth from less than 1 foot to a little more than 30 feet below the land surface; in July 1951 the depth to water was less than 5 feet in 15 percent of the area and 5 to 10 feet in an additional 25 percent of the area. Because the hydraulic gradient in most of the area is less than 10 feet per mile and because much of the water-bearing material is only slightly permeable, lateral movement of the ground water in the unconsolidated deposits is exceedingly slow.

Transpiration by vegetation and evaporation account for most of the ground water discharged in the area; relatively little ground water is discharged by streams, wells, and springs, or as underflow out of the area. Much of the low-lying land is waterlogged. However, by improving and cleaning both the natural and artifical drains and by lowering the water table by pumping, waterlogging can be materially decreased and its recurrence prevented.

INTRODUCTION

PURPOSE AND SCOPE OF INVESTIGATIONS

The purpose of this investigation was to ascertain the extent of flooding and waterlogging in the Crow Creek–Sand Lake area and to relate the flooding and waterlogging to the occurrence and movement of ground water. The investigation was one of several sponsored by the James River Basin Coordinating Group in connection with its study and evaluation of the need for and desirability of measures to prevent flooding, facilitate drainage, and promote irrigation and soil conservation practices in the James River basin. Representatives of various state and federal agencies, among them the United States Geological Survey, are members of the James River Basin Coordinating Group. This investigation was financed by funds made available to the Geological Survey as part of the program of the United States Department of the Interior for development of the Missouri River basin. (See fig. 1.)

The field work was begun in the spring of 1951 and completed the following fall. Both the field work and preparation of the report were supervised by G. A. LaRocque, Jr., district engineer, Bismarck, N. Dak.

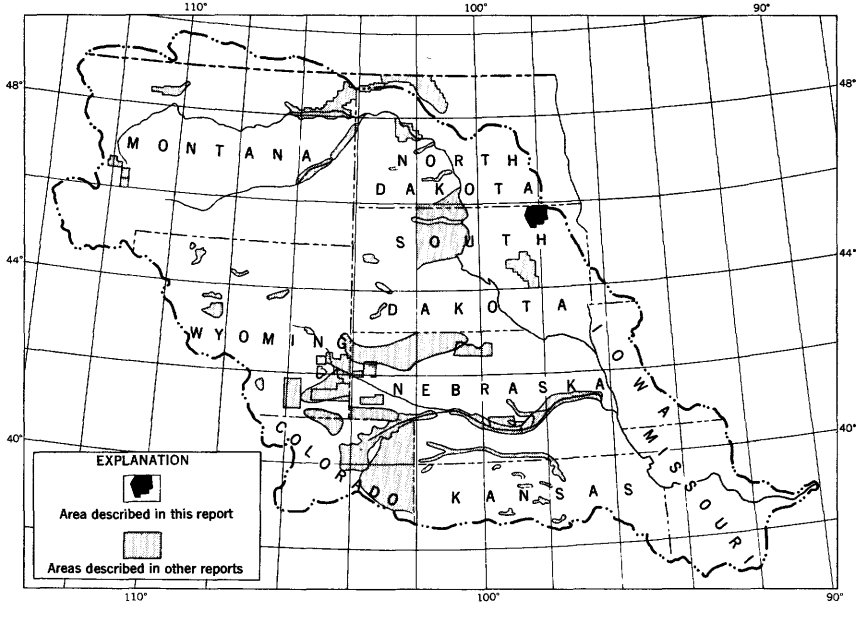

Figure 1.—Map of the Missouri River basin showing areas in which ground-water studies have been made under the program for the development of the Missouri River basin.

PREVIOUS INVESTIGATIONS

Areas covered by several earlier geologic and ground-water investigations of broad scope (Darton, 1896, 1905, 1909; Rothrock, 1943; S. Dak. State Plan. Board, 1937; and Todd, 1895, 1896), included part or all of the Crow Creek–Sand Lake area. The report of the South Dakota State Planning Board (1937) contains maps showing the location of artesian wells in Brown and Marshall Counties and indicates whether the wells have a strong flow, a decreasing flow, or have ceased flowing. Information on both flowing and nonflowing artesian wells is presented in reports on Brown and Marshall Counties by the South Dakota State College Extension Service (Searight and Meleen, 1940). A report by Watkins and Larson (1925) describes in detail the soils of Brown County, and a report by Johnson (1942) describes the physical land conditions in the Brown-Marshall Soil Conservation District, which constitutes a large part of the area described in this report. However, none of these reports contain detailed information about the subsurface deposits of Quaternary age or shallow ground-water conditions in the Crow Creek–Sand Lake area. Two reports (Todd, 1909; Simpson, 1929) contain information on the geology and ground-water resources of adjacent areas and were helpful to the writer in his investigation of the report area.

PRESENT INVESTIGATION

Data pertaining to 273 shallow wells and 621 deep wells in the area were compiled. A measurement of the depth to water was made in all the shallow wells that could be measured readily. From these measurements, plus measurements of the water level in observation wells installed in the course of the investigation, maps showing the depth to water in July and November 1951 were prepared. The altitude of the measuring point of the wells was determined by instrumental leveling, and from the calculated altitude of the water table in July 1951 a water-table contour map was prepared. Also the rate of flow from nearly all the deep wells was recorded.

The U. S. Bureau of Reclamation, the U. S. Corps of Engineers, and the U. S. Geological Survey drilled and logged 61, 9, and 74 test holes, respectively. Maps showing the thickness of the unconsolidated deposits underlying the report area and of the contour of the bedrock surface were prepared from the test-hole data and from logs of 12 other test holes and wells drilled by commercial drillers. The surficial geology was mapped by reconnaissance methods.

Of the 144 test holes drilled by government agencies, 80 were completed as permanent water-level observation wells for use in this study; in addition, the U. S. Geological Survey constructed 61 wells and selected 81 privately owned shallow wells for observation of water-level fluctuations. Measurements of the water level in these wells were made periodically. Maps showing the rise and decline of the water table during the periods April–July 1951 and July–November 1951 were prepared from the recorded measurements.

The stage of the water level or the rate of flow in both natural and artificial drains was measured at 23 stations.

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

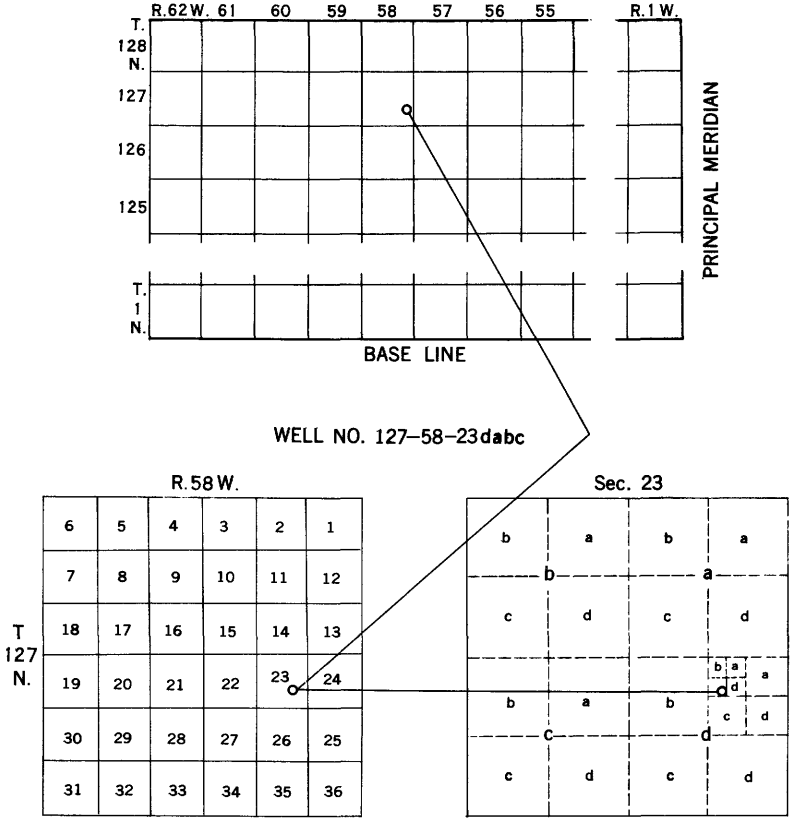

Figure 2. —Sketch showing well-numbering system.

range, and the third the section in which the well is situated. Lowercase letters after the section number indicate the well location 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 $2\frac{1}{2}$-acre tract. The letters a, b, c, and d are assigned 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 $2\frac{1}{2}$-acre tract, four lowercase letters are shown in the well number. For example, well 127-58-23dabc is in the $SW\frac{1}{4}NW\frac{1}{4}NE\frac{1}{4}SE\frac{1}{4}$ sec. 23, T. 127N., R. 58 W. If two or more wells are situated within the same tract, consecutive numbers, beginning with 1, are added as suffixes to designate the order in which the wells are described. Test holes and gaging stations were assigned numbers according to this same system. (See fig. 2)

GEOGRAPHY

LOCATION AND EXTENT OF AREA

The Crow Creek–Sand Lake area is in northeastern South Dakota (figs. 1, 3). The area is bounded on the west by the southward-flowing James River, on the north by the North Dakota State line and on the south and east by arbitrary land lines. It includes the northeastern quarter of Brown County and the western half of Marshall County. The area comprises approximately 600 square miles of which a little more than half is included in the Brown-Marshall Soil Conservation District.

The principal crops are grain, hay, and alfalfa, which are used largely within the area for feeding cattle. Beef is the principal product sent to outside markets.

The area is traversed by three railroads: Chicago, Milwaukee, St. Paul and Pacific Railroad; Chicago and North Western Railway; and Great Northern Railway. State Highway 10 extends eastward and State Highways 25 and 37 extend northward across the area. Britton, the largest town, has a population of 1,430 (1951). Other towns in the report area having a population of more than 200 are Claremont, Columbia, Hecla, and Langford; all are shipping points for grain and produce and are distribution centers for agricultural supplies.

Within the limits of the Sand Lake National Wildlife Refuge are two low dams that pond the James River for a distance of about 14 miles, thus creating an ideal habitat for waterfowl.

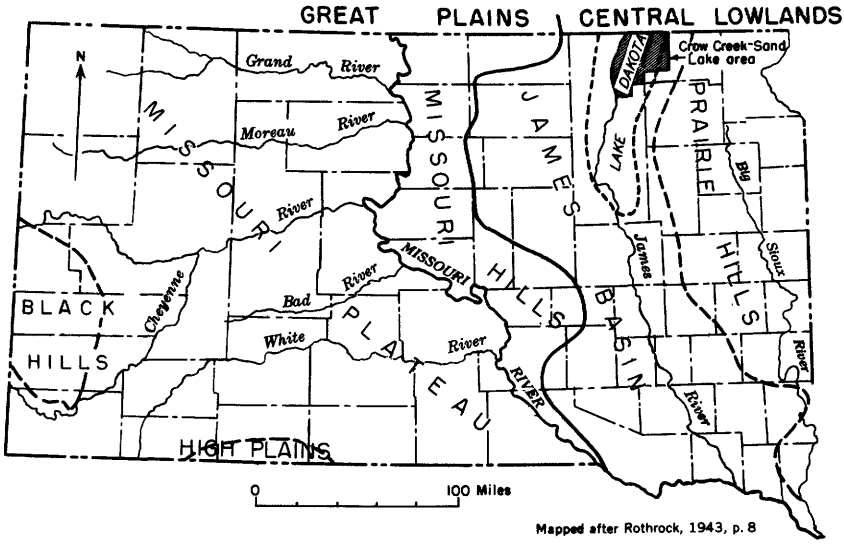

Figure 3.—Map of South Dakota showing physiographic provinces and the location of the area described in this report.

CLIMATE

The altitude and latitude of the report area and its great distance from large bodies of water account for the wide range in the daily, monthly, and annual temperature. Below-zero temperatures are frequent in winter, and, generally, temperatures of 100°F or higher are experienced at least once each summer. The high temperatures, however, are usually attended by low humidity, which greatly reduces the oppressiveness of the heat. The average growing season is about 135 days.

During the period 1914–51 the annual precipitation at Columbia, in the southwest part of the report area, ranged from about 12.5 inches (1936) to about 36 inches (1916); the average for the period was 20.22 inches. (See fig. 4.) About three-fourths of the annual precipitation falls during the growing season. Normally the wettest month is June, followed rather closely by May and July, and the driest months are November to February, inclusive. As a rule the snow cover is not great, but occasionally heavy snowfalls occur. The average annual number of clear days is 173, partly cloudy 104, and cloudy 88. Daily and monthly precipitation records for 1951 at Columbia are reproduced graphically in figure 5.

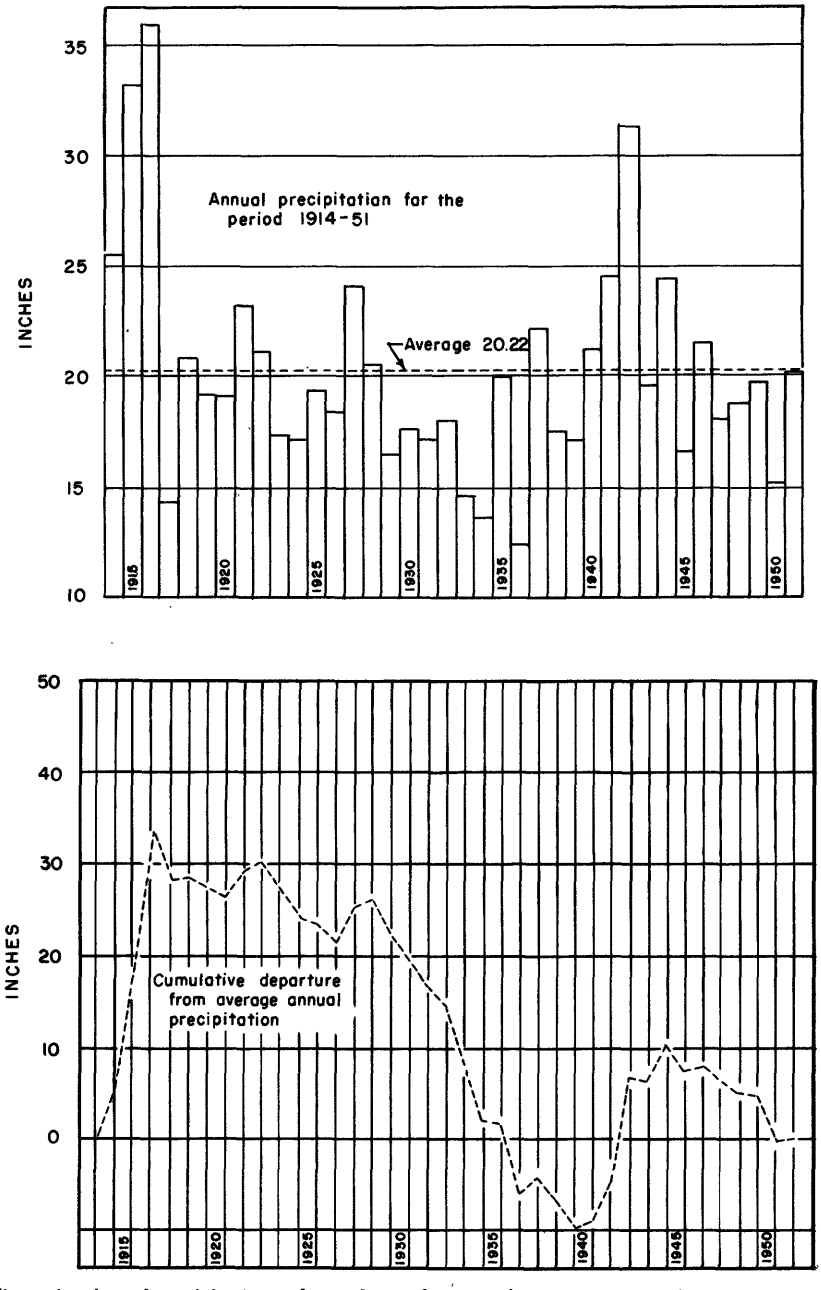

Figure 4.—Annual precipitation and cumulative departure from average annual precipitation at Columbia, S. Dak., for the period 1914–15. (From records of U. S. Weather Bureau)

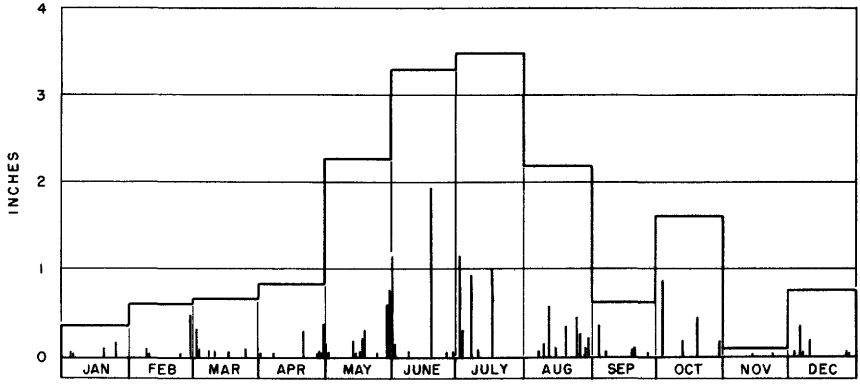

Figure 5.—Daily and monthly precipitation at Columbia, S. Dak., 1951. (From records of U. S. Weather Bureau)

During the growing season the direction of the prevailing wind is from the south-southeast, and during the rest of the year it is from the north-northwest. The wind velocity averages about 10 miles per hour.

No evaporation data were collected within the Crow Creek–Sand Lake area during the period of this investigation. However, at Redfield, S. Dak., Which is about 50 miles south-southwest of Columbia, the following data were collected by the U. S. Weather Bureau during the period May through September 1951:

Evaporation from Class A land pan, Redfield, S. Dak., 1951

	Inches		Inches
May	7.98	August	6.80
June	6.40	September	3.80
July	7.51	Total	32.49

A study based on a 50-year record of Weather Bureau records indicates that the average annual rate of evaporation from lakes and reservoirs is about 40 inches in the general vicinity of the report area (Minn. Water Res. Comm., 1942, p. 56 and map 4).

TOPOGRAPHY AND DRAINAGE

The Crow Creek–Sand Lake area is in the James Basin division, as defined by Rothrock (1943), of the Central Lowlands physiographic province, as defined by Fenneman (1931). (See fig. 3.) Approximately three-fourths of the report area lies in the smooth, nearly flat, low-lying bed of glacial Lake Dakota; the remainder of the area is slightly higher and consists of gently undulating prairie or moderately rough sand dunes. The flat lakebed is marked by several undrained or poorly drained sloughs, and the prairie is pitted by potholes (kettles) and, in places, is strewn with ice-borne

boulders. Although some of the surficial soil has been shifted considerably by wind action, the configuration of the land surface probably has not been altered significantly since the melting of the last ice sheet that covered the area.

Most of the report area is within the drainage basin of Crow Creek, which empties into the James River at the southwest corner of the area. Because under natural conditions Crow Creek did not drain its basin adequately, artificial open drains were constructed in the early 1920's to augment natural drainage. The main drain, Crow Creek Ditch, is 27 miles long and is fed by 53 miles of laterals and sublaterals from the northern and eastern parts of the report area. The main drain traverses Renzienhausen Slough, but crosses only the northern part of Putney Slough because the southern part of that slough is lower than the level of the James River at its nearest point. Although the drains, when first constructed, are reported to have facilitated surface runoff, the flow of water now is retarded by beaver and manmade dams, by trees, brush, and cattails growing in and along the drains, and by slumping of the drain sides.

Records of gage height and discharge at stations on the James River and Crow Creek Ditch for the period April through October 1951 (see fig. 6 and table 1) show that the discharge was erratic

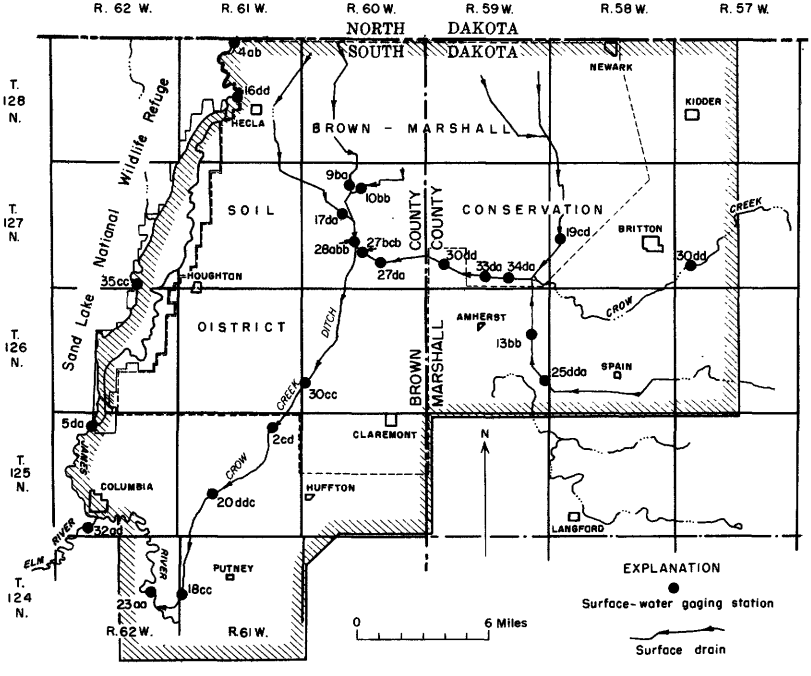

Figure 6.—Map of the Crow Creek-Sand Lake area, South Dakota, showing the location of surface-water gaging stations.

in both amount and direction of flow. At several of the stations no flow could be measured at any time during the period. Slumping of the sides of the drain caused a reverse flow for a time at stations 125-61-2cd and 127-62-35cc; and near station 127-60-17da a reverse flow flooded considerable acreage. For a distance of 17 miles from the confluence of Crow Creek Ditch and the James River, the discharge of the drain did not increase in a downstream direction and at some points along this stretch the drain was dry.

At the confluence of the river and the drain, the altitude of the two water surfaces is nearly the same during most of the year. During floods, however, the stage of the river is higher than that of the drain, and because of the low gradient of the drain, river water sometimes backs up in the drain for several miles. Gates were installed in sec. 29, T. 125 N., R. 61 W., to prevent this reverse flow, but after a time they ceased to function effectively and the water overflowed onto the adjacent lowland. To prevent such flooding, an earthen dike was constructed in sec. 24, T. 124 N., R. 62 W., across the drain about 400 feet upstream from its confluence with the river. (See pl. 1.) Although the dike also prevents flow of water from the drain to the river, this is of small consequence because the stage of water in the drain rarely is higher than that of the river.

Although the Crow Creek Ditch and its laterals do not effectively remove water from the area, they do channel considerable water from the higher land to low areas where such water is discharged eventually by evaporation, transpiration, and, to some extent, infiltration to the ground-water reservoir.

About 60 square miles along the west border of the area drains directly into the southward-flowing James River. In this stretch the James River has a gradient of less than 0.3 foot per mile and, where not dammed, it meanders in an intricate pattern over its flood plain. Two low earthen dams create ponded areas. Houghton dam, which is the northern dam, is located in secs. 35 and 36, T. 127 N., R. 62 W., and creates a lake, locally called Mud Lake, which is about 8 miles long and 2 miles wide at its widest point. Columbia Road dam, which is the southern dam, is located in sec. 4, T. 125 N., R. 62 W., and creates a shallow ponded area, locally called Sand Lake, which is about 10 miles long and 2 miles wide at its widest point.

About 36 square miles in the northeastern corner of the area is drained by the northeastward-flowing Wild Rice River. Although the divide between the drainage basins of the Wild Rice and James Rivers appears insignificant topographically, it actually is a part of the continental divide between drainage to Hudson Bay and drainage to the Gulf of Mexico.

GEOLOGY AND WATER SUPPLY

PRECAMBRIAN ROCKS

Granite and related Precambrian rocks underlie the report area below a depth of about 1,100 to 1,200 feet. Under at least part of the area, the Sioux quartzite, also Precambrian, rests on the granitic rocks. Because adequate supplies of water are obtained from younger rocks of shallower depth in this area, the drilling for water generally is terminated before the quartzite or granite is reached, and hence little is known of the lithologic character of the Sioux quartzite or the other Precambrian rocks.

CRETACEOUS SYSTEM

Overlying the Precambrian rocks in the report area is a succession of thin-bedded to massive brown to buff sandstones interbedded with some shale. These rocks do not crop out in the report area but are known from well records to have an aggregate thickness of about 250 to 300 feet. Where these rocks crop out in the Black Hills of southwestern South Dakota, they have been subdivided into three formations, which are, in ascending order, the Lakota sandstone, the Fuson shale, and the Fall River sandstone. The Fall River sandstone has not been identified in the eastern part of South Dakota, but the true Dakota sandstone, a younger formation, directly overlies the Fuson shale. In the Sand Lake–Crow Creek area, however, these formations collectively are referred to as the Dakota sandstone, and are considered together as a single aquifer. The top of this aquifer generally is reached at depths of about 800 to 850 feet below the land surface.

The Dakota sandstone is the aquifer from which most of the ground water in the area is obtained. The water in this aquifer is under artesian pressure, and, in most of the report area, wells tapping this aquifer flow at the land surface. East of Britton, however, the altitude of the land surface is greater than the altitude to which the hydrostatic pressure will cause the water to rise. Darton (1909) reported that a well, 1,000 feet deep, at Britton had a shut-in pressure of 150 pounds per square inch (345 feet of head above the land surface) and a flow of 600 gpm (gallons per minute). However, since 1909 the flow of many of the wells had either decreased or ceased entirely (S. Dak. State Plan. Board, 1937; Searight and Meleen, 1940). In 1951 the average pressure at the land surface was about 10 pounds per square inch (23 feet of head above land surface) for the wells then flowing. The flow from most wells was controlled by a valve or by a reduction in casing diameter, and the flow from each individual well was small. An average flow of 3.4 gpm per well was computed for the 621 deep wells examined in the report area. The average depth of these wells is about 990 feet. (See table 2.)

Generalized section of formations in the Sand Lake–Crow Creek area

System	Series	Subdivision	Thickness (feet)	Physical characteristics	Water-supply characterisitcs
Quaternary	Recent	Soil	0–10	Reworked dune sand, alluvium, glacial deposits, and lake sediments.	Significant in absorbing and transmitting recharge to ground-water reservoir.
		Dune sand	0–40	Very fine to coarse, poorly sorted sand.	Do.
		Alluvium	0–20	Sand, containing some gravel and small amount of silt and clay. The silt and clay increase in quantity toward the southern part of the area.	In upland areas significant only in transmitting recharge to ground-water. Where below water table, it is an important source of water to shallow wells.
	Pleistocene	Lake sediments	0–106	Flat-lying varved sand and clay.	Yield small quantities of water to shallow wells.
		Glacial deposits	0–200	Glacial till with stringers of silt, sand, and gravel.	Yield small to large supplies of water to wells, the amount depending on thickness and permeability of the sand and gravel stringers.
Cretaceous	Upper Cretaceous	Pierre shale	200±	Dark shale and some shaly chalk interbedded with thin limestone and sandstone. Lead-gray calcareous marl.	Not a source of supply. Water highly mineralized.
		Niobrara formation	100±	Lead-gray calcareous marl.	Not known to yield water in this area.
		Carlile shale	200±	Dark-gray shale.	Do.
		Greenhorn limestone	50±	Hard, highly fossiliferous limestone.	Do.
		Granerous shale	250±	Dark-gray shale.	Do.
		Dakota sandstone[1]	100±	Thin-bedded to massive brown sandstone interbedded with shale.	In most of the area, yields water to wells under sufficient pressure to flow. Locally yields enough water for municipal supplies.
	Lower Cretaceous	Fuson shale[1]	50±	Blue shale.	Not known to yield water in this area.
		Lakota sandstone[1]	100±	Massive buff sandstone interbedded with shale.	In a large part of the area, yields water to wells under sufficient pressure to flow. Locally yields water to wells sufficient for municipal supply.

Precambrian		Sioux quartzite	0–50	Very hard and compact red quartzite.	Not known to yield water in this area.
		Granite		Crystalline basement rock.	Do.

[1]These formations locally are considered to constitute a single formation, the Dakota sandstone.

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On many farms, the chemical quality of the water from the Dakota sandstone makes it unsuitable for either irrigation or domestic use but the water is satisfactory for watering livestock. Although drilling a well to tap the Dakota sandstone is costly, the flowing wells have proved good investments for farmers who require a constant supply of water for livestock. The maximum, minimum, and average quantities of dissolved constituents in 57 samples of water from the Dakota sandstone (after Riffenburg, 1925, p. 50) are given below.

	Parts per million		
	Maximum	*Minimum*	*Average*
Calcium (Ca)	204	5.0	60
Magnesium (Mg)	72	1.2	16
Sodium and potassium (Na+K)	1,710	3.0	629
Bicarbonate (HCO_3)	1,400	49	662
Sulfate (SO_4)	1,990	2.0	542
Chloride (Cl)	1,830	2.0	355
Total dissolved solids at 180°C	4,800	174	1,990
Total hardness as $CaCO_3$ (calculated)	772	17	150

Overlying the Dakota Sandstone are shale, limestone, and chalk, aggregating about 700 to 950 feet in thickness. These rocks have been subdivided into five formations, which, in ascending order, are the Graneros shale, Greenhorn limestone, Carlile shale, Niobrara formation, and Pierre shale. In nearby areas sufficient water of suitable quality for domestic use is obtained from wells tapping the Niobrara formation, but the meager water supplies obtained from the Pierre shale generally are too highly mineralized for human consumption.

The Pierre shale is the only bedrock formation exposed in the report area. It crops out in the vertical slopes of a deeply incised valley in sec. 12, T. 125 N., R. 58 W., about $9\frac{1}{2}$ miles south of Britton. (See pl. 1.) Here the Pierre shale is a dark-gray fine-grained uniform massive shale that weathers first into thin flakes and then into black plastic soil; the shale is interbedded with bentonitic layers that contain many fossil fish scales.

At the beginning of Quaternary (Pleistocene) time the Pierre shale formed the entire land surface in the report area. The highest point was in the southeast corner where the present land surface rises from the floor of glacial Lake Dakota to the higher lying prairie hills, and the lowest point was beneath the center of the north border of the report area. Apparently, at that time, the topographic divide between the southward and northward drainages was south of the report area. The configuration of the pre-Pleistocene surface on the Pierre shale is shown by means of contour lines on plate 1.

QUATERNARY SYSTEM

Unconsolidated deposits of Quaternary age lie at the surface in the entire report area, except for the one small exposure of the Pierre shale south of Britton. (See pl. 1.) These deposits consist principally of glacial till and lake sediments of Pleistocene age and of minor amounts of surficial dune sand and alluvium of Recent age.

The report area probably was overridden several times by continental glaciers, but as yet there has been no correlation of the glacial deposits with the individual advances of the ice. Till, an accumulation of material deposited directly by glaciers, underlies the entire report area but is exposed in only about one-fifth of the area. The till of the ground moraine, which was deposited from the bottom of the glacier or from within the ice during melting, generally has a gently undulating surface; the till of the recessional moraines generally forms ridgelike accumulations built along the edge of the ice sheet during temporary halts in the wasting away of the ice. In the report area the exposed morainic deposits are characterized by moderately rough topography and in many places they are pockmarked by undrained depressions known as potholes or kettles, some of which contained water in 1951.

Till is a heterogeneous assortment of rock fragments in a matrix of clay and other fine-grained materials; within the till are stringers of stratified silt, sand, and gravel. Soil formed on the exposed morainic deposits is commonly stony because erosion by wind and rain tends to remove the finer grained material first and to leave behind the larger rock fragments. Where long exposed to weathering, the till generally is buff to brown and ferric oxide staining is common along the vertical fractures and in the horizontal seams of the sand and silt. In places the effects of weathering extend to a depth of 30 feet. The deeper, unweathered till is generally gray or bluish-gray.

About three-fourths of the exposed unconsolidated deposits are sediments that accumulated in glacial Lake Dakota, a large body of water that temporarily filled the James Basin between a recessional moraine on the south and the melting glacier on the north. Glacial Lake Dakota drained when the ridge at its south end was breached and through-drainage (the James River) was established. The sediments that were deposited in the lake are well sorted and laminated; they consist mostly of silt but include some clay and fine sand. Although deposited on a fairly irregular morainic surface, the lake sediments so completely filled all depressions that, when the lake disappeared, its bed presented an extremely flat surface that since has been altered only slightly by erosion.

The flood plain of the James River is from three-fourths of a mile to 2 miles wide and is underlain by alluvium consisting of reworked lake sediments and glacial materials. Because the alluvium is similar in composition and water-bearing properties to the adjoining lakebed deposits, it was not mapped as a separate unit and is not distinguished on plate 1.

Dunes of fine windblown sand and silt mantle a total of about 40 square miles in the northeastern part of the report area. The dune areas adjoin the west side of remnants of the recessional moraines. (See pl. 1.)

The subsurface lithologic character of the unconsolidated deposits has been explored by test drilling. In general, much of the material penetrated by test wells is clay and silt, but numerous lenses of sand, mostly fine grained, and a few lenses of gravel have been penetrated. Although some of the lenses of sand and gravel are several feet thick, most of them are of local extent only. The unconsolidated deposits range in thickness from slightly more than 200 feet in the vicinity of Newark to a featheredge on the periphery of the bedrock outcrop south of Britton; at the southwest corner of the area the deposits are about 100 feet thick. The thickness and lithologic character of the unconsolidated Quaternary deposits are shown areally on plate 2. The logs of test holes in the unconsolidated deposits are given in table 3.

The particle size and the liquid and plastic limits of the unconsolidated materials penetrated in the 9 holes drilled by the U. S. Corps of Engineers are shown by the results of analyses made in its laboratory at Omaha, Nebr. (See table 4.) Permeability and porosity of 8 samples of unconsolidated deposits were determined in the hydrologic laboratory of the U. S. Geological Survey in Lincoln, Nebr., and are given below. The porosity is reported in percent of dry weight and the coefficient of permeability in Meinzer units (Wenzel, 1942, p. 9).

Test hole no.	Material	Depth below land surface (feet)	Porosity (percent)	Coefficient of permeability (gpd per square foot)
124-61- 8b	Sand, very fine	21- 40	48.3	15
	Clay, sandy and gravelly	88- 89	44.2	.03
124-61- 9a	Sand, very fine	32- 40	48.1	2
124-62-12bb	Sand, very fine	18- 28	65.6	.3
	Clay, sandy	88- 90	42.2	3
126-61-30cc2	Silt, sandy	82- 82.6	40.6	.4
	Sand, gravelly	93- 93.5	34.7	380
	Clay, sandy	111-112.8	36.7	6

GROUND WATER IN THE QUATERNARY DEPOSITS

The interstitial space in the unconsolidated deposits, which underlie the land surface and mantle the bedrock in the report area, is filled with water to a level that is at or close to the land surface in the low-lying parts of the area and a little more than 30 feet below the land surface under the topographically highest points. (See pls. 3 and 4.) This water is said to be in transitory storage because it is moving continuously, though slowly, from areas of recharge to points or areas of discharge. Although the volume of saturated sediments depends on the amount of water being added to or discharged from the ground-water body, it probably remains relatively constant.

Most of the ground water is either unconfined or under only slight artesian pressure. At a few places, however, the water in the lower more permeable beds is confined under sufficient artesian pressure to cause the water to flow from wells drilled through the confining layer. The surface of the unconfined ground water is referred to as the water table, and the imaginary surface to which artesian water will rise in wells is referred to as the piezometric surface. The piezometric surface may be higher or lower or may coincide with the water table in a given locality, and at some places there may be more than one piezometric surface.

CONFIGURATION OF THE WATER TABLE AND PIEZOMETRIC SURFACE

If the water table were exposed to view, it would be seen to have contours resembling those of the land surface but smoother and of less relief. In general, the altitude of the water table is highest beneath the topographically higher land surfaces and is lowest along natural and artificial surface drainage courses. Thus, the altitude of the water table is more than 1,350 feet above sea level in the area to the east of Britton, but along the lower reach of Putney Slough the water table is less than 1,270 feet above sea level. The slope of the water table ranges from less than 5 feet per mile in most of the area to as much as 40 feet per mile locally. (See pl. 5.)

The water table of the unconfined water probably differs only slightly in slope and position from the piezometric surface, or surfaces, of the somewhat deeper confined ground water in the unconsolidated deposits. These surfaces so nearly coincide that the distinction of one from the other is possible only by detailed observation. Therefore, the water level at some of the control points used in constructing the water-table map (pl. 5) may actually

represent a piezomatric surface rather than the water table, so that the map probably portrays an integration of these surfaces.

The depth to the water table varies from place to place with local topography and from season to season with changes in recharge-discharge relation of the shallow ground water. Where the water table intersects or approaches the land surface closely, the land may become waterlogged. Although extensive waterlogging was not observed during the period of field study for this report, areas potentially subject to waterlogging are delineated in plates 3 and 4. Areas particularly subject to waterlogging are those in which the water table was less than 5 feet below the land surface in both July and November. (See pls. 3 and 4.)

RECHARGE

Direct infiltration of precipitation is the principal means of recharge to the shallow ground-water reservoir. During periods of high runoff the water level in the streams and drainage ditches generally is higher than the adjacent water table, and consequently considerable water seeps underground. Although the water-table contours suggest that some water moves into the report area from the north and from the east, the amount of water contributed to the area by such underflow probably is relatively small. Locally, the overflow from deep flowing wells seeps back into the ground and recharges the shallow ground-water reservoir.

A soil mantle that readily absorbs water and a nearly flat land surface dotted in places by small undrained depressions facilitate the penetration of rain and melting snow into the ground. In 1951 the water table rose sharply in the early spring when the snow melted and the ground thawed and it continued to rise through June or July, the months of greatest precipitation. (See table 5, pl. 6, and figs. 7 and 8.) Precipitation later in the year was not reflected by a further rise of the water table, probably because recharge to the ground-water reservoir then was exceeded by discharge from it.

Relatively little water leaves the area as surface flow. Much of the precipitation evaporates or is transpired by vegetation, and the remainder either sinks into the ground or runs off into potholes and sloughs. As a general rule water is retained in the potholes only temporarily, some of it evaporating and the rest sinking to the zone of saturation. The sloughs are swampy the year around. Because the water table in the sloughs is close to the surface, transpiration by cattails and other phreatophytic vegetation, together with evaporation, is the only means of discharge.

In the northwestern part of the area, the slope of the water table away from the James River indicates that the river there is a source of some recharge to the ground-water reservoir. (See pl. 5.) The conditions that cause well 127-61-1da to flow probably are brought about by the percolation of water from the river, and perhaps underflow from the north also, into a rather extensive permeable bed overlain by a less permeable confining bed. Throughout the eastern part of T. 127 N., R. 61 W., the southern half of T. 127 N., R. 60 W., and most of T. 126 N., R. 60 W., the shallow ground water is confined under sufficient artesian pressure to raise water levels in wells to positions between the water table and the land surface. (See pl. 2.)

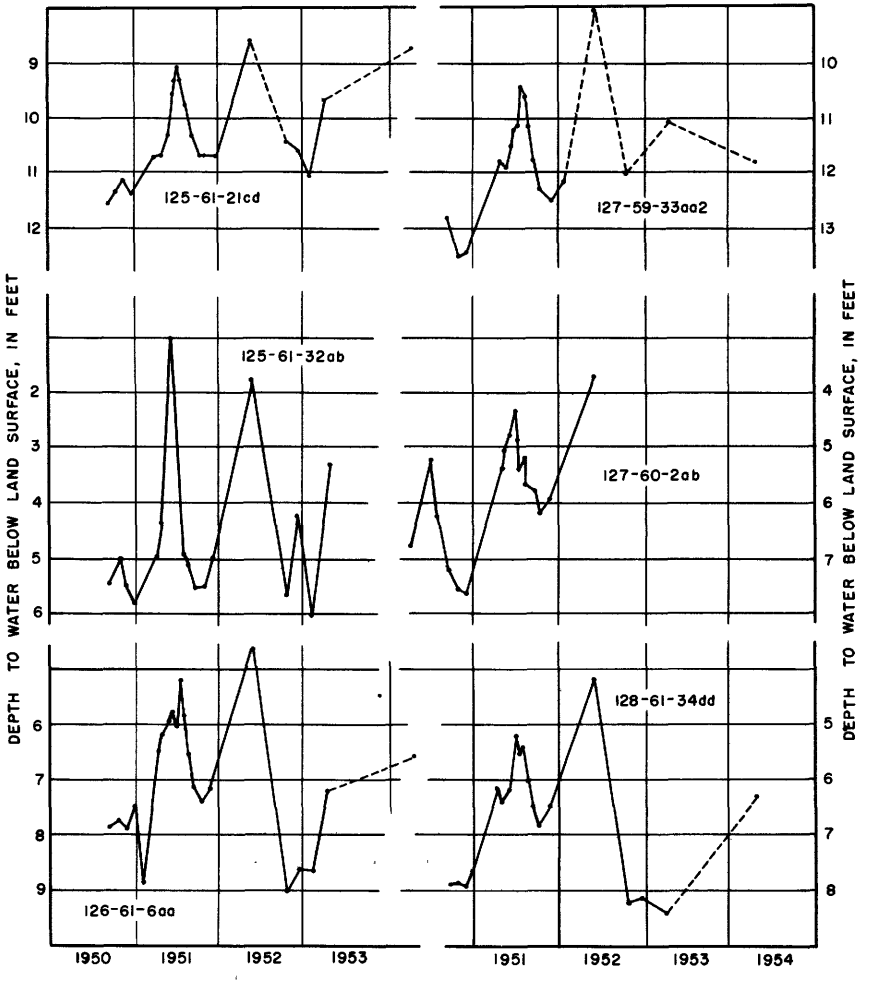

Figure 7.—Hydrographs of the water level in wells 125-61-21cd, 125-61-32ab, 126-61-6aa, 127-59-33aa2, 127-60-2ab, and 128-61-34dd.

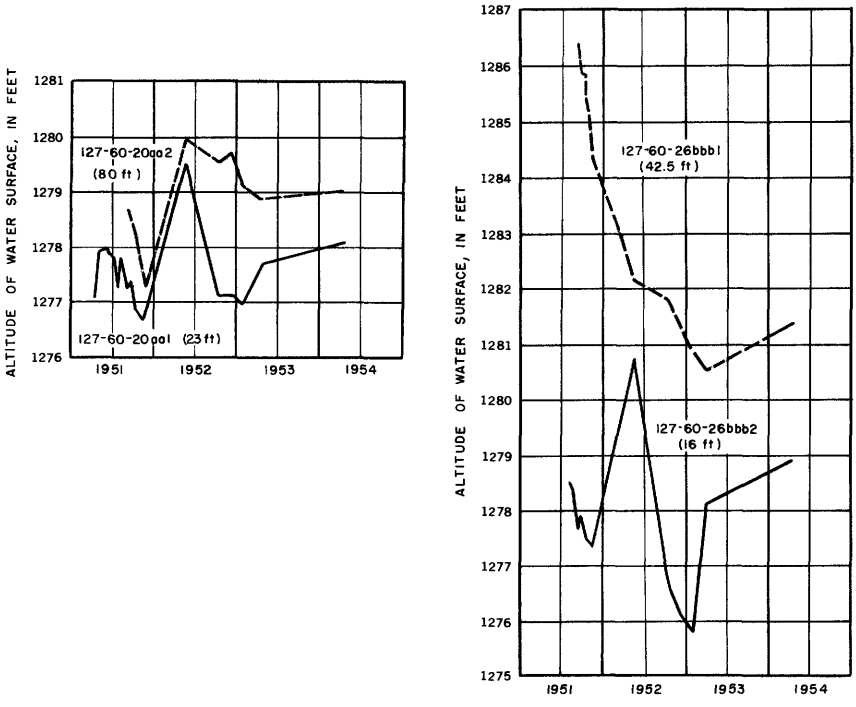

Figure 8. —Hydrographs of the water level in wells 127-60-20aa1, 127-60-20aa2, 127-60-26bbb1, and 127-60-26bbb2.

Natural levees along the James River west of the southern part of Putney Slough maintain the river surface above that of the slough. The water level in wells between the river and the southern part of the slough during June, July, and August, 1951, was intermediate between that of the river and that of the slough. The hydraulic gradient from the James River toward the southern part of Putney Slough indicates that water from the river enters the ground-water reservoir and moves toward Putney Slough. Because the water-bearing beds have a low permeability, the amount of water moving from the river into the slough probably is not very great in spite of the relatively steep hydraulic gradient.

DISCHARGE

Transpiration by vegetation and evaporation account for most of the discharge of ground water from the unconsolidated deposits of Quaternary age. Relatively small amounts of ground water are discharged by springs, wells, streams, and subsurface outflow.

Because the water table is generally shallow and the water-bearing material is fine grained in much of the area, ground water may

rise by capillarity to or near to the land surface. Even plants having short roots may discharge ground water in such areas; hence a very large aggregate surface is exposed to transpiration by plant tissues. Each plant absorbing water from capillary tubes that connect with the zone of saturation is, in effect, a pump lifting and discharging ground water at the land surface. Direct evaporation from the zone of capillary water may account for somewhat less ground-water discharge. The order of magnitude of discharge by evaporation and transpiration is better understood when it is realized that about 40 inches of water evaporates annually from free-water surfaces in this area (Minn. Water Res. Comm., 1942, p. 56 and map 4). The amount and extent of water-table decline during the season of high evapotranspiration is shown by water-level measurements (table 5), by areal patterns (pl. 7), and by hydrographs of the water level in selected wells (figs. 7 and 8).

Springs and seeps are numerous on the slopes and in depressions of the exposed morainic deposits. Such springs and seeps result from infiltrating precipitation which moves downward until it reaches a relatively impermeable layer and then moves laterally to the outcrop of that layer.

Approximately 270 wells in the report area tap the unconsolidated deposits of Quaternary age. The depth of these wells ranges from 3 feet to 204 feet, but only a few wells are deeper than 60 feet. Many of the wells less than 30 feet deep are dug and tap only slightly permeable materials. However, because the dug wells are 2 to 3 feet in diameter, they afford considerable storage space for water. Such dug wells yield copiously until the water level is lowered to the suction opening of the pump, at which time pumping must be discontinued until more water has entered the well. Most other wells less than 30 feet deep are driven wells that are finished with a sand point. Wells more than 30 feet deep are drilled wells and locally are referred to as tubular wells. Their yields range from less than 1 gpm to more than 100 gpm, depending on the permeability of the water-bearing material tapped and on the construction of the well. The tubular wells are more common in the northeastern and southwestern parts of the report area. Generally, water from wells tapping only fine-grained material is of poor quality but that from wells drilled into coarser material is suitable for most uses. The total amount of ground water discharged by all wells tapping the unconsolidated deposits is small compared to that discharged by evapotranspiration.

Some ground water is discharged into the James River in the stretch downstream from the center of T. 127 N. to Tacoma Park and into the several sloughs that occupy the low-lying areas. In

that part of the report area within the Wild Rice River drainage basin all ground water not discharged by evapotranspiration or by wells leaves by subsurface outflow to the northeast. It is unlikely that ground water is discharged by subsurface outflow from that part of the report area within the Crow Creek drainage basin. (See pl. 5.) If, however, any water does leave the area in this way, it would have to escape under the southern end of Putney Slough and flow parallel to the river for some distance southward until the gradient permitted entry to the river. It is considered unlikely that this condition actually exists.

MOVEMENT

Ground water moves from areas of recharge toward areas of discharge. In that part of the report area in the Wild Rice River drainage basin, ground water moves northeastward; in the belt 1–5 miles wide bordering the east side of the James River from the center of T. 127 N. southward to Tacoma park, ground water moves toward the James River. All other shallow ground water, except that which percolates toward pumping wells, moves toward those low-lying places along Crow Creek and its tributaries where discharge by evapotranspiration is greatest.

Other factors being equal, water within the zone of saturation moves most rapidly through well-sorted coarse-grained material and slowest through poorly sorted material containing a large proportion of fine grains. Within a given type of material, however, the rate of movement is proportional to the hydraulic gradient. Because the Quaternary deposits are a complex of materials that range widely in permeability, the rate of movement through them differs widely from place to place, and the paths of movement are devious. It is believed that within the zone of saturation the direction of movement ranges from nearly vertical (upward or downward) to nearly horizontal.

In some places comparison of the fluctuations of the water level in a shallow piezometer tube (small-diameter well) with those in a deeper piezometer tube 1 or 2 feet away indicated that water was moving upward from a zone of higher hydrostatic pressure into a zone of lower hydrostatic pressure. (See fig. 8.) Such upward movement of water may be one of the factors causing the high water table in that part of the area where the piezometric surface of water in the deeper unconsolidated report is higher than the water table. (See pl. 2.)

POSSIBLE DEVELOPMENT FOR IRRIGATION

Lenses of well-sorted sand and gravel that are recharged by water moving from contiguous sediments having a high storage capacity will yield water freely to properly constructed wells. Many of the test holes that were drilled in the Crow Creek–Sand Lake area penetrated such lenses within the zone of saturation in the glacial drift. (See pl. 2 and table 3.) However, the possibility of obtaining sufficient water for irrigation cannot be determined until the hydrologic properties of the lenses and of the contiguous materials have been ascertained. In North Dakota, just north of the northwest part of the report area, the glacial drift yields sufficient water for irrigation, but in the Crow Creek–Sand Lake area additional test drilling is necessary to determine whether comparable quantities of water can be obtained from the glacial drift there. In some places it may be possible to obtain moderately large yields from wells tapping well-sorted fine- to medium-grained sand of sufficient thickness, provided the wells are properly constructed. Also, before any irrigation well is constructed, the suitability of the water for irrigation should be determined by chemical analysis.

CONCLUSIONS

The sloughs and adjacent waterlogged lands in the low-lying parts of the report area are caused principally by inadequate surface and subsurface drainage. Runoff is channeled into the sloughs by streams and drainage ditches, and there the water stands for lack of gradient sufficient to cause continued flow toward the James River. Consequently, under present (1951) conditions, evapotranspiration is the principal means by which discharge may effect a significant lowering of the water table.

During years when precipitation is below normal, farming on the low-lying areas is not seriously hampered by waterlogging. However, in years of normal or above-normal precipitation much of the low-lying area becomes tillable only after the water table has lowered sufficiently for the soil to support the weight of farming equipment. No real improvement of this situation is possible unless drainage can be improved. Necessary features of an improved drainage system would include the clearance of obstructions from the established drains, the restoration of adequate gradient in the drains, and the repair of the locks that prevent the backing up of water from the James River into the Crow Creek Ditch.

Drainage of Putney Slough by pumping the water into the James River would bring about the steepening of gradients north and east of the slough and would thus facilitate drainage in the entire Crow Creek drainage basin. Greater pumpage from the shallow ground-water reservoir would result in a lowering of the water table and thereby create additional underground storage for water at times when the natural surface drainage facilities are overburdened and when evapotranspiration rates are low. The lowering of the water table would make possible the rehabilitation of large tracts of low-land not now suitable for farming and, during the growing season, would result in a warmer soil in which seed germination and growth would be accelerated.

Although much of the area appears to be ideally suited for irrigation, importation of water from outside the area would only add to present drainage problems unless the drainage system could be made more adequate. On the other hand, the utilization of the water resources within the area for irrigation or other purposes would aid in the disposal of the present excess of water.

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BASIC DATA

Table 1—*Gage height or depth to water below measuring point and rate of discharge at stations on the James and Elm Rivers and on Crow Creek Ditch and laterals, 1951*

[Arranged in downstream order]

Date.	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)	Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)
128-61-4ab [Altitude of zero gage, 1,269.53 feet]					
Apr. 4	24.19	Ice	June 13	22.05	0.0
Apr. 8	25.24	2,060	July 2	20.83	.....
Apr. 11	25.40	2,070	July 11	20.99	.0
Apr. 16	24.21	658	July 20	20.91	.....
Apr. 25	23.30	452	Aug. 1	20.90	.....
May 3	23.34	505	Aug. 14	20.61	.....
May 17	22.30	154	Sept. 11	20.30	.....
June 2	22.08	193	Oct. 9	20.42	.....
128-61-16dd. [Altitude of measuring point, 1,294.24 feet]					
June 4	5.00	.....	Aug. 1	5.30	.....
July 2	5.22	.....	Aug. 14	5.45	.....
July 20	4.82	.....			
127-62-35cc [Altitude of zero gage, 1,281.31 feet]					
Apr. 4	5.19	Ice	June 2	4.60	471
Apr. 8	5.08	Ice	June 7	4.60	.....
Apr. 11	5.58	1,320	June 14	4.28	181
Apr. 14	6.34	2,240	July 2	4.07	.....
Apr. 16	6.84	1,310	July 11	4.23	.0
Apr. 25	6.76	500	July 20	4.18	.....
May 3	6.20	930	July 31	4.17	.....
May 18	5.26	Reverse flow	Sept. 9	3.85	.....
June 1	4.64	503			
125-62-5da [Altitude of measuring point, 1,296.52]					
July 20	13.96	.....	July 31	14.31	.....
125-62-32ad [Altitude of zero gage not known]					
Apr. 4	15.76	672	May 4	16.48	0.0
Apr. 9	16.00	332	May 17	14.57	.0
Apr. 12	16.00	94.5	June 2	10.58	.0
Apr. 17	16.70	.0	June 14	10.48	.0
Apr. 26	17.04	.0			
124-62-23aa [Altitude of zero gage, 1,272.02 feet]					
Apr. 4	7.83	Ice	May 17	7.92	618
Apr. 6	7.90	Ice	June 2	4.95	233
Apr. 7	8.07	Ice	June 13	4.95	219
Apr. 9	8.46	665	July 12	4.52	62.0
Apr. 13	8.59	717	July 20	4.10	.....
Apr. 17	8.86	694	July 31	4.00	.....
Apr. 26	9.53	810	Aug. 13	3.76	.....
May 4	9.06	797	Sept. 13	3.56	.....
127-57-30dd [Altitude of measuring point, 1,335.36 feet]					
July 27	6.44	.....	Sept. 11	7.32	.....

Table 1.—*Gage height or depth to water below measuring point and rate of discharge at stations on the James and Elm Rivers and on Crow Creek Ditch and laterals, 1951*—Con.

Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)	Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)
127-58-19cd [Altitude of zero gage, 1,283.00 feet]					
Apr. 2	5.98	-1.46	May 17	4.63	0.0
Apr. 4	.....	Reverse flow	June 1	4.45	.0
			June 4	4.93	.....
Apr. 5	.....	....do.....	June 8	4.91	.....
			June 13	4.63	.0
Apr. 7	5.95	-1.10	July 2	4.10	.....
Apr. 11	.....	Reverse flow	July 10	4.79	.0
			July 20	4.63	.....
Apr. 16	5.57	.0	July 31	3.94	.....
Apr. 26	5.43	.0	Aug. 11	3.35	.....
May 4	5.02	.0	Sept. 11	2.95	.....
126-59-25dda [Altitude of measuring point, 1,304.64 feet]					
Aug. 13	8.43	.....	Sept. 10	8.38	.....
126-59-13bbb [Altitude of zero gage, 1,284.54 feet]					
Apr. 3	7.44	24.3	June 13	5.10	1.37
Apr. 7	6.88	17.6	June 25	5.00	.....
Apr. 11	5.90	6.9	July 10	7.43	5.6
Apr. 16	5.62	3.42	July 20	5.30	.....
Apr. 26	5.39	1.58	July 26	4.72	.....
May 4	5.08	.96	Aug. 1	4.30	.....
May 17	4.50	.07	Aug. 13	4.05	.....
June 1	4.60	.0	Sept. 11	4.00	.....
June 8	5.79	.....	Oct. 10	3.49	.....
127-59-34da [Altitude of zero gage, 1,281.24 feet]					
Apr. 3	7.44	62.3	May 17	3.81	0.0
Apr. 7	7.07	51.7	June 1	3.85	.0
Apr. 11	5.74	22.8	June 13	4.10	1.27
Apr. 16	4.94	10.0	July 10	5.86	8.62
Apr. 26	4.79	4.98	July 26	3.85	.....
May 4	4.26	2.55	Aug. 1	3.54	.....
127-59-33da [Altitude of measuring point, 1,293.63 feet]					
May 29	10.15	.....	July 20	9.41	.....
June 8	8.78	.....	Aug. 1	10.10	.....
June 25	9.81	.....	Aug. 13	10.60	.....
July 3	9.84	.....			
127-59-30dd [Altitude of measuring point, 1,289.77 feet]					
Aug. 1	6.60	.....	Aug. 13	6.79	.....
127-60-27da [Altitude of measuring point, 1,288.90 feet]					
July 26	8.43	.....	Aug. 1	8.19	.....

See footnotes at end of table.

Table 1.—*Gage height or depth to water below measuring point and rate of discharge at stations on the James and Elm Rivers and on Crow Creek Ditch and laterals, 1951*—Con.

Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)	Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)
127-60-27bcb [Altitude of zero gage, 1,276.13 feet]					
Apr. 4	7.14	0.0	June 1	3.57	0.0
Apr. 7	6.94	10.4	June 13	4.20	.0
Apr. 11	6.84	.....	July 2	4.43	.....
Apr. 16	6.58	6.07	July 11	5.85	.0
Apr. 26	6.00	9.31	July 20	5.40	.....
May 4	5.65	9.27	Aug. 1	3.40	.....
May 17	4.29	.0			
127-60-9ba [Altitude of zero gage not known]					
Apr. 4	4.22	0.0	May 17	Dry	.....
Apr. 7	4.12	2.90	June 1	Dry	.....
Apr. 8	4.98	.0	June 13	3.36	0.0
Apr. 16	3.60	.0	July 11	4.32	.0
Apr. 26	3.83	.0	July 20	4.07	.....
May 4	3.74	.0	Aug. 1	3.17	.....
127-60-10bbb [Altitude of zero gage, 1,280.03 feet]					
Apr. 4	5.02	0.0	June 1	Dry	.....
Apr. 7	5.74	.0	June 13	Dry	.....
Apr. 8	.....	.0	July 2	3.34	.....
Apr. 16	4.89	.0	July 11	Dry	.....
Apr. 26	4.31	.0	July 20	3.63	.....
May 4	3.81	.0	Aug. 14	Dry	.....
May 17	Dry	.....			
127-60-17da [Altitude of zero gage, 1,275.17 feet]					
Apr. 4	7.53	0.0	June 1	5.20	0.0
Apr. 7	5.67	.0	June 13	5.15	.0
Apr. 8	5.65	.0	July 2	4.58	.....
Apr. 16	5.74	.0	July 11	5.46	.0
Apr. 17	5.41	.0	July 20	5.42	.....
Apr. 26	5.66	.0	Aug. 1	4.50	.....
May 4	5.70	.0	Aug. 14	3.88	.....
May 17	5.41	.0	Sept. 10	Dry	.....
127-60-28abb [Altitude of zero gage, 1,276.35 feet]					
Apr. 4	6.19	0.0	May 17	3.90	0.0
Apr. 5	6.19	.0	June 1	3.22	.0
Apr. 7	6.31	.0	June 4	3.45	.....
Apr. 8	6.28	.0	June 13	Dry	.....
Apr. 11	6.22	.0	July 2	3.05	.....
Apr. 16	5.99	.0	July 11	4.86	.0
Apr. 26	5.43	.0	July 20	2.74	.....
May 4	4.99	.0			
126-60-30cc [Altitude of measuring point, 1,279.80 feet]					
Apr. 27	3.00	.....	July 31	3.36	.....
June 25	2.87	.....	Aug. 11	2.47	.....
July 2	3.10	.....	Sept. 10	3.53	.....
July 20	3.03	.....	Oct. 15	4.30	.....

Table 1.—*Gage height or depth to water below measuring point and rate of discharge at stations on the James and Elm Rivers and on Crow Creek Ditch and laterals, 1951*—Con.

Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)	Date	Gage height or depth to water below measuring point (feet)	Discharge (cubic feet per second)
125-61-2cd [Altitude of zero gage, 1,267.42 feet]					
Apr. 4	4.51	0.0	June 1	5.57	1.07
Apr. 5	4.51	.0	June 13	5.55	-1.92
Apr. 7	4.49	.0	July 11	5.50	.0
Apr. 10	4.65	.0	July 20	5.40	.....
Apr. 17	5.06	.0	July 31	5.08	.....
Apr. 27[2]	5.34	.0	Aug. 13	4.80	.....
May 4	5.48	10.6	Sept. 10	4.40	.....
May 17	5.57	.0	Oct. 1	4.10	.....
125-61-20ddc [Altitude of measuring point, 1,280.97 feet]					
June 4	3.82	.....	Aug. 13	4.65	.....
June 25	4.08	.....	Sept. 14	5.21	.....
July 2	4.24	.....	Oct. 1	5.46	.....
July 20	4.15	.....	Oct. 10	5.45	.....
Aug. 1	4.45	.....	Oct. 31	5.48	.....
124-61-18cc [Altitude of zero gage, 1,270.01 feet]					
Apr. 4	5.67	0.0	June 13	6.14	0.0
Apr. 6	5.51	.0	July 2	3.58	.....
Apr. 9	5.37	.0	July 12	3.63	.0
Apr. 17	5.82	.0	July 20	3.45	.....
Apr. 26	6.38	.0	July 31	4.05	.....
May 4	6.53	.0	Aug. 13	4.41	.....
May 17	5.97	.0	Sept. 1	Dry	.....
June 1	5.26	.0	Oct. 1	Dry	.....

[1]Estimated.
[2]At a point 4 miles upstream the flow measured 16.1 cubic feet per second.

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Table 2.—*Records of deep artesian wells*

[Well no.: See text for description of well-numbering system. Use of water: D, domestic; P, municipal; S, stock]

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
		BROWN COUNTY			
124-60- 4bb1	L. Johnson	.....	1¼	2	D, S.
- 5dd	C. Leibel	.....	⅝	2	D, S.
- 6cc	F. Rix	.....	¾	2	D, S.
- 6dad1	C. Craig	.....	.....	2	D, S.
- 6dad2	.....do	.....	¾	1	D, S.
		1,030	1½	10	D, S.
-61- 1bb	H. Nissen	950	1¼	3	D, S.
- 2cc	.....	.....	¾	1	S.
- 4cc	N. Bonde	1,135	1¼	8	D, S.
- 7cc	.....	.....	1¼	2	D, S.
- 9ac	H. Pharis	1,097	2	4	D, S.
- 9cd	Town of Putney	.....	1½	.....	P.
- 9dd	.....	.....	.....	2	D, S.
-11aa	N. Thurston	865	1½	1	D, S.
-11bc1	D. Hosley	930	1½	4	D, S.
-11bc2	.....do	930	1½	4	S.
-11cc	A. Quintle	.....	.....	1	D, S.
-12dd	F. Rix	965	⅝	2	D, S.
-14cd	F. Jensen	975	¾	2	D, S.
-15cc	A. Rasmussen	850	1¼	0	D, S.
-17ba	B. Henley	.....	1¼	3	D, S.
-17cc	A. Leir	960	1¼	2	D, S.
-17dd1	H. Henley	.....	1¼	2	D, S.
-18dd	C. Jensen	1,235	1¼	1	D, S.
-20cc	D. Henley	.....	¾	2	D, S.
-20dc	W. Sieh	950	1¼	2	D, S.
-21ba	E. Ulrich	.....	¾	1	D, S.
-21dc	C. Stiklestad	.....	1¼	5	D, S.
-22aa	S. Thompson	.....	1½	5	D, S;
-22cd1	W. Schoppe	.....	.....	1	S.
-24ad	M. Rix	1,000	¾	2	D, S.
-24bc2	G. Sippel	.....	¾	1	D.
-25aa	.....	.....	1¼	1	D, S.
-25cc	.....	.....	1¼	2	D, S.
-25dd	.....	.....	½	1	S.
-26cd1	Schulke	950	1½	8	D, S.
-26cd2	.....do	950	¾	2	S.
-27ad	C. Thompson	1,035	1½	8	D, S.
-28cc	Liljefelt	1,250	¾	2	D, S.
-28dd	J. Kepke	1,010	½	1	D, S.
-29bb	.....	.....	1	1	D, S.
-29cd	G. Oldenburg	987	1	2	D, S.
-30ac2	L. Witt	950	.....	10	S.
-30cad	E. Moeton	937	¾	1	D, S.
-30cb	.....	.....	¾	5	D, S.
-31ab	J. Karnopp	980	1½	5	D, S.
-31bb	G. Miller	950	¾	5	D, S.
-32cd	E. Howard	.....	¾	2	D, S.
-33ad	W. McCullough	990	¾	4	D, S.
-33cd1	J. Caine	.....	1½	5	D, S.
-33cd2	.....do	.....	1¼	1	

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	BROWN COUNTY—Continued				
124-61-34aa	Sippel		1	5	D, S.
-34cb	W. Kepke	1,100	½	.5	D, S.
-34dd	Shornack	1,250	1½	15	D, S
-35da	S. Ellingson	1,170	1½	3	D, S.
-62- 2dc	H. Everson		1¼	2	D, S.
-10ab	J. Schliebe		¾	4	D, S.
-11cc	G. Bowling	940	¾	2	D, S.
-14aa	D. McCormack		1½	2	D, S.
-14cc			1¼	2	
-22ab	W. Schliebe		1¼	1	D, S.
-23aa1	Tacoma Park		2	15	D, S.
-23aa2	do				D, S.
-23ab	A. Eulberg		1½	10	D, S.
-23ccd	G. Williams			1	D, S.
-24ad				.5	S.
-26bc	R. Williams	1,180	1½	8	D, S.
-27ab			1½	2	D, S.
-27dd			1½	3	D, S.
-33aa	C. Jones	1,040	1¼	1	D, S.
-33bc	do	1,175	1½	4	D, S.
-34bb				3	D, S.
-34cc	L. Marx		¾	4	D, S.
-34dc	R. Osman		¾	2	D, S.
-35aa	J. Fluke	885	¾	2	D, S.
125-60- 1cc	H. Kludt	1,025	2½	5.5	D, S.
- 2cc	D. Fountain		1¼	2	D, S.
- 2da1	A. Swanson		1¼	.5	S.
- 3cb2	V. Cutler		¾	.5	
- 4ad	R. Kelly	1,000	¾	1	D, S.
- 5ad			¾	5	D, S.
- 5bbc			1¼	4	S.
- 6cd			¾	1	S.
- 6dd	F. Barnes		¾	1	D, S.
- 7bc	H. Sanderson		1½	10	D, S.
- 9aa			¾	1	S.
-10aa1	D. Hinrichs	1,200	1¼	2	S.
-10ba			1½	2	
-10ddc			1½	2	D, S.
-12bbc	Weaber			2	D, S.
-13dd				1	
-14aa				2	
-14da	H. Cutler		1¼	2	D, S.
-15dd			1¼	2	D, S.
-16cc			1¼	2.5	S.
-17aa			¾	2	D, S.
-17cb			1½	5	D, S.
-18cc1		847	1¼	5	S.
-18dd			1¼	3	D, S.
-20cc	E. Davidson	900	¾	3	D, S.
-21aa				1	D, S.
-21cd				2	D, S.
-22aa	L. Gustafson	990	1¼	2	D, S.
-22dd1	L. Anderson			.2	D.
-22dd2	do	930	1½	5	S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
		BROWN COUNTY—Continued			
125-60-23ba	D. Hagen		¾	2	D, S.
-23cc	E. Johnson	900	1	2	D, S.
-23da	S. Rudi		¾	.5	D, S.
-24dd			1¼	.5	S.
-25bb	J. Wigdahl		1	2	S.
-25cd	do			2	D, S.
-26cc				2	D, S.
-27aa			1	2	D, S.
-28cb	W. Leibel		1½	4	D, S.
-29aa			1	3	
-30dd			1½	.2	
-32bc	E. Leibel		¾	2.5	D, S.
-33bb1	L. Wagner		1½	5	D, S.
-34cc	M. Sippel		1¼	3	D, S.
-35dc			1¼	.5	
-36bc1	V. McCullough			.5	D, S.
-61- 1cc	G. Carlson		½	2	
- 1dd	P. Benedict	900	1½	2	D, S.
- 2cc	D. Benedict		1	5	D, S.
- 4cdc			¾	3	D, S.
- 5cc	C. Mitchell	940	1½	5	D, S.
- 6aa	M. Mitchell		¾	5	D, S.
- 6dd1			¾	5	D, S.
- 8bb	F. Wright		1¼	5	D, S.
- 9aa	D. Miller	900	1¼	5	S.
-13cc	P. Sinde	920	¾	5	D, S.
-19bb	R. Moes		¾	3	D, S.
-20cb2	C. Hanson				S.
-21bb			1¼	3	S.
-22cc			1¼	5	
-24aa	P. Dombrowe	850	¾	5	D, S.
-24dd	O. Dombrowe	900	1½	5	D, S.
-27cc	H. Stanley	800	1¼	5	D, S.
-28ad	M. Hendricks		½	1	S.
-31bb	G. Fassbender		1	3	D, S.
-32aad	M. Lowery		1¼	5	S.
-32dd	W. Honey	900	1¼	5	D, S.
-33abc			¾	3	
-33dad			¾	1	S.
-34dd	Clark Brothers		¾	3	D, S.
-35cd	W. Honey		1¼	5	D, S.
-62- 1ad	H. Kennitz		1¼	10	D, S.
- 5bc	A. Buntrock	1,100	1½	4	D, S.
- 6ba	H. Ringgenberg	1,100	1¼	3	D, S.
- 7cb	V. Weismantel		1¼	3	D, S.
- 8bb	H. Dennert	1,000	1¼	5	D, S.
- 9dda			¾	5	D, S.
-10aa			¾	3	D, S.
-10bc			1¼	10	D, S.
-11cc	E. Arvidson		1	1	D, S.
-11dc	C. Hanson	1,080	1¼	18	D, S.
-12bb	F. Albrecht	1,000	1½	4	D, S.
-12cc	W. Albrecht	1,004	1¼	5	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	BROWN COUNTY—Continued				
125-62-14dd2	H. Moes		1	5	D, S.
-15cc	R. Miller		1¼	3	D, S.
-15dd			1½	2	D, S.
-17da	E. Roettele		1½	10	D, S.
-18db	A. Weihrauch		1	5	D, S.
-19ba	L. Kruse		1½	5	D, S.
-19cd			1¼	5	D, S.
-19dd	A. Zastrow		1¼	5	D, S.
-20da	F. Meints	1,100	¾	3	D, S.
-21bc			1¼	3	D, S.
-22cc			1¼	3	D, S.
-23cc	O. Stange		¾	1	D, S.
-25bb			1¼	5	S.
-25cc	H. Bohling		¾	5	D, S.
-26ccb	E. Buntrock		¾	5	D, S.
-26dbc	F. Atkins	1,000	1¼	5	D, S.
-27ca	H. Zastrow	1,000	¾	5	D, S.
-28ba	A. Carson		1	2	D, S.
-29bb			1¼	2	S.
-29cd	H. Klepfer	1,000	1¼	5	D, S.
-31aa			¾	4	D, S.
-33bc	R. Jackson	1,120	1¼	5	D, S.
-34cc			¾	8	D, S.
-34dc	Cooperative		2	5	D, S.
-35bac	R. Johnson	1,000	1¼	5	D, S.
-36cc	L. Gilchrist	980	¾	1	D, S.
126-60- 3da	J. Pulfrey	960	¾	3	D, S.
- 4aa	A. Odland	987	1½	10	D, S.
- 5bb	D. Pierson		2	1	D, S.
- 7cc	S. Mohrenberg		¾	5	D, S.
- 8cdc2	E. Hostetter				S.
- 9dd			1¼	3	
-10ad	H. Edwards		¾	5	D.
-10cc	E. Larson	980	¾	3	D, S.
-10dd3			½	1	
-11acc	G. Funman		¾	1	D, S.
-11bb	R. Schuller	900	2½	3	D, S.
-12aa	E. Roelfs	1,006	1½	3	S.
-13aa	B. Schuller		1	3	D, S.
-14aa			2	3	S.
-14cb	B. Schuller	965	1½	2	D, S.
-15da	R. Swanson	980	¾	3	D, S.
-17aa	C. Luptak		1	10	D, S.
-19bc	R. Pulfrey		2	2	D, S.
-19cb	J. Spencer		¾	5	D, S
-20dd	W. Cutler		¾	2	D, S.
-21cb	F. Bowles	900	1½	10	D, S.
-23cc	R. Vietmier		¾	2	D, S.
-23dc	H. Frey		¾	3	D, S.
-24aba1	J. Frey	1,001	2	3	S.
-24bc					D, S.
-27aa	S. Feser	900	¾	1	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	BROWN COUNTY—Continued				
126-60-27cd	H. Swanson	900	3/4	1	D, S.
-27dd	do	900	3/4	1	D, S.
-28cc	G. Micke	950	3/4	1	D, S.
-29ad			3/4	5	S.
-29cc			3/4	3	D, S.
-31cd	D. Hinrichs	870	3/4	5	D, S.
-31da			3/4	5	S.
-32ab	W. Hanse	891	3/4	5	D, S.
-34dc	do				D, S.
-35bc			1/2	1.5	D, S.
-35dc1	J. Nietert	960	1/2	3	S.
-61- 1cd		1,000	3/4	3	S.
- 2ada	W. Mitchell		1 1/4	5	D, S.
- 3bb	Woodward		2	2	D, S.
- 3ddc	J. Corliss	1,100	3/4	2	D, S.
- 5bb			1 1/2	3	D, S.
- 6ab			1 1/4	2	D, S.
- 6cb	O. Tunby	900	1 1/2	3	D, S.
-14ab	E. Tunby		3/4	3	D, S.
-18cc	A. Knecht	960	1	5	D, S.
-19ad	D. Webb		3/4	2	D, S.
-20cc	L. Knecht		3/4	3	D, S.
-21bc	T. Tunby	1,040	1 1/2	5	D, S.
-22aa	D. Schwarting		1	1	D, S.
-23da			3/4	5	D, S.
-26bbc	F. James		3/4	2	S.
-29cd			1 1/4	3	D, S.
-30bc	J. Gagnum	1,100	1 1/2	15	D, S.
-31cc			3/4	3	S.
-33aa	W. James		3/4	5	D, S.
-33cc	W. Hines		3/4	5	D, S.
-35ba	S. Perry		1 1/4	1	D, S.
-35bc	L. Sippel		1/2	2	D, S.
-62- 3ba	S. Dennert		3/4	5	D, S.
- 4bb	A. Dennert	1,080	1 1/4	3	D, S.
- 4cc			1 1/2	15	
- 9dd	H. Dennert		1	5	D, S.
-13ab	R. Herseth	1,100	1 1/4	5	D, S.
-17ada	H. Wells	1,150	1 1/4	5	D, S.
-22dc	B. Tollefson		1 1/4	10	D, S.
-24ad	D. DeHoste	1,270	3 1/2	15	D, S.
-25cc	A. Ackerson		3/4	1	D, S.
-26ad			1 1/4	1	
-26dad	H. Smith	925	1 1/4	12	D, S.
-28bc	K. Eichler	970	1	6	D, S.
-29bb	R. Vitense	850	1	5	D, S.
-29cc	G. Thompson	1,000	1 1/4	10	D, S.
-30bc	A. Hiepler		1 1/4	5	D, S.
-30cdc	C. Hammond		1	1	D, S.
-31ca	W. Buntrock		1	4	D, S.
-33ad	E. Weismantel		3/4	3	D, S.
-33bc	G. Wilke		1 1/4	3	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per Minute)	Use of water
	BROWN COUNTY—Continued				
126-62-34abb	H. Richardson		¾	3	D, S.
-35bab	H. Hillen		1¼	4	D, S.
127-60- 1dd	A. Vanentine	950	2	2	D, S.
- 4dcc	L. Dinger	1,000	¾	1	D, S.
- 5cc	H. Clark		¾	3	D, S.
- 5da	W. Dinger		¾	2	D, S.
- 8cc2			1	1	D, S.
- 9aa			1	1	
-10cc	E. Dinger	1,083	1½	2	D, S.
-12cc	L. Dinger	905	1½	2	D, S.
-14ba			¾	5	D, S.
-14cd	R. Wegleitner		¾	2	D, S.
-14db	A. Beck	950	2	5	D, S.
-15aad			¾	3	D, S.
-15bb	H. Morris		2	1	D, S.
-18da			1	5	D, S.
-19ab			1	5	S.
-20ad	L. Johnson	1,000	1¼	15	D, S.
-21bb	C. Hubert		2½	2	D, S.
-21dd	H. Dinger		1	2	D, S.
-22ac			1¼	3	D, S.
-23ad			2	3	S.
-23bb	W. Dinger	800	¾	2	D, S.
-23dda	F. Ferser	1,040	1¼	2	D, S.
-26bbc			¾	2	S.
-27cc			2	2	S.
-28bb.	E. Smith	900	1¼	4	D, S.
-29aa	W. Scott		1¼	2	D, S.
-30aa2	G. Sullivan	1,100	1¼	1	D, S.
-30dd	E. Hubert	1,020	1½	5	D, S.
-31cc	T. Hinderks	1,000	1½	5	D, S.
-34cd	C. Shilhanek		¾	5	D, S.
-35bc	Perkins				D, S.
-61- 1bb	E. Lilla		¾	4	D, S.
- 2cb	D. Pulfrey		2	2	D, S.
- 3da	J. Meyer	1,000	2	2	D, S.
- 4aa	A. Scott	960	1½	3.5	D, S.
- 5dd	do		2½	2	D, S.
- 8dda	J. Gates		2	5	D, S.
-10cc	D. Salling	1,040	3	5	D, S.
-13ab	M. Caspers		1½	5	D, S.
-13bab	F. Dinger		2	5	D, S.
-15bb			2	5	D, S.
-17cc	O. Engle		2	4	D, S.
-20cc			1¼	1	S.
-20dc	E. Mitchell		1¼	5	D, S.
-26bb	F. Stevenson	1,050	1½	2	D, S.
-27dc			1	3	D, S.
-28bb			1	4	D, S.
-29dc	L. Thelen	875	2	5	D, S.
-30dd	C. Spurr	1,060	1	5	D, S.
-32dc	H. Croyn	1,050	2	8	D, S.
-33dd			2	5	S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	BROWN COUNTY—Continued				
127-61-35bb	D. Nelson		1¼	5	D, S.
-35cb	M. Olson		2	4	D, S.
-62- 1ba	E. Rhodes		1½	3	D, S.
-11ba	G. Dinger		1½	5	D, S.
-12bc	R. Jones	1,100	1½	6	D, S.
-14aab			¾	4	D, S.
-15aa	R. Pfutzenreuter	1,165	1½	5	D, S.
-15cc	G. Korgnam		¾	2	D, S.
-21dd	R. Jones	1,100	1½	5	D, S.
-27da	G. Pfutzenreuter	930	1	5	D, S.
-28dd	R. Johnson	1,250	1¼	3	D, S.
-34ac			1¼	2	D.
128-60- 2cc	H. Treeby	1,045	1½	5	D, S.
- 5cdd	T. Pikerine		1	1	D, S.
- 7aa			1	1	D, S.
- 8cc			1	5	D, S.
-14cc			1¼	5	D, S.
-17ba	L, Lewis		1½	5	D, S.
-19ccb	L. Herseth		1½	5	D, S.
-20bc			1	1	S.
-21ab	Hartford	1,000	1¼	5	D, S.
-23cd			2	2	
-28ab	L. Tischer		1¼	5	D, S.
-29cc	J. Kenny			5	D, S.
-30cc	H. Merti		1	3	D, S.
-32ccd	Clay	980		5	D, S.
-33ccb	J. Ruenz	920	1¼	5	D, S.
-34cd	W. Hayes	1,012	1¼	3	D, S.
-61- 1abb	D. Donovan		1	5	D, S.
- 2bcc	E. Bagley	965		4	
- 3cd	J. Daniels	1,000		10	D, S.
- 3dda				10	S.
- 5cd	S. Treeby		2	5	D, S.
- 7cc	H, Gerdes	1,090	2	5	D, S.
- 9cdd	J. Daniels	900		5	D.
-12abb	D. Schroder	800		14	D, S.
-13bb				2	S.
-15bba	M. Newman			5	D, S.
-17da	L. Osher	990	1½	5	D, S.
-23bcc	J. Schroder	1,000	1¼	10	D, S.
-23cc	H. Pearson			3	D, S.
-24ba	L. Schafer	900	1¼	3	D, S.
-24ddc	B. Donovan	900	1¼	20	D, S.
-30cc	W. Koch	1,060	1½	5	D, S.
-31bc	E. Koch	1,050	1½	15	D, S.
-33aa	E. Darling	880		5	D, S.
-34cbb	L. Severin	1,017		5	D, S.
-62-24dd	C. Elsen		1¼	3	D, S.
-25aa	B. Nutten		1½	5	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	MARSHALL COUNTY				
126-57- 5dd	H. Zwiekel	960	2	0	D, S.
- 6bbc	R. Sasse	962	1¼	2	D, S.
- 6ddc	C. Thayer	.....	2	2	D, S.
- 7ad	C. Hanson	1,000	2	0	D, S.
- 9ba	J. Voss	1,100	2	0	D, S.
-17bb1	C. Hanson	1,100	2	0	D, S.
-17cb	A. Jones	950	2	0	D, S.
-23cd	M. Foster	.....	2	0	D, S.
-33dad	W. Prior	1,280	2	0	
-58- 1cb1	C. Crowder	1,100	1¼	2	D, S.
- 2da2	N. Kayl	.....	1	1	S.
- 5cd	.....	.....	¾	3	D, S.
- 6da	V. Lang	.....	¾	1	D, S.
- 8aa	S. Aeilts	960	1¼	4	D, S.
- 8cd	P. Wallace	1,060	1¼	3	D, S.
- 9abb	.....	.....	1¼	.5	S.
- 9bb	E. Aeilts	1,040	2	15	D, S.
- 9cc	A. Vietmier	.....	1½	1	D, S.
- 9da	.....do.....	.....	¾	2	S.
-11da	C. Bremmon	.....	1½	5	D, S.
-13ba	F. Eberlein	.....	1½	7	D, S.
-13dd	D. Eberlein	.....	¾	0	D, S.
-15dd	D. Jones	.....	.....	5	D, S.
-16cb	H. Wallace	980	1¼	5	D, S.
-16dd	E. Jones	1,400	1¼	7	D, S.
-17aa	.....	.....	1¼	5	D, S.
-18aa	F. Mollenbernt	920	2	5	D, S.
-19bb	Anwarter	.....	1½	2	D, S.
-19dc	S. Osness	960	1¼	5	D, S.
-20aa	.....	.....	½	1	S.
-22dc	T. Olson	.....	1½	1	D, S.
-24ba	R. Dodds	1,065	1½	10	D, S.
-25bb	H. Thayer	.....	.....	0	D, S.
-26aa	O. Lewis	.....	¾	0	D, S.
-27ab	.....	.....	1½	1	S.
-27bb1	.....	.....	1½	2	D, S.
-27dc	L. Roehr	.....	1¼	4	D, S.
-28aa	R. Makens	.....	.....	1	D, S.
-29cc	G. Cole	.....	1½	5	D, S.
-30dda	.....	.....	1½	.5	
-31adc	D. Roberts	.....	1	1	D, S.
-33aa	.....	.....	.....	2	S.
-34ad	E. Horn	.....	.....	5	D, S.
-34bc	J. Johnson	.....	¾	2	D, S.
-35da	E. Sayer	.....	1	0	S.
-59- 1cc1	.....	.....	¾	8	S.
- 1da1	.....	.....	.....	3	D, S.
- 2aa	Paterson Bros	.....	1½	5	D, S.
- 2dc	.....	.....	1¼	8	D, S.
- 3cd	.....	.....	.....	3	S.
- 5ad	O. Didrickson	.....	1¼	7	D, S.
- 5dd	B. Tischer	.....	.....	4	D, S.
- 7ab	E. Nolan	.....	2	5	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	MARSHALL COUNTY—Continued				
126-59- 8dc	E. Alberts		3	5	D, S.
-11da	A. Junker				D, S.
-12ad				3	D, S.
-13ba				5	
-14bc	Smith		2	5	D, S.
-15bb			1¼	1	
-16ad	W. Symens	1,150	2	2	D, S.
-18aa	M. Alberts	1,046	¾	2	D, S.
-18dd1	H. Alberts	956	2	2.5	
-18dd2	do		1	1	
-19aa	A. Furman	930		0	D, S.
-19bb	J. Symens	900	½	1	S.
-19cd1	E. Suther	925	1	2	D. S.
-19dd			1¼	1	
-20aa	Rademacher		1½	5	D, S.
-20dc1	E. Symens		¾	3	D, S.
-21ab	C. Ross	980	2	10	D, S.
-22ab	F. Balding	996	1½	10	D, S.
-22ba	G. Williamson		1¼	1	D, S.
-23ab			1¼	10	
-24ad	G. Caldwell		1¼	3	D, S.
-24dd	L. Heman		¾	10	D, S.
-25cc			1½	5	
-26dc			1¼	5	
-27ba	F. Bodendorfer		1	4	D, S.
-28aa	G. Hendricks	995	¾	4	D, S.
-28dd	B. Freeman			0	D, S.
-29ad	R. Curr		1¼	2	D, S.
-29bb	M. Witham		1	4	D, S.
-30ad	M. Wieker		1¼	5	D, S.
-31ab	E. Lieutjens		1	3	D, S.
-31cd	H. Suedmier	840		1	D, S.
-32aa2	W. Hassebroek			2	D, S.
-32bb1	A. Hassebroek		1	1	D, S.
-33cc			½	2	
-35bb	F. Bodendorfer		1¼	3	D, S.
127-57- 4aa	E. Anderson		2	2	D, S.
- 5dc	J. Olson		1½	2	D, S.
- 6aa	R. Wanaus		1	2	D, S.
- 7cc	A. Bauer	1,000	1¼	2	D, S.
- 8bc	C. Kayl		1¼	2	D, S.
- 8cc1	L. Sherburne	1,000	2	4	D, S.
- 9dc3	T. Gronseth	1,000	2	.5	S.
-18cc	A. Bonham	1,025	2	0	D, S.
-20bc	H. Patterson			0	S.
-27cbc2	H. Guyot		2	0	S.
-28ba2	A. Behmke	960	2	.5	D.
-29ccb	O. Ostby		1¼	2	D, S.
-30ba	R. Fordham			0	D, S.
-31aa	C. Carver	865	1¼	2	S.
-31da			1¼	1	
-32aab	Verts	1,050	¾	0	S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	MARSHALL COUNTY—Continued				
127-57-34cb2	W. Morris		2	2	S.
-35bb	W. Anderson	980		2	D, S.
-35ddc	W. Wade			0	D, S.
-58- 1ccc	E. Meier		¾	.5	D, S.
- 3aa	B. Stokes		6	4	S.
- 3da	A. Opitz	900		2	D, S.
- 4ada	W. Surmeyer	925		.5	D, S.
- 5add	O. Skudal			2	D, S.
- 6add	J. Shrupe			2	D, S.
- 9bcc	C. Mueller			2	D, S.
- 9daa	A. Eskland	940		2.2	D, S.
-10aa	J. Abels	930	2	1	S.
-10ccc	A. Kilker	900		5	D, S.
-11ada	B. Smart			1	D, S.
-11dac	D. Augustine		¾	1	D.
-12ccc	E. Esterby		¾		D.
-14add	V. Wampler			1	D, S.
-14cbc	H. Carlson	900	3	1	D, S.
-15ccc	L. Eberline	900		2	D, S.
-17aba	P. Zuehlke			2	
-17cdd	H. Fruedenthal	900		1	D, S.
-17dac	P. Zuehlke	907	3	5	D, S.
-18bba	L. Tischer			1	D, S.
-20cdc	L. Zuehlke	900		2	D, S.
-21ccc	C. Reyelts	900	3	1.5	D, S.
-23da	Town of Britton	900		0	P.
-24ccca	do	900		0	P.
-25abba	K. Strong			2	D, S.
-25cbb	W. Schnieder			2	D, S.
-26aa	Town of Britton	900		0	P.
-27bbaa	W. Dyer	1,000		0	D, S.
-27daa	H. Boome	900		2	D, S.
-28baa	N. Wallace	920		3	D, S.
-28ccb	E. Gunderson		3	2	D, S.
-29dad	C. Reylts			2	D, S.
-30cbb	C. Thayer			1	D, S.
-30dad	B. Miles			1	D, S.
-31cdd	D. Bundrock			2	D, S.
-32bba	H. Bone			2	D, S.
-33cdd	E. Gerlac	980	2	5	D, S.
-33dda			2	1	
-35bb	B. Brandt			3	D, S.
-36cdd	E. Andrews	900		2	D, S.
-36dca	S. Kirkham	900		2	D, S.
-59- 1ac	F. Burger	954	2	5	D, S.
- 1bc	J. Burger	1,000	1¼	0	D, S.
- 2ad			1		D, S.
- 5dda			1½	1	S.
-10aa	A. Grupe	1,000	2	0	D, S.
-10db	D. Grupe	1,000	1½	2	D, S.
-12bac	H. Peters		1½	4	D, S.
-12dd	Rademacher		1½	2	D, S.
-13bc	W. Bush		2	0	D, S.

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	MARSHALL COUNTY—Continued				
127-59-14ccd	N. Grupe		1	1	D, S.
-15ab	J. Stieha	937	1¼	5	D, S.
-15da	R. Juelfs	812	1	2	D, S.
-20ab	E. Storm		1	5	D, S.
-20cc			1½	10	S.
-21dd	L. Tischer		1	4	D, S.
-22cd	R. Bocker		1	2	D, S.
-22dc	R. Moeckly	980	2	10	D, S.
-23ba	D. Stieha	1,037	1½	10	D, S.
-23dc	R. Moeckly	940	1¼	5	D, S.
-24aaba	C. Bush	1,050		2	D, S.
-24aabd	do	950		2	S.
-24cd	F. Moeckly			1	S.
-24dd	H. Freudenthal	1,100	2	3	D, S.
-25ba	F. Moeckly			2	S.
-26aa	M. Moeckly	1,015	2	15	D, S.
-26bb	W. Moeckly	1,040	2	20	D, S.
-28aab	D. Rice		1½	10	D, S.
-29aa2	E. Fisher	946	¾	1	D, S.
-30aba	G. Niesen	950	2½	10	D, S.
-32dd	D. Didrickson		1½	4	D, S.
-35bb			1½	2	D, S.
128-57- 4bab	D. Hardina		1	3	D, S.
- 6ad	E. Sabrum		1½	2	D, S.
- 6bc	J. Nissen		1½	5	D, S.
- 7ad	F. Shussler	930	1¼	3	D, S.
- 8cd				2	D, S.
- 9cb	Odland	900	¾	4	D, S.
-16cb1	F. Eye		¾	1	D, S.
-19ba			¾	5	
-19dd1	Town of Kidder				P.
-20bc	E. Krause		1¼	2	D, S.
-20ddc	C. Eye	800	1¼	4	D, S.
-27ba	A. Anderson		1	1	D, S.
-28aab	R. Nelson	970	1	5	D, S.
-31aa	N. Wanaus		1¼	4	D, S.
-31bab	M. Vold		¾	2	D, S.
-32aad2	A. McLain			.5	S.
-33bbc	D. Olson		¾	0	D, S.
-58- 1cb1	P. Reinenweber	860	1¼	1	D, S.
- 1da			¾	3	
-3bc	Town of Newark	980	6	5	P.
- 4bd2	Farrar	940	2	.2	S.
- 5ad	R. Jarrett		¾	.5	
- 6aa	Thorpe		1		
- 8dd	R. Jarrett		1¼	.2	
- 9ab	C. Lanz	950	1	1	D, S.
-10bc	C. Sprady		1½	1	D, S.
-11bb1	Thorpe	930	3	3	D, S.
-11bb2	do		1¼	.2	
-12bb1	A. Buisker	960	1½	5	D, S.
-12bb2	do		1¼	.2	

Table 2.—*Records of deep artesian wells*—Continued

Well no.	Owner or user	Reported depth (feet)	Diameter (inches)	Flow (gallons per minute)	Use of water
	MARSHALL COUNTY—Continued				
128-58-12da	D. Schussler		1½	4	D, S.
-17aa	F. Mock		1¼	1	D, S.
-17cd	R. Jarrett		2	3	S.
-19ba	C. Meyer	800	¾	3	D, S.
-19da	L. Impecoven	956	1½	3	D, S.
-19dd	L. Patterson	1,050	2	1	D, S.
-20aa	R. Jarrett		1¼	2	D, S.
-20cd	....do....		2	0	D, S.
-20dd	....do....		1¼	2	D, S.
-21aa	....do....	950		1.5	D, S.
-24ab	H. Rockwell		1¼	1.5	D, S.
-24ba1	....do....		1	3	D, S.
-25da	E. Aladan		1½	.5	D, S.
-26ad	R. Mundt			.2	D, S.
-27ba	G. Bundrock	1,400	1½	2	D, S.
-27dd	W. Wolf		1¼	1.5	D, S.
-29bc	R. Jarrett		1½	2.5	D, S.
-32dd	H. Dyer		¾	1	D, S.
-33bb1	H. Sayers	965	2	5	D, S.
-33bb2	....do....	865	¾	.6	S.
-34cc	Nordland		2	.6	
-34dd2	W. Stokes	1,000	1½	3	D, S.
-35bb	A. Wolf		1¼	1.5	D, S.
-35dd	G. Langport			3	D, S.
-59- 1cb	O. Stabnow	900	¾	.5	D, S.
- 3cc	S. Hastings	1,043	2	3	D, S.
- 4cc1	C. Hastings		2	5	D, S.
- 5dc	....do....		2	0	
- 8dd1	G. Salmon		2½	.6	
- 8dd2	....do....	1,043	1¼	2	D, S.
- 9bb	C. Hastings	930	1¼	2	D, S.
-11bb	E. Carlson		1½	2.5	D, S.
-13ba	S. Laines		¾	1	D, S.
-14aa	Rumpza		¾	.2	D, S.
-14dd1	C. Schuur	900	¾	.6	D, S.
-21ccb	M. Landreth	1,000	1¼	1	D, S.
-21da	D. Tischer		6	5	D, S.
-22ad	B. Lamb	1,000	2	3	D, S.
-23ad	C. Hastings			2	D, S.
-23da	....do....		3	3	S.
-24cb1	P. Debele	840	1½	.5	D, S.
-25bc	R. Jarrette		3	2	S.
-26dd	W. Dyer		1¼	4	S.
-27da	C. Lamb	1,100	3	3	D, S.
-32dd				5	S.
-34ad2	J. Fisher		¾	1	D, S.
-34cc			2½	1	S.
-35cc	J. Martins	1,050	2½	0	D, S.

Table 3.— *Logs of wells and test holes*

BROWN COUNTY

	Thickness (feet)	Depth (feet)
124-61-2dd		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,294.3 feet]		
Silt, dark-gray	2.0	2.0
Clay, brown, plastic	18.0	20.0
Clay, gray, plastic	4.0	24.0
Silt, sandy, gray	6.0	30.0
Sand, very fine, gray	13.0	43.0
Clay, gray, plastic	67.0	110.0
Clay, gray, plastic to stiff, with gravel	2.0	112.0
Clay, sandy, gray, stiff to plastic	1.0	113.0
Shale, gray	3.0	116.0
124-61-8b		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,295.1 feet]		
Silt, brown	9.0	9.0
Silt, sandy, brown	11.0	20.0
Sand, very fine, brown	4.0	24.0
Sand, very fine, gray	16.0	40.0
Silt, sandy, gray	5.0	45.0
Clay, gray, plastic	35.0	80.0
Clay, brownish-gray, plastic	1.0	81.0
Clay, brownish-gray, stiff	1.0	82.0
Clay, dark-gray, stiff	6.0	88.0
Sand, clayey, gray, plastic, with gravel	2.0	90.0
Sand, clayey, gray, with gravel	2.0	92.0
Clay, gray, plastic, with gravel	4.0	96.0
Shale, dark-gray	4.0	100.0
124-61-9a		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,298.5 feet]		
Silt, dark-gray	1.0	1.0
Silt, brown	19.0	20.0
Silt, brown, with very fine sand	10.0	30.0
Sand, very fine, gray	31.0	61.0
Clay, gray, plastic	24.0	85.0
Clay, brownish-gray, plastic	5 0	90.0
Clay, gray, plastic	3.5	93.5
Sand, fine, gray, with pebbles	.5	94.0
Clay, gray, plastic, with gravel	6.0	100.0
124-61-17dd2		
[Test hole drilled by U. S. Geol. Survey]		
Silt, loamy, dark-gray	3.0	3.0
Silt, brown	6.0	9.0
Sand, with caliche	.5	9.5
Silt, brown	10.5	20.0
Clay, sandy, brown, with weed casts	32.0	52.0
124-61-22aaa		
[Test hole drilled by U. S. Geol. Survey]		
Silt, loamy	3.0	3.0
Sand, very fine, brown	30.0	33.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
124-62-12bb		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,299.9 feet]		
Silt, dark-gray	1.2	1.2
Clay, silty, brown	13.8	15.0
Silt, grayish-brown	1.0	16.0
Clay, silty, grayish-brown	2.0	18.0
Silt, brown	10.0	28.0
Silt, gray	22.0	50.0
Clay, gray	21.0	71.0
Silt, gray	1.0	72.0
Clay, brownish-gray	24.0	96.0
Gravel, coarse	4.0	100.0
Clay, dark-gray	1.3	101.3
Shale, firm, dark-gray	.7	102.0
124-62-24aaa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty, black	4.0	4.0
Sand, silty, brown	14.0	18.0
Sand, fine, gray	15.0	33.0
Coal	.5	33.5
Clay, blue, with layers of fine sand and coal	18.5	52.0
125-60-2bb		
[Test hole drilled by Lahman Bros., Hecla, S. Dak.]		
Loam, sandy	4.0	4.0
Silt and clay	26.0	30.0
Sand, fine	10.0	40.0
125-60-5dddd		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,301 feet. Depth to water, July 30, 1951, 12.0 feet]		
Loam, silt, black	4.0	4.0
Sand, very fine, brown	18.0	22.0
Coal, with clay	.5	22.5
Sand, fine, gray, with thin layers of clay	17.5	40.0
Clay, gray, plastic	3.0	43.0
125-60-26dd		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil, sandy	1.6	1.6
Silt, brown	10.5	12.1
Sand, fine, brown	2.9	15.0
Silt and sand, brown	12.1	27.1
Sand, silty, gray	6.1	33.2
Silt, gray	31.4	64.6
Sand, silty, gray	7.5	72.1
Clay, silty, gray, with small pebbles	18.4	90.5
Clay, gray, with small pebbles	4.7	95.2
Gravel, with fine sand	2.8	98.0
Clay, gray	2.4	100.4

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
125-61-1ddd		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy	3.0	3.0
Silt, brown	5.0	8.0
Sand, fine, gray	12.0	20.0
Sand, bluish-gray	9.0	29.0
Sand, grayish-brown with coal granules	19.0	48.0
Clay, blue, plastic, with some thin layers of sand	12.0	60.0
125-61-6dd2		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil, sandy	1.6	1.6
Clay, silty, brown	3.2	4.8
Sand and silt, brown	16.4	21.2
Sand, silty, gray	18.4	39.6
Silt, gray	50.1	89.7
Sand and gravel	2.4	92.1
Clay (till), gray	.9	93.0
Sand and gravel	1.2	94.2
Sand, silty, gray	3.3	97.5
Clay (till), gray	.3	97.8
Clay (till), sandy gray	3.2	101.0
125-61-10bbb		
[Test hole drilled by U. S. Geol. Survey. Depth to water, September 10, 1951, 16.4 feet]		
Loam, sandy	4.0	4.0
Silt, brown	12.0	16.0
Sand, fine, brown	14.0	30.0
Sand, fine, brownish-gray, with layers of coal and clay	30.0	60.0
125-61-11ba		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,276.0 feet]		
Loam, silty, black	5.0	5.0
Silt, brown	13.0	18.0
Sand, fine, bluish-gray, with granules of coal	12.0	30.0
Sand, fine, bluish-gray, with thin layers of clay	17.0	47.0
Sand, fine, gray, with thin layers of coal and clay	13.0	60.0
125-61-17dda		
[Well drilled by U. S. Bur. of Reclamation]		
Loam, sandy	1.0	1.0
Loam, silty	1.0	2.0
Loam, silty clay	21.0	23.0
125-61-20cd		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,285.4 feet. Depth to water, November 15, 1951, 9.9 feet]		
Loam, sandy	3.0	3.0
Sand, very fine, brown	7.0	10.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
125-61-20cd—Continued		
Silt, brown, with layers of sand	10.0	20.0
Sand, fine, bluish-gray	2.0	22.0
125-61-21dd1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,296.6 feet]		
Loam, sandy	2.0	2.0
Silt, brown	8.0	10.0
Sand, fine, with some caliche	.5	10.5
Silt, brown	2.5	13.0
Sand, fine, brownish-gray	14.0	27.0
Sand, fine, bluish-gray; some caliche at 33 feet	33.0	60.0
125-61-24cc		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy	3.0	3.0
Sand, fine, gray	13.0	16.0
Sand, fine, gray, with some clay layers	3.0	19.0
Sand, fine, clayey; some caliche at 19 feet	4.0	23.0
Sand, fine, bluish-gray, with coal granules and thin layers of blue clay	36.0	59.0
Sand, fine, bluish-gray, with more coal and some clay	1.0	60.0
125-61-36ac		
[Test hole drilled by Lahman Bros., Hecla, S. Dak.]		
Loam	5.0	5.0
Silt and clay	15.0	20.0
Sand, fine	20.0	40.0
125-62-14dd1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,306.1 feet]		
Loam	1.0	1.0
Loam, silty clay	8.0	9.0
Clay, silty	5.0	14.0
Loam, silty	9.0	23.0
125-62-17dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,293.3 feet]		
Loam, silty clay	1.0	1.0
Clay, light	2.0	3.0
Clay, silty	3.0	6.0
Loam, silty clay	4.0	10.0
Loam, sandy	4.0	14.0
Loam, silty clay	4.0	18.0
Sand	3.0	21.0

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Table 3.—*Logs of wells and test holes*—Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
125-62-19aa		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,292.7 feet]		
Loam, clay	1.0	1.0
Loam, silty clay	1.0	2.0
Clay, silty	2.0	4.0
Loam, silty clay	1.0	5.0
Loam, sandy	6.0	11.0
Sand, loamy	5.0	16.0
Clay, silty	3.0	19.0
125-62-24ddd		
[Test hole drilled by U. S. Geol. Survey]		
Loam, fine sandy	10.0	10.0
Silt, brown	4.0	14.0
Sand, fine, bluish-gray	8.0	22.0
Clay, gray	.5	22.5
Sand, fine, bluish-gray	9.5	32.0
Clay, gray, plastic	58.0	90.0
Gravel	7.0	97.0
125-62-26ad2		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,301.7 feet]		
Topsoil	1.6	1.6
Clay, silty, brown, slightly plastic to plastic	10.5	12.1
Silt, clayey, brown, iron-stained, moderately compact	12.9	25.0
Sand, very fine, silty, gray, with some clay	5.0	30.0
Silt, clayey, gray, moderately compact	5.0	35.0
Clay, gray, slightly plastic to plastic, with silt	55.5	90.5
Sand and gravel, medium-grained sand, clean gravel	9.9	100.4
125-62-26bbb		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty	4.0	4.0
Sand, silty, brown	16.0	20.0
Sand, fine, bluish-gray	5.0	25.0
Sand, fine, bluish-gray, with some clay	1.0	26.0
125-62-26dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,296.3 feet]		
Loam, silty	4.0	4.0
Loam, silty clay	3.0	7.0
Loam, sandy	5.0	12.0
Clay, silty	1.0	13.0
Loam, sandy clay	2.0	15.0
Sand, medium-grained	6.0	21.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
125-62-29aaa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty	4.0	4.0
Sand, very fine, brown	18.0	22.0
Clay, bluish-gray, with some thin layers of sand	68.0	90.0
Gravel	2.0	92.0
126-60-6bbb		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,292.91 feet]		
Topsoil, black	2.0	2.0
Silt, drab	4.0	6.0
Sand, fine, brown	11.0	17.0
Sand, fine, bluish-gray	33.0	50.0
Sand, fine, gray, with thin layers of coal and clay	9.0	59.0
Sand, fine, bluish-gray	16.0	75.0
126-60-10dd2		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,297.2 feet]		
Loam, black	1.0	1.0
Silt, brown	14.0	15.0
Gravel	1.0	16.0
Silt	4.0	20.0
Sand, fine, bluish-gray	19.6	39.6
126-60-17cc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,281.4 feet]		
Sand, loamy	1.0	1.0
Sand, fine	1.0	2.0
Loam, sandy	2.0	4.0
Sand, medium-grained	2.0	6.0
Clay, light	2.0	8.0
Clay, silty	5.0	13.0
Sand, loamy	9.0	22.0
126-60-19cc		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,281.8 feet]		
Loam, black	1.0	1.0
Sand, brown	3.0	4.0
Sand, with calcareous cement	2.0	6.0
Sand, brown	4.0	10.0
Sand, fine, bluish-gray	8.0	18.0
126-60-19cd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,280.1 feet]		
Loam, black	4.0	4.0
Sand, fine, brown	9.0	13.0
Sand, fine, bluish-gray	4.5	17.5

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-60-19dd1		
[Well drilled by U. S. Geol. Survey. Surface altitude 1,286.8 feet]		
Loam, sandy	3.0	3.0
Silt, brown	9.0	12.0
Sand, gray	9.0	21.0
126-60-24aba2		
[Test hole drilled by Lahman Bros., Hecla, S. Dak.]		
Topsoil, loamy	6.0	6.0
Sand, both coarse and fine, with thin layers of clay	24.0	30.0
Clay, bluish-gray	1.0	31.0
126-60-30cc2		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,277.9 feet]		
Silt, dark-gray	3.0	3.0
Sand, very fine, brown	7.0	10.0
Silt, gray	5.0	15.0
Sand, very fine, gray to brown	1.5	16.5
Sand, very fine, gray	7.5	24.0
Sand, silty, gray	6.0	30.0
Silt, sandy, gray, with a few gypsum crystals	10.0	40.0
Silt, gray	3.0	43.0
Clay, gray, plastic	40.2	83.2
Clay, sandy, gray, plastic	.4	83.6
Sand, gray	.4	84.0
Clay, sandy, gray, plastic, with some gravel	6.0	90.0
Clay, sandy, gray, stiff, with some gravel	4.0	94.0
Shale	3.0	97.0
126-60-34b		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,302.8 feet]		
Silt, dark-gray	2.0	2.0
Silt, sandy, brown	2.0	4.0
Silt, brown	8.0	12.0
Silt, sandy, brown	6.0	18.0
Sand, very fine, gray to brown	2.0	20.0
Sand, very fine, gray	34.0	54.0
Silt, sandy, gray	19.0	73.0
Clay, gray, plastic	27.0	100.0
Clay, gray, stiff	3.0	103.0
Clay, sandy, gray, plastic	.5	103.5
Clay, gray, plastic, with some fine gravel	6.5	110.0
Clay, gray, plastic	10.0	120.0
Shale, dark-gray	3.0	123.0
126-60-36cd		
[Test hole drilled by Lahman Bros., Hecla, S. Dak.]		
Loam, sandy	3.0	3.0
Silt and clay layers	27.0	30.0
Sand, fine, bluish-gray	10.0	40.0
Sand, coarse, gray	.5	40.5
Sand, fine, bluish-gray	4.5	45.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-61-3aaa		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,297 feet. Depth to water, July 16, 1951, 6.00 feet]		
Loam, fine sandy	3.0	3.0
Silt, sandy, brown	3.0	6.0
Sand, fine, brown	10.0	16.0
Sand, fine, bluish-gray, with some coal layers	27.0	43.0
Clay, silty, bluish-gray	6.0	49.0
Sand, fine to coarse, with coal and amber particles	21.0	70.0
Sand, medium-grained, gray	4.0	74.0
Sand, coarse-, medium-, and fine-grained, gray	16.0	90.0
Gravel	1.0	91.0
126-61-9dd1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,300.5 feet]		
Topsoil, sandy	3.8	3.8
Sand, silty, brown	13.4	17.2
Sand, fine, silty, gray	24.7	41.9
Silt, gray	48.2	90.1
Till, gray	5.3	95.4
126-61-13cc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,287.9 feet]		
Loam, sandy	2.0	2.0
Sand, medium-grained	11.0	13.0
126-61-17dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,289.8 feet]		
Loam	1.0	1.0
Loam, silty clay	1.0	2.0
Loam	1.0	3.0
Sand, medium-grained	5.0	8.0
Sand	4.0	12.0
126-61-26cc		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,287.0 feet]		
Sand, silty, gray	2.0	2.0
Sand, very fine, brown to gray	12.0	14.0
Sand, silty, brown to gray	2.0	16.0
Clay, gray, plastic	4.0	20.0
Silt, clayey, gray, plastic	10.0	30.0
Sand, very fine, gray	19.0	49.0
Clay, gray, plastic	39.0	88.0
Sand	10.2	98.2
Clay, sandy, gray, stiff, with gravel	.8	99.0
Shale, dark-gray, stiff	2.0	101.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-61-30cc2		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,303.7 feet]		
Silt, brown	9.0	9.0
Silt, sandy, brown	9.0	18.0
Silt, sandy, gray	2.0	20.0
Sand, very fine, gray	18.0	38.0
Clay, gray, plastic	42.0	80.0
Clay, gray, plastic, with some sand	2.0	82.0
Sand, fine, gray	.6	82.6
Clay, sandy, gray, stiff, with gravel	11.4	94.0
Sand, gray, with gravel	.5	94.5
Clay, gray, stiff	11.1	105.6
Sand, gray, with gravel	.3	105.9
Clay, sandy, gray, stiff, with gravel	2.1	108.0
Clay, sandy, gray, stiff	2.0	110.0
Clay, sandy, gray, stiff, with coarse sand	3.0	113.0
126-61-32bb		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,296 feet]		
Topsoil, sandy	2.8	2.8
Silt and sand, brown	11.2	14.0
Sand, fine, silty, gray	18.5	32.5
Silt, gray	2.3	34.8
Sand and silt, gray	3.7	38.5
Silt, gray	6.1	44.6
Silt, gray, with mica	.6	45.2
Silt, gray	28.3	73.5
Till, gray	6.5	80.0
126-61-36cc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,278.5 feet]		
Loam, sandy	2.0	2.0
Sand	1.0	3.0
Loam, silty	3.0	6.0
Loam, silty clay	5.0	11.0
126-62-24ba		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,291.2 feet]		
Loam, silty	4.0	4.0
Sand, very fine, loamy	5.0	9.0
Sand, fine	1.0	10.0
126-62-27cc		
[Well drilled by U. S. Corps of Engineers. Surface altitude, 1,306.5 feet]		
Silt, gray	1.0	1.0
Clay, brown	7.0	8.0
Silt, brown	12.0	20.0
Silt, clayey, brown	4.0	24.0
Sand, very fine, gray	5.0	29.0
Clay, sandy, gray, plastic	2.0	31.0
Clay, gray, plastic	9.0	40.0
Clay, gray, very plastic	10.0	50.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-62-27cc—Continued		
Clay, gray, plastic, with fine gravel	10.0	60.0
Clay, gray, stiff, with some gravel	6.0	66.0
Clay, sandy, gray, stiff, with layers of gravel	3.0	69.0
Sand, gray	1.0	70.0
Sand, fine, gray, with some gravel	8.0	78.0
Clay, sandy, gray, stiff	1.0	79.0
Sand	4.0	83.0
Sand, clayey, gray	2.0	85.0
Clay, stiff, with gravel and pieces of shale	5.0	90.0
Clay, gray, stiff, with gravel	20.7	110.7
Sand, with fine gravel	.4	111.1
Clay, gray, stiff, with fine gravel	6.9	118.0
Sand, medium-grained, gray	5.8	123.8
Sand, very fine, gray	1.7	125.5
126-62-33dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,302.2 feet]		
Loam, silty clay	5.0	5.0
Clay, silty	2.0	7.0
Loam, silty	1.0	8.0
Sand, very fine	10.0	18.0
Loam, sandy	2.0	20.0
126-62-35dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,294.3 feet]		
Loam, sandy	1.0	1.0
Loam	2.0	3.0
Clay, silty	3.0	6.0
Loam, silty clay	6.0	12.0
Clay, silty	10.0	22.0
127-60-2abb		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,292.1 feet]		
Sand, loamy	3.0	3.0
Loam, sandy	1.0	4.0
Sand, loamy	2.0	6.0
Sand	5.0	11.0
127-60-3bb		
[Test hole drilled by U. S. Geol. Survey]		
Topsoil, loamy	3.0	3.0
Silt, fine sandy	5.0	8.0
Silt, brown, with thin layers of clay	6.0	14.0
Silt, sandy	6.0	20.0
Clay and silt, in layers	10.0	30.0
Sand, fine, bluish-gray, with thin layers of coal and clay	50.0	80.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-60-5ba		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,287.7 feet]		
Loam, sandy	1.0	1.0
Loam, clay	4.0	5.0
Loam, heavy clay	2.0	7.0
Loam, clay	9.7	16.7
Clay	7.3	24.0
127-60-14dd1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,290.2 feet]		
Loam, silty, black	2.0	2.0
Silt, brown	16.0	18.0
Clay, bluish-gray	20.0	38.0
Clay, bluish-gray, with fragments of shale	1.0	39.0
127-60-14dd2		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,290.3 feet]		
Loam, silty, black	2.0	2.0
Silt, brown	10.0	12.0
Silt, sandy, brown, with some clay	5.4	17.4
127-60-15aa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy	3.0	3.0
Sand, silty, brown	11.0	14.0
Silt, brown	10.0	24.0
Sand, fine, bluish-gray, with thin layers of clay	29.0	53.0
Sand, fine	17.0	70.0
Sand, medium-grained	20.0	90.0
127-60-17aa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, clay	5.0	5.0
Silt, brown, with thin layers of clay	10.0	15.0
Clay, bluish-gray	8.0	23.0
Clay, sandy, brown	7.0	30.0
Silt, gray, with clay layers	35.0	65.0
Sand, medium-grained	1.0	66.0
Sand and clay layers; average thickness about 1 foot	14.0	80.0
127-60-20aa1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,297.1 feet]		
Loam, clay	2.0	2.0
Loam, silty clay	2.0	4.0
Clay, silty	3.0	7.0
Loam, silty clay	16.0	23.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-60-20aa2		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,295.8 feet]		
Loam, clay	2.0	2.0
Loam, silty clay	2.0	4.0
Clay, silty	3.0	7.0
Loam, silty clay	13.0	20.0
Clay, bluish-gray, with thin layers of sand	8.0	28.0
Sand and clay layers; average thickness about 1 foot	74.0	102.0
127-60-21aa		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,284.5 feet]		
Loam, black	5.0	5.0
Sand	2.0	7.0
Silt, brown	11.0	18.0
Clay, bluish-gray	6.0	24.0
Clay, bluish-gray, with thin layers of fine sand	5.0	29.0
Clay, bluish-gray	6.0	35.0
Clay, bluish-gray, with thin layers of fine sand	4.0	39.0
127-60-22cc		
[Test hole drilled by U. S. Geol. Survey]		
Topsoil	4.0	4.0
Silt, brown, with thin layers of bluish-gray clay	16.0	20.0
Silt, brown, with thin layers of brown clay	9.0	29.0
Sand, fine bluish-gray, with layers of bluish-gray clay	31.0	60.0
127-60-26bbb1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,289.6 feet]		
Loam, sandy, black	1.0	1.0
Silt, brown	9.0	10.0
Silt, brown, with ferruginous weed casts	16.0	26.0
Sand, fine	2.0	28.0
Silt, brown	2.0	30.0
Sand, fine, bluish-gray, with some silt	1.0	31.0
Sand, fine, bluish-gray	12.0	43.0
127-60-26cc		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,284.6 feet]		
Loam, sandy, black	3.0	3.0
Sand, fine, brown	8.0	11.0
Silt, bluish-gray, with layers of clay and coal fragments	6.5	17.5
127-60-29cc		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy	2.0	2.0
Clay, sandy	7.0	9.0
Sand	1.0	10.0
Clay, sandy	4.0	14.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-60-29cc—Continued		
Clay, silty	8.0	22.0
Sand, with thin layers of clay	12.0	34.0
Clay, bluish-gray, with some silt	4.0	38.0
Sand	1.0	39.0
127-60-31bc		
[Test hole drilled by U. S. Geol. Survey]		
Topsoil	3.0	3.0
Silt, brown	15.0	18.0
Sand	7.0	25.0
127-60-32dd1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,284.6 feet]		
Loam, sandy	1.0	1.0
Sand, loamy	2.0	3.0
Clay, silty	1.0	4.0
Loam, silty	1.0	5.0
Clay, silty	2.0	7.0
Sand, very fine	10.0	17.0
127-60-32dd2		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,284 feet]		
Topsoil	4.0	4.0
Silt, brown	11.0	15.0
Sand, fine, bluish-gray	38.0	53.0
Sand, very fine, with layers of clay	4.0	57.0
Sand, very fine, bluish-gray	4.0	61.0
Sand, very fine, with layers of clay	14.0	75.0
127-60-35da		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,288.1 feet]		
Loam, sandy	1.5	1.5
Silt, almost white, calcareous	1.5	3.0
Silt, brown, with ferruginous weed casts	12.0	15.0
Silt, bluish-gray, with crystals of gypsum	25.0	40.0
127-61-3aa1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,293.9 feet]		
Loam, sandy, black	3.0	3.0
Silt, sandy, brown	15.0	18.0
Sand, fine, bluish-gray, with pieces of clay	7.0	25.0
Sand, fine, bluish-gray	10.0	35.0
Clay, silty, bluish-gray	2.5	37.5
Sand, fine, bluish-gray	1.0	38.5

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-61-9dd1		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,296 feet]		
Topsoil, sandy	0.8	0.8
Sand, silty, brown	4.8	5.6
Silt, gray	3.4	9.0
Sand, medium-grained, grayish-brown	9.0	18.0
Sand, medium-grained, gray	5.8	23.8
Silt, gray, with thin layers of sand	41.2	65.0
Silt, gray	3.8	68.8
Till, gray	11.2	80.0
127-61-13cc		
[Test hole drilled by U. S. Geol. Survey]		
Loam, fine sandy	3.0	3.0
Silt, sandy, brown, with layers of sand	8.0	11.0
Clay, brown	12.0	23.0
Clay, bluish-gray	15.0	38.0
Clay, bluish-gray, with some fine sand	47.0	85.0
127-61-14dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,292.1 feet]		
Sand, fine, loamy	2.0	2.0
Loam, fine sandy	1.0	3.0
Sand, fine, loamy	2.0	5.0
Loam, silty	1.0	6.0
Loam, very fine sandy	2.0	8.0
Sand, fine	6.0	14.0
127-61-17dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,298.1 feet]		
Sand, fine, loamy	4.0	4.0
Sand, fine	1.0	5.0
Sand	3.0	8.0
Sand, loamy	1.0	9.0
Sand, fine	6.0	15.0
127-61-21dd2		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,297.4 feet]		
Sand, loamy	4.0	4.0
Sand, fine	2.0	6.0
Clay, silty, brown	9.0	15.0
Clay, silty, bluish-gray	1.0	16.0
Clay, sandy, bluish-gray	2.0	18.0
Sand, fine, bluish-gray, with fragments of coal and clay	12.0	30.0
Sand, bluish-gray	10.0	40.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-61-22cc		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil, sandy	1.8	1.8
Sand, silty, brown	5.2	7.0
Sand, silty, with sand seams	10.6	17.6
Silt, gray	13.3	30.9
Sand, fine, silty, gray	9.3	40.2
Silt, gray	25.8	66.0
Sand, medium-grained, silty, gray	3.8	69.8
Silt, gray	13.4	83.2
Till, gray	8.0	91.2
127-61-25aa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy	4.0	4.0
Silt, brown	16.0	20.0
Clay and silt layers, brown	10.0	30.0
Sand, fine, gray, with thin layers of blue clay	10.0	40.0
Sand, fine, gray	2.0	42.0
Silt, gray	1.0	43.0
Clay, bluish-gray, with thin layers of sand	10.0	53.0
Sand, bluish-gray, with thin layers of clay	7.0	60.0
Silt, gray	10.0	70.0
Sand, bluish-gray, with fragments of shale	20.0	90.0
127-61-31aa		
[Test hole drilled by U. S. Geol. Survey]		
Topsoil	6.0	6.0
Sand, very fine	15.0	21.0
Clay, bluish-gray; sandy at some depths	60.0	81.0
Gravel	1.0	82.0
127-61-33cc1		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,298.5 feet]		
Loam, fine sandy	3.0	3.0
Sand, fine, brown	13.0	16.0
Sand, fine, bluish-gray, with fragments of coal	13.0	29.0
Clay, bluish-gray, with coal	1.0	30.0
Sand, fine, bluish-gray	7.0	37.0
Clay, bluish-gray, fragments of shale	1.0	38.0
Sand, fine, bluish-gray	23.0	61.0
Clay, with fragments of coal and shale	14.0	75.0
127-61-33cc2		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,298.5 feet]		
Loam, sandy	3.0	3.0
Sand	11.0	14.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-61-36cc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,298.7 feet]		
Loam, very fine sandy	3.0	3.0
Silt, sandy, brown	5.0	8.0
Sand, fine, gray	6.0	14.0
Clay, silty, gray	1.0	15.0
Sand, very fine, bluish-gray	12.0	27.0
Clay, sandy, brownish-gray, stiff	2.0	29.0
127-62-36dd2		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,294 feet]		
Loam, fine sandy	1.0	1.0
Loam, sandy	1.0	2.0
Loam, very fine sandy	2.0	4.0
Sand	10.0	14.0
127-62-36dd3		
[Test hole drilled by U. S. Geol. Survey]		
Loam, very fine sandy	3.0	3.0
Sand, very fine, silty, brown	19.0	22.0
Sand, fine, bluish-gray	11.0	33.0
Sand, fine, bluish-gray, with fragments of coal and thin layers of blue clay	10.0	43.0
Clay, silty, bluish-gray, with thin layers of sand	13.0	56.0
Gravel	1.0	57.0
128-60-1baa		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,320.3 feet]		
Loam, sandy	1.0	1.0
Sand, loamy	2.0	3.0
Sand	1.0	4.0
Loam, clay	2.0	6.0
Clay, light	8.0	14.0
Clay, blue	10.0	24.0
128-60-2ba		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,310.9 feet]		
Loam, sandy	2.0	2.0
Sand	10.0	12.0
128-60-2bb		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,293.4 feet]		
Silt, organic, sandy, black	4.0	4.0
Sand, fine, clean, loose, brown	8.4	12.4
Clay, silty, sandy, gray, plastic, soft, with sand layers throughout	27.4	39.8
Clay, sandy, gray, slightly plastic, with fine- to medium-sized gravel throughout	10.2	50.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
128-60-14dcc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,303.5 feet]		
Loam, sandy	1.0	1.0
Sand	9.0	10.0
128-60-17dc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,291.6 feet]		
Loam, sandy	3.0	3.0
Sand	8.0	11.0
128-60-21bb1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,295.8 feet]		
Loam, black	2.0	2.0
Silt and sand, brown	11.0	13.0
Sand, fine, bluish-gray	3.0	16.0
128-60-31cd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,282.3 feet]		
Clay, loamy, gray	1.0	1.0
Clay, silty	2.0	3.0
Silt, brown, with some clay	18.0	21.0
Sand, fine, bluish-gray	5.0	26.0
Clay, bluish-gray	1.0	27.0
128-61-2ba		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,301.3 feet]		
Sand, loamy	2.0	2.0
Loam, clay	2.0	4.0
Loam, sandy	3.0	7.0
Clay	2.0	9.0
Sand	8.0	17.0
128-61-4ab		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,291.8 feet]		
Clay	4.0	4.0
Loam, sandy	2.0	6.0
Loam, clay	3.0	9.0
Clay	5.0	14.0
Sand	4.3	18.3
Clay	5.7	24.0
128-61-14b		
[Test hole drilled by U. S. Bur. of Reclamation. Surface altitude, 1,296.2 feet]		
Silt, clayey, tan, compacted, iron-stained	7.0	7.0
Sand, fine, fairly clean, loose, brown	7.9	14.9
Sand, fine, varved, gray, with some clay	10.6	25.5

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
128-61-14b—Continued		
Clay, sandy, silty, soft, gray, plastic to very plastic	34.3	59.8
Clay, silty, gray, slightly plastic with fine gravel	10.2	70.0
128-61-14dc1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,286.5 feet]		
Sand	5.5	5.5
Clay	1.5	7.0
Loam, sandy	5.0	12.0
Clay, heavy, saturated	8.0	20.0
128-61-16dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,291.1 feet]		
Clay, light	1.0	1.0
Clay, medium	2.0	3.0
Clay, heavy	2.0	5.0
Clay, medium	2.0	7.0
Clay, heavy	3.0	10.0
Loam, sandy	3.0	13.0
128-61-18bb		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil, sandy	1.2	1.2
Silt, light-gray	5.8	7.0
Sand, medium-grained, brown	7.9	14.9
Sand, fine, gray	10.6	25.5
Silt, gray	34.3	59.8
Till, gray	10.2	70.0
128-61-22aa		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,298.5 feet]		
Loam, sandy, black	3.0	3.0
Clay, brown	4.5	7.5
Sand	.5	8.0
Clay, brown	5.0	13.0
Sand, medium-grained, bluish-gray	4.0	17.0
128-61-32cd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,292.1 feet]		
Loam, sandy	2.0	2.0
Loam, clay	1.0	3.0
Loam, sandy	2.0	5.0
Sand, loamy	3.0	8.0
Sand	7.0	15.0

Table 3.— *Logs of wells and test holes*— Continued

BROWN COUNTY—Continued

	Thickness (feet)	Depth (feet)
128-61-33dd2		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,299 feet]		
Sand, loamy	5.0	5.0
Sand, with small amount of clay	5.0	10.0
Sand, bluish-gray	10.0	20.0
Sand, clayey, bluish-gray	4.0	24.0
Sand, bluish-gray	6.0	30.0
128-61-34c		
[Test hole drilled by U. S. Bur. of Reclamation]		
Silt, sandy, black to brown, with small amount of clay	6.0	6.0
Sand, medium-grained, loose, fairly clean, brown	11.4	17.4
Sand, fine, silty, varved, gray, some clay	19.7	37.1
Clay, silty, gray, plastic, soft, with thin layers of sand throughout	35.9	73.0
Clay, silty, gray, slightly plastic, with some gravel, with boulder at 82.5 feet (till)	9.5	82.5
128-61-35dcc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,285.8 feet]		
Sand, loamy	2.0	2.0
Loam, sandy	2.0	4.0
Loam, clay	1.0	5.0
Clay, light	1.0	6.0
Loam, clay	2.0	8.0
Clay, moist	6.0	14.0
Clay, plastic	10.0	24.0
128-61-35dd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,284.9 feet]		
Loam, black	2.0	2.0
Sand, loam and sand	4.0	6.0
Sand	2.0	8.0
Silt, brown, slightly compact	16.0	24.0
Sand, fine, bluish-gray	4.0	28.0
MARSHALL COUNTY		
126-57-8bd		
[Well information from Don Naddy]		
Loam	2.0	2.0
Gravel and sand	2.5	4.5
Gravel with cobbles	1.5	6.0
Clay, silty	9.0	15.0
Clay, bluish-gray, plastic	5.0	20.0
126-57-17bb2		
[Well information from O. Knutsen]		
Loam	2.0	2.0
Clay, brown	16.0	18.0

Table 3.—*Logs of wells and test holes*—Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-57-17bb2—Continued		
Gravel	9.0	27.0
Shale	13.0	40.0
126-57-30aba		
[Well information from R. Pearson]		
Loam	3.0	3.0
Clay, yellow	12.0	15.0
Gravel	3.0	18.0
Clay, bluish-gray	14.0	32.0
Shale	8.0	40.0
126-58-1ab		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,318.5 feet]		
Loam, clay, gray to black	5.0	5.0
Silt, brown	9.0	14.0
Sand, fine	2.5	16.5
Clay, bluish-gray	4.5	21.0
Shale	.5	21.5
126-58-3dd		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,312 feet]		
Loam, clay, brown	12.0	12.0
Silt, brown	2.0	14.0
Clay, bluish-gray	20.0	34.0
Sand and gravel	2.0	36.0
Clay and shale	3.0	39.0
126-58-5cb		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,300 feet. Depth to water, October 9, 1951, 5.2 feet]		
Loam, clay	3.0	3.0
Silt, brown	11.0	14.0
Sand, fine	2.0	16.0
Clay, bluish-gray, with some thin layers of fine sand	24.0	40.0
126-58-9cb		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,298 feet]		
Loam, clay, black	10.0	10.0
Silt, brown	4.5	14.5
Sand	.5	15.0
Silt, brown, with ferruginous weed casts	3.0	18.0
Clay, bluish-gray	25.0	43.0
Silt	3.5	46.5
Clay, bluish-gray, with thin layers of brown silt	2.5	49.0

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Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-58-23dd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,349.8 feet]		
Loam, silty, black	4.0	4.0
Silt, brown	7.0	11.0
Gravel	5.6	16.6
Clay and shale	1.0	17.6
126-58-30bbb		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,308.3 feet]		
Loam, silty, black	3.0	3.0
Silt, brown, with ferruginous concretions and gypsum	13.0	16.0
Sand, very fine, brown	4.0	20.0
Sand, fine, bluish-gray	2.0	22.0
126-58-32bbb		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,310 feet. Depth to water, October 9, 1951, 14.0 feet]		
Silt, brown	4.0	4.0
Loam, silty, black	3.0	7.0
Silt, brown, with thin layers of brown clay	24.0	31.0
Gravel, with some bluish-gray clay	1.0	32.0
Sand, coarse, with gravel	2.0	34.0
Clay, silty, bluish-gray	6.0	40.0
126-58-34aaa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty clay, black	4.0	4.0
Loam, silty clay, brown, with small pebbles	8.0	12.0
Clay, silty, with gravel, brown	8.0	20.0
Clay silty, with gravel, bluish-gray	1.0	21.0
126-59-1cc2		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,297 feet]		
Loam, sandy	2.0	2.0
Silt, with calcareous cement	2.0	4.0
Silt, brown	10.0	14.0
Sand, fine, bluish-gray	26.0	40.0
126-59-14aaa		
[Test hole drilled by U. S. Geol. Survey. Surface altitide, 1,292 feet]		
Loam, sandy	2.0	2.0
Sand, brown	5.0	7.0
Sand, fine, bluish-gray	3.0	10.0
Sand, fine, bluish-gray	20.0	30.0
Sand, fine, bluish-gray, with grit and some clay	53.0	83.0
Shale or dark clay	1.0	84.0

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
126-59-17bb		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,308.9 feet]		
Loam, black	1.0	1.0
Silt, brown	16.5	17.5
126-59-27dd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,302.5 feet]		
Loam, black	3.0	3.0
Silt, brown	4.0	7.0
Silt, dark brown, with some sand	4.0	11.0
Sand, silty, fine, gray, with some pieces of clay	5.0	16.0
Clay, bluish-gray	1.0	17.0
126-59-32bb2		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil	2.8	2.8
Silt, sandy, buff to gray, iron-stained, some clay	12.2	15.0
Sand, fine, silty, gray, some clay	17.5	32.5
Clay, sandy, gray, slightly plastic, some gravel	41.0	73.5
Clay, sandy, gray, with some gravel	6.5	80.0
127-57-28ba1		
[Well information from M. Behmke. Surface altitude, 1,349.8 feet]		
Loam, black	2.5	2.5
Clay, brown	6.5	9.0
Clay, bluish-gray	9.0	18.0
Sand, fine, bluish-gray, with gravel	4.0	22.0
127-58-6baba		
[Test hole drilled by U. S. Geol. Survey]		
Loam, fine sandy	2.0	2.0
Silt, calcareous, brown	1.0	3.0
Sand, fine, brown	7.0	10.0
Sand, fine, bluish-gray	11.0	21.0
Gravel, small, made up of mafic rocks, well-sorted	6.0	27.0
127-58-7abbb		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty, black	4.0	4.0
Sand, fine, bluish-gray	21.0	25.0
Gravel, small, made up of mafic rocks, well-sorted	3.0	28.0
127-58-7ccdc		
[Well drilled by Walter Minnekaski, Geneseo, N. Dak.]		
Layers of fine sand and bluish-gray clay	58.0	58.0
Coal	2.0	60.0

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-58-7ccdc—Continued		
Sand, with thin layers of bluish-gray clay	60.0	120.0
Gravel, small, well-sorted	3.0	123.0
127-58-7dc		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty, black	4.0	4.0
Sand, fine, gray	3.0	7.0
Silt, brown	4.0	11.0
Silt, sandy, brown	14.0	25.0
Silt, brown, with sandy layers	12.0	37.0
Silt, brown, with layers of bluish-gray clay	1.0	38.0
127-58-8dddd		
[Test hole drilled by U. S. Geol. Survey]		
Loam, sandy, black	5.0	5.0
Sand, fine, bluish-gray	24.0	29.0
Clay, bluish-gray, plastic, with sand	1.0	30.0
Sand	2.0	32.0
Clay, bluish-gray, plastic, with layers of sand	6.0	38.0
127-58-9dddd		
[Well information from A. Nordland. Surface altitude, 1,303.6 feet]		
Loam, fine sandy	3.0	3.0
Silt, brown	7.0	10.0
Sand, fine, bluish-gray	11.0	21.0
127-58-11cccc		
[Test hole drilled by U. S. Geol. Survey]		
Loam, clay, black	2.0	2.0
Silt, calcareous, brown	1.0	3.0
Silt, brown	20.0	23.0
Sand, fine	7.0	30.0
Clay, gray	1.0	31.0
Sand, fine	5.0	36.0
Clay, bluish-gray, plastic	2.0	38.0
127-58-13bccc		
[Test hole drilled by U. S. Geol. Survey. Depth to water, September 10, 1951, 12.2 feet]		
Loam, silty, black	2.0	2.0
Silt, brown	15.0	17.0
Silt, sandy, brown	4.0	21.0
Silt, brown, with layers of blue clay	15.0	36.0
Clay, bluish-gray, plastic	2.0	38.0

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-58-14dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,302.5 feet]		
Clay, medium	17.0	17.0
Clay, heavy	6.0	23.0
127-58-17dd2		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,298.6 feet]		
Loam, fine sandy	2.0	2.0
Loam, silty	3.0	5.0
Loam, sandy clay	9.0	14.0
Sand, fine, loamy	5.0	19.0
127-58-19abbd		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty, black	3.0	3.0
Silt, brown	4.0	7.0
Clay, silty, brown	3.0	10.0
Sand, fine, silty, brown	2.0	12.0
Clay, silty, brown, with ferruginous weed casts	7.0	19.0
Clay, silty, brown	11.0	30.0
Clay, silty, bluish-gray	7.0	37.0
127-58-23dd2		
[Test hole drilled by Lahman Bros., Hecla, S. Dak.]		
Loam, sandy	2.0	2.0
Sand, silty, with blue clay layers	10.0	12.0
Sand, medium-grained, bluish-gray	33.0	45.0
127-58-30cbbb		
[Test hole drilled by U. S. Geol. Survey]		
Loam, black	1.0	1.0
Silt, brown	12.0	13.0
Sand, fine, brown	10.0	23.0
Sand, fine, bluish-gray	3.0	26.0
Sand, fine, clayey, bluish-gray	1.0	27.0
Sand, fine, bluish-gray	18.0	45.0
Clay, bluish-gray, plastic	1.0	46.0
127-58-32dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,313.5 feet]		
Loam, silty clay	2.0	2.0
Clay, silty	3.0	5.0
Clay, medium	14.0	19.0
Clay, heavy	4.0	23.0

Table 3.—*Logs of wells and test holes*—Continue

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-58-36dd		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,323.5 feet. Depth to water, October 9, 1951, 6.0 feet]		
Loam, clay, black	3.0	3.0
Silt, brown	7.0	10.0
Sand, silty	1.0	11.0
Clay, bluish-gray, with fragments of shale	7.0	18.0
127-59-4ab		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,314.9 feet		
Loam, sandy, black	4.0	4.0
Clay, silty, brown, with fine sand	6.0	10.0
Sand, medium-grained, with some clay layers	6.0	16.0
Clay, bluish-gray, plastic, with fragments of shale	2.0	18.0
127-59-5cc		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil, sandy	3.2	3.2
Sand, silty, gray	3.2	6.4
Sand, silty, brown	7.6	14.0
Sand, fine, silty, gray	.9	14.9
Silt, gray	14.5	29.4
Sand, fine, gray	2.9	32.3
Gravel	6.9	39.2
Silt, gray, with medium-grained sand	5.6	44.8
Till, gray	8.2	53.0
127-59-17dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,299.2 feet]		
Loam, fine sandy	1.0	1.0
Loam	1.0	2.0
Loam, silty	1.0	3.0
Loam, silty, clay	2.0	5.0
Clay, silty	2.0	7.0
Clay	5.0	12.0
Sand	5.0	17.0
127-59-23aa		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,323.5 feet]		
Loam, silty	4.0	4.0
Loam, fine sandy	1.0	5.0
Loam, silty clay	2.0	7.0
Clay, silty	16.0	23.0
127-59-29cc		
[Test hole drilled by U. S. Bur. of Reclamation]		
Topsoil	2.8	2.8
Sand, silty, gray	3.7	6.5
Sand, silty, brown	11.5	18.0

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
127-59-29cc—Continued		
Sand, fine, silty, gray	16.0	34.0
Sand, silty, gray	57.0	91.0
Clay, silty, gray	8.9	99.9
Sand, medium-grained, silty, gray	2.6	102.5
Sand, silty, gray	2.5	105.0
Silt, gray	1.2	106.2
Sand, medium-grained, gray, with gravel	8.4	114.6
Sand, fine, silty, gray	11.6	126.2
127-59-33aa1		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,293.6 feet]		
Loam, silty, black	2.0	2.0
Clay, brown, with some sand, caliche at 15 feet	17.0	19.0
Clay, silty, bluish-gray, with some coarse sand	6.0	25.0
Sand, very fine, bluish-gray	2.0	27.0
127-59-33dd2		
[Test hole drilled by U. S. Geol. Survey. Surface altitude, 1,287.8 feet]		
Topsoil, clayey, dark-gray	4.0	4.0
Loam, silty clay	6.0	10.0
Loam, fine sandy	10.0	20.0
Sand, fine	2.0	22.0
127-59-35dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,295.1 feet]		
Loam, fine sandy	3.0	3.0
Loam, sandy	3.0	6.0
Loam, fine sandy	4.0	10.0
Sand, loamy, fine	6.0	16.0
128-57-7dd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,289.1 feet]		
Loam, silty, black	2.0	2.0
Silt, brown	10.0	12.0
Gravel	.6	12.6
Silt, brown	3.4	16.0
Clay, silty, brown	10.0	26.0
128-58-1aa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, silty, black	2.0	2.0
Silt, brown	10.0	12.0
Silt, brown, with some calcareous cement	.5	12.5
Silt, brown	3.5	16.0
Clay, brown, with fragments of blue clay	3.0	19.0
Gravel	.5	19.5
Clay, brown, with fragments of blue clay	4.0	23.5
Sand	.5	24.0
Clay, brown, with fragments of blue clay	4.5	28.5

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
128-58-4ad1		
[Well drilled by Lahman Bros., Hecla, S. Dak.]		
Sand, loamy	8.0	8.0
Sand, silt, and clay layers	182.0	190.0
Gravel	10.0	200.0
128-58-14cd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,307.8 feet]		
Loam, fine sandy	4.0	4.0
Clay, sandy	6.0	10.0
Loam, silty	1.0	11.0
Loam, sandy	9.0	20.0
Loam, silty	3.0	23.0
128-58-17cc		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,299.2 feet]		
Sand, fine, loamy	1.0	1.0
Loam, fine sandy	3.0	4.0
Loam, sandy clay	4.0	8.0
Sand, fine	2.0	10.0
Loam, sandy clay	3.0	13.0
128-58-20dddd		
[Test hole drilled by U. S. Geol. Survey]		
Loam, fine sandy	3.0	3.0
Sand, fine, brown	11.0	14.0
Sand, fine, bluish-gray	22.0	36.0
Clay, bluish-gray, with thin layers of fine sand	1.0	37.0
128-58-31dd		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,296.8 feet]		
Loam, fine sandy	1.0	1.0
Sand, fine, loamy	1.0	2.0
Loam, fine sandy	2.0	4.0
Sand, fine	9.0	13.0
128-58-33baaa		
[Test hole drilled by U. S. Geol. Survey]		
Loam, very fine sandy	3.0	3.0
Silt, fine sandy, brown	9.0	12.0
Sand, very fine, brown	15.0	27.0
Sand, fine, brown to gray	5.0	32.0
Sand, fine, bluish-gray, with thin layers of blue clay	7.0	39.0
128-58-34dd1		
[Well drilled by U. S. Bur of Reclamation. Surface altitude, 1,310.1 feet]		
Loam, silty	11.0	11.0
Loam, sandy clay	10.0	21.0

Table 3.— *Logs of wells and test holes*— Continued

MARSHALL COUNTY—Continued

	Thickness (feet)	Depth (feet)
128-58-36cd		
[Test hole drilled by U. S. Bur of Reclamation]		
Loam, silty	3.0	3.0
Loam, sandy clay	5.0	8.0
Loam, silty	8.0	16.0
Loam, silty clay	2.0	18.0
Clay, medium	3.0	21.0
Clay, silty	2.0	23.0
128-59-1ab		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,300.0 feet]		
Sand, fine, loamy	2.0	2.0
Loam, fine sandy	1.0	3.0
Loam, sandy clay	2.0	5.0
Sand, fine	11.0	16.0
128-59-4ab		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,301.5 feet]		
Sand, fine, loamy	2.0	2.0
Loam, fine sandy	2.0	4.0
Loam, silty	5.0	9.0
Loam, sandy clay	8.0	17.0
128-59-15dd1		
[Well drilled by U. S. Bur. of Reclamation. Surface altitude, 1,309.0 feet]		
Loam, fine, sandy	1.0	1.0
Loam, silty	2.0	3.0
Loam, sandy clay	7.0	10.0
Sand, fine	7.0	17.0
128-59-19dd		
[Well drilled by U. S. Geol. Survey. Surface altitude, 1,329.6 feet]		
Sand, fine, loamy, brown	15.0	15.0
Sand, fine, bluish-gray	10.0	25.0
Sand, fine, bluish-gray, with fragments of blue clay	5.0	30.0
129-57-35cc		
[Test hole drilled by U. S. Bur. of Reclamation]		
Sand, fine, loamy	1.0	1.0
Sand, fine	2.0	3.0
Loam, fine sandy	1.0	4.0
Loam, sandy clay	9.0	13.0
129-59-33dd		
[Test hole drilled by U. S. Bur. of Reclamation]		
Sand, loamy	5.0	5.0
Loam, clay	2.0	7.0
Sand, loamy	3.0	10.0
Sand, fine	2.0	12.0

Table 4.— *Classification of material by the laboratory of the U. S. Corps of Engineers, Omaha, Nebr., in accordance with Regional Soils Mechanics Conference, November 1950*

Material	Depth below land surface (feet)	Percent finer than—					Atterberg limits[1]		
		0.074 mm	0.42 mm	2.00 mm	4.76 mm	19.1 mm	Liquid limit[2]	Plastic limit[3]	Plasticity index[4]
124-61-2dd									
[Test hole. Surface altitude, 1,294.3 feet]									
Clay, lean	0.0- 2.0	45.1	100.0	100.0	100.0	100.0	32.4	24.8	7.6
Clay, lean	2.0- 6.0	100.0	100.0	100.0	100.0	100.0	51.0	31.8	19.2
Clay, lean	6.0- 12.0	100.0	100.0	100.0	100.0	100.0	41.3	31.9	9.4
Clay, lean	12.0- 18.0	100.0	100.0	100.0	100.0	100.0	41.2	24.7	16.5
Clay, lean	18.0- 22.0	100.0	100.0	100.0	100.0	100.0	45.9	28.3	17.3
Sand, very fine	22.0- 29.0	46.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	29.0- 34.0	19.4	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	34.0- 40.0	56.7	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	40.0- 44.0	100.0	100.0	100.0	100.0	100.0	49.1	33.9	15.2
Clay, lean	44.0- 50.0	100.0	100.0	100.0	100.0	100.0	49.1	31.8	17.7
Clay, lean	50.0- 55.0	100.0	100.0	100.0	100.0	100.0	36.9	22.4	14.5
Clay, lean	55.0- 60.0	100.0	100.0	100.0	100.0	100.0	48.4	28.6	19.8
Clay, fat	60.0- 65.0	100.0	100.0	100.0	100.0	100.0	50.0	29.6	20.4
Clay, fat	65.0- 70.0	100.0	100.0	100.0	100.0	100.0	45.1	17.4	27.7
Clay, lean	70.0- 74.0	100.0	100.0	100.0	100.0	100.0	44.3	31.5	12.8
Clay, fat	74.0- 78.0	100.0	100.0	100.0	100.0	100.0	62.7	30.1	32.5
Clay, lean	78.0- 83.0	100.0	100.0	100.0	100.0	100.0	49.1	31.9	17.2
Clay, fat	83.0- 88.0	100.0	100.0	100.0	100.0	100.0	59.7	32.1	27.6
Clay, sandy	88.0- 93.0	42.7	100.0	100.0	100.0	100.0	72.5	41.6	30.9
Clay, sandy	93.0- 98.0	50.7	100.0	100.0	100.0	100.0	66.3	32.4	33.9
Sand, very fine	98.0-103.0	51.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	103.0-108.0	48.5	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, clayey	108.0-112.2	30.4	86.7	96.0	100.0	100.0	31.5	15.4	16.1
Shale, firm	112.2-114.0	.....	.....	.....	.....	.....	.....	.....	.....

124-61-8b

[Test hole. Surface altitude, 1,295.1 feet]

Clay, lean	0.0- 2.0	66.1	100.0	100.0	100.0	100.0	30.1	18.3	11.8
Silt	2.0- 6.0	100.0	100.0	100.0	100.0	100.0	33.5	27.9	5.6
Sand, very fine	6.0- 12.0	65.4	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	12.0- 20.0	45.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	20.0- 28.0	40.4	100.0	100.0	100.0	100.0	.....	.....	.....
Silt, sandy	28.0- 34.0	44.6	100.0	100.0	100.0	100.0	25.4	24.0	1.4
Sand, very fine	34.0- 40.0	92.8	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, fat	40.0- 46.0	63.1	100.0	100.0	100.0	100.0	48.8	26.4	22.4
Clay, lean	46.0- 52.0	100.0	100.0	100.0	100.0	100.0	42.0	29.5	12.5
Clay, fat	52.0- 60.0	100.0	100.0	100.0	100.0	100.0	62.1	39.1	23.0
Clay, lean	60.0- 66.0	100.0	100.0	100.0	100.0	100.0	40.5	27.1	13.4
Clay, fat	66.0- 72.0	85.2	100.0	100.0	100.0	100.0	82.4	45.2	37.2
Clay, fat	72.0- 78.0	100.0	100.0	100.0	100.0	100.0	66.0	29.8	36.2
Clay, fat	78.0- 86.0	100.0	100.0	100.0	100.0	100.0	53.6	29.2	24.4
Sand	86.0- 91.0	31.5	77.1	90.6	94.6	100.0	.....	.....	.....
Shale, firm	91.0-100.0	.....	.....	.....	.....	.....	.....	.....	.....

124-61-9a

[Test hole. Surface altitude, 1,298.5 feet]

Clay, lean	0.0- 2.0	100.0	100.0	100.0	100.0	100.0	38.8	23.3	15.5
Sand, very fine	2.0- 8.0	48.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	8.0- 14.0	100.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	14.0- 22.0	51.4	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	22.0- 28.0	65.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, clayey	28.0- 33.0	29.1	100.0	100.0	100.0	100.0	65.8	30.8	35.0
Sand, very fine	33.0- 40.0	47.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	40.0- 45.0	39.6	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	45.0- 50.0	20.7	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	50.0- 56.0	91.9	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	56.0- 62.0	100.0	100.0	100.0	100.0	100.0	44.7	32.5	12.2
Clay, lean	62.0- 68.0	100.0	100.0	100.0	100.0	100.0	43.4	31.6	11.8
Clay, lean	68.0- 74.0	100.0	100.0	100.0	100.0	100.0	46.4	29.5	16.9
Clay, sandy	74.0- 80.0	56.0	100.0	100.0	100.0	100.0	75.4	33.0	42.4

See footnotes at end of table.

Table 4.— *Classification of material by the laboratory of the U. S. Corps of Engineers, Omaha, Nebr., in accordance with Regional Soils Mechanics Conference, November 1950*— Continued

Material	Depth below land surface (feet)	Percent finer than—					Atterberg limits[1]		
		0.074 mm	0.42 mm	2.00 mm	4.76 mm	19.1 mm	Liquid limit[2]	Plastic limit[3]	Plasticity index[4]
124-61-9a—Continued									
Clay, sandy	80.0- 85.0	46.4	98.6	100.0	100.0	100.0	69.3	37.8	31.5
Sand, clayey	85.0- 90.0	35.7	100.0	100.0	100.0	100.0	73.8	32.2	41.6
Sand, clayey	90.0- 94.0	27.2	88.0	91.4	94.1	100.0	26.6	16.4	10.2
Clay, sandy	94.0- 99.0	52.2	89.6	98.7	98.7	100.0	24.1	16.2	7.9
124-62-12bb									
[Test hole. Surface altitude, 1,299.9 feet]									
Clay, sandy	0.0- 2.0	49.9	100.0	100.0	100.0	100.0	47.0	31.6	15.4
Clay, sandy	2.0- 6.0	66.7	100.0	100.0	100.0	100.0	48.0	29.9	18.1
Clay, sandy	6.0- 10.0	67.8	100.0	100.0	100.0	100.0	49.6	34.3	15.3
Clay, sandy	10.0- 14.0	70.5	100.0	100.0	100.0	100.0	54.6	30.3	24.3
Silt	14.0- 16.0	100.0	100.0	100.0	100.0	100.0	30.8	24.1	6.7
Sand, very fine	16.0- 20.0	68.3	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	20.0- 28.0	68.6	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	28.0- 29.0	100.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand, very fine	29.0- 34.0	70.8	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	34.0- 40.0	100.0	100.0	100.0	100.0	100.0	40.4	53.8	16.6
Clay, lean	40.0- 46.0	90.7	100.0	100.0	100.0	100.0	37.4	28.1	9.3
Clay, lean	46.0- 52.0	87.8	100.0	100.0	100.0	100.0	38.8	28.3	10.5
Clay, sandy	52.0- 57.0	64.3	100.0	100.0	100.0	100.0	52.2	28.2	24.0
Clay, fat	57.0- 62.0	100.0	100.0	100.0	100.0	100.0	56.7	22.5	34.2
Clay, lean	62.0- 68.0	83.5	100.0	100.0	100.0	100.0	40.2	28.9	11.3
Clay, sandy	68.0- 72.0	41.8	100.0	100.0	100.0	100.0	29.0	17.7	11.3
Clay, sandy	72.0- 73.0	40.5	100.0	100.0	100.0	100.0	70.6	27.6	43.0
Clay, sandy	73.0- 78.0	72.2	100.0	100.0	100.0	100.0	45.8	26.5	19.3
Clay, sandy	78.0- 84.0	68.9	100.0	100.0	100.0	100.0	48.5	27.2	21.3
Clay, sandy	84.0- 89.0	61.7	100.0	100.0	100.0	100.0	54.7	25.0	29.7
Clay, sandy	89.0- 96.0	68.9	100.0	100.0	100.0	100.0	43.9	17.2	26.7
Shale, firm	96.0-102.0	.....	.....	.....	.....	.....	.....	.....	.....

126-60-30cc2

[Test hole. Surface altitude, 1,277.9 feet]

Silt, sandy	0.0- 1.8	47.6	100.0	100.0	100.0	100.0	26.3	20.2	6.1
Sand	1.8- 5.8	58.5	100.0	100.0	100.0	100.0	.....	.....	.....
Silt, sandy	5.8- 12.8	46.1	100.0	100.0	100.0	100.0	26.9	15.3	11.6
Sand	12.8- 15.8	34.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	15.8- 21.8	15.7	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	21.8- 27.8	100.0	100.0	100.0	100.0	100.0	42.1	20.0	22.1
Clay, lean	27.8- 32.8	100.0	100.0	100.0	100.0	100.0	39.1	28.8	10.3
Clay, fat	32.8- 37.8	100.0	100.0	100.0	100.0	100.0	61.5	30.8	30.7
Clay, lean	37.8- 41.8	100.0	100.0	100.0	100.0	100.0	40.8	28.6	12.2
Clay, fat	41.8- 45.8	100.0	100.0	100.0	100.0	100.0	54.3	24.7	29.6
Clay, lean	45.8- 49.8	100.0	100.0	100.0	100.0	100.0	50.2	30.3	19.9
Clay, fat	49.8- 55.8	100.0	100.0	100.0	100.0	100.0	56.0	31.0	25.0
Clay, fat	55.8- 61.8	100.0	100.0	100.0	100.0	100.0	63.0	40.2	22.8
Clay, fat	61.8- 67.8	100.0	100.0	100.0	100.0	100.0	65.1	33.9	31.2
Clay, fat	67.8- 73.3	100.0	100.0	100.0	100.0	100.0	77.5	44.2	33.3
Clay, fat	73.3- 77.8	100.0	100.0	100.0	100.0	100.0	79.2	37.5	41.7
Silt, sandy	77.8- 83.6	43.8	83.7	91.6	95.4	100.0	24.8	17.8	7.0
Clay, sandy	83.6- 87.8	49.9	98.3	100.0	100.0	100.0	29.6	19.1	10.5
Clay, sandy	87.8- 92.8	45.4	95.5	100.0	100.0	100.0	31.1	13.7	17.4
Shale, firm	92.8- 96.8	.....	.....	.....	.....	.....	.....	.....	.....

126-60-34b

[Test hole. Surface altitude, 1,302.8 feet]

Sand	0.0- 1.8	22.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	1.8- 3.8	18.4	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	3.8- 10.8	100.0	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	10.8- 13.8	22.9	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	13.8- 21.8	30.2	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	21.8- 27.8	16.6	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	27.8- 33.8	26.6	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	33.8- 37.8	23.2	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	37.8- 43.8	47.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	43.8- 49.8	63.8	100.0	100.0	100.0	100.0	.....	.....	.....

See footnotes at end of table.

Table 4.— *Classification of material by the laboratory of the U. S. Corps of Engineers, Omaha, Nebr., in accordance with Regional Soils Mechanics Conference, November 1950*—Continued

Material	Depth below land surface (feet)	Percent finer than—					Atterberg limits[1]		
		0.074 mm	0.42 mm	2.00 mm	4.76 mm	19.1 mm	Liquid limit[2]	Plastic limit[3]	Plasticity index[4]
126-60-34b—Continued									
Sand	49.8- 53.8	39.3	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	53.8- 61.8	100.0	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	61.8- 67.8	98.1	100.0	100.0	100.0	100.0	36.5	28.3	8.2
Clay, lean	67.8- 73.8	100.0	100.0	100.0	100.0	100.0	34.9	25.6	11.3
Clay, lean	73.8- 77.8	100.0	100.0	100.0	100.0	100.0	37.3	26.1	11.2
Clay, lean	77.8- 81.8	100.0	100.0	100.0	100.0	100.0	45.0	27.3	17.7
Clay, lean	81.8- 87.8	100.0	100.0	100.0	100.0	100.0	45.1	26.6	18.5
Clay, fat	87.8- 93.8	100.0	100.0	100.0	100.0	100.0	52.6	30.4	22.2
Clay, fat	93.8- 97.8	100.0	100.0	100.0	100.0	100.0	56.4	31.0	25.4
Clay, fat	97.8-103.8	100.0	100.0	100.0	100.0	100.0	63.2	33.0	29.0
Clay, fat	103.8-109.8	100.0	100.0	100.0	100.0	100.0	65.7	17.3	48.3
Clay, sandy	109.8-115.8	76.1	100.0	100.0	100.0	100.0	64.6	26.1	38.5
Shale, firm	115.8-120.8	.....	.....	.....	.....	.....	.....	.....	.....
Clay, lean	120.8-123.8	100.0	100.0	100.0	100.0	100.0	37.4	22.4	15.0
126-61-26cc									
[Test hole. Surface altitude, 1,287.0 feet]									
Sand	0.0- 1.8	14.2	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	1.8- 7.8	31.9	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	7.8- 15.8	24.5	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	15.8- 19.8	100.0	100.0	100.0	100.0	100.0	50.9	18.6	32.3
Clay, lean	19.8- 25.8	100.0	100.0	100.0	100.0	100.0	37.9	26.1	11.8
Clay, lean	25.8- 29.8	100.0	100.0	100.0	100.0	100.0	33.8	19.8	14.0
Sand	29.8- 33.8	20.7	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	33.8- 39.8	30.2	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	39.8- 44.8	14.6	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, fat	44.8- 49.8	100.0	100.0	100.0	100.0	100.0	50.9	28.3	22.3

Clay, lean	49.8- 54.8	100.0	100.0	100.0	100.0	100.0	46.1	38.9	7.2
Clay, lean	54.8- 59.8	100.0	100.0	100.0	100.0	100.0	47.1	28.3	18.8
Clay, fat	59.8- 63.8	100.0	100.0	100.0	100.0	100.0	57.0	32.9	24.1
Clay, fat	63.8- 69.8	100.0	100.0	100.0	100.0	100.0	83.1	31.1	52.0
Clay, fat	69.8- 75.8	100.0	100.0	100.0	100.0	100.0	74.2	32.3	41.8
Clay, fat	75.8- 81.8	100.0	100.0	100.0	100.0	100.0	69.8	36.4	33.4
Clay, fat	81.8- 87.8	100.0	100.0	100.0	100.0	100.0	55.9	21.5	34.4
Sand	87.8- 97.8	22.4	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, sandy	97.8- 98.8	71.9	98.3	100.0	100.0	100.0	31.4	20.1	11.3
Shale, firm	98.8-100.8	.....	.....	.....	.....	.....	.....	.....	.....

126-61-30cc2

[Test hole. Surface altitude, 1,303.7 feet]

Sand	0.0- 1.8	33.5	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	1.8- 7.8	24.8	100.0	100.0	100.0	100.0	.....	.....	.....
Silt, sandy	7.8- 13.8	77.4	100.0	100.0	100.0	100.0	29.7	28.3	1.4
Sand	13.8- 19.8	60.8	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	19.8- 25.8	56.6	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	25.8- 29.8	50.3	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	29.8- 35.8	44.4	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	35.8- 39.8	100.0	100.0	100.0	100.0	100.0	42.5	30.0	12.5
Clay, lean	39.8- 45.8	100.0	100.0	100.0	100.0	100.0	42.8	30.5	12.3
Clay, lean	45.8- 49.8	100.0	100.0	100.0	100.0	100.0	37.3	27.9	9.4
Clay, lean	49.8- 53.8	100.0	100.0	100.0	100.0	100.0	43.4	29.1	14.3
Clay, lean	53.8- 59.8	100.0	100.0	100.0	100.0	100.0	46.1	27.7	18.4
Clay, fat	59.8- 63.8	100.0	100.0	100.0	100.0	100.0	60.4	31.4	29.0
Clay, fat	63.8- 69.8	100.0	100.0	100.0	100.0	100.0	72.4	32.7	39.4
Clay, fat	69.8- 73.8	100.0	100.0	100.0	100.0	100.0	72.4	32.7	39.4
Clay, fat	73.8- 79.8	100.0	100.0	100.0	100.0	100.0	73.4	34.6	39.6
Sand	79.8- 82.0	36.3	100.0	100.0	100.0	100.0	.....	.....	.....
Silt, sandy	82.0- 83.8	68.5	92.8	100.0	100.0	100.0	24.9	21.5	3.4
Clay, sandy	83.8- 86.1	56.2	86.5	100.0	100.0	100.0	29.9	16.6	13.3
Sand, gravelly	86.1- 94.0	8.7	11.0	51.9	78.5	100.0	.....	.....	.....
Clay, lean	94.0- 98.8	100.0	100.0	100.0	100.0	100.0	44.0	26.4	17.6
Clay, lean	98.8-103.8	100.0	100.0	100.0	100.0	100.0	44.0	26.4	17.6

See footnotes at end of table.

Table 4.—*Classification of material by the laboratory of the U. S. Corps of Engineers, Omaha, Nebr., in accordance with Regional Soils Mechanics Conference, November 1950*—Continued

Material	Depth below land surface (feet)	Percent finer than—					Atterberg limits[1]		
		0.074 mm	0.42 mm	2.00 mm	4.76 mm	19.1 mm	Liquid limit[2]	Plastic limit[3]	Plasticity index[4]
126-61-30cc2—Continued									
Sand, silty	103.8-108.8	25.4	76.1	100.0	100.0	100.0	21.3	16.7	4.6
Clay, sandy	108.8-112.8	74.6	90.2	95.6	96.0	100.0	37.4	23.7	13.7
126-62-27cc									
[Test hole. Surface altitude, 1,306.5 feet]									
Silt, sandy	0.0- 1.0	67.4	100.0	100.0	100.0	100.0	30.0	23.9	6.1
Clay, fat	1.0- 6.0	100.0	100.0	100.0	100.0	100.0	52.2	31.6	20.6
Sand	6.0- 9.8	53.5	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	9.8- 13.8	77.4	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	13.8- 19.8	100.0	100.0	100.0	100.0	100.0	39.4	24.4	15.0
Clay, lean	19.8- 23.8	100.0	100.0	100.0	100.0	100.0	41.8	30.0	11.8
Sand	23.8- 25.8	75.9	100.0	100.0	100.0	100.0	.....	.....	.....
Sand	25.8- 27.8	88.1	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, lean	27.8- 32.8	100.0	100.0	100.0	100.0	100.0	43.0	29.2	13.8
Clay, lean	32.8- 37.8	100.0	100.0	100.0	100.0	100.0	42.0	23.5	18.5
Clay, lean	37.8- 43.8	100.0	100.0	100.0	100.0	100.0	42.5	28.7	13.8
Clay, lean	43.8- 49.8	100.0	100.0	100.0	100.0	100.0	60.8	44.6	16.2
Clay, fat	49.8- 53.8	100.0	100.0	100.0	100.0	100.0	70.7	21.6	49.1
Clay, sandy	53.8- 59.8	69.4	98.8	100.0	100.0	100.0	31.1	15.5	15.6
Clay, sandy	59.8- 63.8	67.6	93.8	99.5	100.0	100.0	31.5	17.5	14.0
Silt, sandy	63.8- 68.8	68.1	94.7	98.0	99.9	100.0	23.4	20.9	2.5
Sand	68.8- 69.8	12.6	97.0	98.8	99.1	100.0	.....	.....	.....
Sand	69.8- 74.8	25.1	100.0	100.0	100.0	100.0	.....	.....	.....
Clay, sandy	74.8- 78.8	50.7	84.9	96.2	97.1	100.0	28.5	14.9	13.6
Sand	78.8- 83.8	27.7	82.2	100.0	100.0	100.0	.....	.....	.....

Clay, sandy	83.8- 87.3	54.1	89.0	95.7	96.5	100.0	33.5	19.0	14.5
Clay, sandy	87.3- 91.7	54.1	89.0	95.7	96.5	100.0	.....	.....	.....
Clay, sandy	91.7- 97.8	54.1	89.0	95.7	96.5	100.0	.....	.....	.....
Clay, sandy	97.8-103.8	54.1	89.0	95.7	96.5	100.0	.....	.....	.....
Clay, sandy	103.8-107.8	54.1	89.0	95.7	96.5	100.0	.....	.....	.....
Sand	107.8-110.8	24.1	98.6	100.0	100.0	100.0	.....	.....	.....
Clay, lean	110.8-117.8	100.0	100.0	100.0	100.0	100.0	41.8	30.0	11.8
Sand	117.8-120.8	24.6	65.4	92.5	100.0	100.0	.....	.....	.....
Sand	120.8-125.0	39.8	95.9	100.0	100.0	100.0	.....	.....	.....

[1] Baver, L. D., 1948.
[2] Moisture content, in percent, at which material changes from plastic to fluid consistency.
[3] Moisture content, in percent, at which material changes from friable to plastic consistency.
[4] Difference between liquid and plastic limits.

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Table 5.—*Measurements of the water level in observation wells, in feet below land surface*

[Measurements to tenths of a foot made by U. S. Bureau of Reclamation; all other measurements made by U. S. Geological Survey]

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY					
124-60-4bb2					
July 23, 1951	17.32	Sept. 11, 1951	17.71		
124-61-2dd					
Oct. 7, 1951	16.05	May 29, 1952	14.44	Jan. 26, 1953	16.14
Oct. 15	16.71	Oct. 13	16.03	Apr. 1	15.01
Nov. 29	16.72	Dec. 9	16.46	Apr. 19, 1954	13.50
124-61-8b					
Sept. 25, 1951	24.72	Nov. 29, 1951	23.55	Dec. 9, 1952	23.39
Sept. 27	23.56	May 29, 1952	21.98	Jan. 26, 1953	23.35
Oct. 1	23.60	Oct. 13	23.58	Apr. 1	22.49
Oct. 15	23.53				
124-61-9a					
Oct. 1, 1951	19.50	Nov. 29, 1951	19.55	Dec. 9, 1952	19.36
Oct. 15	19.55	May 29, 1952	17.73	Jan. 26, 1953	19.46
Oct. 31	18.90	Oct. 13	19.17	Apr. 1	18.84
124-61-19aa					
Sept. 19, 1950	8.02	Apr. 27, 1951	6.83	Sept. 11, 1951	7.80
Oct. 31	7.60	June 4	6.38	Oct. 1	8.38
Nov. 27	7.58	June 25	6.04	Nov. 29	8.05
Dec. 29	6.60	July 2	6.27	Jan. 31, 1952	8.00
Feb. 6, 1951	7.80	July 16	6.63	Mar. 11	8.00
Apr. 9	6.80	July 31	7.14	May 29	5.19
124-61-19ab					
Sept. 19, 1950	6.55	Apr. 9, 1951	6.15	July 16, 1951	5.87
Oct. 31	6.57	Apr. 27	6.22	July 31	6.42
Nov. 27	6.57	June 4	5.08	Aug. 13	6.95
Dec. 29	6.75	June 25	4.96	Sept. 11	7.25
Feb. 6, 1951	6.80				
124-61-19bb					
Sept. 19, 1950	6.91	June 4, 1951	0.96	Sept. 11, 1951	5.85
Oct. 31	6.82	June 25	2.04	Oct. 1	6.52
Nov. 27	7.04	July 2	2.72	Nov. 29	6.82
Dec. 29	7.40	July 16	3.67	Jan. 31, 1952	7.10
Feb. 6, 1951	8.30	July 31	4.26	Mar. 11	7.17
Apr. 9	2.75	Aug. 13	5.54	May 29	1.95
Apr. 27	2.28				
124-61-22cd2					
July 25, 1951	16.32	Sept. 11, 1951	16.89		

Table 5.—*Measurements of the water level in observation wells, in feet bslow land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
124-61-22dd					
July 24, 1951	15.29	Sept. 11, 1951	16.74		
124-62-1cc					
July 26, 1951	25.08	Sept. 19, 1951	24.29	Oct. 1, 1951	24.05
Sept. 11	24.61				
124-62-12bb					
Sept. 18, 1951	22.54	Oct. 15, 1951	22.50	Dec. 8, 1952	22.02
Sept. 19	22.33	Nov. 29	22.52	Jan. 26, 1953	22.13
Sept. 24	22.55	May 29, 1952	22.05	Apr. 1	21.94
Oct. 1	22.52	Oct. 13	21.98	Apr. 19, 1954	21.05
125-60-2da3					
July 19, 1951	20.22	Sept. 11, 1951	20.69	Oct. 3, 1951	21.45
125-60-33bb2					
July 23, 1951	18.72	Sept. 11, 1951	19.14		
125-61-2cd					
Sept. 19, 1950	3.14	June 2, 1951	0.90	Oct. 1, 1951	3.44
Oct. 31	3.32	June 25	2.45	Nov. 29	3.42
Nov. 27	3.69	July 16	1.41	May 29, 1952	[a].43
Apr. 9, 1951	1.85	July 31	1.96	Oct. 13	3.37
Apr. 27	2.18	Aug. 13	2.92	Dec. 9	3.50
May 16	2.13	Sept. 11	3.39	Jan. 26, 1953	4.49
125-61-11ba					
Sept. 10, 1951	4.48	Nov. 29, 1951	4.57	May 29, 1952	3.07
Oct. 1	4.61				
125-61-17dda					
June 25, 1951	7.69	July 31, 1951	8.58	Oct. 13, 1952	8.99
July 2	8.00	Sept. 11	9.03	Dec. 8	9.34
July 9	7.63	Nov. 29	10.18	Apr. 1, 1953	8.13
July 16	7.74	May 29, 1952	7.42		
125-61-21cd					
Sept. 19, 1950	11.56	July 2, 1951	9.26	Nov. 29, 1951	10.70
Oct. 31	11.31	July 16	9.06	May 29, 1952	8.50
Nov. 27	11.11	July 31	9.23	Oct. 13	10.45
Dec. 29	11.35	Aug. 13	9.76	Dec. 8	10.60
Apr. 9, 1951	10.65	Sept. 11	10.31	Jan. 26, 1953	11.08
Apr. 27	10.64	Oct. 1	10.64	Apr. 1	9.72
June 4	10.28	Oct. 15	10.66	Apr. 19, 1954	8.86
June 25	9.53				

See footnote at end of table.

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

125-61-21dd1

Date	Water level	Date	Water level	Date	Water level
Aug. 20, 1951	15.32	Oct. 31, 1951	16.16	Dec. 8, 1952	14.90
Sept. 12	16.10	Nov. 29	16.25	Jan. 26, 1953	15.73
Oct. 1	16.38	May 29, 1952	12.59	Apr. 1	14.49
Oct. 15	16.13	Oct. 13	15.46	Apr. 19, 1954	12.22

125-61-21dd2

Aug. 20, 1951	15.45	Oct. 13, 1952	14.47	Apr. 1, 1953	14.55
Sept. 12	16.15	Dec. 8	15.50	Apr. 19, 1954	12.38
May 29, 1952	11.67	Jan. 26, 1953	15.78		

125-61-32aa

Sept. 19, 1950	6.57	June 25, 1951	4.69	Nov. 29, 1951	6.41
Oct. 31	6.47	July 2	5.14	May 29, 1952	4.12
Nov. 27	6.52	July 16	4.95	Oct. 13	7.01
Dec. 29	7.20	July 31	5.63	Dec. 9	6.39
Apr. 9, 1951	6.20	Aug. 13	6.14	Jan. 26, 1953	7.37
Apr. 27	5.62	Sept. 11	6.52	Apr. 19, 1954	4.16
June 9	4.58	Oct. 15	6.52		

125-61-32ab

Sept. 19, 1950	5.45	June 25, 1951	2.72	May 29, 1952	1.75
Oct. 31	5.04	July 16	3.74	Oct. 13	5.78
Nov. 27	5.51	July 31	4.94	Dec. 9	5.28
Dec. 29	5.90	Aug. 13	5.16	Jan. 26, 1953	6.13
Apr. 9, 1951	5.00	Sept. 11	5.56	Apr. 1	4.09
Apr. 27	4.38	Oct. 15	5.54	Apr. 19, 1954	3.32
June 4	.99	Nov. 29	5.06		

125-61-33cd

July 24, 1951	12.99	Oct. 2, 1951	14.19	Oct. 15, 1951	14.25
Sept. 11	13.95				

125-62-14dd1

Apr. 5, 1951	22.8	Aug. 13, 1951	22.61	May 29, 1952	24.55
May 7	22.6	Aug. 14	22.50	Oct. 13	21.94
June 4	22.76	Sept. 11	22.80	Dec. 8	22.29
June 25	22.62	Oct. 3	22.80	Jan. 26, 1953	22.48
July 2	22.74	Oct. 10	22.5	Apr. 1	22.03
July 16	22.67	Nov. 29	22.70	Apr. 19, 1954	21.39
July 31	22.68				

125-62-17dd

Apr. 5, 1951	10.3	July 31, 1951	10.54	May 29, 1952	8.42
May 7	10.5	Aug. 13	11.28	Oct. 13	Dry
June 4	10.19	Oct. 10	Dry	Dec. 8	Dry
June 25	9.94	Nov. 1	Dry	Jan. 26, 1953	Dry
July 2	10.15	Nov. 29	Dry	Apr. 1	Dry
July 16	10.20	Mar. 11, 1952	Dry		

Table 5.—*Measurements of the water level in observation wells, in feet bslow land surface*—Continued

BROWN COUNTY—Continued

125-62-19aa

Date	Water level	Date	Water level	Date	Water level
June 4, 1951	7.49	Aug. 13, 1951	12.25	Oct. 13, 1952	14.80
June 25	8.89	Sept. 11	12.61	Dec. 8	14.80
July 2	9.78	Oct. 3	12.70	Jan. 26, 1953	15.18
July 16	10.24	Nov. 29	12.75	Apr. 1	14.40
July 31	11.17	May 29, 1952	6.00	Apr. 19, 1954	12.51

125-62-26ad1

May 7, 1951	20.10	July 31, 1951	20.00	Oct. 13, 1952	19.21
June 4	20.06	Aug. 13	19.93	Dec. 8	19.43
June 25	20.04	Sept. 11	20.44	Jan. 26, 1953	20.29
July 2	20.03	Nov. 29	20.87	Apr. 1	18.49
July 16	20.01	May 29, 1952	18.78	Apr. 19, 1954	18.26

125-62-26dd

Apr. 5, 1951	16.2	July 31, 1951	15.43	Oct. 13, 1952	Dry
May 7	15.00	Aug. 13	15.59	Dec. 8	Dry
June 4	14.83	Sept. 11	16.03	Jan. 26, 1953	Dry
June 25	14.84	Nov. 29	Dry	Apr. 1	Dry
July 16	15.20	May 29, 1952	13.50	Apr. 19, 1954	Dry

125-62-28db2

July 23, 1951	11.60	Sept. 11, 1951	11.92		

125-62-30da

July 25, 1951	23.92	Sept. 11, 1951	24.21		

125-62-33ac

July 24, 1951	24.11	Sept. 11, 1951	24.33		

126-60-2bb

June 26, 1951	12.72	Sept. 11, 1951	12.89		

126-60-10dd1

June 27, 1951	10.23	Aug. 1, 1951	14.99	May 28, 1952	13.60
June 28	14.72	Aug. 11	15.64	Oct. 14	16.26
June 29	14.74	Sept. 11	16.20	Dec. 9	Dry
July 2	14.75	Sept. 17	16.35	Jan. 27, 1953	Dry
July 11	14.67	Sept. 21	Dry	Apr. 2	16.17
July 16	14.67	Oct. 3	Dry	Apr. 20, 1954	15.08
July 26	14.75				

126-60-10dd2

June 29, 1951	11.15	Aug. 11, 1951	15.09	Nov. 29, 1951	15.37
July 2	5.97	Sept. 11	15.79	May 29, 1952	13.22
July 11	8.11	Sept. 17	15.95	Oct. 14	16.02
July 16	8.56	Sept. 21	15.99	Jan. 27, 1953	16.61
July 26	10.15	Oct. 3	16.12	Apr. 20, 1954	14.87
Aug. 1	14.47	Oct. 7	16.19		

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
126-60-17cc					
June 25, 1951	4.39	July 16, 1951	4.26	Aug. 14, 1951	5.3
July 2	4.78	July 31	4.94	Sept. 10	6.20
July 9	3.80	Aug. 11	5.49		
126-60-19cc					
July 20, 1951	5.16	Oct. 31, 1951	7.18	Dec. 9, 1952	8.86
July 31	6.19	Nov. 29	7.22	Jan. 26, 1953	9.78
Aug. 13	7.00	May 28, 1952	4.83	Apr. 1	6.91
Sept. 10	7.63	Oct. 13	9.40	Apr. 19, 1954	5.94
Oct. 10	7.57				
126-60-19cd					
July 19, 1951	3.21	Sept. 10, 1951	4.82	Oct. 13, 1952	4.70
July 20	3.26	Oct. 11	4.92	Dec. 9	5.08
July 31	4.10	Nov. 29	5.30	Apr. 19, 1954	7.18
Aug. 13	4.53	May 29, 1952	.65		
126-60-19dd1					
July 20, 1951	9.76	Oct. 11, 1951	11.62	Oct. 13, 1952	11.95
July 31	10.06	Nov. 29	11.19	Dec. 9	11.64
Aug. 13	10.69	May 28, 1952	8.51	Apr. 19, 1954	9.28
Sept. 10	11.22				
126-60-30cc1					
Oct. 15, 1951	2.69	May 28, 1952	[a]1.41	Jan. 26, 1953	4.34
Oct. 31	2.63	Oct. 13	2.18	Apr. 1	1.09
Nov. 29	3.12	Dec. 9	2.84	Apr. 19, 1954	1.49
126-60-30cc2					
Oct. 31, 1951	2.33	May 28, 1952	[a]1.81	Jan. 26, 1953	3.78
Nov. 29	2.80	Oct. 13	1.82	Apr. 1	.71
Jan. 31, 1952	3.35	Dec. 9	2.38	Apr. 19, 1954	.66
126-60-34b					
Oct. 31, 1951	10.36	Oct. 14, 1952	10.63	Apr. 2, 1953	11.06
Nov. 29	10.07	Dec. 9	10.82	Apr. 20, 1954	9.32
May 28, 1952	7.50	Jan. 27, 1953	11.14		
126-61-6aa					
Sept. 20, 1950	7.98	June 7, 1951	5.79	Oct. 9, 1951	7.41
Oct. 30	7.76	June 13	5.80	Nov. 28	7.14
Nov. 27	7.91	June 25	6.05	May 27, 1952	4.61
Dec. 28	7.48	July 2	5.77	Oct. 14	9.04
Feb. 6, 1951	8.90	July 16	5.17	Dec. 8	8.64
Apr. 9	6.45	July 31	5.83	Jan. 27, 1953	8.67
Apr. 26	6.18	Aug. 13	6.51	Apr. 1	7.21
June 2	5.93	Sept. 10	7.10	Apr. 19, 1954	6.46

See footnote at end of table.

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

126-61-7dd

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	9.80	June 25, 1951	8.18	May 27, 1952	7.20
Oct. 30	9.67	July 2	8.53	Oct. 14	10.78
Nov. 27	9.90	July 16	8.21	Dec. 9	10.52
Dec. 29	9.80	July 31	8.86	Jan. 27, 1953	10.84
Apr. 9, 1951	8.75	Sept. 10	9.46	Apr. 1	9.38
Apr. 27	8.79	Oct. 11	5.56	Apr. 19, 1954	8.61
June 2	8.47	Nov. 29	9.43		

126-61-9dd1

June 4, 1951	11.54	Aug. 14, 1951	11.40	Oct. 13, 1952	11.98
June 25	11.40	Sept. 10	11.70	Dec. 9	12.47
July 2	11.35	Oct. 11	12.10	Jan. 26, 1953	12.97
July 9	11.33	Nov. 29	12.00	Apr. 1	12.38
July 16	11.43	May 27, 1952	11.27	Apr. 19, 1954	10.99
July 31	11.38				

126-61-13cc

Apr. 4, 1951	4.2	July 16, 1951	3.69	Nov. 29, 1951	5.05
May 7	3.65	July 31	4.61	May 28, 1952	2.75
June 2	3.14	Aug. 13	5.04	Dec. 9	5.36
June 25	4.05	Sept. 10	5.22	Apr. 1, 1953	4.13
July 2	4.49	Oct. 11	5.38	Apr. 19, 1954	3.27

126-61-17dd

Apr. 4, 1951	5.35	July 31, 1951	4.80	May 28, 1952	4.41
May 7	4.40	Aug. 14	5.05	Oct. 13	6.62
June 2	4.23	Sept. 10	5.10	Dec. 9	6.12
June 25	3.90	Oct. 11	5.14	Apr. 1, 1953	4.63
July 2	4.45	Nov. 30	5.00	Apr. 19, 1954	4.58
July 16	3.83				

126-61-26cc

Oct. 22, 1951	8.00	May 28, 1952	3.07	Jan. 26, 1953	6.68
Oct. 31	6.30	Oct. 13	6.48	Apr. 1	4.94
Nov. 29	5.23	Dec. 9	6.11		

126-61-30cc1

Sept. 21, 1950	8.27	July 2, 1951	7.90	Jan. 31, 1952	9.40
Oct. 30	8.22	July 9	7.70	Mar. 11	9.55
Nov. 27	8.36	July 16	7.69	May 28	7.66
Dec. 29	8.25	July 18	7.72	Oct. 14	10.49
Feb. 9, 1951	8.70	July 31	8.01	Dec. 8	10.79
Apr. 9	8.00	Sept. 10	8.86	Jan. 27, 1953	10.88
Apr. 27	8.05	Oct. 12	9.09	Apr. 2	10.09
June 2	8.00	Nov. 29	9.27	Apr. 19, 1954	9.60
June 25	7.88				

126-61-30cc2

July 18, 1951	7.21	Jan. 31, 1952	8.80	Dec. 8, 1952	10.28
July 31	7.05	Mar. 11	9.00	Jan. 27, 1953	10.40
Sept. 10	8.32	May 28	7.16	Apr. 2	9.63
Oct. 12	8.55	Oct. 14	10.04	Apr. 19, 1954	9.12
Nov. 29	8.75				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

126-61-32dd

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1951	7.00	July 31, 1951	6.54	May 28, 1952	5.36
May 7	6.60	Aug. 14	7.1	Oct. 13	7.31
June 2	6.49	Sept. 10	7.42	Dec. 8	8.06
June 25	6.51	Oct. 11	7.60	Jan. 26, 1953	8.28
July 2	6.65	Nov. 29	7.71	Apr. 1	6.28
July 16	6.47	Jan. 31, 1952	5.60		

126-61-36cc

June 4, 1951	1.32	July 31, 1951	3.24	Nov. 29, 1951	3.80
June 25	1.80	Aug. 14	3.00	Oct. 13, 1952	2.74
July 2	2.55	Sept. 10	4.12	Dec. 9	3.23
July 9	1.43	Oct. 10	4.50	Apr. 1, 1953	2.41
July 16	2.30				

126-62-3bb

Sept. 20, 1950	12.37	June 7, 1951	4.75	Jan. 31, 1952	11.80
Oct. 30	12.52	June 25	4.87	May 28	4.53
Nov. 28	13.18	July 2	5.70	Oct. 14	13.36
Dec. 28	13.2	July 16	4.62	Dec. 8	13.15
Feb. 6, 1951	14.6	July 31	5.63	Jan. 27, 1953	14.44
Apr. 10	4.05	Sept. 11	6.84	Apr. 2	9.30
Apr. 26	5.19	Oct. 9	10.30	Apr. 19, 1954	7.75
June 2	5.13	Nov. 28	10.34		

126-62-12dc

Sept. 20, 1950	7.31	June 2, 1951	6.40	Mar. 11, 1952	8.10
Oct. 30	7.33	June 25	6.26	May 28	4.67
Nov. 27	7.42	July 16	6.15	Oct. 14	7.21
Dec. 29	6.95	July 30	6.76	Dec. 8	7.72
Feb. 9, 1951	6.80	Sept. 10	7.64	Jan. 27, 1953	8.33
Apr. 9	6.15	Oct. 11	7.94	Apr. 2	7.12
Apr. 27	6.42	Jan. 31, 1952	8.15	Apr. 19, 1954	6.78

126-62-13aa

Sept. 20, 1950	13.15	June 25, 1951	11.73	Mar. 11, 1952	12.10
Oct. 30	13.06	July 2	11.79	May 28	10.46
Nov. 27	13.09	July 9	11.67	Oct. 14	13.62
Dec. 29	13.00	July 16	11.64	Dec. 8	13.67
Feb. 9, 1951	13.10	July 31	11.97	Jan. 27, 1953	13.77
Apr. 9	12.05	Sept. 10	12.94	Apr. 2	12.63
Apr. 27	12.02	Oct. 11	13.15	Apr. 19, 1954	11.44
June 2	11.90	Jan. 31, 1952	13.10		

126-62-16ab

Sept. 20, 1950	Dry	June 25, 1951	Dry	May 28, 1952	12.33
Oct. 30	Dry	July 16	17.92	Oct. 14	15.04
Nov. 28	Dry	July 31	17.95	Dec. 8	15.36
Dec. 29	Dry	Sept. 11	18.12	Jan. 27, 1953	15.71
Apr. 10, 1951	Dry	Oct. 9	18.20	Apr. 2	15.76
Apr. 26	Dry	Nov. 28	18.35	Apr. 19, 1954	14.89
June 2	Dry				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

126-62-24ba

Date	Water level	Date	Water level	Date	Water level
Apr. 4, 1951	4.40	Aug. 14, 1951	5.90	Oct. 14, 1952	6.27
May 7	3.33	Sept. 11	6.10	Dec. 8	5.76
June 2	3.21	Oct. 15	6.14	Jan. 27, 1953	5.92
June 25	3.80	Nov. 29	6.10	Apr. 2	4.84
July 16	4.15	May 28, 1952	1.91	Apr. 19, 1954	3.03
July 31	5.17				

126-62-24cc

Sept. 21, 1950	12.72	June 25, 1951	10.96	May 28, 1952	8.60
Oct. 30	13.30	July 2	11.01	Oct. 14	12.59
Nov. 27	12.64	July 16	10.96	Dec. 8	12.94
Dec. 29	12.45	July 31	11.04	Jan. 27, 1953	13.08
Apr. 9, 1951	11.65	Sept. 11	11.54	Apr. 2	12.53
Apr. 27	11.50	Oct. 15	11.98	Apr. 19, 1954	10.76
June 2	11.37	Nov. 1	12.50		

126-62-25aa

Sept. 21, 1950	9.52	June 25, 1951	6.56	Jan. 31, 1952	8.50
Oct. 30	9.05	July 2	6.94	Mar. 11	8.70
Nov. 27	8.89	July 9	6.19	May 28	5.26
Dec. 29	9.9	July 16	6.46	Oct. 14	10.01
Feb. 9, 1951	10.35	July 31	7.16	Dec. 8	9.35
Apr. 9	6.65	Sept. 10	8.49	Jan. 27, 1953	9.57
Apr. 27	6.85	Oct. 12	8.57	Apr. 2	7.61
June 2	6.80				

126-62-27bb

Sept. 21, 1950	8.51	June 2, 1951	6.03	Nov. 1, 1951	8.15
Oct. 30	8.18	June 25	5.44	May 28	4.31
Nov. 27	7.61	July 2	5.92	Oct. 14	9.12
Dec. 29	9.45	July 16	5.59	Dec. 8	9.20
Feb. 9, 1951	8.15	July 31	6.44	Jan. 27, 1953	9.44
Apr. 9	6.25	Sept. 11	7.02	Apr. 2	7.56
Apr. 27	6.14	Oct. 12	7.12	Apr. 19, 1954	7.06

126-62-27cc

Nov. 2, 1951	21.00	Oct. 14, 1952	Dry	Apr. 2, 1953	Dry
Nov. 29	17.33	Jan. 27, 1953	Dry	Apr. 19, 1954	Dry
May 28	Dry				

126-62-33dd

Apr. 5, 1951	15.7	July 16, 1951	15.26	May 28, 1952	15.04
Apr. 27	17.9	July 31	15.32	Oct. 14	16.55
May 7	16.5	Aug. 15	15.6	Dec. 8	16.06
June 2	15.8	Sept. 11	15.94	Jan. 27, 1953	16.61
June 25	15.23	Oct. 12	16.00	Apr. 2	15.90
July 2	15.20	Nov. 29	16.10	Apr. 19, 1954	15.55
July 13	14.98	Jan. 31, 1952	17.60		

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

126-62-34ab

Date	Water level	Date	Water level	Date	Water level
Sept. 21, 1950	4.32	July 2, 1951	3.77	Mar. 11, 1952	6.05
Oct. 30	4.49	July 16	3.65	May 28	3.40
Nov. 27	4.75	July 31	4.11	Oct. 14	6.81
Dec. 27	5.05	Sept. 11	4.30	Dec. 8	6.81
Feb. 2, 1951	5.90	Oct. 12	5.50	Jan. 27, 1953	7.17
Apr. 27	2.72	Nov. 1	5.10	Apr. 2	4.83
June 2	2.51	Nov. 29	5.40	Apr. 19, 1954	5.28
June 25	3.31				

126-62-34cc

Sept. 21, 1950	Dry	Dec. 29, 1950	Dry	Apr. 9, 1951	Dry
Oct. 30	Dry	Feb. 9, 1951	Dry	Apr. 27	Dry
Nov. 27	Dry				

126-62-35aa

Sept. 21, 1950	10.82	June 25, 1951	9.26	Jan. 31, 1952	10.40
Oct. 30	10.62	July 2	9.42	Mar. 11	10.85
Nov. 27	10.62	July 16	9.15	May 28	8.36
Dec. 29	10.65	July 31	9.35	Oct. 14	11.29
Feb. 9, 1951	10.90	Sept. 11	10.45	Dec. 8	11.26
Apr. 9	9.25	Oct. 12	10.80	Jan. 27, 1953	11.43
Apr. 27	9.34	Nov. 1	10.85	Apr. 2	9.83
June 2	9.12	Nov. 29	10.80	Apr. 19, 1954	9.68

126-62-35ab

Sept. 21, 1950	9.17	June 25, 1951	8.04	Jan. 31, 1952	9.25
Oct. 30	9.12	July 2	8.12	May 28	6.55
Nov. 27	9.16	July 16	7.95	Oct. 14	9.86
Dec. 29	9.10	July 31	8.27	Dec. 8	9.94
Feb. 9, 1951	9.55	Sept. 11	8.84	Jan. 27, 1953	10.11
Apr. 9	8.55	Oct. 12	9.30	Apr. 2	9.08
Apr. 27	8.40	Nov. 1	9.53	Apr. 19, 1954	8.64
June 2	8.31	Nov. 29	9.30		

126-62-35dd

Apr. 7, 1951	6.23	July 31, 1951	5.63	May 28, 1952	5.21
June 2	6.14	Aug. 14	6.4	Oct. 14	9.11
June 25	5.39	Sept. 11	6.52	Dec. 8	8.82
July 2	5.62	Oct. 12	7.40	Jan. 27, 1953	9.14
July 9	5.07	Oct. 31	7.30	Apr. 2	7.65
July 16	5.22	Nov. 29	7.12	Apr. 19, 1954	7.52

127-60-2abb

Apr. 4, 1950	6.8	May 7, 1951	5.08	Aug. 14, 1951	5.62
June 29	5.2	June 2	4.81	Aug. 16	5.66
July 27	6.3	June 12	4.53	Sept. 11	5.75
Sept. 14	7.2	June 26	4.27	Oct. 9	6.21
Oct. 30	7.6	July 2	4.86	Nov. 30	5.95
Nov. 28	7.65	July 16	5.36	May 27, 1952	3.69
Apr. 27, 1951	5.40	Aug. 1	5.19		

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
127-60-5ba					
June 6, 1950	6.1	June 2, 1951	12.92	Oct. 9, 1951	Dry
June 29	7.4	June 25	9.30	Nov. 30	Dry
July 27	10.7	July 2	9.66	May 27, 1952	9.38
Sept. 14	14.1	July 16	9.18	Oct. 15	Dry
Oct. 30	15.0	Aug. 1	9.75	Dec. 10	Dry
Nov. 28	15.25	Aug. 16	11.30	Jan. 28, 1953	Dry
Apr. 4, 1951	16.30	Sept. 11	11.85	Apr. 4	Dry
Apr. 27	13.20				
127-60-7cd					
June 13, 1951	3.58	Sept. 11, 1951	5.82		
127-60-14dd1					
July 16, 1951	8.69	Nov. 28, 1951	10.83	Dec. 9, 1952	12.29
Aug. 1	9.46	Jan. 31, 1952	11.60	Jan. 27, 1953	12.62
Aug. 13	10.21	May 28	7.50	Apr. 2	10.57
Sept. 5	10.52	Oct. 15	12.32	Apr. 20, 1954	10.15
Oct. 15	12.02				
127-60-14dd2					
July 16, 1951	8.79	Nov. 28, 1951	10.95	Dec. 9, 1952	11.52
Aug. 1	9.62	Jan. 31, 1952	11.80	Jan. 27, 1953	12.79
Aug. 13	10.43	May 28	7.72	Apr. 2	10.64
Sept. 5	10.84	Oct. 15	11.28	Apr. 20, 1954	10.28
Oct. 15	12.00				
127-60-20aa1					
Apr. 4, 1951	20.00	Aug. 14, 1951	19.49	May 27, 1952	17.58
May 7	19.15	Aug. 16	19.59	Oct. 15	19.96
June 1	19.10	Sept. 4	19.79	Dec. 9	19.97
June 25	19.20	Sept. 10	19.70	Jan. 27, 1953	20.12
July 2	19.21	Oct. 15	20.20	Apr. 2	19.36
July 16	19.79	Nov. 28	20.42	Apr. 20, 1954	18.99
Aug. 1	19.22				
127-60-20aa2					
Sept. 10, 1951	17.11	May 27, 1952	15.85	Jan. 27, 1953	16.67
Oct. 15	17.62	Oct. 15	16.29	Apr. 2	16.90
Nov. 28	18.52	Dec. 9	16.09	Apr. 20, 1954	15.00
127-60-21aa					
Aug. 1, 1951	5.77	Sept. 11, 1951	7.75	Nov. 28, 1951	10.05
Aug. 14	6.09	Oct. 15	9.43	May 27, 1952	1.73
127-60-23aa					
Apr. 5, 1951	13.6	July 2, 1951	13.50	Aug. 16, 1951	14.20
May 7	14.00	July 9	14.44	Sept. 5	14.65
June 1	14.00	July 16	13.03	Oct. 15	15.91
June 25	13.47	Aug. 14	14.09	Nov. 28	14.87

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

127-60-23aa—Continued

Date	Water level	Date	Water level	Date	Water level
May 27, 1952	12.83	Dec. 9, 1952	16.26	Apr. 2, 1953	15.59
Oct. 15	15.90	Jan. 27, 1953	16.31		

127-60-26bbb1

Sept. 17, 1951	3.15	Oct. 1, 1951	3.71	Oct. 15, 1952	7.78
Sept. 19	3.26	Oct. 7	3.93	Dec. 9	8.25
Sept. 20	3.31	Oct. 15	4.10	Jan. 27, 1953	8.63
Sept. 23	3.37	Oct. 22	4.32	Apr. 2	9.08
Sept. 24	3.48	Nov. 29	5.23	Apr. 20, 1954	8.18
Sept. 26	3.55	May 27, 1952	7.43		

127-60-26bbb2

Aug. 11, 1951	8.80	Sept. 24, 1951	9.46	May 27, 1952	6.50
Aug. 14	8.89	Sept. 26	9.48	Oct. 15	11.10
Sept. 11	9.57	Oct. 1	9.57	Dec. 9	11.08
Sept. 17	9.38	Oct. 7	9.66	Jan. 27, 1953	11.52
Sept. 19	9.40	Oct. 15	9.73	Apr. 2	9.12
Sept. 20	9.37	Oct 22	9.82	Apr. 20, 1954	8.38
Sept. 21	9.40	Nov. 29	9.95		

127-60-26cc

Aug. 14, 1951	4.77	Oct. 15, 1951	4.82	Dec. 9, 1952	6.22
Sept. 10	5.11	Nov. 29	4.77	Jan. 27, 1953	7.24
Sept 17	6.67	May 27, 1952	.57	Apr. 2	5.17
Sept 20	5.19	Oct. 14	7.04	Apr. 20, 1954	4.02
Oct. 3	5.63				

127-60-27da

June 21, 1951	4.38	Sept. 11, 1951	4.82	Sept. 20, 1951	5.79

127-60-32dd1

May 7, 1951	6.8	Aug. 28, 1951	6.70	May 28, 1952	4.16
June 25	5.78	Sept. 11	7.42	Oct. 14	8.29
July 2	5.85	Oct. 10	7.20	Dec. 9	8.05
July 16	4.90	Nov. 29	7.04	Jan. 27, 1953	8.89
Aug. 1	5.70				

127-60-35da

Aug. 14, 1951	6.42	Nov. 29, 1951	6.95	Dec. 9, 1952	10.26
Sept. 10	7.51	May 27, 1952	4.60	Apr. 2, 1953	6.31
Sept. 20	7.68	Oct. 14	11.39	Apr. 20, 1954	5.90

127-61-3aa1

July 12, 1951	4.65	Oct. 9, 1951	6.79	Dec. 10, 1952	8.33
July 17	4.53	Nov. 30	6.63	Jan. 28, 1953	8.40
Aug. 1	5.59	May 27, 1952	4.28	Apr. 4	7.56
Aug. 14	6.18	Oct. 15	8.38	Apr. 20, 1954	6.48
Sept. 11	6.70				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
127-61-8dd					
Sept. 20, 1950	6.77	June 12, 1951	5.16	Nov. 30, 1951	6.24
Oct. 30	6.63	June 25	5.29	May 27, 1952	4.87
Nov. 28	6.81	July 2	5.62	Oct. 15	7.87
Dec. 28	6.75	July 16	5.01	Dec. 10	7.44
Feb. 6, 1951	7.00	Aug. 1	5.77	Jan. 27, 1953	7.68
Mar. 6	6.85	Aug. 14	6.15	Apr. 2	6.61
Mar. 26	5.39	Sept. 11	6.32	Apr. 20, 1954	5.93
June 1	5.64	Oct. 9	6.51		
127-61-9dd2					
Sept. 20, 1950	7.82	June 25, 1951	6.83	Jan. 31, 1952	7.7
Oct. 30	7.88	July 2	6.87	Mar. 12	7.7
Nov. 28	8.02	July 9	6.72	May 27	5.58
Dec. 28	7.85	July 16	6.63	Oct. 15	8.10
Feb. 6, 1951	8.20	Aug. 1	6.83	Dec. 10	8.27
Apr. 9	7.25	Aug. 14	7.16	Jan. 27, 1953	8.40
Apr. 26	7.31	Sept. 11	7.42	Apr. 2	7.53
June 1	7.15	Oct. 9	7.59	Apr. 20, 1954	7.25
June 13	6.92	Nov. 30	7.56		
127-61-14dd					
May 7, 1951	7.07	Aug. 14, 1951	7.48	May 27, 1952	5.62
June 1	7.40	Aug. 16	7.52	Oct. 15	10.25
June 25	7.35	Sept. 11	8.04	Dec. 9	10.17
July 2	6.73	Oct. 9	8.21	Jan. 27, 1953	10.40
July 16	5.99	Oct. 25	7.90	Apr. 2	8.74
Aug. 1	6.80	Nov. 30	7.90	Apr. 20, 1954	7.63
127-61-17baa					
Sept. 20, 1950	6.97	June 12, 1951	5.25	Oct. 9, 1951	6.81
Oct. 30	6.61	June 25	5.11	May 27, 1952	4.56
Nov. 28	6.70	July 2	5.44	Oct. 15	8.19
Dec. 28	6.75	July 16	5.11	Dec. 10	7.88
Apr. 9, 1951	5.25	Aug. 1	5.90	Apr. 2, 1953	7.26
Apr. 26	4.83	Aug. 14	6.40	Apr. 20, 1954	6.59
June 1	4.50	Sept. 11	6.60		
127-61-17bab					
Sept. 20, 1950	5.06	June 12, 1951	3.41	Sept. 11, 1951	4.29
Oct. 30	4.41	June 25	3.17	Oct. 9	4.50
Nov. 28	4.81	July 2	3.61	May 27, 1952	3.16
Dec. 28	5.30	July 16	3.43	Oct. 15	6.98
Apr. 9, 1951	2.25	Aug. 1	3.94	Dec. 10	6.54
Apr. 26	3.35	Aug. 14	4.04	Apr. 2, 1953	4.59
June 1	2.9				
127-61-17dd					
Apr. 4, 1951	10.4	Aug. 1, 1951	9.32	May 27, 1952	8.36
May 7	9.8	Aug. 14	9.70	Oct. 15	10.85
June 1	9.7	Aug. 16	9.75	Dec. 10	10.60
June 25	9.20	Sept. 11	9.84	Jan. 27, 1953	10.70
July 2	9.25	Oct. 9	9.97	Apr. 2	10.81
July 16	8.98	Nov. 30	10.13	Apr. 20, 1954	9.75

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

127-61-19dd

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	5.25	June 12, 1951	1.41	Oct. 9, 1951	4.20
Oct. 30	4.14	June 25	1.42	May 27, 1952	3.07
Nov. 27	4.35	July 2	2.43	Oct. 15	5.26
Dec. 28	4.65	July 16	1.66	Dec. 10	4.52
Apr. 27, 1951	1.90	July 31	3.56	Jan. 27, 1953	6.01
June 1	.80	Aug. 14	3.80	Apr. 2	6.26
June 7	4.67	Sept. 11	4.06		

127-61-21cc

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	6.46	June 12, 1951	5.26	Oct. 9, 1951	6.40
Oct. 30	6.54	June 25	5.31	May 27, 1952	4.43
Nov. 27	6.72	July 2	5.12	Oct. 15	6.83
Dec. 28	6.70	July 16	5.13	Dec. 10	6.98
Apr. 9, 1951	5.35	July 31	5.64	Jan. 27, 1953	7.16
Apr. 26	6.33	Aug. 14	5.99	Apr. 2	5.88
June 1	5.27	Sept. 11	6.22	Apr. 19, 1954	5.33

127-61-21dd1

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	7.67	June 25, 1951	6.41	Oct. 22, 1951	7.58
Oct. 30	7.74	July 2	6.48	Nov. 28	7.43
Nov. 27	8.11	July 9	5.96	Jan. 31, 1952	6.80
Dec. 28	8.00	July 12	5.18	Mar. 12	6.95
Feb. 6, 1951	9.30	July 16	6.11	Apr. 27	5.70
Apr. 9	6.14	July 31	6.38	Oct. 15	8.39
Apr. 26	6.60	Aug. 14	6.80	Dec. 10	8.81
June 1	6.59	Sept. 10	7.19	Jan. 27, 1953	8.91
June 4	6.26	Sept. 18	7.35	Apr. 2	6.27
June 13	6.43	Oct. 9	7.55	Apr. 20, 1954	7.09

127-61-21dd2

Date	Water level	Date	Water level	Date	Water level
July 11, 1951	5.06	Sept. 18, 1951	6.84	May 27, 1952	5.78
July 12	5.26	Oct. 9	7.00	Oct. 15	9.14
July 16	5.59	Oct. 22	7.07	Dec. 10	9.71
July 31	5.97	Nov. 28	7.32	Jan. 27, 1953	10.82
Aug. 14	6.24	Jan. 31, 1952	7.55	Apr. 2	9.48
Sept. 10	6.70	Mar. 12	7.70	Apr. 20, 1954	8.73

127-61-29ba

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	7.72	June 25, 1951	6.13	May 27, 1952	5.23
Oct. 30	7.57	July 2	6.21	Oct. 15	7.92
Nov. 27	7.87	July 16	5.85	Dec. 10	7.73
Apr. 9, 1951	6.95	July 31	6.44	Jan. 27, 1953	7.99
Apr. 26	6.82	Aug. 14	6.92	Apr. 2	6.89
June 1	6.58	Sept. 11	7.42	Apr. 20, 1954	5.51
June 12	6.28	Oct. 9	7.54		

127-61-33cc2

Date	Water level	Date	Water level	Date	Water level
Apr. 4, 1951	6.05	June 7, 1951	5.54	July 31, 1951	6.16
May 7	5.69	June 25	5.43	Aug. 14	6.42
May 14	5.99	July 2	5.77	Sept. 11	6.63
June 2	5.43	July 9	4.96	Sept. 18	6.75
June 4	5.30	July 16	5.46	Oct. 9	6.55

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
127-61-33cc2—Continued					
Nov. 28, 1951	6.75	May 27, 1952	5.08	Jan. 27, 1953	7.89
Jan. 31, 1952	7.10	Oct. 13	7.08	Apr. 1	6.17
Mar. 12	7.00	Dec. 9	7.13	Apr. 19, 1954	5.78
127-61-36cc					
Apr. 4, 1951	9.70	July 31, 1951	8.74	May 27, 1952	7.22
May 7	8.93	Aug. 14	9.28	Oct. 13	10.67
June 2	8.90	Aug. 29	9.43	Dec. 9	10.86
June 25	8.42	Sept. 10	9.49	Jan. 27, 1953	10.22
July 2	8.46	Oct. 8	9.52	Apr. 1	9.68
July 9	8.15	Nov. 29	9.52	Apr. 20, 1954	8.68
July 16	7.95				
127-62-34dc					
Sept. 20, 1950	14.92	June 25, 1951	12.19	May 29, 1952	9.99
Oct. 30	15.02	July 2	12.50	Oct. 14	15.23
Nov. 28	15.35	July 16	12.18	Dec. 8	14.85
Dec. 28	15.4	July 31	12.78	Jan. 27, 1953	15.68
Apr. 10, 1951	14.60	Sept. 11	12.97	Apr. 2	14.60
Apr. 26	13.04	Oct. 9	14.30	Apr. 19, 1954	15.60
June 2	12.93	Nov. 28	14.47		
127-62-36cd					
Sept. 20, 1950	6.16	Feb. 6, 1951	6.80	June 7, 1951	2.69
Oct. 30	6.03	Apr. 10	2.50	June 25	2.97
Nov. 28	6.32	Apr. 26	2.69	July 2	3.90
Dec. 28	6.20	June 2	1.93		
127-62-36dc					
Apr. 4, 1951	6.9	June 7, 1951	6.85	July 31, 1951	7.67
Apr. 27	4.9	June 25	6.91	Aug. 14	8.3
May 7	6.9	July 2	7.25	Sept. 11	8.44
June 2	6.9	July 16	6.91		
127-62-36dd1					
Sept. 20, 1950	7.94	June 25, 1951	6.40	Jan. 31, 1952	8.30
Oct. 30	7.94	July 2	6.71	Mar. 11	8.20
Nov. 28	8.02	July 9	6.26	May 29	6.31
Dec. 28	7.98	July 16	6.34	Oct. 14	8.82
Feb. 6, 1951	8.40	July 31	7.14	Dec. 8	8.33
Apr. 9	6.95	Sept. 11	8.00	Jan. 27, 1953	8.83
Apr. 26	6.72	Oct. 9	8.20	Apr. 2	7.64
June 2	6.89	Nov. 28	7.85	Apr. 19, 1954	6.88
June 7	6.30				
128-60-1baa					
Apr. 5, 1950	8.5	June 1, 1951	7.23	Aug. 16, 1951	7.70
June 29	6.6	June 11	7.04	Sept. 11	7.89
July 26	6.8	June 25	6.99	Oct. 8	7.10
Sept. 14	8.6	July 2	7.03	May 27, 1952	4.89
Oct. 30	8.8	July 16	6.87	Oct. 15	8.42
Nov. 28	9.04	Aug. 1	7.05	Dec. 10	8.63
Apr. 27, 1951	7.1	Aug. 13	7.63	Apr. 3	6.71

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

128-60-2ba

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1950	7.3	June 1, 1951	7.34	Sept. 11, 1951	7.24
June 29	7.2	June 11	6.63	Oct. 8	6.20
July 27	7.3	June 25	6.50	May 27, 1952	5.40
Sept. 14	7.9	July 2	6.66	Oct. 15	7.37
Oct. 30	8.2	July 16	7.17	Dec. 10	9.05
Nov. 28	8.26	Aug. 1	6.48	Jan. 28, 1953	9.06
Apr. 4, 1951	8.3	Aug. 13	6.95	Apr. 3	6.90
Apr. 27	7.6	Aug. 16	6.95		

128-60-8bbbc

June 11, 1951	2.60	July 2, 1951	3.48	Sept. 11, 1951	4.31

128-60-14dcc

Apr. 4, 1950	4.3	June 25, 1951	4.42	Oct. 9, 1951	5.27
June 29	3.8	July 2	4.72	Nov. 30	4.95
July 27	5.0	July 9	5.00	May 27, 1952	3.63
Sept. 14	5.6	July 16	3.55	Oct. 15	6.09
Nov. 28	5.78	Aug. 1	4.75	Dec. 10	5.98
Apr. 10, 1951	5.32	Aug. 13	5.04	Jan. 28, 1953	6.01
May 7	4.1	Aug. 16	5.04	Apr. 3	5.10
June 1	4.43	Sept. 12	5.12	Apr. 20, 1954	4.55
June 11	4.51				

128-60-17dc

Apr. 4, 1950	6.5	June 1, 1951	6.10	Sept. 11, 1951	6.81
June 29	6.1	June 12	5.68	Oct. 9	6.50
July 27	6.7	June 25	5.50	Nov. 30	6.35
Sept. 14	7.9	July 2	5.95	May 27, 1952	5.01
Oct. 30	8.1	July 16	5.54	Oct. 15	8.28
Nov. 28	8.15	Aug. 1	6.15	Dec. 10	7.59
Dec. 28	5.75	Aug. 13	6.63	Apr. 4, 1953	6.66
Apr. 4, 1951	7.5	Aug. 16	6.66	Apr. 20, 1954	6.55
Apr. 27	5.07				

128-60-20dd

June 12, 1951	5.56	July 2, 1951	5.83	Sept. 11, 1951	6.94

128-60-21bb1

Aug. 1, 1951	8.70	Nov. 30, 1951	8.68	Jan. 28, 1953	9.68
Aug. 13	8.88	May 27, 1952	7.08	Apr. 4	8.09
Sept. 11	9.31	Oct. 15	9.71	Apr. 20, 1954	8.82
Oct. 9	9.43	Dec. 10	9.49		

128-60-31cd

Aug. 1, 1951	6.45	Nov. 30, 1951	6.65	Dec. 10, 1952	10.03
Aug. 13	6.31	May 27, 1952	5.75	Apr. 4, 1953	8.87
Sept. 11	6.46	Oct. 15	9.12	Apr. 20, 1954	8.40
Oct. 9	6.58				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

BROWN COUNTY—Continued

128-61-2ba

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1950	13.8	June 25, 1951	10.00	Oct. 8, 1951	10.30
Oct. 30	11.6	July 2	10.00	May 27, 1952	6.92
Nov. 28	11.7	July 17	9.55	Oct. 15	11.15
Apr. 3, 1951	10.9	Aug. 1	9.55	Dec. 10	11.88
Apr. 10	11.3	Aug. 14	10.1	Jan. 29, 1953	12.15
Apr. 27	12.1	Aug. 14	10.05	Apr. 3	11.71
June 1	10.70	Sept. 11	10.16	Apr. 19, 1954	11.01

128-61-3aa

June 1, 1951	5.82	Aug. 1, 1951	5.01	Oct. 15, 1952	2.13
June 25	5.42	Aug. 14	5.3	Dec. 10	1.22
July 2	5.35	Aug. 14	5.26	Apr. 3, 1953	.90
July 9	5.27	Sept. 11	5.25	Apr. 20, 1954	4.63
July 17	5.28	Oct. 9	5.26		

128-61-4ab

Apr. 5, 1950	13.0	June 25, 1951	2.88	Oct. 9, 1951	3.5
Sept. 14	5.0	July 2	3.59	May 27, 1952	3.08
Oct. 30	5.1	July 17	2.76	Oct. 15	6.17
Nov. 28	4.16	Aug. 1	3.00	Dec. 10	5.89
May 7, 1951	1.93	Aug. 14	4.5	Apr. 3, 1953	4.76
June 1	.79	Sept. 10	4.60	Apr. 20, 1954	3.93

128-61-4db

June 6, 1951	5.46	July 2, 1951	6.14	Sept. 11, 1951	7.62

128-61-8aa

July 26, 1951	4.84	Sept. 11, 1951	5.92		

128-61-9bdc

June 6, 1951	3.64	July 2, 1951	4.65	Sept. 11, 1951	5.76

128-61-14dc1

Apr. 4, 1950	3.3	June 6, 1951	5.09	Oct. 9, 1951	4.8
June 29	5.8	June 25	5.52	Nov. 30	4.80
July 26	6.1	July 2	5.44	Jan. 31, 1952	4.88
Sept. 14	6.9	July 9	4.60	May 27	4.32
Oct. 30	6.7	July 17	4.70	Oct. 15	6.52
Nov. 28	6.62	Aug. 1	5.33	Dec. 10	6.41
Apr. 10, 1951	5.32	Aug. 14	5.54	Jan. 29, 1953	6.66
Apr. 27	5.47	Aug. 16	5.55	Apr. 3	5.61
June 1	5.75	Sept. 11	5.63	Apr. 20, 1954	5.34

128-61-14dc2

June 6, 1951	3.45	Aug. 13, 1951	4.67	Sept. 11, 1951	5.42
July 2	4.11				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
128-61-16dd					
Apr. 4, 1950	3.8	June 1, 1951	1.40	Nov. 30, 1951	3.37
June 29	2.0	June 25	2.49	May 27, 1952	2.34
July 27	3.0	July 2	3.17	Oct. 15	5.89
Sept. 14	4.5	Aug. 1	4.50	Dec. 10	5.60
Nov. 28	3.87	Sept. 12	2.96	Jan. 29, 1953	5.45
Apr. 27, 1951	1.45	Oct. 9	3.29		
128-61-19cc					
July 26, 1951	20.62	Aug. 13, 1951	20.79	Sept. 11, 1951	21.91
128-61-21cc					
Sept. 20, 1950	9.08	June 25, 1951	7.15	Jan. 31, 1952	9.45
Oct. 30	8.72	July 2	7.78	Mar. 12	9.05
Nov. 28	9.00	July 17	6.53	May 27	7.03
Dec. 28	9.50	Aug. 1	8.08	Oct. 16	11.63
Feb. 6, 1951	9.55	Aug. 14	8.84	Dec. 10	11.29
Apr. 10	7.55	Sept. 13	8.32	Jan. 28, 1953	11.54
Apr. 27	6.97	Oct. 9	8.50	Apr. 3	10.79
June 1	7.37	Nov. 30	8.54	Apr. 20, 1954	9.68
June 6	6.87				
128-61-21dd					
Sept. 20, 1950	5.99	June 25, 1951	4.99	Jan. 31, 1952	5.90
Oct. 30	6.01	July 2	5.34	Mar. 12	5.85
Nov. 28	6.28	July 17	4.87	May 27	4.44
Dec. 28	5.88	Aug. 1	5.27	Oct. 16	7.50
Feb. 6, 1951	6.55	Aug. 14	5.61	Dec. 10	6.60
Apr. 10	5.58	Sept. 13	5.14	Jan. 28, 1953	6.78
Apr. 27	5.13	Oct. 7	5.31	Apr. 3	5.93
June 1	5.64	Nov. 30	5.30	Apr. 20, 1954	4.59
June 6	5.24				
128-61-22aa					
Aug. 1, 1951	9.42	Jan. 31, 1952	10.15	Dec. 10, 1952	11.75
Aug. 14	9.90	Mar. 12	10.20	Jan. 29, 1953	11.98
Sept. 13	9.95	May 27	7.32	Apr. 3	10.90
Oct. 9	10.00	Oct. 15	11.59	Apr. 20, 1954	10.59
Nov. 30	9.80				
128-61-25dd					
June 11, 1951	4.46	Aug. 13, 1951	5.01	Sept. 11, 1951	5.11
July 2	4.68				
128-61-26bbb					
Sept. 20, 1950	12.72	Apr. 27, 1951	10.82	July 17, 1951	9.19
Oct. 30	12.59	June 1	10.71	Aug. 1	9.62
Nov. 28	12.58	June 6	10.33	Aug. 14	10.35
Dec. 28	12.20	June 21	10.04	Sept. 13	10.40
Feb. 6, 1951	12.50	June 25	9.93	Oct. 9	10.64
Apr. 10	10.78	July 2	10.01	Nov. 30	10.40

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
128-61-26bbb—Continued					
Jan. 31, 1952	10.50	Dec. 10, 1952	12.38	Apr. 3, 1953	11.73
May 27	7.09	Jan. 28, 1953	12.54	Apr. 20, 1954	10.78
Oct. 15	12.70				
128-61-32cd					
Apr. 4, 1950	3.5	June 1, 1951	2.57	Sept. 13, 1951	4.40
June 29	2.2	June 12	3.14	Oct. 9	4.44
July 26	4.2	June 25	2.96	Nov. 30	4.05
Sept. 14	5.8	July 2	3.81	May 27, 1952	3.09
Sept. 20	5.58	July 14	2.62	Oct. 15	7.85
Oct. 30	4.64	Aug. 1	4.05	Dec. 10	7.44
Nov. 28	4.74	Aug. 14	4.42	Apr. 4, 1953	6.36
Apr. 10, 1951	3.20	Aug. 16	4.40	Apr. 20, 1954	5.40
Apr. 26	2.77				
128-61-32dd					
Sept. 20, 1950	7.21	June 12, 1951	5.29	Oct. 9, 1951	7.26
Oct. 30	7.60	June 25	5.65	Nov. 30	6.57
Nov. 28	7.62	July 2	6.04	May 27, 1952	5.30
Dec. 28	7.50	July 17	5.60	Oct. 15	7.94
Apr. 9, 1951	5.85	Aug. 1	6.33	Dec. 10	8.02
Apr. 26	6.64	Aug. 14	6.80	Apr. 4, 1953	10.78
June 1	6.32	Sept. 13	7.13		
128-61-33dd1					
Sept. 20, 1950	10.71	June 25, 1951	9.89	Nov. 30, 1951	10.51
Oct. 30	10.72	July 2	10.95	Jan. 31, 1952	10.75
Nov. 28	10.95	July 9	9.85	May 27	8.89
Dec. 28	10.80	July 11	9.81	Oct. 15	10.88
Feb. 6, 1951	11.10	July 17	9.72	Dec. 10	11.05
Apr. 9	10.12	Aug. 1	9.80	Jan. 28, 1953	11.56
Apr. 26	10.19	Aug. 15	10.20	Apr. 4	10.11
June 1	10.14	Sept. 13	10.47	Apr. 20, 1954	10.00
June 12	9.95	Oct. 9	10.60		
128-61-34bc					
June 6, 1951	4.27	Aug. 13, 1951	5.63	Sept. 11, 1951	5.89
July 2	5.31				
128-61-34dd					
Sept. 20, 1950	7.94	June 25, 1951	5.24	Nov. 30, 1951	6.53
Oct. 30	7.94	July 2	5.45	May 27, 1952	4.20
Nov. 28	7.99	July 12	4.55	Oct. 15	8.32
Dec. 28	7.7	July 17	4.46	Dec. 10	8.20
Apr. 10, 1951	6.25	Aug. 1	5.48	Jan. 28, 1953	8.35
Apr. 26	6.48	Aug. 14	6.10	Apr. 4	7.52
June 1	6.21	Sept. 11	6.53	Apr. 20, 1954	6.32
June 12	5.54	Oct. 9	6.92		

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

Date	Water level	Date	Water level	Date	Water level
BROWN COUNTY—Continued					
128-61-35dcc					
Apr. 4, 1950	9.3	Apr. 10, 1951	6.52	Aug. 16, 1951	6.24
June 6	4.1	Apr. 26	6.34	Sept. 13	6.48
June 29	5.5	June 1	6.10	Oct. 9	6.57
July 27	6.4	June 12	5.24	Nov. 30	6.12
Sept. 14	7.4	June 25	5.09	May 27, 1952	4.76
Oct. 30	7.6	July 2	5.33	Oct. 15	7.65
Nov. 28	7.58	July 17	4.80	Dec. 10	7.64
Dec. 28	6.4	Aug. 1	5.62	Apr. 4, 1953	6.53
Apr. 4, 1951	6.6	Aug. 14	6.20		
128-61-35dd					
Aug. 14, 1951	6.87	Nov. 30, 1951	8.00	Dec. 10, 1952	14.10
Sept. 13	6.38	May 27	5.32	Apr. 4, 1953	12.99
Oct. 9	6.48	Oct. 15	14.60	Apr. 20, 1954	11.32
MARSHALL COUNTY					
126-57-4ab					
July 30, 1951	6.29	Sept. 10, 1951	6.40		
126-57-7bb					
July 27, 1951	13.95	Sept. 10, 1951	14.35		
126-57-8bd					
July 27, 1951	13.75	Sept. 10, 1951	14.03		
126-57-9ad					
July 30, 1951	5.33	Sept. 10, 1951	5.81		
126-57-17bb2					
July 27, 1951	4.35	Sept. 10, 1951	4.67		
126-57-17ddc					
July 30, 1951	10.49	Sept. 11, 1951	10.72		
126-57-20ad					
July 30, 1951	23.37	Sept. 11, 1951	23.72		
126-57-20bcb					
July 27, 1951	4.51	Sept. 11, 1951	4.81		

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

Date	Water level	Date	Water level	Date	Water level
MARSHALL COUNTY—Continued					
126-57-21ab					
July 30, 1951	13.79	Sept. 11, 1951	14.00		
126-57-22bba					
July 30, 1951	7.04	Sept. 11, 1951	7.29		
126-57-29aa					
July 30, 1951	14.26	Sept. 11, 1951	14.60		
126-57-30aba					
July 27, 1951	10.97	Sept. 11, 1951	11.31		
126-57-30ba					
July 30, 1951	19.80	Sept. 11, 1951	20.40		
126-57-34bc					
July 30, 1951	23.26	Sept. 11, 1951	23.46		
126-58-1cb2					
Sept. 20, 1950	8.47	June 25, 1951	8.05	Oct. 3, 1951	8.62
Oct. 31	8.52	July 3	8.05	Nov. 28	8.78
Nov. 27	8.84	July 16	7.98	May 29, 1952	6.53
Feb. 9, 1951	8.90	July 30	8.13	Oct. 14	8.36
Apr. 10	7.05	Aug. 1	8.10	Dec. 9	8.97
Apr. 27	8.15	Aug. 11	8.35	Jan. 27, 1953	9.23
May 31	8.42	Sept. 10	8.43	Apr. 2	8.79
June 4	8.38	Sept. 20	8.53	Apr. 21, 1954	7.78
126-58-4dc					
June 21, 1951	7.25	Aug. 1, 1951	8.40	Sept. 11, 1951	8.93
126-58-8cc					
Sept. 20, 1950	14.85	June 25, 1951	14.32	Nov. 29, 1951	14.93
Oct. 31	14.95	July 3	14.29	Jan. 31, 1952	15.00
Nov. 27	15.29	July 16	14.18	May 29	12.46
Dec. 29	15.32	July 18	14.18	Oct. 14	13.85
Feb. 9, 1951	15.25	Aug. 1	14.12	Dec. 9	14.21
Apr. 10	14.88	Aug. 11	14.23	Jan. 27, 1953	14.42
Apr. 27	14.72	Sept. 11	14.48	Apr. 2	14.12
May 31	14.54	Oct. 10	14.79	Apr. 21, 1954	9.64
June 8	14.15				
126-58-10aa					
June 21, 1951	3.37	Aug. 1, 1951	9.19	Sept. 11, 1951	6.85

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Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

MARSHALL COUNTY—Continued

126-58-10cb1

Date	Water level	Date	Water level	Date	Water level
June 21, 1951	5.37	Aug. 1, 1951	6.55	Sept. 11, 1951	7.01

126-58-10cb2

Date	Water level	Date	Water level	Date	Water level
June 21, 1951	4.77	Aug. 1, 1951	5.47	Sept. 11, 1951	5.71

126-58-15bb

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	8.22	June 21, 1951	7.80	Nov. 29, 1951	8.06
Oct. 31	8.60	June 25	7.73	May 29, 1952	3.77
Nov. 27	9.16	July 3	7.61	Oct. 14	9.74
Dec. 29	9.39	July 16	6.56	Dec. 9	10.56
Apr. 10, 1951	9.35	Aug. 1	6.60	Jan. 27, 1953	10.11
Apr. 27	9.36	Aug. 11	6.82	Apr. 2	9.51
May 31	8.55	Sept. 11	6.98	Apr. 21, 1954	6.33
June 8	8.02	Oct. 10	7.54		

126-58-23dd

Date	Water level	Date	Water level	Date	Water level
July 3, 1951	14.60	Aug. 11, 1951	14.73	Oct. 14, 1952	14.45
July 11	14.59	Sept. 11	14.76	Dec. 9	14.72
July 16	14.62	Sept. 20	14.78	Jan. 27, 1953	14.79
July 20	14.60	Oct. 3	14.80	Apr. 2	14.54
July 30	14.67	Nov. 28	14.90	Apr. 21, 1954	14.40
Aug. 1	14.64	May 29, 1952	13.48		

126-58-26baa

Date	Water level	Date	Water level	Date	Water level
June 21, 1951	15.51	Aug. 1, 1951	15.58		

126-58-27bb2

Date	Water level	Date	Water level	Date	Water level
June 21, 1951	11.17	Aug. 1, 1951	11.32	Sept. 11, 1951	11.52

126-58-30bbb

Date	Water level	Date	Water level	Date	Water level
Sept. 11, 1951	12.29	May 29, 1952	8.25	Jan. 27, 1953	15.64
Oct. 3	13.18	Oct. 14	15.62	Apr. 2	12.71
Nov. 28	12.94	Dec. 9	15.00	Apr. 20, 1954	10.58

126-59-1da2

Date	Water level	Date	Water level	Date	Water level
July 18, 1951	5.72	Aug. 1, 1951	6.36	Sept. 11, 1951	6.53

126-59-4ad

Date	Water level	Date	Water level	Date	Water level
Sept. 19, 1950	8.91	June 8, 1951	7.52	Oct. 7, 1951	8.22
Oct. 31	8.82	June 25	7.43	Nov. 29	7.55
Nov. 27	9.03	July 3	7.48	May 29, 1952	6.00
Dec. 29	9.00	July 16	7.94	Oct. 14	8.85
Feb. 9, 1951	9.25	July 18	6.89	Dec. 9	8.71
Apr. 10	7.45	Aug. 1	7.55	Jan. 28, 1953	9.03
Apr. 27	8.21	Aug. 11	7.87	Apr. 2	8.37
May 16	7.92	Sept. 4	8.10	Apr. 20, 1954	7.40
May 31	8.04				

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

MARSHALL COUNTY—Continued

126-59-12cd

Date	Water level	Date	Water level	Date	Water level
Sept. 20, 1950	8.65	June 25, 1951	5.99	Nov. 28, 1951	6.94
Oct. 31	8.58	July 3	6.29	Jan. 31, 1952	7.60
Nov. 20	8.85	July 16	5.79	May 28	5.42
Dec. 28	8.81	July 18	6.65	Oct. 14	8.57
Feb. 9, 1951	8.65	Aug. 1	6.68	Dec. 9	8.59
Apr. 10	6.45	Aug. 11	7.00	Jan. 27, 1953	8.72
Apr. 27	6.40	Sept. 11	7.14	Apr. 2	8.01
May 31	6.70	Oct. 10	7.09	Apr. 20, 1954	4.97
June 8	5.67				

126-59-14aab

Sept. 20, 1950	5.87	July 3, 1951	3.65	Nov. 28, 1951	4.24
Oct. 31	5.38	July 16	2.19	Jan. 31, 1952	4.85
Nov. 20	5.64	July 18	2.77	May 28	2.45
Apr. 10, 1951	3.50	Aug. 1	4.33	Oct. 14	6.18
Apr. 27	3.56	Aug. 11	4.70	Dec. 9	5.88
May 31	4.30	Sept. 11	4.90	Jan. 27, 1953	6.20
June 8	2.76	Oct. 10	4.75	Apr. 2	4.37
June 25	3.41				

126-59-17bb

June 27, 1951	13.48	July 31, 1951	13.26	Oct. 14, 1952	15.52
June 28	12.08	Aug. 11	14.07	Dec. 9	16.48
June 29	14.00	Sept. 4	14.63	Jan. 27, 1953	16.85
July 3	13.84	Oct. 10	16.26	Apr. 2	15.41
July 11	13.46	Nov. 29	16.55	Apr. 20, 1954	14.99
July 16	13.20	May 28, 1952	10.03		

126-59-20dc2

July 17, 1951	11.45	Aug. 1, 1951	11.67	Sept. 10, 1951	12.15

126-59-27dd

July 3, 1951	9.10	Sept. 11, 1951	9.72	Oct. 14, 1952	10.28
July 11	8.85	Oct. 3	10.19	Dec. 9	10.48
July 16	9.88	Nov. 28	9.90	Jan. 27, 1953	10.56
Aug. 1	9.21	May 28, 1952	7.50	Apr. 20, 1954	8.62
Aug. 11	9.63				

126-59-36bc

July 17, 1951	14.86	Aug. 1, 1951	13.78	Sept. 11, 1951	16.36

127-57-9dc1

July 30, 1951	15.56	Sept. 12, 1951	16.49		

127-57-17aa1

July 30, 1951	15.62	Sept. 12, 1951	16.68		

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

127-57-21ab

Date	Water level	Date	Water level	Date	Water level
July 27, 1951	13.72	Sept. 12, 1951	14.84		

127-57-27cb

July 30, 1951	11.89	Sept. 12, 1951	13.01		

127-57-27cbc1

July 30, 1951	5.38	Sept. 12, 1951	6.32		

127-57-28ba1

July 30, 1951	12.23	Sept. 12, 1951	13.37		

127-57-30dd

July 27, 1951	9.76	Sept. 12, 1951	11.72		

127-57-33cc

July 30, 1951	10.12	Sept. 12, 1951	11.22		

127-57-33dda

July 30, 1951	7.53	Sept. 12, 1951	8.62		

127-57-34cb1

July 30, 1951	17.99	Sept. 12, 1951	18.84		

127-58-3ccbb

May 3, 1951	12.30	Aug. 1, 1951	14.41	Sept. 11, 1951	13.32
June 25	16.20	Aug. 11	12.44		

127-58-7ccdd

May 4, 1951	10.1	Aug. 11, 1951	8.93	Sept. 11, 1951	9.87
Aug. 1	8.53				

127-58-9dddd

May 3, 1951	7.64	Aug. 11, 1951	10.13	Sept. 11, 1951	11.04

127-58-14dd

May 7, 1951	1.38	July 16, 1951	3.06	Oct. 11, 1951	5.5
May 31	3.12	July 31	4.10	Nov. 28	4.50
June 5	.61	Aug. 15	4.8	Jan. 31, 1952	5.00
June 25	2.06	Sept. 11	5.20	Mar. 11,	4.80
July 2	3.19	Oct. 7	5.42	Oct. 14	4.96

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

127-58-14dd—Continued

Date	Water level	Date	Water level	Date	Water level
Dec. 10, 1952	5.07	Apr. 2, 1953	1.57	Apr. 21, 1954	1.51
Jan. 28, 1953	5.38				

127-58-17dcda

May 4, 1951	10.16	July 31, 1951	10.77	Sept. 11, 1951	12.23
June 25	10.00	Aug. 11	11.38		

127-58-17dd1

May 4, 1951	12.13	July 31, 1951	12.22	Sept. 11, 1951	13.41
June 5	11.82	Aug. 11	12.53		

127-58-17dd2

Apr. 5, 1951	12.6	July 31, 1951	11.79	Jan. 31, 1952	13.20
May 7	12.40	Aug. 11	12.29	May 27	10.40
June 2	12.28	Aug. 18	12.33	Oct. 14	12.97
June 5	11.70	Sept. 11	11.95	Dec. 10	12.85
June 25	11.60	Oct. 7	12.79	Jan. 28, 1953	13.19
July 2	11.68	Nov. 28	12.40	Apr. 21, 1954	11.38
July 16	11.49				

127-58-18dcab

May 10, 1951	6.0	July 31, 1951	5.30	Sept. 11, 1951	6.96
June 25	8.24	Aug. 11	6.07		

127-58-19abaa

May 10, 1951	8.2	Aug. 11, 1951	7.43	Oct. 7, 1951	7.87
July 31	7.38	Sept. 11	7.63		

127-58-19cc

Sept. 19, 1950	7.95	June 8, 1951	4.36	Jan. 31, 1952	7.00
Oct. 31	7.78	June 25	5.54	Mar. 11	7.15
Nov. 28	7.98	July 2	5.93	May 27	1.89
Dec. 29	7.75	July 16	3.95	Oct. 14	7.18
Feb. 9, 1951	8.10	July 31	5.70	Dec. 10	7.15
Apr. 10	4.60	Aug. 11	6.38	Jan. 28, 1953	7.47
Apr. 27	5.70	Sept. 11	6.72	Apr. 3	5.22
May 31	5.43	Oct. 3	6.96	Apr. 20, 1954	5.59
June 5	4.96	Nov. 28	6.45		

127-58-20cc

Sept. 19, 1950	6.85	June 8, 1951	3.89	Nov. 28, 1951	6.57
Oct. 31	7.02	June 25	4.84	Jan. 31, 1952	7.10
Nov. 28	7.58	July 2	5.63	May 27	1.98
Dec. 29	7.40	July 16	5.70	Oct. 14	7.46
Feb. 9, 1951	7.85	July 31	5.84	Dec. 10	7.53
Apr. 10	4.15	Aug. 11	6.44	Jan. 28, 1953	7.74
Apr. 27	5.13	Sept. 11	6.43	Apr. 3	6.07
May 31	5.88	Oct. 3	7.27	Apr. 21, 1954	6.21

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

127-58-21cc

Date	Water level	Date	Water level	Date	Water level
Sept. 19, 1950	6.13	June 25, 1951	7.24	Jan. 31, 1952	9.40
Oct. 31	9.08	July 2	7.60	Mar. 11	9.40
Nov. 28	9.38	July 16	7.05	May 27	6.71
Dec. 29	8.85	July 31	7.76	Oct. 14	9.91
Feb. 9, 1951	9.60	Aug. 11	8.33	Dec. 10	9.80
Apr. 10	6.70	Sept. 11	8.70	Jan. 28, 1953	8.98
Apr. 27	7.28	Oct. 3	9.11	Apr. 3	8.91
May 31	7.40	Nov. 28	9.03	Apr. 21, 1954	8.35
June 8	7.66				

127-58-23caaa

May 4, 1951	26.25	Aug. 1, 1951	24.31	Sept. 11, 1951	26.25
June 25	26.31				

127-58-23dcda

May 1, 1951	29.81	Aug. 1, 1951	30.03	Sept. 11, 1951	29.63
June 25	29.94				

127-58-23dd1

May 1, 1951	21.15	Aug. 1, 1951	22.18	Sept. 11, 1951	23.41

127-58-24bcc

June 5, 1951	3.26	Aug. 1, 1951	6.26	Sept. 11, 1951	7.49

127-58-24cbbb

Apr. 30, 1951	6.89	Aug. 1, 1951	7.70	Sept. 11, 1951	7.65
June 25	7.28				

127-58-24cbcc

Apr. 30, 1951	26.47	Sept. 12, 1951	30.91		

127-58-26baaa

Mar. 1, 1951	23.39	July 3, 1951	22.54	Sept. 11, 1951	23.82
June 25	24.25				

127-58-27bbbc

May 4, 1951	18.9	July 3, 1951	19.12	Sept. 11, 1951	21.11
June 25	18.90	Aug. 1	19.56		

127-58-28adaa

May 4, 1951	20.0	June 25, 1951	19.07	Aug. 1, 1951	21.11

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

127-58-32dd

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1951	9.5	Aug. 11, 1951	12.22	May 27, 1952	6.11
June 8	11.60	Aug. 18	12.57	Oct. 14	14.00
June 25	11.66	Sept. 12	13.36	Dec. 9	15.02
July 3	11.85	Oct. 3	13.47	Jan. 27, 1953	15.28
July 16	11.06	Nov. 29	14.53	Apr. 21, 1954	11.54
Aug. 1	11.58				

127-58-36bbcc

June 21, 1951	13.10	Aug. 1, 1951	20.97	Sept. 11, 1951	21.86
July 20	15.69				

127-59-4ab

July 16, 1951	5.36	Oct. 9, 1951	6.81	Oct. 15, 1952	7.28
July 31	5.08	Nov. 28	6.84	Dec. 10	7.07
Aug. 13	6.47	May 27, 1952	4.85	Apr. 3, 1953	5.77
Sept. 12	6.59				

127-59-17dd

Apr. 5, 1951	12.7	Aug. 1, 1951	10.55	May 28, 1952	7.69
May 7	11.53	Aug. 13	11.39	Oct. 15	12.09
May 31	11.50	Aug. 18	11.49	Dec. 9	12.78
June 25	10.66	Sept. 10	13.85	Jan. 28, 1953	13.25
July 2	10.70	Nov. 28	11.35	Apr. 3	11.48
July 16	10.30	Jan. 31, 1952	10.55	Apr. 20, 1954	9.84

127-59-18dcc

June 20, 1951	6.89	Aug. 1, 1951	6.77	Sept. 11, 1951	7.84

127-59-20dd

June 20, 1951	9.58	Aug. 1, 1951	8.85	Sept. 10, 1951	9.94

127-59-23aa

May 7, 1951	12.64	July 31, 1951	13.88	Oct. 7, 1951	19.88
May 31	14.30	Aug. 13	15.40	Nov. 28	21.26
June 25	14.67	Aug. 18	15.86	May 27, 1952	12.08
July 2	15.72	Sept. 10	17.80	Oct. 14	21.83
July 16	13.52				

127-59-33aa1

July 16, 1951	10.70	Sept. 4, 1951	12.04	May 28, 1952	10.06
Aug. 1	10.89	Oct. 7	12.39	Apr. 20, 1954	12.92
Aug. 11	11.39	Nov. 28	12.76		

Table 5.—*Measurements of the water level in observation wells, in feet below land surface*—Continued

MARSHALL COUNTY—Continued

127-59-33aa2

Date	Water level	Date	Water level	Date	Water level
Sept. 10, 1950	12.83	June 25, 1951	11.26	Nov. 28, 1951	12.55
Oct. 31	13.48	July 3	11.27	Jan. 31, 1952	12.15
Nov. 27	13.41	July 16	10.40	May 28	9.09
Apr. 27, 1951	11.85	Aug. 1	10.61	Oct. 14	12.07
May 16	11.90	Aug. 11	11.13	Apr. 2, 1953	11.09
May 31	11.83	Sept. 4	11.81	Apr. 20, 1954	11.82
June 8	11.51	Oct. 7	12.31		

127-59-33ad

Date	Water level	Date	Water level	Date	Water level
Sept. 19, 1950	8.86	June 8, 1951	6.42	Jan. 31, 1952	8.45
Oct. 31	8.82	June 25	6.35	Mar. 11	8.35
Nov. 27	9.14	July 3	6.44	May 28	3.88
Dec. 29	9.05	July 16	4.93	Oct. 14	8.34
Feb. 9, 1951	8.90	Aug. 1	5.85	Dec. 9	8.54
Apr. 10	7.55	Aug. 11	6.52	Jan. 28, 1953	8.81
Apr. 27	7.37	Sept. 4	7.16	Apr. 2	7.38
May 16	7.14	Oct. 7	7.58	Apr. 20, 1954	5.52
May 31	7.14	Nov. 29	7.80		

127-59-33dd1

Date	Water level	Date	Water level	Date	Water level
Sept. 19, 1950	7.95	June 8, 1951	6.29	Jan. 31, 1952	7.25
Oct. 31	7.84	June 25	6.48	Mar. 11	7.55
Nov. 27	8.09	July 3	6.46	May 28	3.75
Dec. 29	8.00	July 16	6.05	Oct. 14	6.80
Feb. 9, 1951	8.05	Aug. 1	6.49	Dec. 9	6.92
Apr. 10	7.25	Aug. 11	6.71	Jan. 28, 1953	7.06
Apr. 27	6.97	Sept. 4	6.90	Apr. 2	6.52
May 16	6.75	Oct. 7	7.00	Apr. 20, 1954	5.73
May 31	6.80	Nov. 29	7.10		

127-59-35dd

Date	Water level	Date	Water level	Date	Water level
May 7, 1951	7.29	Aug. 1, 1951	7.78	Nov. 29, 1951	7.90
May 31	8.68	Aug. 11	8.40	May 28, 1952	6.14
June 25	7.37	Aug. 18	8.05	Oct. 14	8.68
July 3	7.67	Sept. 4	8.60	Dec. 9	8.58
July 16	7.07	Oct. 7	11.00	Apr. 20, 1954	6.85

128-57-7dd

Date	Water level	Date	Water level	Date	Water level
July 16, 1951	9.30	Nov. 28, 1951	8.00	Jan. 28, 1953	14.20
July 31	10.83	May 28, 1952	5.24	Apr. 3	10.02
Sept. 11	8.85	Oct. 15	15.26	Apr. 20, 1954	6.82
Oct. 8	8.93	Dec. 10	14.87		

128-57-16cb2

Date	Water level	Date	Water level	Date	Water level
July 30, 1951	13.20	Aug. 11, 1951	13.83	Sept. 11, 1951	14.26

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

128-57-31cc

Date	Water level	Date	Water level	Date	Water level
May 7, 1951	13.22	Aug. 18, 1951	13.88	May 27, 1952	8.99
May 31	13.52	Sept. 11	14.76	Oct. 15	15.92
June 25	13.46	Oct. 7	15.51	Dec. 10	16.53
July 16	13.73	Oct. 11	15.72	Apr. 3, 1953	12.95
July 31	14.22	Nov. 28	15.61	Apr. 21, 1954	14.45
Aug. 11	14.80				

128-58-4ab

Apr. 5, 1951	10.8	July 31, 1951	9.70	May 28, 1952	6.80
May 7	9.15	Aug. 11	10.35	Oct. 15	11.37
May 10	9.09	Aug. 18	10.38	Dec. 10	10.73
May 31	9.25	Sept. 11	10.47	Jan. 28, 1953	11.18
June 25	8.23	Oct. 7	10.49	Apr. 3	9.71
July 16	8.50				

128-58-4ad3

May 10, 1951	19.90	Aug. 1, 1951	20.10	Sept. 11, 1951	20.35
June 25	19.72	Aug. 11	20.55		

128-58-7cd

May 11, 1951	6.98	Aug. 11, 1951	7.76	Sept. 11, 1951	7.94
Aug. 1	7.41				

128-58-14cd

May 8, 1951	17.95	July 16, 1951	17.70	Oct. 8, 1951	18.18
May 31	17.55	July 31	17.84	Nov. 28	18.21
June 5	17.99	Aug. 11	17.93	Oct. 15, 1952	17.31
June 25	17.90	Aug. 18	17.97	Dec. 10	17.46
July 2	17.78	Sept. 11	18.08		

128-58-17cc

Apr. 5, 1951	7.8	July 16, 1951	6.77	Nov. 28, 1951	7.25
May 7	6.98	July 31	7.29	May 28, 1952	5.93
May 31	7.17	Aug. 11	7.66	Oct. 15	7.96
June 5	6.06	Aug. 18	7.33	Dec. 10	7.82
June 25	6.04	Sept. 11	7.41	Jan. 28, 1953	8.79
July 2	6.46	Oct. 8	7.46	Apr. 20, 1954	5.89

128-58-31da

May 4, 1951	2.95	June 5, 1951	3.07		

128-58-31dd

Apr. 27, 1951	8.65	May 31, 1951	8.53	June 25, 1951	8.11
May 4	8.48	June 5	8.34	July 16	8.30

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

MARSHALL COUNTY—Continued

128-58-31dd—Continued

Date	Water level	Date	Water level	Date	Water level
July 31, 1951	8.53	Oct. 8, 1951	8.86	Oct. 15, 1952	9.13
Aug. 11	8.82	Nov. 28	8.88	Dec. 10	9.37
Aug. 18	8.83	May 28, 1952	7.04	Apr. 3, 1953	8.56
Sept. 10	8.84				

128-58-34dd1

Apr. 5, 1951	14.7	July 31, 1951	14.29	May 28, 1952	12.70
May 4	14.58	Aug. 11	14.76	Oct. 15	15.51
May 31	14.50	Aug. 18	14.57	Dec. 10	15.51
June 25	14.01	Sept. 10	14.77	Jan. 28, 1953	15.65
July 2	14.00	Oct. 8	14.80	Apr. 3	14.80
July 16	13.94	Nov. 28	14.94	Apr. 20, 1954	11.98

128-59-1ab

May 7, 1951	6.34	Aug. 13, 1951	6.85	May 28, 1952	5.40
May 31	6.82	Aug. 18	6.29	Oct. 15	8.32
June 25	5.75	Sept. 10	6.34	Dec. 10	8.20
July 16	6.07	Oct. 8	6.40	Apr. 3, 1953	7.37
July 31	6.75	Oct. 11	6.0		

128-59-4ab

May 7, 1951	5.62	Aug. 13, 1951	6.91	May 28, 1952	3.95
May 31	6.10	Aug. 18	6.04	Oct. 15	8.17
June 25	4.93	Sept. 11	6.01	Dec. 10	7.62
July 16	5.31	Oct. 8	6.10	Apr. 3, 1953	5.78
July 31	5.97				

128-59-14dd2

May 11, 1951	16.30	July 31, 1951	16.97	Sept. 11, 1951	17.64

128-59-15aa2

May 11, 1951	17.70	July 31, 1951	17.55	Sept. 11, 1951	18.11
June 25	17.51				

128-59-15dd1

Apr. 5, 1951	11.9	July 31, 1951	11.54	May 28, 1952	9.57
May 7	11.05	Aug. 13	11.95	Oct. 15	12.81
May 31	11.25	Aug. 18	11.98	Dec. 10	12.75
June 25	10.78	Sept. 10	11.95	Jan. 28, 1953	12.94
July 2	12.04	Oct. 8	11.99	Apr. 3	11.80
July 16	11.19	Nov. 28	12.05	Apr. 20, 1954	11.59

Table 5.— *Measurements of the water level in observation wells, in feet below land surface*— Continued

Date	Water level	Date	Water level	Date	Water level
MARSHALL COUNTY—Continued					
128-59-19dd					
July 16, 1951	4.96	Oct. 9, 1951	5.93	Dec. 10, 1952	7.13
July 31	5.31	Nov. 28	5.68	Jan. 28, 1953	7.45
Aug. 13	5.79	May 27, 1952	4.07	Apr. 3	5.74
Sept. 11	5.80	Oct. 15	7.34	Apr. 20, 1954	4.88
128-59-34ad3					
July 31, 1951	8.94	Sept. 11, 1951	9.77		

[a] Above land surface.

Table 6.—*Records of shallow wells*

Owner or user: U. S. B. R., United States Bureau of Reclamation; U. S. F. W. S., United States Fish and Wildlife Service; U. S. G. S., United States Geological Survey.
Type of well: B, bored; Dn, driven; Du, dug; J, jetted.
Type of casing: C, concrete, brick, or tile; P, iron or steel pipe; W, wood.
Water-bearing material: G, gravel; S, sand.
Type of pump: C, centrifugal; Cy, cylinder; F, natural flow; J, jet.
Use of water: D, domestic; O, observation of water-level fluctuations; S, stock.
Measuring point: L, land surface; Tca, top of casing; Tco, top of cover.
Depth to water: Measured depths are given in feet, tenths, and hundredths; reported depths are given in feet.

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point			Depth to water below measuring point (feet)	Date of measurement
									Description	Height above land surface (feet)	Altitude above mean sea level (feet)		
BROWN COUNTY													
124-60- 4bb2	L. Johnson	Du	23	36	.....	S	.....	O	Tco	2.0	.....	19.32	July 23, 1951
-61- 1cc	O. Smith	D	48	3	P		J	D, S	.....	.....	.....	.....	
- 2dd	U. S. G. S.	D	59		P	S	.....	O	Tca	4.5	1,298.79	20.55	Oct. 7, 1951
- 8b	do	D	40.5		P	S	.....	O	Tca	2.0	1,297.09	25.60	Oct. 1, 1951
- 9a	do	D	38.5		P	S	.....	O	Tca	4.0	1,302.48	23.50	Do.
-10bc1	G. Alberts	D	49	2	P	S	J	D, S	.....	.....	.....	.....	
-10bc2	do	Du	20	24	W	S	Cy	.....	Tco	1.0	.....	Dry	July 25, 1951
-19aa	U. S. G. S.	J	15.5		P	S	.....	O	Tca	3.4	1,278.85	10.03	July 16, 1951
-19ab	do	J	15.0		P	S	.....	O	Tca	3.5	1,276.26	9.37	Do.
-19bb	do	J	15.0		P	S	.....	O	Tca	3.5	1,278.94	7.17	Do.
-22cd2	W. Schoppe	B	24.0	36	C	S	.....	O	Tca	1.0	1,299.81	17.32	July 25, 1951
-22dd		B	25.0	36	P	S	.....	O	Tca	1.0	1,300.96	16.29	July 24, 1951

-23da		B	24	24	P	S	Cy						
-24bc1	G. Sippel	B	3	28	P	S	Cy	D, S					
-26ad		B	17.2	36	C	S			Tca	.0		Dry	July 25, 1951
-30ac1	L. Witt	B	35.0	36	C	S	Cy	D, S	Tca	1.0	1, 302.74	28.22	July 24, 1951
-62- 1cc	B. Graves	B		24	C			O	Tca	1.5	1, 302.96	26.58	July 26, 1951
-12bb	U. S. G. S.	D	58.6	$\frac{3}{4}$	P	S		O	Tca	4.9	1, 304.78	27.42	Oct. 1, 1951
-23dbc	J. Regula	B	12.0	6	P	S	Cy	D, S					
-25cc	C. Montag	B	13.0	14	P	S	Cy	D, S	Tca	1.0		10.0	July 26, 1951
125-60- 1ab	C. Olson	B	25.0	2	P	S	J	D, S					
- 2da2	A. Swanson	B	30.0	2	P	S	Cy	D, S					
- 2da3	do	B	40.0	24	P	S	Cy	S, O	Tca	2.0		22.22	July 19, 1951
- 3cb1	V. Cutler	D	50.0	3	P	S	Cy	D, S					
-10aa2	D. Hinrichs	D	54.0	4	P	S	J	S					
-18cc2		B	54.0	4	P	S	Cy	D					
-33bb2	L. Wagner	B		36	C		Cy	S, O	Tco	1.0	1, 312	19.72	July 23, 1951
-36bc2	V. McCullough	B		4	P		J	S					
-61- 2bb		Dn		$1\frac{1}{4}$	P		Cy	D, S					
- 2cd	U. S. G. S.	J	15.5	$\frac{3}{4}$	P	S		O	Tca	3.4	1, 277.77	4.81	July 16, 1951
- 3dc	I. James	B	36.0	2	P	S	Cy	D, S					
- 5aa	D. Daly	Dn	20.0	$1\frac{1}{4}$	P	S	Cy	D, S					
- 7dd1	County School	Dn	40.0	3	P	S	Cy	D					
- 7dd2	C. Daly	Dn	40.0	3	P	S	Cy	D, S					
- 8cc	A. Daly	Dn	40.0	3	P	S	J	D, S					
- 9bb	D. Miller	B	42.0	3	P	S	Cy	D, S					
-11ba	U. S. G. S.	J	60.0	$1\frac{1}{4}$	P	S		O	Tca	2.0	1, 277.97	6.61	Oct. 1, 1951
-14ad	D. Stanley	B		3	P		J	D, S					
-17bb	R. Daly	Dn	40.0	$1\frac{1}{4}$	P	S	J	S					
-17dda	U. S. B. R.	B	25.0	3	P	S		O	Tca	1.5	1, 291.70	9.24	July 16, 1951
-20bb	W. Daly	Dn	50.0	$1\frac{1}{4}$	P	S	Cy	D, S					
-20cb1	C. Hanson	Dn	37.0	3	P	S	J	D					
-21cd	U. S. G. S.	J	17.1	$\frac{3}{4}$	P	S		O	Tca	3.9	1, 287.06	12.96	July 16, 1951
-21dd1	do	J	59.5	$\frac{3}{4}$	P	S		O	Tca	4.1	1, 300.70	20.23	Sept. 12, 1951
-21dd2	do	J	17.0	$1\frac{1}{4}$	P	S		O	Tca	4.0	1, 300.57	20.15	Do.
-23ab	P. Sinde	B	38.0	3	P	S	Cy	S					
-26bc		Dn		$1\frac{1}{4}$	P	S	Cy						

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
BROWN COUNTY—Continued													
125–61–30ac	L. Gabert	B	57.0	2	P	S	J	D, S					
-32aa	U. S. G. S.	J	15.0		P	S		O	Tca	3.3	1,284.72	8.25	July 16, 1951
-32ab	do	J	15.0		P	S		O	Tca	4.0	1,272.19	7.74	Do.
-33cd		B		24	C			O	Tca	1.5	1,296.20	14.49	July 24, 1951
-62- 1cc	H. Tople	B	80	2	P	S	J						
- 3bc	M. Knutson	D	75	6	P	S	Cy	D, S					
-14dd1	U. S. B. R.	B	23	3	P	S		O	Tca	1.5	1,307.6	24.17	July 16, 1951
-17dd	do	B	21	3	P	S		O	Tca	1.5	1,294.8	11.70	Do.
-19aa	do	B	19.2	3	P	S		O	Tca	2.0	1,294.7	12.24	Do.
-24cc	J. Daly	D			P		J	D, S					
-26ad1	U. S. G. S.	B	30	1¼	P	S		O	Tca	1.2	1,302.94	21.21	July 16, 1951
-26dd	U. S. B. R.	B	21	3	P	S		O	Tca	1.5	1,297.8	16.70	Do.
-28db1	A. Larson	B	82	3	P	S	Cy	D, S					
-28db2	do	Du		36	W		Cy	S, O	Tca	1.0	1,291.84	12.60	July 23, 1951
-30da	T. Daly	Du		36	W		J	D, S, O	Tca	1.5		25.42	July 25, 1951
-33ac	C. Larson	Du	30	30	C	S	Cy	D, O	Tca	2.0		26.11	July 24, 1951
-36ab	J. Smilloff	B	102	3	P	S	J	D, S					
126–60– 2bb	C. Perkins	B		30	C	S	Cy	D, O	Tca	1.0	1,302.50	13.72	June 26, 1951

- 6dd	G. Kenny	Du	30	36	W	S	Cy	D, S					
- 8cdc1	E. Hostetter	Dn	20	1½	P	S	Cy	D					
-10dd1	U. S. G. S.	J	16.4	1½	P	S		O	Tca	4.6	1, 302.09	19.27	July 16, 1951
-10dd2	do	J	39.6	¾	P	S		O	Tca	4.0	1, 301.16	12.56	Do.
-17cc	U. S. B. R.	B	23.0	3	P	S		O	Tca	1.1	1, 282.5	5.36	Do.
-19cc	U. S. G. S.	J	18.0	1½	P	S		O	Tca	3.0	1, 284.84	8.16	July 20, 1951
-19cd	do	J	17.5	1½	P	S		O	Tca	3.5	1, 283.62	6.76	Do.
-19dd1	do	J	17.5	1¼	P	S		O	Tca	3.5	1, 290.28	13.26	Do.
-19dd2	P. Pulfrey	Du	20	36			Cy			1.0		dry	June 26, 1951
-22cc	A. Daly	Du	28	36		S	Cy	D, S					
-23ada		Du		36	W	S	Cy	D, S	Tco	.0		19.54	June 26, 1951
-25dc	R. Pulfrey	Du	28			S	Cy	D, S					
-30cc1	U. S. G. S.	D	9.57	1½	P	S		O	Tca	1.9	1, 279.79	5.05	Nov. 29, 1951
-30cc2	do	D	58.3	¾	P	S		O	Tca	4.7	1, 282.56	7.50	Do.
-30dd	N. Hewitt	Du		36	W	S	Cy	D, S					
-31ad	A. Olson	Du		36	W	S	Cy	D, S					
-33dd	B. Gibbs	Du	25	36	W	S	J	D, S					
-34b	U. S. G. S.	D	21	1½	P	S		O	Tca	2.5	1, 305.29	12.57	Nov. 29, 1951
-35cc	C. Nietert	Du		1½	P	S	Cy	D					
-35dc2	J. Nietert	Du		24	C	S		D, S	Tca	1.0		12.59	June 27, 1951
-61- 6aa	U. S. G. S.	J	17.1	¾	P	S		O	Tca	.5	1, 296.71	5.67	July 16, 1951
- 7ab		B			P	S	Cy	D, S					
- 7dd	U. S. G. S.	J	15.0	¾	P	S		O	Tca	3.8	1, 302.79	12.01	July 16, 1951
- 9dd1	U. S. B. R.	D	95.4	1½	P	S		O	Tca	.3	1, 300.76	11.73	Do.
- 9dd2	J. Weifenback	Dn	18	1¼	P	S	Cy	D, S					
-13cc	U. S. B. R.	B	13	3	P	S		O	Tca	1.3	1, 289.2	4.99	July 16, 1951
-17dd	do	B	12	3	P	S		O	Tca	2.7	1, 292.5	6.53	Do.
-26cc	U. S. G. S.	D	39.0	¾	P	S		O	Tca	3.5	1, 290.54	8.73	Nov. 29, 1951
-27bcb	F. James	Dn	22	1¼	P	S	J	D, S					
-27cc	R. Neff	Du	38	1¼	P	S	Cy	D, S					
-28bc	F. James	Du	35		P	S	Cy	D, S					
-30cb	W. Ackerson	Du	44	3	P	S	Cy	D, S					
-30cc1	U. S. G. S.	J	15.5	¾	P	S		O	Tca	2.0	1, 306.21	9.69	July 16, 1951
-30cc2	do	J	38	¾	P	S		O	Tca	3.0	1, 306.67	10.21	Do.
-32dd	U. S. B. R.	B	15	3	P	S		O	Tca	2.0	1, 297.3	8.47	Do.
-34cb	P. Bacon	Du	30	1¼	P	S	Cy	D, S					

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
						BROWN COUNTY—Continued							
126-61-34da	R. Freeland	Du	20	1¼	P	S	Cy	D, S					
-36cc	U. S. B. R.	B	9.3	3	P	S		O	Tca	1.2	1,279.7	3.50	July 16, 1951
-62- 3bab	B. Dennert	B		2	P	S	J	D, S					
- 3bb	U. S. G. S.	J	14.0	do	P	S		O	Tca	3.3	1,306.24	7.92	July 16, 1951
-12dc	do	J	15.0	do	P	S		O	Tca	3.4	1,294.98	9.55	Do.
-13aa	do	J	15.0	do	P	S		O	Tca	3.0	1,301.75	14.64	Do.
-16ab	do	J	36.0	do	P	S		O	Tca	4.5	1,306.15	22.42	Do.
-20aa	P. Gillchrist	B	104.0	2	P	S	J	D, S					
-24ba	U. S. B. R.	B	10.0	3	P	S		O	Tca	1.0	1,292.2	5.15	July 16, 1951
-24cc	U. S. G. S.	J	15.0	do	P	S		O	Tca	4.5	1,299.74	15.46	Do.
-25aa	do	J	16.0	do	P	S		O	Tca	4.3	1,301.79	10.76	Do.
-27bb	do	J	18.3	do	P	S		O	Tca	2.7	1,295.27	8.29	Do.
-27cc	do	D	42.0	1¼	P	S		O	Tca	2.5	1,309.0	19.83	Nov. 29, 1951
-28dcb	U. S. F. W. S.	Du	69.0		P	S	Cy	D, S					
-33dd	U. S. B. R.	B	20.0	3	P	S		O	Tca	1.0	1,303.2	16.26	July 16, 1951
-34ab	U. S. G. S.	J	15.6	do	P	S		O	Tca	5.4	1,295.88	9.05	Do.

-34cc	do	J	15.5	3/4	P	S	.....	O	Tca	3.6	1,307.84	dry	Apr.	27,	1951
-35aa	do	J	15.5	3/4	P	S	.....	O	Tca	3.7	1,304.76	12.85	July	16,	1951
-35aad	W. Spiegler	B	96.0	3	P	S	Cy	D, S	.....	.....	.....	.....			
-62-35ab	U. S. G. S.	J	15.5	3/4	P	S	.....	O	Tca	3.5	1,300.85	11.45	July	16.	1951
-35dd	U. S. B. R.	B	23.0	3	P	S	.....	O	Tca	1.5	1,295.8	6.72	Do.		
-36dd	L. Albrecth	B	40.0	3	P	S	Cy	D, S	.....	.....	.....	.....			
127-60- 2abb	U. S. B. R.	B	11	3	P	S	.....	O	Tca	.2	1,292.3	5.39	Aug.	1,	1951
- 2cd	H. Wright	B	108	.....	P	G	.....	S	.....	.....	.....	.....			
- 5ba	U. S. B. R.	B	24	3	P	S	.....	O	Tca	1.6	1,289.3	11.35	Aug.	1,	1951
- 7cd	.....	Du	.....	36	W	.....	.....	O	Tca	2.5	1,287.77	8.32	Sept.	11,	1951
- 8cc1	.....	B	90	.....	P	G	.....	S	.....	.....	.....	.....			
- 9cc	I. Dinger	B	119	2	P	S	Cy	D, S	.....	.....	.....	.....			
-14dd1	U. S. G. S.	J	39.0	1 1/4	P	S	.....	O	Tca	3.0	1,293.20	12.46	Aug.	1,	1951
-14dd2	do	J	17.4	1 1/4	P	S	.....	O	Tca	4.0	1,294.30	13.62	Do.		
-19cb	W. Graf	Dn	28	1 1/4	P	S	Cy	D, S	.....	.....	.....	.....			
-20aa1	U. S. B. R.	B	23	3	P	S	.....	O	Tca	1.1	1,298.2	20.32	Aug.	1,	1951
-20aa2	U. S. G. S.	J	80	3/4	P	S	.....	O	Tca	4.0	1,299.8	21.11	Sept.	10,	1951
-21aa	do	J	14	1 1/4	P	S	.....	O	Tca	4.0	1,288.46	9.77	Aug.	1,	1951
-23aa	U. S. B. R.	B	21	3	P	S	.....	O	Tca	1.0	1,295.2	14.03	July	16,	1951
-26bbb1	U. S. G. S.	J	42.5	3/4	P	S	.....	O	Tca	4.0	1,293.60	7.15	Sept.	17,	1951
-26bbb2	do	J	16.0	1 1/4	P	S	.....	O	Tca	5.0	1,292.30	13.80	Aug.	11,	1951
-26cc	do	J	17	1 1/4	P	S	.....	O	Tca	4.0	1,288.55	8.77	Aug.	14,	1951
-27da	.....	Du	.....	36	W	S	Cy	S, O	Tco	4.0	1,288.63	8.82	Sept.	11,	1951
-30aa1	G. Sullivan	Du	44	2 1/2	P	S	J	D	.....	.....	.....	.....			
-32da	B. Fetters	Du	.....	.....	P	S	Cy	D, S	.....	.....	.....	.....			
-32dd1	U. S. B. R.	B	17	3	P	S	.....	O	Tca	1.0	1,285.6	6.70	Aug.	1,	1951
-33aa	F. Smith	Du	24	36	P	S	Cy	D, S	.....	.....	.....	.....			
-35da	U. S. G. S.	J	17.1	1 1/4	P	S	.....	O	Tca	3.9	1,292.0	10.32	Aug.	14,	1951
-35dc	P. Henley	Du	30	30	C	S	Cy	D	.....	.....	.....	.....			
-61- 1da	Swanson	B	87	5	P	G	C, F	S	.....	.....	.....	.....	May	28,	1951
- 3aa1	U. S. G. S.	J	38.5	1 1/4	P	S	.....	O	Tca	4.0	1,297.87	9.59	Aug.	1,	1951
- 3aa2	.....	Du	.....	36	W	S	Cy	D, S	.....	.....	.....	.....			
- 4dd	Kruse	Dn	25	2	P	S	Cy	D, S	.....	.....	.....	.....			
- 8dd	U. S. G. S.	J	15	3/4	P	S	.....	O	Tca	3.7	1,298.26	9.47	Aug.	1,	1951
- 9dd2	do	J	15	3/4	P	S	.....	O	Tca	4.0	1,300.30	10.83	Do.		
-13da	J. Azure	Dn	90	2	P	S	Cy	D, S	.....	.....	.....	.....			
-14cc	.....	B	.....	3	P	S	Cy	D, S	.....	.....	.....	.....			
-14dd	U. S. B. R.	B	14	3	P	S	.....	O	Tca	1.0	1,293.1	7.80	Aug.	1,	1951

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
					BROWN COUNTY—Continued								
127-61-17baa	U. S. G. S.	J	15	[illegible]	P	S		O	Tca	4.5	1,297.54	10.40	Aug. 1, 1951
-17bab	do	J	12	[illegible]	P	S		O	Tca	3.0	1,294.90	6.94	Do.
-17dd	U. S. B. R.	B	15	3	P	S		O	Tca	1.0	1,299.1	10.32	Do.
-19dd	U. S. G. S.	J	15	[illegible]	P	S		O	Tca	5.5	1,295.67	9.06	July 31, 1951
-21cc	do	J	15	[illegible]	P	S		O	Tca	3.4	1,297.95	9.04	Do.
-21dd1	do	J	15	[illegible]	P	S		O	Tca	3.8	1,300.33	10.18	Do.
-21dd2	do	J	39.2	1¼	P	S		O	Tca	2.8	1,300.16	8.77	Do.
-23bb	E. McGuire	B	78	2	P	S	Cy	D, S					
-23dd	L. Smith	B	25	3	P	S	Cy	D, S					
-25bc		B		2	P	S	Cy	S					
-25dc	H. Ackerson	B	55	3	P	S	Cy	D, S					
-29ba	U. S. G. S.	J	15	[illegible]	P	S		O	Tca	3.4	1,298.78	9.84	July 31, 1951
-31dd		Dr	60	1½	P	S	Cy	D					
-33cc2	U. S. B. R.	B	14	3	P	S		O	Tca	1.2	1,299.7	7.36	July 31, 1951
-34ad	D. Salling	B	32	3	P	S	Cy	D, S					
-34cb	A. Stevenson	Dn	21	1½	P	S	Cy	D					

-36cc	U. S. B. R.	B	16	3	P	S		O	Tca	1.5	1,300.2	10.24	July	31, 1951
-62- 2da	R. Jones	Dn		1½	P	S	Cy	D, S						
-34dc	U. S. G. S.	J	20.0	¾	P	S		O	Tca	2.3	1,302.88	15.08	July	31, 1951
-35bb	E. Podoll	B	82	8	P	S, G	J	D, S						
-36cd	U. S. G. S.	J	20.0	¾	P	S		O	Tca	3.0	1,293.90	6.90	July	2, 1951
-36dc	U. S. B. R.	B	13	3	P	S		O	Tca	.8	1,294.4	8.47	July	31, 1951
-36dd1	U. S. G. S.	J	15	¾	P	S		O	Tca	3.8	1,297.74	10.94	Do.	
128-60- 1baa	U. S. B. R.	B	24	3	P	S		O	Tca	1.5	1,321.8	8.55	Aug.	1, 1951
- 1cb	W. Wright	Dn	20	1½	P	S	Cy	D, S						
- 2ba	U. S. B. R.	B	12	3	P	S		O	Tca	1.7	1,312.6	8.18	Aug.	1, 1951
- 3dcc	L. Leigh	Dn	19	1¼	P	S	Cy	D, S						
- 4cc	H. Bailey	Du	18	30	W	S	Cy	D, S						
- 8bbbc		Du		30	W			O	Tca	1.5	1,301.61	4.98	July	2, 1951
- 9bb	Schroeder	Dn					Cy	D, S						
-10bb	B. Meyers	Dn			P		Cy	D, S						
-14aa	C. Mitchell	Dn	18	1¼	P	S	Cy	D, S						
-14dcc	U. S. B. R.	B	18	3	P	S		O	Tca	1.8	1,305.3	6.55	Aug.	1, 1951
-15ab		Dn		1¼	P		Cy	S						
-17dc	U. S. B. R.	B	11	3	P	S		O	Tca	1.5	1,293.1	7.65	Aug.	1, 1951
-20aa	Miles	Dn		1¼	P	S	Cy	D						
-20dd	F. Colestock	Du	10	36	W	S	Cy	D, O	Tca	1.0	1,295.1	6.83	July	2, 1951
-21bb1	U. S. G. S.	J	16	1¼	P	S		O	Tca	5.0	1,300.8	13.70	Aug.	1, 1951
-21bb2		Du		36	W	S	Cy							
-21dc	C. Wright	B	30	36	W	S	Cy	D, S						
-22dc	E. Donovan	Dn	20	1¼	P	S	Cy	D, S						
-23ddc		Dn		1¼	P	S	Cy	S						
-26bc1	H. Ringler	Dn		1¼	P	S	Cy	D, S						
-26bc2	do	Dn		1¼	P	S	Cy	D						
-26bc3	do	Dn			P	S	Cy	D, S						
-27cc	L. Eddy	Dn	30	2	P	S	Cy	S						
-28bb	V. Lamport	Dn		1	P	S	Cy	D, S						
-28cb1	O. Dinger	Dn		1¼	P	S	Cy	D						
-28cb2	do	Dn			P	S	Cy	S						
-29dd	D. Lemcka	B	42	3	P	S	Cy	D, S						
-31cd	U. S. G. S.	J	27	¾	P	S		O	Tca	4.0	1,286.29	10.45	Aug.	1, 1951
-33dc	L. Moerke	Dn	28	1¼	P	S	Cy	D, S						

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
						BROWN COUNTY—Continued							
128-61- 2ba	U. S. B. R.	B	17.2	3	P	S	.....	O	Tca	1.2	1,302.5	10.75	Aug. 1, 1951
- 3aa	U. S. G. S.	B	31	1¼	P	S	.....	O	Tca	.5	1,294.10	5.51	Do.
- 4ab	U. S. B. R.	B	24	3	P	S	.....	O	Tca	1.0	1,292.79	4.00	Do.
- 4db	W. Daniels	Du	12	36	W	S	Cy	S, O	Tco	2.0	1,296.87	8.14	July 2, 1951
- 7bb	H. Rosendahl	Dn	24	.....	P	S	Cy	S	.....	.....	.....	.....	
- 8aa	.....	Du	.....	48	W	S	Cy	O	Tca	1.0	1,294.48	5.84	July 26, 1951
- 9bdc	I. West	Du	11	30	W	S	Cy	D, O	Tca	1.0	1,293.75	5.65	July 2, 1951
-14dc1	U. S. B. R.	B	18	3	P	S	.....	O	Tca	2.2	1,288.7	7.53	Aug. 1, 1951
-14dc2	G. Hubert	D	85	2½	P	S	Cy	D, S, O	Tco	1.0	1,288.88	5.11	July 2. 1951
-16dd	U. S. B. R.	B	13	3	P	S	.....	O	Tca	2.2	1,293.3	6.70	Aug. 1, 1951
-19cc	C. Hubert	Du	50	18	W	S	Cy	O	Tca	1.5	.....	22.12	July 26, 1951
-21cc	U. S. G. S.	J	15	¾	P	S	.....	O	Tca	.9	1,296.38	8.98	Aug. 1, 1951
-21dd	.....do	J	15	¾	P	S	.....	O	Tca	4.3	1,298.34	9.57	Do.
-22aa	.....do	J	17	1¼	P	S	.....	O	Tca	4.0	1,302.45	13.42	Do.
-25aab	F. Lohman	B	100	2	P	G	Cy	.....	.....	.....	.....	.....	
-25dd	H. Merti	Du	.....	30	W	.....	Cy	S, O	Tca	1.0	1,291.43	5.68	July 2, 1951

-26bbb	U. S. G. S.	J	24.8	3/4	P	S	.....	O	Tca	2.0	1,298.91	11.62	Aug. 1, 1951
-32cd	U. S. B. R.	B	15	3	P	S	.....	O	Tca	1.5	1,293.6	5.55	Do.
-32dd	U. S. G. S.	J	15	3/4	P	S	.....	O	Tca	4.2	1,297.98	10.53	Do.
33dd1	....do....	J	21	3/4	P	S	.....	O	Tca	1.3	1,300.98	11.10	Do.
-34ad	C. Peterson	Du	8.6	36	W	S	Cy	D, S	Tca	1.0	.....	8.30	June 6, 1951
-34bc	P. Vanentine	Du	8	36	W	S	Cy	D, S, O	Tca	2.0	1,299.56	7.63	Aug. 13, 1951
-34dd	U. S. G. S.	J	15	3/4	P	S	.....	O	Tca	4.0	1,297.74	9.48	Aug. 1, 1951
-35bc	F. Getty	Du	8	36	W	S	Cy	D, S	.....	.....	.....	.....	
-35dcc	U. S. B. R.	B	15	3	P	S	.....	O	Tca	1.9	1,287.7	7.52	Aug. 1, 1951
-35dd	U. S. G. S.	J	28	1 1/4	P	S	.....	O	Tca	4.2	1,289.14	11.07	Aug. 14, 1951

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126-57- 3cb	A. Slater	B	40	30	C	S	Cy	D, S	Tca	3.0	.....	3.0	July 30, 1951
- 4ab	R. Bender	Du	.....	48	C	.....	Cy	S, O	Tca	2.0	1,389.25	8.29	Do.
- 7bb	Otto Tank	Du	32	48	C	S, G	Cy	D, S, O	Tca	1.5	.....	15.45	July 27, 1951
- 8bd	Don Naddy	Du	20	24	P	S	.....	O	Tca	1.0	.....	14.75	Do.
- 9ad	F. Bundrock	Du	.....	24	.....	.....	Cy	S, O	Tca	1.0	.....	6.33	July 30, 1951
-10bc	L. Bauer	D	60	6	P	S	Cy	D, S	.....	.....	.....	.....	
-17bb2	O. Knutsen	Du	100	24	P	S	Cy	S, O	Tca	1.5	.....	5.85	July 27, 1951
-17ddc	D. Adkinson	Du	.....	24	P	.....	Cy	D, O	Tca	.8	.....	11.29	July 30, 1951
-20ad	R. Andrews	Du	.....	24	P	.....	Cy	D, S, O	Tca	2.1	.....	25.47	Do.
-20bcb	R. Jones	Du	16	24	P	S	Cy	D, O	Tca	1.0	.....	5.51	July 27, 1951
-21ab	C. Hartman	B	100	24	P	S	Cy	S, O	Tca	1.1	.....	14.89	July 30, 1951
-22bba	V. Johnson	B	.....	24	P	.....	Cy	S, O	Tca	1.0	.....	8.04	Do.
-22bb	....do....	B	500	2	P	.....	Cy	D, S	.....	.....	.....	.....	
-29aa	J. Palm	Du	60	24	P	S	Cy	D, S, O	Tca	1.0	.....	15.26	July 30, 1951
-29cb	H. Johnson	Du	.....	30	.....	.....	Cy	S	Tca	.5	.....	13.54	July 27, 1951
-30aba	R. Pearson	.....	40	24	P	S	Cy	S, O	Tca	.7	.....	11.67	Do.
-30ba	S. Kann	.....	32	24	P	S	Cy	D, S, O	Tca	1.3	.....	21.10	July 30, 1951
-33ab	A. Sessler	Du	.....	48	.....	.....	Cy	S	Tca	.8	.....	47.20	Do.
-34bc	.....	....	.....	30	C	.....	Cy	O	Tca	.7	.....	23.96	Do.
-58- 1cb2	U. S. G. S.	J	24	3/4	P	S	.....	O	Tca	3.0	1,323.47	11.13	Do.
- 2da1	N. Kayl	B	20	11	C	S	Cy	D	.....	.....	.....	.....	
- 4dc	.....	Du	.....	36	C	.....	Cy	O	Tca	.8	1,313.28	9.20	Aug. 1, 1951

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
					MARSHALL COUNTY—Continued								
126-58- 8cc	U. S. G. S.	J	19	42 Also	P	S		O	Tca	2.0	1,313.05	16.12	Aug. 1, 1951
-10aa	R. Miller	Du	15		C	S	Cy	D, S, O	Tca	.2	1,312.3	9.39	Do.
-10cb1	R. Schmeider	Du		24	P		Cy	S, O	Tca	1.0	1,312.85	7.55	Do.
-10cb2	do	Du		24	P			O	Tca	1.2	1,311.74	6.67	Do.
-11adc		B			P		Cy	S					
-14cd	L. Peters	B	35	24	P	S	Cy	D, S					
-15bb	U. S. G. S.	J	20.6	Also	P	S		O	Tca	2.9	1,316.69	9.30	Aug. 1, 1951
-23dd	do	J	17.1	Also	P	S		O	Tca	4.4	1,354.16	19.04	Do.
-26baa	D. Olson			24	P		Cy	D, S, O	Tco	1.5	1,341.38	17.08	Do.
-27bb2	Town of Spain	B		18	P		Cy	O	Tco	1.5	1,328.18	12.82	Do.
-30bbb	U. S. G. S.	J	25	Also	P	S		O	Tca	5.0	1,313.29	17.29	Sept. 11, 1951
-59- 1da2		B	12.5	4	P	S	Cy	O	Tca	1.2	1,299.74	7.56	Aug. 1, 1951
- 4ad	U. S. G. S.	J	21.0	Also	P	S		O	Tca	.0	1,290.14	6.89	July 18, 1951
- 4da	R. Bauer	B	40	4	P	S	Cy	D, S					
- 6ab		B		3	P		Cy	S					
-12cd	U. S. G. S.	J	23.7	Also	P	S		O	Tca	5.4	1,305.25	11.19	July 16, 1951

-14aab	....do....	J	18.4	¾	P	S	.....	O	Tca	3.4	1,298.20	5.59	Do	
-17bb	....do....	J	18.0	1¼	P	S	.....	O	Tca	3.5	1,312.37	16.70	Do.	
-19cd2	E. Suther	B	.....	4	P	.....	Cy	S	.....	.....	.....	.....		
-20dc2	E. Symens	Du	20	.....	.....	S	Cy	D, O	Tca	1.0	1,305.92	12.45	July 17, 1951	
-27dd	U. S. G. S.	J	16.8	1¼	P	S	.....	O	Tca	4.7	1,307.17	14.58	July 16, 1951	
-31ddc	.....	Du	21	36	C	S	.....	.....	Tca	1.0	.....	dry	July 17, 1951	
-32aa1	W. Hassebrock	Du	16.5	42	C	S	.....	.....	Tca	1.0	.....	dry	Do.	
-36bc	M. Chapin	B	38	18	P	S	Cy	D, O	Tca	1.0	1,311.84	15.86	Do.	
127-57- 4dd	O. Glonstad	Du	8	48	C	S	Cy	D, S	.....	.....	.....	.....		
- 6bb	W. Lewis	B	140	2	P	S	Cy	D, S	.....	.....	.....	.....		
- 8cc2	L. Sherburne	B	28	8	C	S	J	D	.....	.....	.....	.....		
- 9dc1	T. Gronseth	B	48	24	W	S	Cy	S, O	Tca	1.0	1,366.37	16.56	July 30, 1951	
- 9dc2	....do....	B	128	3	P	S	Cy	D	.....	.....	.....	.....		
-17aa1	L. McLoughlin	B	20	30	C	S	Cy	S, O	Tco	.0	1,357.84	15.62	July 30, 1951	
-17aa2	....do....	B	15	30	C	S	Cy	D, S	.....	.....	.....	.....		
-17cb	W. Friess	B	88	2	P	S	Cy	D, S	.....	.....	.....	.....		
-18db	C. Krutsinger	B	26	48	C	S	Cy	D, S	.....	.....	.....	.....		
-19bbb	Golf Club	Du	38	1¼	P	S	Cy	D	Tco	.5	.....	26	July 30, 1951	
-19bc	O. Johnson	.....	.....	.....	.....	S	Cy	D, S	.....	.....	.....	.....		
-21ab	O. Syverson	B	40	24	P	S	Cy	S, O	Tca	1.5	1,356.75	15.22	July 27, 1951	
-21bc	.....	.....	.....	.....	P	S	Cy	S	.....	.....	.....	.....		
-21da	F. Behnke	B	20	4	P	S	Cy	S	.....	.....	.....	.....		
-27cb	C. Behnke	Du	24	48	C	S	Cy	S, O	Tca	1.4	1,388.12	15.29	July 30, 1951	
-27cbc1	H. Guyot	Du	12	48	W	S	Cy	D, S, O	Tca	1.0	1,379.56	6.38	Do.	
-28ba1	M. Behnke	Du	22	48	W	S	Cy	D, S, O	Tca	1.2	1,351.04	13.43	Do.	
-29bb	A. Elsner	B	.....	.....	P	S	Cy	.....	.....	.....	.....	.....		
-30dd	H. Carver	Du	14	48	W	S	Cy	D, O	Tca	2.0	1,338.32	11.76	July 27, 1951	
-33cc	B. Berger	Du	14	24	C	S	Cy	S, O	Tca	2.5	1,371.71	12.62	July 30, 1951	
-33dda	J. Andrews	Du	19	24	C	S	Cy	D, S, O	Tca	1.0	1,398.68	8.53	Do.	
-34cb1	W. Morris	Du	25	24	C	S	Cy	D, O	Tca	.5	.....	18.49	Do.	
-58- 2ad	H. Stokes	B	52	2	P	G	J	D, S	.....	.....	.....	11	Apr. 30, 1951	
- 3ccbb	G. Didrickson	Du	22	20	C	S	Cy	D, S, O	Tca	1.8	1,311.1	16.21	Aug. 1, 1951	
- 5bbcb	T. Larson	B	.....	1½	P	S	Cy	D	.....	.....	.....	.....		
- 7ccdc	L. Bush	D	123	1¼	P	S	J	D, S	.....	.....	.....	.....		
-7ccdd	....do....	Du	.....	36	W	S	Cy	S, O	Tco	1.1	1,295.91	9.63	Aug. 1, 1951	
- 8dcc	County School	B	.....	6	C	S	Cy	.....	.....	.....	.....	dry	May 3, 1951	
- 9dddd	A. Nordland	B	12	6	C	S	.....	O	Tca	.0	1,303.64	10.13	Aug. 11, 1951	

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
					MARSHALL COUNTY—Continued								
127-58-14dd	U. S. B. R.	B	23	3	P	S		O	Tca	1.5	1,304.0	5.60	July 31, 1951
-17dcda	P. Zuehlke	B	15	24	P	S	Cy	O	Tca	1.5	1,297.08	12.27	Do.
-17dd1	I. Larson	Du	16	36	P	S	Cy	D, S, O	Tca	1.8	1,299.25	14.02	Do.
-17dd2	U. S. B. R.	B	19	3	P	S		O	Tca	1.4	1,300.0	13.19	Do.
-18dcab	C. Bush	Du	20	36	W	G	Cy	S, O	Tco	1.4	1,290.48	6.70	Do.
-19abaa	do.	B		2	P	G	Cy	S, O					
-19abda	do.	Du	15	30	C	G		D	Tca	2.0	1,293.58	9.38	July 31, 1951
-19cc	U. S. G. S.	J	15		P	S		O	Tca	3.4	1,295.00	9.10	Do.
-20cc	do.	J	19		P	S		O	Tca	4.6	1,296.23	10.44	Do.
-21cc	do.	J	15		P	S		O	Tca	3.3	1,300.81	11.06	Do.
-23caaa	Thorpe	Du	30	24	P	S	Cy	O	Tca	1.2	1,570.81	25.51	Aug. 1, 1951
-23dabc	T. Abraham	B	44	20	C	S	Cy	D					
-23dad	C. Reylts	B	50	3	P	S	Cy	D					
-23db	C. Beck	B	60	3	P	S	Cy	D					
-23dcbc	A. Beck	B	58	3	P	S	Cy	D					
-23dccd	J. Miles	B	75	3	P	S	Cy	D					
-23dcda	H. Olson	Du		36	W		Cy	D, O	Tca	.2	1,372.74	30.23	Aug. 1, 1951

-23dd1	A. Unger	B	33	12	C	S	Cy	D, O	Tca	.5	1,364.67	22.68	Do.
-24bcc	M. Gronseth	B	18	14	W	S	Cy	D, O	Tca	1.0	1,326.39	7.26	Do.
-24cbbb	Town of Britton	Du	14	72	C	S		O	Tca	.5	1,338.43	8.20	Do.
-24cbcc	Lutheran Church	Du	40	36	C	S	Cy	D, O	Tca	1.0	1,362.68	31.91	Sept. 12, 1951
-24cccb	C. Morris	Du	22	14	W	S	Cy	D	Tca	.5	1,352.9	15.95	May 1, 1951
-25bbca	J. Dailey	B	30	6	C	S	Cy						
-26baaa	F. Kenner	B	56	24	P	S	Cy	D, O	Tca	.5	1,358.72	25.04	July 3, 1951
-27bbbc	Britton Graveyard	Du		36	C	S	Cy	D, O	Tca	.5	1,343.47	20.06	Aug. 1, 1951
-28adaa	E. Sayers	B	40	20	W	S	Cy	O	Tca	1.3	1,339.44	22.41	Do.
-32dd	U. S. B. R.	B	23	3	P	S		O	Tca	1.5	1,315.0	13.08	Do.
-36bbcc	B. Roberts	B	54	36		S	Cy	S, O	Tca	.0	1,330.49	20.97	Do.
-59- 4ab	U. S. G. S.	J	18	¾	P	S		O	Tca	4.5	1,319.43	9.58	July 31, 1951
- 8dd		B		2	P		Cy	S					
-17dd	U. S. B. R.	B	17	3	P	S		O	Tca	1.5	1,300.7	12.05	Aug. 1, 1951
-18dcc		Du		36	W			O	Tca	.3	1,288.27	7.07	Do.
-20dd	E. Fisher				P		Cy	S, O	Tca	1.5	1,286.52	10.35	Do.
-23aa	U. S. B. R.	B	23	3	P	S		O	Tca	1.0	1,324.5	14.52	July 16, 1951
-28bc		B		2	P		Cy	S					
-29aa1	E. Fisher	Du	24	18	P	S	Cy	D	Tca	1.0		13	June 20, 1951
-33aa1	U. S. G. S.	J	27	1¼	P	S		O	Tca	4.0	1,297.62	14.89	Aug. 1, 1951
-33aa2	do.	J	16	¾	P	S		O	Tca	2.0	1,295.39	12.61	Do.
-33ad	do.	J	18.5	¾	P	S		O	Tca	2.5	1,291.90	8.35	Do.
-33dd1	do.	J	18.8	¾	P	S		O	Tca	2.2	1,290.00	8.69	Do.
-34dd					P	S	J	D, S					
-35dd	U. S. B. R.	B	16	3	P	S		O	Tca	1.3	1,296.4	9.08	Aug. 1, 1951
128-57- 5ab				2½	P	S	Cy						
- 7dd	U. S. G. S.	J	26	¾	P	S		O	Tca	3.0	1,292.06	13.83	July 31, 1951
- 9dd	J. Haverly	B	160	2	P	S, G	Cy	D, S					
-16cb2	F. Eye	B		18	P	S	Cy	D, O	Tca	.0	1,289.58	13.20	July 30, 1951
-18aa	C. Swanson	B	123	2	P	S	Cy	D, S					
-18ad		B		4	P		Cy	D, S					
-18dc		B			P		J	D, S					
-19cd	B. Buisker	D	126	2	P	S	Cy		Tca	.0		18	May 7, 1951
-19dd2	Town of Kidder	D	140		P		Cy	D					
-20cd	Wurst	B	135		P		J	D, S					
-30ba	B. Buisker	B	136	2	P	S	Cy	D, S	Tca	.0		19	May 7, 1951

Table 6.—*Records of shallow wells*—Continued

Well no.	Owner or user	Type of well	Depth of well below surface (feet)	Diameter of well (inches)	Type of casing	Water-bearing material	Type of pump	Use of water	Measuring point: Description	Measuring point: Height above land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water below measuring point (feet)	Date of measurement
						MARSHALL COUNTY—Continued							
128-57-31cc	U. S. B. R.	B	23	3	P	S		O	Tca	1.6	1,306.4	15.82	July 31, 1951
-31da	O. Nelson	B			P		Cy	D, S					
-32aad1	A. McLain	B	135	4	P		Cy	D					
-58- 1aa	U. S. G. S.	J	28.5	[illegible]	P	S			Tca	2.0		dry	July 30, 1951
- 1cb2	P. Reinenweber	D	150	4	P	S, G							
- 2cc	Thorp	D	60	2	P	G	Cy	D, S					
- 3cb	J. Ordley	D	160		P	G	Cy	D, S					
- 4ab	U. S. B. R.	B	17	3	P	S		O	Tca	1.5	1,311.1	11.20	July 31, 1951
- 4ad1	Burke	D	204	2	P	G	Cy	D, S					
- 4ad2	C. Severson	B	24	22	P	S	Cy	D, S	Tca	1.0		18.62	May 10, 1951
- 4ad3	A. Severson	Du	20.8	22	C	S	Cy	D, O	Tco	.2	1,313.33	20.30	Aug. 1, 1951
- 4bd1	Farrar	D	115	2	P	S	Cy	D, S	L			12	May 10, 1951
- 4bd3	do	Du	14.5	24	C	S			Tca	2.5		7.82	Do.
- 4da1	L. Banderet	D	180	3	P	G	J	D, S	L			15.0	Do.
- 4da2	Brixey	D	184		P	S, G	Cy	D, S					
- 5dd	Henley	D	60	2	P	S	Cy	D, S	L			22	May 3, 1951

-7cd	S. Schnider	Du	15	48	W	S	Cy	D, S, O	Tca	1.0	1,298.79	8.41	Aug. 1, 1951
-12ad	Bosse	D	137	2	P	G	Cy	D, S					
-13dd	R. Pitkin	D	160	2	P	S, G	Cy	D, S					
-14ac	Bowman	D	150	2	P		Cy	S					
-14cd	U. S. B. R.	B	23	3	P	S		O	Tca	1.1	1,308.9	18.94	July 31, 1951
-17cc	do.	B	13	3	P	S		O	Tca	1.0	1,300.2	8.29	Do.
-18ba1	L. Impecoven	Dn	18	1¼	P	S	Cy	D, S	L			9	May 11, 1951
-18ba2	do.	Du	18	48	W	S	Cy	D, S	Tca	1.0	1,296.26	6.83	June 5, 1951
-20bc	do.	Dn	38		P	S	Cy	S	L			12	May 5, 1949
-24ba2	H. Rockwell	B	11.2	6	C	S			L			dry	May 7, 1951
-24ba3	do.	B		2	P		Cy						
-25ba	B. Moore	D	90	2	P	S	Cy	D, S	L			14	May 7, 1951
-27aa	H. Martins	D	131	2	P	S	Cy	D, S	L			20	May 3, 1951
-28dda	W. Stokes	B	46	2	P	S	Cy	S	L	1.3		11.30	May 4, 1951
-31da		Du	5	42	W	S		O	Tco	-.5	1,293.92	2.57	June 5, 1951
-31dd	U. S. B. R.	B	12.2	3	P	S		O	Tca	1.0	1,297.8	9.53	July 31, 1951
-34dd1	do.	B	19	3	P	S		O	Tca	1.0	1,311.1	15.29	Do.
-59- 1ab	do.	B	16	3	P	S		O	Tca	1.3	1,301.3	8.05	Do.
- 2dd	E. Carlson	Dn	25	1¼	P	S	Cy	S	L			6	May 10, 1951
- 3ad	R. Jarrett	Dn	26	1¼	P	S	Cy		L			8	Do.
- 4ab	U. S. B. R.	B	17	3	P	S		O	Tca	1.0	1,302.5	6.97	July 31, 1951
- 4cc2	C. Hastings	B	60	3	P	S	Cy	S	L			12	May 14, 1951
- 4dd	do.	D	100	3	P	S	Cy						
- 6db	do.	D	35	2	P	S	Cy	S	L			12	May 14, 1951
-10aa	R. Stevens	D	30		P	S	Cy	D, S	L			8	May 10, 1951
-12dc	J. Schnider	D	14	1½	P	S	Cy	D, S	L			9	May 11, 1951
-14dd2	C. Schuur	Du	22	24	P	S	Cy	S, O	Tco	1.0	1,308.62	17.97	July 31, 1951
-15aa1	C. Hastings	D		2	P	S	Cy	S	L			20	May 11, 1951
-15aa2	do.	D		3	P			O	Tca	2.3	1,315.58	19.85	July 31, 1951
-15dd1	U. S. B. R.	B	17	3	P	S		O	Tca	1.0	1,310.0	12.54	Do.
-15dd2	C. Schuur	Dn	20	1¼	P	S							
-19dd	U. S. G. S.	J	30	1¼	P	S		O	Tca	2.0	1,331.64	7.31	July 31, 1951
-22da	G. Ellestad	D	40	2	P	S	Cy	D, S	L			15	May 11, 1951
-22dd	do.	D	30	2	P	S	Cy		L			10	Do.
-24cb2	P. Debele	D	18	3	P	S	Cy		L			12	Do.
-29aa		B	40	3½	P	S	Cy	S					
-34ad1	John Fisher	B	27	10	C	S	Cy	D	Tco	.1		9.05	May 11, 1951
-34ad3	do.	B		24	P	S	Cy	D, S, O	Tco	2.0	1,325.66	10.94	July 31, 1951

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