Geology and Ground-Water Hydrology of the Valleys of the Republican and Frenchman Rivers Nebraska

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GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1360-H

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

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By EDWARD BRADLEY *and* CARLTON R. JOHNSON

CONTRIBUTIONS TO THE HYDROLOGY OF THE UNITED STATES

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CONTRIBUTIONS TO THE HYDROLOGY OF THE UNITED STATES

GEOLOGY AND GROUND-WATER HYDROLOGY OF THE VALLEYS OF THE REPUBLICAN AND FRENCHMAN RIVERS, NEBRASKA

By Edward Bradley and Carlton R. Johnson

ABSTRACT

The geology and ground-water resources of the upper Republican River valley west of the town of Alma, Nebr., to the Nebraska-Colorado State line and of the Frenchman River valley from its confluence with the Republican River to a point about 12 miles upstream from Wauneta, Nebr., were studied from January 1950 to April 1951. The purpose of the study was to relate the occurrence of ground water to irrigation and flood control and to aid in the evaluation of the effects of irrigation on the land in the area.

The area included in this study consists of 370 square miles of flat or gently sloping terraces and bottom land that border the Republican and Frenchman Rivers on either side. The Republican River is a comparatively shallow stream, ranging in width from about 150 feet at the western end of the area to about 300 feet at the eastern end. The channel banks are low, except where the river cuts into bordering terraces. In many places, natural levees of loose sand and gravel have been formed adjacent to the river banks.

The bedrock formations exposed in the area are the Niobrara formation and the Pierre shale of Cretaceous age and the Ogallala formation of Tertiary age. Deposits of sand and gravel, of early Pleistocene age, are present in the bottom of the ancestral Republican River valley and along the north side of the present valley. These coarse deposits are mantled by finer sediments of later Pleistocene and Recent age. Large quantities of ground water are available from the Pleistocene and Recent deposits throughout most of the Republican River valley. In the center of the valley as much as 40 to 60 feet of the deposits are saturated.

The ground-water reservoir is recharged principally by precipitation. Ground water also enters the Republican River valley by underflow through the fill of tributary valleys. Ground water is discharged by evaporation, transpiration, and effluent streams; ground water also is drawn upon extensively for irrigation, for municipal supplies, and for domestic and stock use in rural areas.

In general, ground water in the Republican River valley moves toward the river in a downstream direction. However, the direction of ground-water movement from the uplands into the valley is more transverse to the axis of the valley. The configuration of the water table is affected significantly by the configuration of the underlying bedrock floor, the ratio between recharge and discharge, and the permeability of the aquifer. In general, however, the water table in the valley conforms to the configuration of the land surface.

Depth to water throughout most of the Republican River valley ranges from about 2 feet near the river to about 40 feet adjacent to the bluffs along the edge of the valley. The water table is generally less than 10 feet at the foot of surface of the flood plain and the

lowest river terrace. In the Frenchman River valley, the depth to water ranges from less than 10 feet to about 60 feet. Seasonal water-level fluctuations are due to variations in the amount and distribution of precipitation, to temperature changes, and to other factors that affect the amounts of ground-water recharge and discharge.

Ground water in the report area is predominantly of the calcium magnesium bicarbonate type. In the extreme western part of the area, however, calcium and magnesium sulfates comprise the major part of the dissolved constituents.

This report includes records of water-level measurements, records of all wells that were measured, geologic sections, and maps showing the location of wells, the depth to water, and the contour of the water table.

INTRODUCTION

LOCATION AND EXTENT OF THE AREA

The area described in this report includes the following: The Republican River valley from Alma in south-central Nebraska to the Colorado-Nebraska State line; the valley of the Frenchman River from its confluence with the Republican near Culbertson, Nebr., to a point about 12 miles upstream from Wauneta, Nebr.; the lower valleys of Driftwood and Red Willow Creeks, tributary streams of the Republican River; and the immediate vicinity of Enders and Medicine Creek Reservoirs. The total area of about 370 square miles includes parts of Harlan, Furnas, Frontier, Red Willow, Hitchcock, Hayes, Chase, and Dundy Counties, Nebr. (See figs. 74 and 75.)

PREVIOUS INVESTIGATIONS

The first detailed study of the geology and ground-water conditions in the Republican River valley was made by G. E. Condra (1907). A report by H. A. Waite, E. C. Reed, and D. S. Jones (1946) contains much valuable information on both the geology and ground-water hydrology, and includes the results of a comprehensive program of test drilling in several southern and southwestern counties in Nebraska. The most recent information on the area, however, is a progress report by H. A. Waite and others (1948), with a section on the chemical quality of the ground water by H. A. Swenson. Reference is also made in the text to additional published and unpublished reports pertaining to the geology or water resources of the Republican River valley.

From 1934 to 1946, water-level measurements in the Republican River valley were made at relatively infrequent intervals and from widely scattered wells. In 1946, the U. S. Geological Survey installed 44 water-level observation wells and inventoried a number of private wells. In 1948 and 1949, the U. S. Bureau of Reclamation installed 137 observation wells along the Cambridge Canal and in the vicinity of Trenton and Enders Reservoirs.

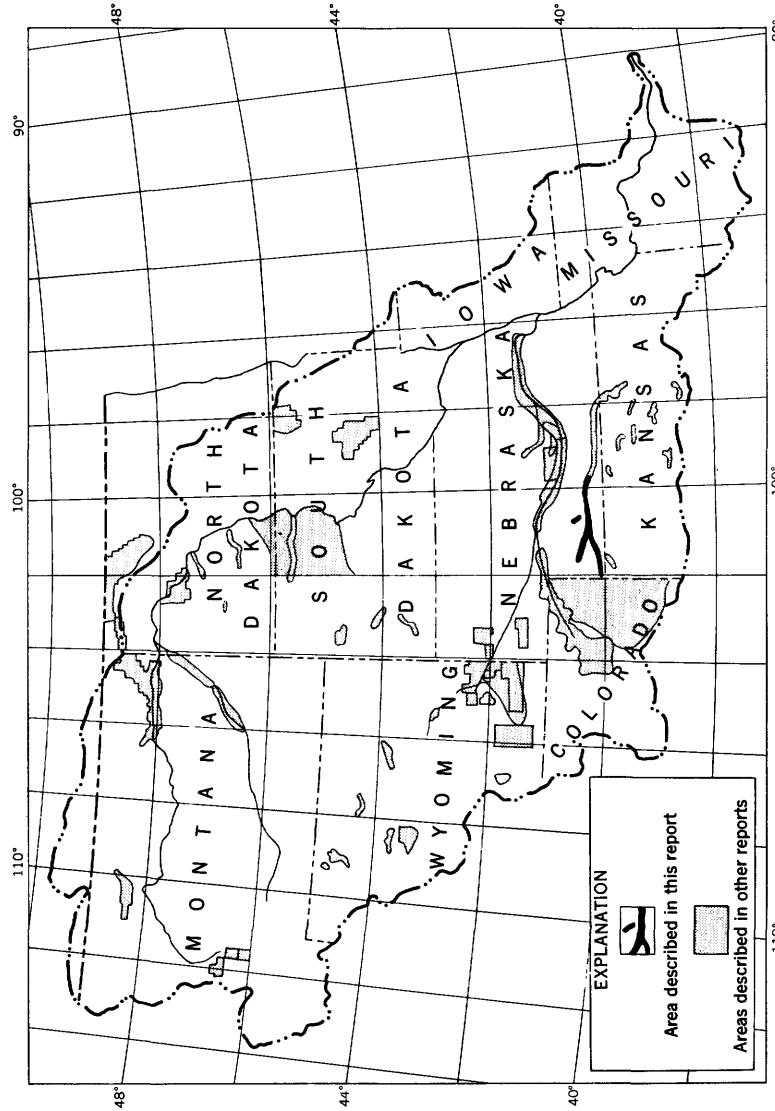

Figure 74.—Map showing areas in which ground-water studies have been made under the program for development of the Missouri River basin.

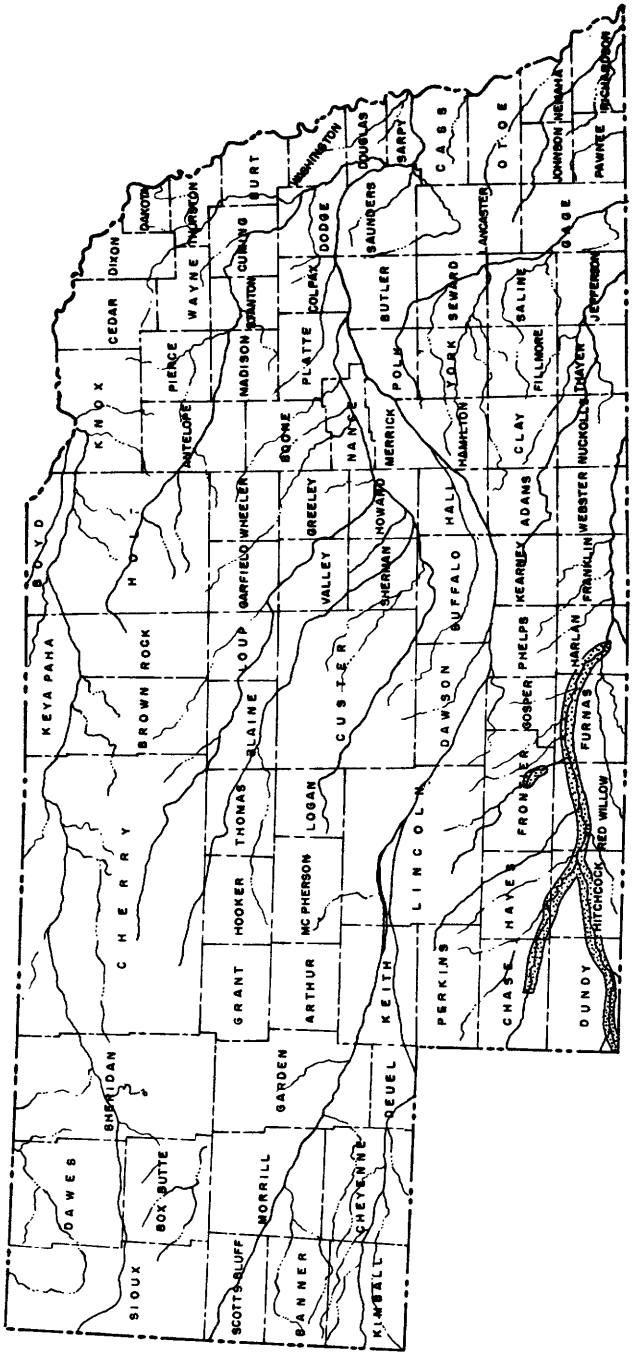

Figure 75.—Index map of Nebraska showing area described by this report.

In 1936 the U. S. Geological Survey made chemical analyses of water from 6 wells in the area, and in 1947 of an additional 16 wells. The results of these analyses are included in this report, and the location of the sampled wells is shown on plate 37.

PRESENT INVESTIGATION

The principal objectives of this investigation are to present new information and to expand, to the extent of available data, previous discussions of the geology and ground-water conditions in the area.

At the beginning of this investigation 173 wells were selected for use as observation wells in addition to those already being used for that purpose, and by the end of 1950 periodic water-level measurements were being made in 456 wells in the area. Of this total, 67 were privately owned irrigation wells and 37 were privately owned domestic or stock wells, many of which are now unused. The location of these wells is shown in plate 37. The measurements of the water level in these wells provide in large part the basis for this discussion of ground-water conditions. The discussion of the geology is based on a reconnaissance of the principal outcrops in the area and on the reports by previous investigators.

This investigation was made as a part of a program of the Department of the Interior for development of the Missouri River basin. Begun in January 1950, it was terminated abruptly in April 1951 because more urgent studies elsewhere in the Missouri River basin required the services of the personnel engaged in this investigation. Therefore, the study was not completed and the report is not as comprehensive as originally planned.

WELL-NUMBERING SYSTEM

The well-numbering system used in this report is based upon the location of the well within the land subdivision of the Bureau of Land Management's survey of the area. (See fig. 76.) The first numeral of a well number denotes the township, the second the range, and the third the section. The lowercase letters that follow the section number indicate the position of the well within the section; the first letter indicates the quarter section, the second the quarter-quarter section, and the third, if present, the quarter-quarter-quarter section, or 10-acre tract. The letters *a*, *b*, *c*, and *d*, are assigned in a counterclockwise direction, beginning in the northeast quadrant of the section, or quarter-quarter section. If two or more wells are located within the same 10-acre tract, they are distinguished by numerals following the lowercase letters.

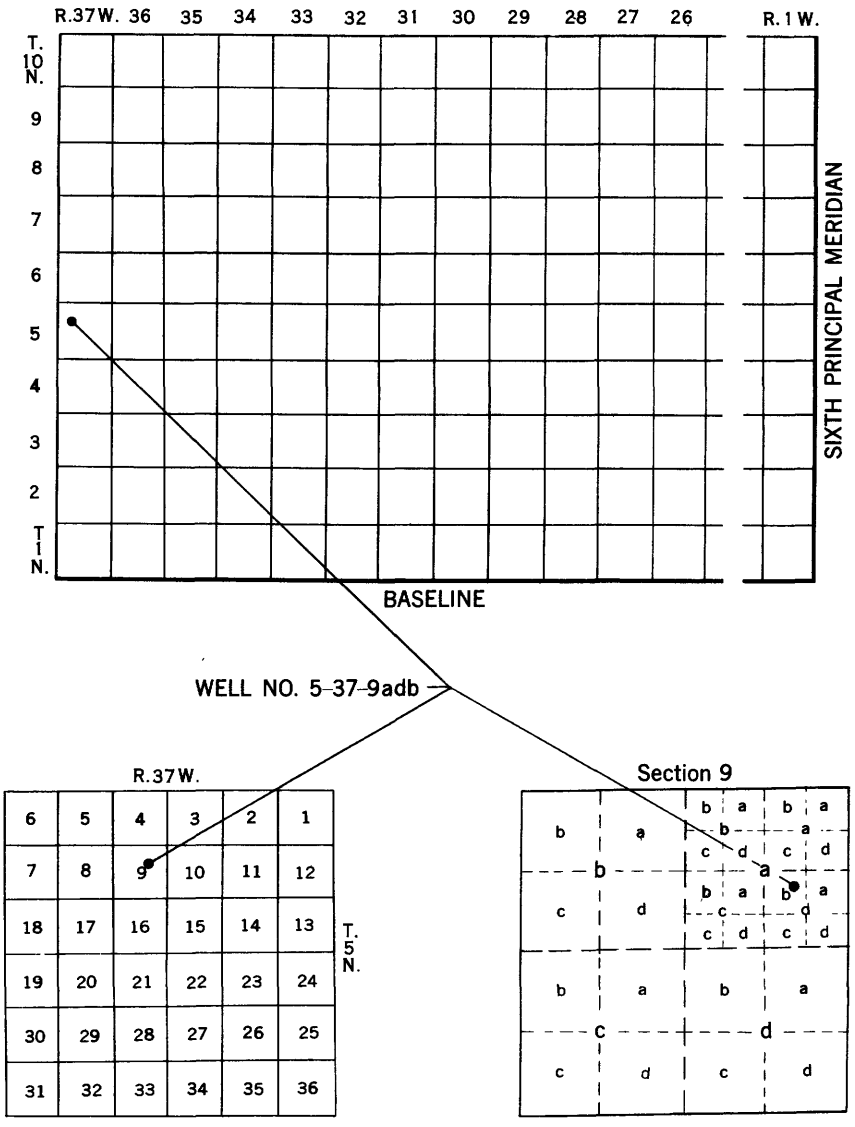

Figure 76.—Well-numbering system.

PERSONNEL AND ACKNOWLEDGMENTS

This investigation was made under the general supervision of A. N. Sayre, chief of the Ground Water Branch of the U. S. Geo-

logical Survey, and G. H. Taylor, regional engineer in charge of ground-water studies in the Missouri River basin. H. A. Waite, district geologist in charge of ground-water studies in Nebraska, directly supervised the field studies and the preparation of this report, and personnel of the Quality of Water Branch, Lincoln, Nebr., reviewed that part of the report relating to the chemical quality of the water. The late F. G. Schnittker assisted in the initial fieldwork.

E. C. Reed of the Nebraska State Geological Survey gave helpful suggestions and supplied information concerning the geology and physiography of the region. C. S. Osborn, C. T. Jamison, and others of the Kansas River District of the U. S. Bureau of Reclamation assisted in the fieldwork and also reviewed the manuscript. G. L. Whitaker of the Geological Survey supplied valuable data pertaining to surface-water conditions in the area.

Farmers and landowners throughout the valleys of the Republican and Frenchman Rivers permitted the installation of observation wells on their properties and the taking of periodic water-level measurements in these and their own private wells.

GEOGRAPHY

TOPOGRAPHY AND DRAINAGE

The western two-thirds of the area described in this report is in the High Plains section of the Great Plains physiographic province; the eastern one-third is in the Plains Border section (Fenneman, 1931). The principal streams are the Republican River and its major tributaries—the Frenchman River and the Medicine, Red Willow, and Driftwood Creeks. The interstream upland areas are comparatively flat loess plains underlain by limy sand and silt of Tertiary age. The Republican River has cut a consequent valley through the rocks of Tertiary age and into the Cretaceous formations. The tributaries likewise occupy consequent valleys, some of which have been cut into Tertiary deposits and others into the Cretaceous formations.

The valley walls are steep and are incised by many narrow tributary canyons that extend into the uplands for distances ranging from several hundred yards to several miles. Many of these tributary canyons grade into flat-bottomed draws in their upper reaches.

The Republican River flows successively in an easterly, northeasterly, and southeasterly direction in the area discussed in this report. Its gradient ranges from about 4 to 10 feet per mile. The channel width varies considerably, gradually widening downstream. In Dundy County the stream bed is generally 150 to 250 feet wide, whereas in Furnas and Harlan Counties its width in places exceeds 300 feet. Normally, the channel lies within a flood plain, which generally is less than half a mile wide. Except for the few isolated stretches where the river abuts the valley walls, its flood plain is bordered by one to three terraces, which range from about 5 to 20 feet in height and that slope gently from the valley walls toward the river. The terraces bordering the principal tributaries of the Republican River are usually better formed and more easily recognized than those along the main stream.

The flood plain of the Republican River is a slightly irregular surface that consists of abandoned meander scars, oxbow lakes, lagoons, natural levees, and sand dunes. The natural levees are present only along certain stretches of the river; they are broad irregular masses of loose sand and gravel upon which willow and cottonwood trees flourish. Oxbow and other depressional ponds occur along most of the river's course except where the valley is narrow or the river has incised into the terraces.

CLIMATE

The climate of southwestern Nebraska is typical of the Great Plains. Variability of temperature and precipitation, which causes irregular but fairly persistent recurrences of drought, is the most significant factor in the climate of the region.

Annual precipitation records for a 63-year period at McCook are shown in figure 77. A comparison of the average annual precipitation and temperature for several towns in the area, including McCook, is shown below.

Average annual precipitation and temperature at Alma, Benkelman, Imperial, and McCook, Nebr.

Town	Precipitation, in inches	Years of record	Temperature, in degrees Fahrenheit	Years of record
Alma	21.7	53	52.4	48
Benkelman	18.32	45	52.3	30
Imperial	20.73	58	50.3	57
McCook	19.85	63	52.1	48

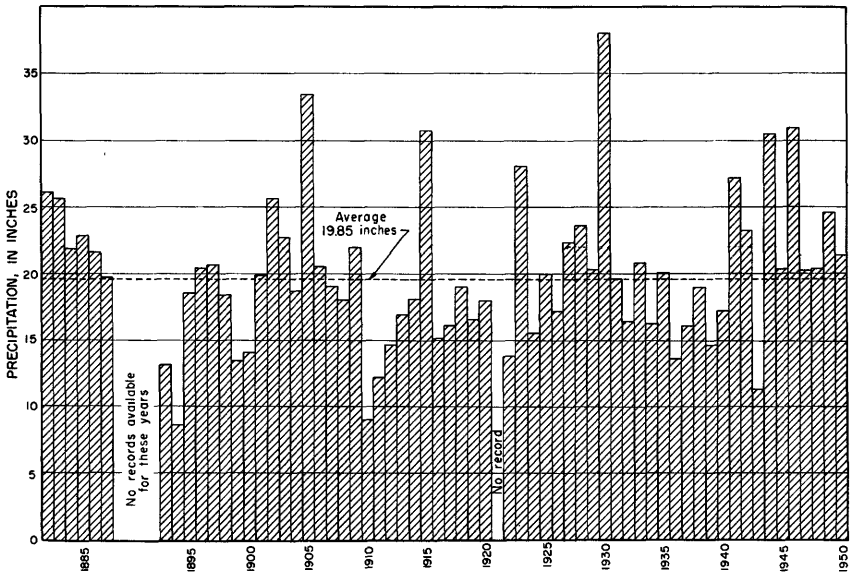

Figure 77.—Precipitation at McCook, 1882–1950. (From records of the U. S. Weather Bureau)

The total annual precipitation ranges widely from year to year, and monthly totals also differ considerably. In general, the greatest precipitation occurs in May, June, and July and the least occurs in the winter months. In addition to the variability of the precipitation in both the monthly sequence and the annual totals, a wide range is also characteristic of the areal distribution. Much of the late spring and early summer rainfall occurs as heavy local showers.

The average annual temperature at McCook, based on a 48-year record, is 52.1°F. Low temperatures in the area range from -10° to -20°F and high temperatures from 100° to 110°F. During the summer months protracted periods of high temperature accompanied by strong wind sometimes result in drought or near-drought conditions. The last killing frost in the spring usually occurs in early May, and the first killing frost usually occurs in early October. The afternoon wind velocity averages 14 to 16 miles per hour.

Ground-water recharge is directly affected by moisture conditions in the soil which in turn are dependent upon evaporation and runoff. The dependability of the ground-water supply, therefore, hinges ultimately on climatic factors. Normally, variations in atmospheric pressure produce subsequent changes in ground-water levels in the Republican River valley.

Average monthly precipitation and temperature at McCook, Nebr.

Month	Precipitation, in inches	Temperature, in degrees Fahrenheit
January	0.41	27.5
February	.66	31.4
March	.96	40.1
April	2.09	51.3
May	2.89	61.2
June	3.31	71.1
July	2.88	77.9
August	2.50	75.9
September	1.77	66.5
October	1.12	54.2
November	.66	39.4
December	.60	29.3

ECONOMIC AND CULTURAL FEATURES

The economy of the Republican River valley depends almost entirely upon agriculture. According to recent estimates by the U. S. Department of Agriculture and the Nebraska Department of Agriculture and Inspection, the income derived from beef cattle in the several counties included in this report is more than twice that derived from wheat, which is the next most important product. Corn, dairy products, and hogs, in that order, are the other leading agricultural products, and oats, barley, rye, sorghum, alfalfa, and potatoes also are common crops. However, as the order of importance of the crops is based on the entire area of each county, it does not necessarily apply also to the valley land. Corn and other irrigated crops are grown much more extensively in the river valleys.

The use of ground water in the agricultural economy has become increasingly important in recent years. In the early development of the area, water used for irrigation was obtained by diverting streamflow. Several large canals were constructed in the 1890's, and their completion probably was hastened by the severe drought in 1894-95. The drilling of a large number of irrigation wells during the dry years of the 1930's also resulted in an increase in the irrigated acreage. Although irrigation by pumping from wells is restricted largely to the valleys, wells for domestic purposes and stock watering have been drilled or dug on the uplands since early settlement of the area.

The principal municipalities in the region are situated in the stream valleys. (See pl. 37.) McCook, the largest town in the area, is about midway between Denver and Omaha and is an important railroad division point for the Chicago, Burlington & Quincy Railroad.

Most of the towns along the Republican River obtain adequate water supplies from wells in the alluvial fill of the valley.

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

Bedrock crops out in valley walls along the Republican River except on the north side of the river from the mouth of the Frenchman River to the eastern limit of the area covered by this investigation. In most places, however, the bedrock is mantled by unconsolidated materials of Pleistocene and Recent age. The bedrock formations that crop out in the area are the Niobrara formation and the Pierre shale of Late Cretaceous age and the Ogallala formation of Tertiary age.

The generalized section of geologic formations (p. 600–601) lists their thicknesses, lithologic character, and importance as a source of water supply. The stratigraphic terminology used is that of the Nebraska Geological Survey (Condra and Reed, 1943, and Condra, Reed, and Gordon, 1950).

CRETACEOUS SYSTEM

UPPER CRETACEOUS SERIES

NIOBRARA FORMATION

The Niobrara formation crops out above the Republican River and its tributaries near Cambridge, where the valley crosses the axis of the Cambridge Arch (Condra and Reed, 1943). Generally, the Niobrara formation is mantled by deposits of Quaternary age. At Edison the outcrop is relatively narrow, and the Pierre shale occupies a part of the bottom land on either side of the Republican River. Near Indianola, the Niobrara formation passes beneath the Pierre shale. Along the Republican River south of Orleans, the alluvial deposits have been partly removed, and the chalk rock of the Niobrara formation is exposed in the banks of the river. The formation also crops out in the valley walls and floor of Medicine Creek, which is tributary to the Republican River. Medicine Creek flows in a southerly to southeasterly direction, roughly parallel to the axis of the Cambridge Arch (Condra and Reed, 1943), and its valley is cut into the Niobrara formation from the mouth of the creek upstream for about 40 miles. The exposures most suitable for study were found in the talus-littered slopes and cliffs along Medicine Creek and its tributary draws and canyons.

Generalized section of the geologic formations in the valleys of the Republican and Frenchman Rivers

System	Series	Subdivision (Nebraska Geological Survey)	Thickness (feet)	Lithologic description	Water supply
Quaternary	Recent	Superficial alluvium, loess, dune sand, and topsoil	0–20	Reworked sand and gravel in the river channel and its flood plain; isolated wind deposits of clay, silt, and sand; widespread soils.	Significant only as a transmitting agent of recharge to ground water.
		Bignell loess	0–40	Local deposits of gray to buff eolian silt; lower part contains fluvial clayey silt. Present only on intermediate and lower terraces.	Do.
	Pleistocene	Sand and gravel (late Wisconsin)	0–50	Sand and gravel filling buried channels under intermediate and lower terraces.	Contains abundant supplies of water.
		—Unconformity—			
		Peorian loess	0–60	Gray to buff eolian silt and clay containing calcareous concretions and grading locally into dune sand.	In upland areas significant only as transmitting agent of recharge to ground water; in parts of the valley it occurs below the water table but does not yield water readily except where it consists of dune sand.
		—Unconformity—			
		Loveland formation	0–60	Red to brown eolian silt containing concretions; capped by a widespread "fossil" soil.	In upland areas significant only as transmitting agent of recharge to ground water; in parts of the valley it occurs below the water table but is not a source of water supply.
		Crete formation	0–20	Clean sand containing boulders of local origin; present only in local channels.	May yield water where present below water table.
		—Unconformity—			
		Sappa formation	0–25	Fluvial silt and clay containing distinct bed of volcanic ash; also contains some interbedded sand.	Not an important source of water supply.
		Holdrege and Grand Island formations, undifferentiated	0–80	Principally fluvial sand and gravel; present beneath valleys and in buried channels under upland areas.	Contains abundant supplies of water of good quality.
		—Unconformity—			

Tertiary	Pliocene	Ogallala formation	0–400	Fluvial gravel, silt, and coarse sand containing beds of limy sandstone, opaline quartzite, loesslike silt, and concretionary zones; algal limestone present at top; contains vertebrate fossils.	Do.
		—Unconformity—			
Cretaceous	Upper Cretaceous	Pierre shale	0–1,500	Marine black fossil shale containing disseminated gypsum, bentonite, and siliceous and calcareous nodular and septarian concretions. Fossil fish bones and scales present in the lowermost part; fossils of invertebrates common throughout.	Yields little water to wells; not important as an aquifer.
		Niobrara formation	200–500	Marine fossiliferous gray chalk; weathers yellow. Massive whitish-gray limestone present at base of formation.	Yields small supplies of water.
		Carlile shale	200–250	Black and gray shale containing some chalky beds; the Codell sandstone member is present at the top.	The Codell sandstone member contains water, but it is too deep to be a source of supply for either domestic use or irrigation. Remainder of formation would not yield water to wells.

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The prevailing colors of the Niobrara formation are lead gray, light gray, and yellowish gray, depending in part on the degree of weathering. Much of the weathered rock is yellow to cream, and in certain localities it is ocherous. The rock in the exposures along Medicine Creek ranges from yellow in the upper weathered part to lead gray with a bluish tint in the lower unweathered part. In places the yellow chalk is somewhat flinty. Beds of flint with a brownish, reddish, or greenish tint are present in the upper part of the formation; in the lower part of the formation the flint is present as scattered nodules. Some of the upper beds are stained bright red. The chalk weathers initially into broad thick slabs and further disintegrates into small conchoidal fragments. The orientation of the slabs is parallel to the color banding, a fact that supports the conclusion that the color bands indicate the attitude of the bedding planes. The rock consists of soft chalky limestone and limy clay. In most exposures, the chalk is fine grained, very porous, and, to a large extent, calcareous. Blocks of the chalk are light in weight and generally are rough to the touch. Areas of dense cementation follow the bedding planes, joints and cracks. Silica, the cementing agent, has filled the pores of the rock, making it darker and more dense and vitreous. It is believed that silica accumulated in the chalk subsequent to its deposition, probably during late Tertiary or Quaternary time, and that the additional cement was derived from overlying formations and was transmitted and deposited along joints and cracks by ground water. The joints and cracks are narrow, generally not more than a quarter of an inch wide. Weathered fragments of the vitreous rock show a porous coating, as much as a half an inch thick, surrounding the more dense interior; this indicates that much of the rough, porous exterior of the exposed rock formation has been formed by weathering. The formation is abundantly fossiliferous.

The Niobrara formation has been divided into two lithologically distinct members. The upper, Smoky Hill chalk member, consists of soft chalk interbedded with chalky shale; the lower, Fort Hays limestone member, consists of massive soft chalky limestone. Only the upper and middle parts of the Smoky Hill member are exposed in the area described in this report. The Niobrara formation overlies the Carlile shale, which is present at varying depths. It is overlain in most of the area by the Pierre shale. In the Medicine Creek area, however, the Pierre shale has been removed by pre-Ogallala erosion and the Niobrara formation is overlain by the Ogallala formation of Tertiary age. The thickness of the Niobrara formation in this area ranges from about 200 to 500 feet.

Although the Niobrara formation is quite porous and somewhat permeable, it is not a good aquifer. Where the Niobrara is over-

lain by the Ogallala formation, channels that were eroded into the pre-Ogallala surface and that subsequently were filled by sand and grit of the Ogallala formation drain off any water that might accumulate near the top of the Niobrara formation. There are no known arenaceous beds in the Niobrara formation that could supply a large yield of ground water to wells. However, water for domestic use on some farms in the Medicine Creek area is obtained from this formation.

PIERRE SHALE

Except in the vicinity of Cambridge, where it has been removed by erosion, the Pierre shale underlies the Republican River valley throughout the area studied in this investigation. It rests conformably on the Niobrara formation and is overlain unconformably by deposits of Tertiary age. It is exposed along the Republican River and its tributaries from the eastern edge of the area to the vicinity of Arapahoe, and from Indianola to the west boundary of the State. Because the river has cut its valley into this formation, the Pierre shale is exposed in many places along the valley walls and is present at different depths beneath the alluvium of the Republican River valley. The Pierre shale also underlies many of the tributary valleys, especially in their lowermost stretches.

The Pierre shale, where exposed along the Republican River valley in this area, consists mainly of plastic fissile carbonaceous clayey shale. The exposures of Pierre shale are relatively uniform in color—the unweathered rock generally is dark bluish gray to black, and rust-colored spots are common. In Dundy County, however, the upper part of the exposed Pierre shale is yellowish gray. Because only small thicknesses of the formation are exposed in any one locality, it is difficult to identify key beds for the purpose of correlation. Much work has been done in Kansas on the correlation of exposures by using the concretionary zones within the Pierre shale and by using paleontological evidence as a check (Elias, 1931, p. 55–56). Further detailed stratigraphic studies probably will depend upon the use of similar zoning methods. The Pierre shale, wherever exposed along the valley walls, generally is highly weathered, and only the fossils and concretions have retained their identity.

Gypsum crystals are distributed throughout the shale and weather out in great abundance on the barren slopes. Iron pyrite is present in thin layers at many horizons. The pyrite decomposes readily, and the resulting fragments of iron oxide are scattered over the surface. Streaks of limonite and selenite are common

throughout the shale, and the vertical joints that can be distinguished are marked by veins of selenite crystals. Crusts of selenite and limonite can be broken out easily along the bedding planes. Both hard and soft calcareous concretions are quite common. Fish scales are present in some of the better preserved exposures. The Pierre shale, where exposed, crumbles readily to clayey slopes, and the growth of vegetation upon such slopes almost obscures the exposures. The valleys that have been incised into the Pierre shale are shallow, and the valley sides are gentle rolling slopes.

On the basis of fossil evidence and concretionary zones, the Pierre shale in Kansas has been divided by Elias (1931) into four members. The lowermost member, the Sharon Springs, has been definitely recognized in this area. The Weskan member, which overlies the Sharon Springs member, is believed to underlie the greater part of this area, although the exact dividing line between it and the Sharon Springs member has not yet been identified because of the poor condition of the exposures. The Lake Creek member, which overlies the Weskan member, has not been recognized in the area, but it probably is present in the western part of the Republican River valley in Nebraska. It is doubted that the Salt Grass member, which overlies the Lake Creek member, crops out in the region. The thickness of the Pierre shale in this area ranges from a featheredge to as much as 1,500 feet.

Examination of the exposures of the Pierre shale and logs of wells revealed that the Pierre shale is relatively impermeable and, except for joints and fissures, will not yield appreciable amounts of ground water. Wells drilled into this formation south of McCook yield very little water, and most of these wells have been abandoned. In this locality, the overlying Ogallala formation has been drained by small valleys that have cut through it into the Pierre shale, and, as a result, the water table has been lowered until it is near the contact of the Pierre shale and the overlying Ogallala formation. In some places the flow of water along this contact or through joints in the shale could be intercepted by wells, but the amount of water obtained probably would be very small. Well drillers throughout the valley generally stop drilling when the Pierre shale is reached because the amount of water obtainable from this formation is generally insufficient to justify deeper drilling.

TERTIARY SYSTEM

PLIOCENE SERIES

OGALLALA FORMATION

The Ogallala formation is exposed along the sides of the Republican River valley and along the floor and sides of the tributary valleys. Exposures are plentiful because parts of the Ogallala are indurated and are therefore resistant to weathering. The Ogallala formation consists of limy sand and sandstone, loess-like silt that may or may not be lime cemented, unconsolidated sand and gravel, beds of volcanic ash, and, in some places, opaline-cemented sandstone. Because of the range both laterally and vertically in the lithology of the Ogallala, it is difficult to correlate exposures; key beds, based on lithology, generally are reliable only in areas of a few square miles. Fossil seeds in a restricted part of the formation seem to be the only reliable means of correlation that are usable in larger areas, although an algal limestone bed near the top of the formation is relatively widespread and is considered by Elias (1931) to be of stratigraphic significance.

A dominant feature of the Ogallala formation is the presence in nearly all exposures of mortar beds that are more resistant to deterioration than the softer intervening rocks. The mortar beds are white, except where darkened by the growth of lichens, and are composed of fine to coarse sand and gravel. The sand is chiefly quartz, pink feldspar, and some basic minerals. Some of the gravel contains subangular to well-rounded pebbles of pink granite, basic porphyries, basalts, and gabbros; their presence in cross-laminated channels suggests deposition by streams. Some of the stratigraphically higher massive limy beds contain no gritty material and are characterized by pinkish whorls and concentric crusts that suggest either an organic or concretionary origin. The algal limestone, described by Elias (1931) as the topmost horizon, has not been definitely recognized in this area.

The unconsolidated stream-deposited sand is better sorted than the sand of the lime-cemented beds and is crossbedded in a pattern that indicates reworking of the deposits in the channels. Much of the gravel and sand contains iron oxide, which has stained some particles green and some red. The other sand is brown when wet and changes to gray as it dries. The channel sand crumbles easily when exposed. It is probable that the dune sand and gravelly soils on the floor of the main valleys were derived in part from the channel sand in the Ogallala formation.

Within the horizontally bedded sand in many places are layers of giant concretions that are many feet long and that lie parallel to the bedding of the surrounding rock. These concretions are calcareous and generally are enclosed in a light-green dense opaline sandstone. The upper and lower contacts of this zone of dense cementation usually are irregular and do not coincide with any bedding planes, but cross them at small angles. The opaline sandstone grades laterally into a concretionary zone or into limy or unconsolidated sand. This silicified sandstone is more resistant to weathering than the mortar beds and, where exposed, appears as a hard undulant ledge of green vitreous rock, generally from 6 inches to 3 feet thick. In the vicinity of Medicine Creek dam, the maximum thickness of the opaline sandstone is about 6 feet. The aggregate thickness of the Ogallala formation in this area ranges from a featheredge to about 400 feet.

The Ogallala formation is a source of abundant supplies of ground water, both for irrigation and domestic use. However, yields differ considerably because of the difference in the permeability of the water-bearing materials. The water is moderately hard but is not mineralized to the extent that taste or color are affected or its use for irrigation impaired.

QUATERNARY SYSTEM

PLEISTOCENE SERIES

HOLDREGE AND GRAND ISLAND FORMATIONS, UNDIFFERENTIATED

Sand and gravel of the Holdrege and Grand Island formations, which are of the same age as the Nebraskan and Kansan till sheets, are believed to be present as fill in the ancestral Republican River trough and on the north side of the valley. These formations, the aggregate thickness of which ranges from a featheredge to about 80 feet, consists principally of sand and gravel and are mantled, except in a few places, by finer grained materials of later Pleistocene and Recent age. In this report no attempt has been made to indicate on the logs of the test holes and wells the contact between the Holdrege and Grand Island formations or the contact of these earlier sediments and those deposited later. Irrigation and domestic water supplies of good quality are obtained from the Holdrege and Grand Island formations.

SAPPA FORMATION

The Sappa formation, which overlies the Grand Island formation, is relatively soft and unconsolidated. It is believed to be of

Yarmouth age and to antedate the advance of the Illinoian continental glacier into states farther east. Most of the exposures are deeply weathered, but the formation is well exposed in a few places high on the wall of the Republican River valley.

The Sappa formation consists of greenish-gray sandy clay of fluviatile origin. Generally, a distinct bed of volcanic ash, known as the Pearlette ash member, underlies the clay and fine silt. The total thickness of the Sappa formation in this area is less than 25 feet in most places, but at Eustis, Nebr., which is 23 miles north of Holbrook, the Pearlette ash member alone is more than 15 feet thick.

The Sappa formation is relatively impermeable and is not considered to be a source of ground water.

CRETE FORMATION

The Crete formation is composed principally of poorly sorted and crossbedded clean sand and gravel and some massive beds of siltstone and clay. The formation also includes beds of large boulders that were derived chiefly from the Ogallala and Niobrara formations and which show little evidence of having been weathered or transported prior to their deposition. The poor sorting and the large size of the boulders indicate that the Crete formation in this region is composed wholly of materials of local origin. When the Crete formation was being deposited, talus from exposed bedrock provided the material that was reworked by fluvial action into then existing depressions. The deposition of fine-grained material in some places indicates the ponding of muddied waters in the boulder-choked stream courses. The sand and gravel is chiefly pink feldspar and quartz grains derived from the Ogallala formation.

The Crete formation is exposed in the area where the streams have cut steep-walled canyons into the north wall of the Republican River valley. Most of the exposures resemble talus slopes because the formation contains such a high proportion of sand, cobbles, and boulders.

In this area, the Crete formation ranges in thickness from a featheredge to about 20 feet. As it is very permeable and is generally above the water table, recharge from precipitation passes easily through it to the zone of saturation below.

Between the Crete formation and the overlying Loveland loess is a transitional zone of stratified reddish silt and sand that grades upward into the Loveland loess. This transitional zone is probably the result of the reworking by surface water of the upper part of the Crete formation and eolian silt.

LOVELAND FORMATION

The Loveland formation is composed of loess and is easily recognized because of its pinkish hue. It is useful as a reference horizon for older and younger fluvial formations that otherwise would be somewhat difficult to distinguish from each other. In the area described in this report, the Loveland formation mantles the bedrock or earlier Pleistocene formations. In this area the best exposures of the formation are found in road cuts and gullies. Its vertical columnar structure permits the loess to stand as bluffs along parts of the Republican River valley.

The Loveland formation consists of reddish-brown silt intermixed with lesser amounts of clayey material and sand. In some places the lower part of the loess is stratified. Directly above the contact of the loess with the underlying sand and gravel of the Crete formation is a thick zone of concretions similar to those present in the Peorian loess. The concretions are principally of the ramose nodular variety and the fragile tubular type that resembles calcified plant stems and roots.

Erosion of the Loveland formation after its deposition resulted in an undulating upper surface, which in many places is marked by a "fossil" soil zone. This buried soil is widely known and referred to as the Loveland soil or "*Citellus* zone." The soil does not possess a well-defined *A* horizon, but the *B* horizon is a distinct highly calcareous prismatic clay. White limy material is distributed throughout the *B* horizon in the form of white specks that average from 2 to 5 millimeters in diameter. The concentration of calcareous matter in the *B* horizon suggests a soil origin for the concretions present in the lower part of the formation. The Loveland soil itself is a good stratigraphic horizon because it marks the top of the Loveland formation and represents a period of exposure and weathering before the deposition of the overlying Peorian loess. The surface upon which this soil was formed was hilly or rolling and in places was cut by deep ravines. Several prismatic clay and calcareous zones, similar to those in the *B* horizon of the Loveland soil, are present in the Loveland formation. As these zones are not as distinctive as those in the *B* horizon, they do not detract from the value of the Loveland soil as a key horizon. The thickness of the Loveland formation in this

area ranges from a featheredge to about 60 feet. The principal hydrologic function of the Loveland loess in this area is that of transmitting water downward to the water table. However, where saturated, the Loveland may yield a small amount of water to wells.

PEORIAN LOESS

The Peorian loess mantles both valley walls of the Republican River valley. As it overlies all other formations except the Bignell loess and Recent alluvium, it is the most widely exposed formation in this area. Freshets and small streams cut into it easily.

The topography formed on the Peorian loess is almost wholly the result of erosion by water. In the uplands the surface of the loess is generally broken into a series of short steplike bluffs. Near large streams the bluffs become high and clifflike and are dissected into prominences and pinnacles. In the lower part of the valley, the meandering action of the river has terraced the loess. The subsequent downcutting of the river has left the terraces at higher levels than the present drainage.

The Peorian loess in this region is uniformly gray to buff. It consists chiefly of silt in which some sand and clay are interspersed. The upper part of the loess is massive, and its structure is characteristically columnar. Many concretions are present; some are nodular and tuberculate, and others are fragile and stemlike. The nodular concretions are the larger, and they are usually concentric in structure and oriented in horizontal bands. They are composed of calcareous material and, because of their superior cementation, commonly jut out of a wall of loess. Stream beds that have been cut into bluffs where these concretions are abundant are littered with them. The loess matrix, although calcareous, is poorly cemented and is easily leached by surface and ground waters.

The Peorian loess is characterized by a number of well-defined soil zones. A few of these zones are as much as 3 feet thick, but the majority are less than a foot thick. Soil formation on the surface of the Peorian loess is dependent largely on the condition of the slopes and on vegetation. The soil is about 8 to 12 inches thick in the area described by this report. In contrast with the light gray of the loess, zones of fossil soil within the loess are dark and are leached in their upper part. Gastropod shells are common in the fossil soils, and, because the gastropods were gregarious in habit, the shells are either very abundant or completely absent. Stratified zones characterized by dark streaks

are present in the lower part of the Peorian loess. The dark streaks probably are thin soils or slope wash derived from soil exposed nearby. A stratified zone is rarely overlain by massive unstratified loess; it probably represents fluvial deposition in valleys dissected during an earlier eolian phase. The thickness of the Peorian loess in this area ranges from a featheredge to as much as 60 feet.

The hydrologic function of the Peorian loess is similar to that of the Loveland, and it also is a possible source of water where saturated. The rolling topography of the Peorian loess is conducive to high runoff of precipitation, particularly that occurring as heavy showers in areas where the native vegetation had been denuded by overgrazing or improper cultivation. As a result, much water needed for the growth of vegetation is lost, and the recharge to underlying aquifers is correspondingly less.

SAND AND GRAVEL OF LATE WISCONSIN AGE

The Republican River valley was eroded rather deeply and refilled with alluvial sediments several times during and following the deposition of the Peorian loess. This period of repeated downcutting and subsequent aggradation resulted in the formation of the several terraces along the Republican River. The deposits of sand and gravel that underlie these terraces and the younger deposits (Bignell loess and Recent alluvium) are saturated and are the source of abundant water supplies. The deposits range in thickness from a featheredge to about 50 feet.

PLEISTOCENE AND RECENT SERIES

BIGNELL LOESS

The Bignell loess mantles the intermediate and lower terraces, and in places on the uplands it overlies the Peorian loess. This loess is very similar to the Peorian loess and consists of buff eolian silt. On the intermediate and lower terraces, the lower part contains clayey fluvial silt. The hydrologic function of this formation is chiefly that of a transmitting agent. It does not supply water to any wells in the area.

ALLUVIUM

Since late Wisconsin time the terrace deposits of earlier ages have been gradually eroded; this material, plus material eroded

from the sides of the valleys, has been spread over the floor of the Republican River valley by the river during flood stage; and as a result, the present flood plain is about 5 feet higher than the normal river surface. The younger terraces also have been mantled by slope wash from the older and higher terraces. This material ranges from coarse talus to fine clay; however, the larger portion consists of silt and fine sand, which were derived from the easily eroded loess that caps the valley sides. The lack of forest cover and the reduction of soil-holding grasses accelerated the process of erosion. The eroded silt is spread uniformly over the valley floor to a depth ranging from a few inches to 10 feet and mantles much of the sand and gravel of earlier deposition. The fill of the smaller stream valleys and canyons is chiefly silt, which contains many cobbles, pebbles, gravel, and sand. The amount of disintegrated material has been too great for the streams to transport, and the resultant flat-bottomed draws now reach far into the divide. The steep walls of these draws and the wide valley flats are characteristic of this region.

Most wells in the Republican River valley tap the older, more permeable sand and gravel; but in the smaller tributary valleys and draws, the Recent alluvium is the common aquifer for stock and domestic wells. Wells in the alluvium are shallow and often go dry; many have been abandoned. As the thickness and extent of the aquifer is limited by the bedrock floor and the valley sides, the ground-water supplies are dependent on local precipitation.

A geologic section of the Republican River valley a mile west of McCook (see pl. 38) shows the great quantity of unconsolidated material filling the shallow trough that has been cut into the Pierre shale and the relationship of this valley fill to the bedrock formations underlying the valley sides. The profile of the water table also is shown in the cross section.

The floor of the valley is shown in the cross section to be underlain to a depth of 6 to 10 feet by terrace deposits of silt. The terraces, however, are poorly defined. Underlying the terrace deposits are widespread beds of sand, gravel, and clay. On the north side of the valley a definite shelf is cut into the Pierre shale. Both sides of the valley are mantled by the Peorian loess and the Loveland formation, and Tertiary formations underlie the loess mantle on the south side of the valley.

The geologic section is based on the logs of test holes drilled in 1939 in connection with the cooperative Federal-State ground-water program and on the logs of hand-augered test holes and observation wells installed in 1950. The position of the water table

is based on measurements made in October 1950 of the water level in observation wells near the line of the geologic section.

GROUND WATER

OCCURRENCE

Large quantities of ground water are available throughout most of the Republican River valley in Nebraska. Alluvial deposits of sand and gravel underlying the present valley act both as excellent conduits and as large storage reservoirs for ground water. Generally, the thickness of the sand and gravel is greatest near the center of the valley. The zone of saturation in most places near the center of the Republican River valley is 40 to 60 feet thick, and in a few places it is a little more than 60 feet thick. Near the valley sides, however, the thickness of the zone of saturation ranges from less than a foot to about 20 feet. The thickness of the saturated water-bearing materials in the valleys of the Republican River and its principal tributaries is shown on maps published by Waite, Reed, and Jones (1946).

Although the quantity of water in the Ogallala and other formations under the valley slopes of the Republican River and the tributary streams differs considerably from place to place, adequate supplies generally are available for domestic and stock use.

RECHARGE

Recharge to the ground-water reservoir from precipitation occurs frequently throughout the Republican River valley. The alluvial material underlying the topsoil facilitates rapid recharge, and where the water table is less than 10 feet below the land surface, a rise in ground-water level often is noticeable within a day or two after heavy showers. In the Frenchman River valley, however, the depth to water is more than 10 feet and recharge from rainfall is much less rapid.

Melting snow and ice also recharge the ground-water reservoir. The amount of recharge from this source, however, is not very great because the snowfall in this area usually is relatively light. Recharge from snowmelt is probably greatest where the snow has accumulated in drifts along roads and fences.

The condition of the soil is a governing factor in the amount of precipitation that will infiltrate to the ground-water reservoir. Soil that is finely tilled often becomes a slick, almost impervious

surface when wet, and a large proportion of the rainfall on such surfaces runs off as surface water. Untilled land covered by abundant vegetation, however, tends to retain its original porous structure; water enters it easily, and that not retained by the soil or absorbed by plants infiltrates to the zone of saturation.

In stretches where it is influent, the Republican River contributes to the ground-water reservoir underlying the flood plain. For example, about 1 mile southwest of McCook the Republican River is a losing stream, a condition shown by both the geologic section (pl. 38) and the water-table contour map (pl. 39). The North Fork of the Republican River has built up natural levees that have raised the level of the river higher than that of the water table adjacent to the river, thus causing the river to lose water to the ground-water reservoir. An indication of ground-water recharge from the river is shown in figure 78. Well 1–41–20dd is situated several miles east of the North Fork gaging station, well 3–31–17cd is about 2 miles southeast of the Frenchman River gaging station, and well 2–19–28dd is about $2\frac{1}{2}$ miles southeast of the Orleans gaging station. If the changes of the water level in these wells were due to recharge from local precipitation, they probably would not correlate so closely with the rise and fall of the river which necessarily reflects the amount and distribution of precipitation over its entire drainage basin.

The quantity of recharge by underflow from the upland areas to the Republican River valley is undetermined and would be difficult to estimate.

Conclusive evidence of ground-water recharge from the north was shown by Lugn and Wenzel (1938, pls. 9 and 14). Their publication showed that eight streams between Edison and Alma flow continuously in their lower reaches as a result of ground-water discharge and that most of this flow was derived originally from the Platte River valley. Contour lines on the water table, as drawn by Lugn and Wenzel, indicate southeasterly movement of ground water into the Republican River valley between Cambridge and the eastern edge of the area described in this report. The permeable layers of the Ogallala formation and the sand and gravel of Pleistocene age underlying the loess plain north of the river transmit the ground water. Recharge to the valley from the uplands to the south is believed to be relatively small compared to the recharge from the north because of the southerly slope of the underlying impermeable bedrock surface and the thinness of the zone of saturation of the Ogallala formation.

A large part of the ground water entering the Republican River valley is through the fill of the tributary valleys. Most of the

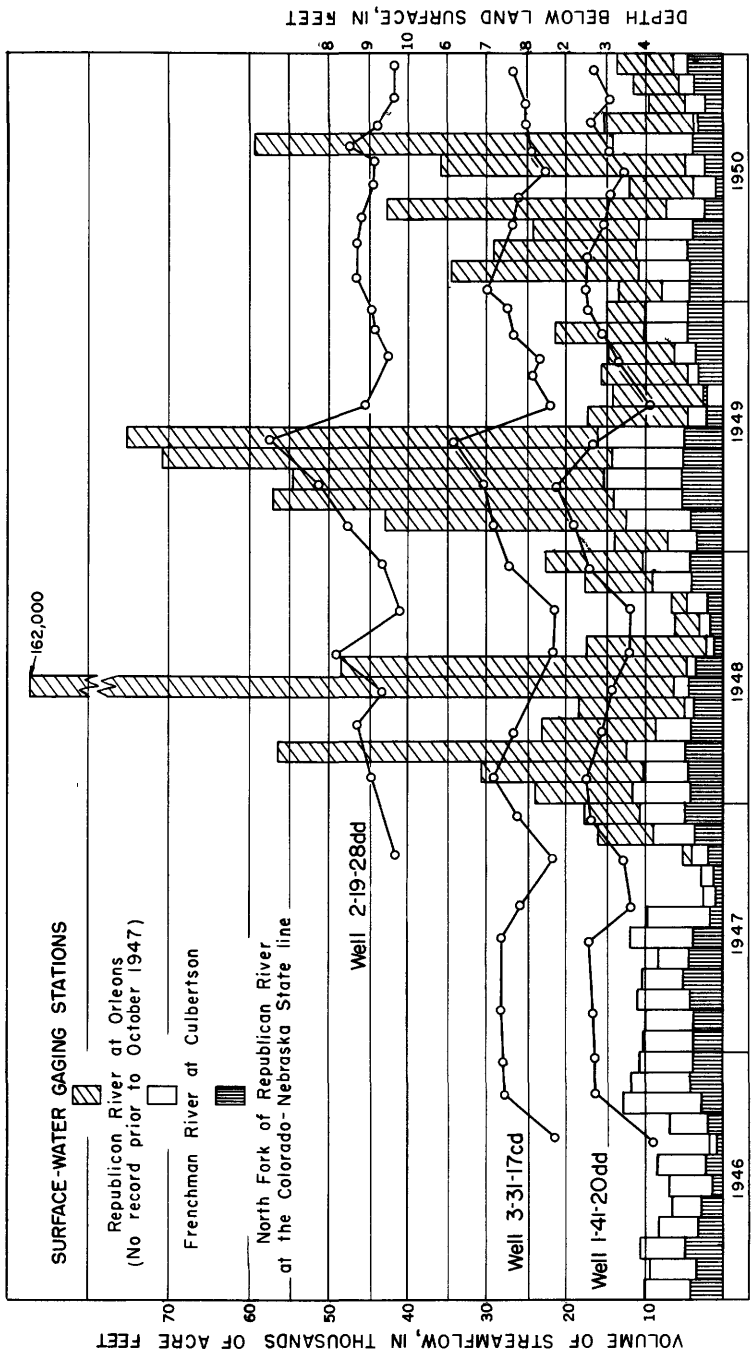

Figure 78.—Comparison of the volume of streamflow in the Republican and Frenchman Rivers with the water level in wells.

underflow west of Culbertson is through the valleys of the North and South Forks of the Republican River and the valley of the Arikaree River. East of Culbertson, the underflow is from the valley of the Frenchman River.

DISCHARGE

Evapotranspiration.—A large amount of ground water in the Republican River valley is discharged naturally by evaporation, transpiration, and effluent streams. Direct evaporation from the saturated zone occurs on the flood plain where the water table is close to the land surface. These areas are described elsewhere in this report. Extensive stands of willow and cottonwood trees along the banks of all major streams in the area transpire large quantities of water during the growing season. Alfalfa also transpires much ground water. Other crops and nonbeneficial phreatophytes directly consume water from the zone of saturation.

Seepage into streams.—Ground water is discharged into surface streams in many places in the Republican River valley. The net gain to the river is linked closely to seasonal changes, and without intensive quantitative study it would be impossible to determine the amount of natural discharge of ground water into the Republican River.

The Frenchman River is believed to be almost entirely an effluent stream with respect to ground water because (1) the surface flow of the river is comparatively constant from season to season; (2) the water-table gradient, as shown by the water levels in wells, generally is toward the stream from the valley walls; and (3) although the flow of the Frenchman River was impounded by the closing of Enders Dam in October 1950, a steady flow in the river channel reappeared at a point 3 to 4 miles downstream from the dam. It is possible, of course, that part of the ground-water discharge may again be returned to the zone of saturation by the Republican River in places where the river is losing water to the ground-water reservoir.

Springs and seeps.—On the north side of the Republican River valley west of the mouth of the Frenchman River, springs and seeps issue from the Ogallala formation where ground water is channeled toward the valley walls either by impermeable beds within the Ogallala formation or by the surface of the underlying Pierre shale. During the warm season, most of this water is evaporated or transpired. On the south side of the valley the discharge of ground water from springs and seeps is less than that on the north side.

Underflow out of the area.—A large volume of ground water moves out of the area as underflow to the east through the valley fill. No quantitative determination of the amount has been made.

Wells.—Ground water is discharged by wells of many types throughout the valleys of the Republican River and its tributaries. Most of the municipal and irrigation wells are in the valleys, whereas domestic and stock wells are situated both on the upland and in the valleys. The withdrawal of ground water for domestic and stock use is small compared with that for public supply and irrigation. The average daily consumption of water by towns in the two valleys, with the exception of McCook, ranges from about 1,000 to 300,000 gallons, and the daily average for McCook during 1950 was 1,124,557 gallons. Irrigation wells are not concentrated anywhere in the valleys of the Republican or Frenchman Rivers to the extent that water levels have been excessively lowered by pumping. The yield of a well depends on the depth to water and the permeability and thickness of the saturated materials penetrated by the well. In addition, the yield of some wells is limited by the capacity of the pump. The yields of irrigation wells in the Republican River valley range from 500 to 1,500 gpm (gallons per minute). Wells in the wider parts of the valley generally yield more than those in the narrower parts.

DIRECTION OF MOVEMENT

Most of the ground water in the valleys of the Republican and Frenchman Rivers moves obliquely toward the river in a downstream direction. (See pl. 39.) Minor shifts in the direction of movement result from seasonal atmospheric changes, changing stages of the river, and seasonal changes in the vegetation.

The direction of movement of ground water underlying the uplands bordering the Republican and its tributary valleys has not been precisely determined. A water-table contour map of the area between the Republican and Platte Rivers east of Cambridge (Lugn and Wenzel, 1938, pl. 8) shows that the direction of movement is southeasterly in the area immediately north of the Republican River valley between Cambridge and Arapahoe and nearly due south in the area lying between Arapahoe and Alma. It is probable that the ground water under the uplands north of the Republican River valley between Cambridge and Culbertson moves in a southeasterly direction.

CONFIGURATION OF THE WATER TABLE

The water table is "the upper surface of the zone of saturation in ordinary permeable soil or rock" (Meinzer, 1923, p. 30). The relief on this surface depends on the ratio of recharge to discharge and on the permeability and specific yield of the aquifer. The configuration of the water table is also affected significantly by the configuration of the underlying bedrock floor.

The major slope of the water table in the Republican River valley is downstream. However, the maximum gradient in a given place is rarely parallel to the axis of the valley or to the meanders of the stream. The configuration of the water table in the valley conforms, in general, to the configuration of the land surface. Where the valley sides are gently sloping, the water table is gently inclined. Conversely, where the valley sides are steep or precipitous, the water table also has a relatively high gradient. Small hills and depressions do not have an appreciable effect on the contour of the water table. Surface drainage, however, is closely linked with the position of the water table in the Republican River valley. A high water table is generally present in the valley beneath poorly drained sandy and hummocky areas where recharge to the ground-water reservoir is relatively large.

In areas of shallow ground water, transpiration by vegetation may lower the water table. Declines of the water level have been observed in wells near alfalfa fields, timbered areas, and areas of other phreatophyte growth. In some areas, transpiration losses from timber-covered river islands have been large enough to lower the water table below the water level of the surrounding river. Pumping for irrigation or for municipal and industrial water supplies may create local depressions of the water table. Conversely, where rivers are ponded by the construction of dams or where lakes form in undrained depressions, the surrounding water table generally is high. The yield of wells is affected to a marked degree by changes in the elevation of the water table.

In some stretches the Republican River contributes to the aquifer through which it flows and in other stretches the flow of the river is sustained in part by ground water moving into the stream from the sides. In places where the river is in approximate equilibrium with the adjoining water table, slight changes in the elevation of the water surface of the river can cause the river to be a gaining stream during low flow and a losing stream during high flow. Ground-water movement is always in the downslope direction of the water table.

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In some places, such as in a stretch of the river southwest of Indianola, the water table slopes toward the river on one side of the river and away from the river on its opposite side. Thus the relationship between the Republican River and the adjoining water table is affected by channel characteristics, valley topography, drainage, and the amount of recharge and discharge to the ground-water reservoir. Typical profiles of the water table across the Republican River valley are shown in plate 41.

Where Driftwood Creek enters the valley of the Republican River, it flows upon a thick body of impervious clay and has no direct connection with the underlying zone of saturation. (See geologic section *A–A'*, pl. 38.) As the piezometric surface, projected from the water level in adjacent wells, is about 14 feet below the stream bed, it seems reasonable to conclude that there is no transfer of water from the stream to the ground-water reservoir in this region.

DEPTH TO WATER

The configuration of the water table (pl. 39) is similar to the topography of the land surface. The topographic relief of the land surface, however, greatly exceeds the relief of the water table. Generally, the depth to water in topographically low areas is less than in adjacent higher areas, but locally the depth to water may be abnormally shallow in regions of high recharge or poor subsurface drainage regardless of the elevation of the land surface. The depth to water in the Republican River valley is shown in plate 40.

Generally, the water table is less than 10 feet beneath the surface of the flood plain and the lowest terraces, but toward the valley walls the depth to water increases beneath successively higher terraces. Where the meanders of the river have cut into the higher terraces or into the valley walls, the depth to water is about equal to the height of the land surface above the river.

Some of the land in areas of shallow water table is cultivated. If these areas are irrigated from surface sources, seepage from the canals and from irrigation probably will cause the water table to rise and, unless preventive measures are used, some of the land may become waterlogged or otherwise damaged. Deposition of salts on the land surface, resulting from evaporation of water brought near the land surface by capillary action, occurs in the following areas:

N½ sec. 5, T. 3 N., R. 25 W.
Sec. 8, T. 3 N., R. 26 W.

Secs. 2, 10, and 11, T. 3 N., R. 27 W. (between Highway 6-34 and the terrace about one-fourth of a mile north)
N½ sec. 31, T. 3 N., R. 29 W.
S½ secs. 20 and 21, and N½ secs. 28, 29, and 36, T. 3 N., R. 30 W.
S½ sec. 15 and N½ sec. 22, T. 3 N., R. 31 W.
S½ sec. 26 and N½ sec. 33, T. 3 N., R. 32 W.
S½ sec. 20 and central parts of secs. 25 and 26, T. 4 N., R. 24 W.
S½ sec. 32, sec. 33, and N½ sec. 34, T. 4 N., R. 25 W.

Anomalies of drainage or of geology are responsible in some places for the comparatively shallow depth to water below the higher terraces. In some places the water table is close to the land surface at the junction of the steep bluffs and the valley floor because the water table is almost tangent with the land surface. The existing network of observation wells is not sufficient to indicate the extent of the areas of shallow water table, but springs on the valley walls are evidence that the water table intersects the land surface at those points. An area of shallow depth to water is shown in the geologic section *A–A'* (pl. 38) at test hole 2–30–13aa. Other similar areas of shallow water table are—
S¼ sec. 16 and N½ sec. 17, T. 3 N., R. 30 W.
S½ sec. 25, T. 4 N., R. 22 W.
S½ sec. 16, T. 4 N., R. 23 W.
S½ sec. 13, T. 4 N., R. 24 W.

Several areas in the Republican River valley are underlain by comparatively thick unsaturated material. For example, near Driftwood Creek (near the center of sec. 12, T. 2 N., R. 30 W.) a thick body of clay is present above the water table, and because it is relatively impervious the recharge to the underlying zone of saturation is slight. North of Arapahoe, where surface runoff is carried away rapidly by Muddy and Elk Creeks, the water table also is relatively deep.

The principal tributary streams to Frenchman River are Stinking Water Creek, Sand Creek, and Spring Creek. These streams flow in narrow valleys and, like the Frenchman River, generally are bordered by narrow terraces. The geology and ground-water conditions in the tributary valleys are similar to those in the Frenchman River valley.

FLUCTUATIONS OF THE WATER TABLE

The ground-water reservoir in the Republican River valley has definite bottom and lateral limits but usually has no confining

upper boundary. Consequently, any change in the volume of the stored water is represented by a change in the elevation of the water table.

The movement of ground water within the reservoir is limited by the small size of the openings in the rock and soil material through which it passes. For this reason, the water-level fluctuations in wells are not as sudden as water-level changes in bodies of surface water after rains.

The locations of water-level observation wells are shown on plate 37. Measurements made of the water level in these wells during this investigation are given in Appendix A and records of all wells for which information was available are given in Appendix B. During 1949 and 1950, periodic water-level measurements in most of the observation wells in this area were made on a monthly or bimonthly basis; however, measurements of the water levels in a few wells were made weekly. Several of the wells were equipped with recording gages that provided a continuous record of the water-level fluctuations.

Water-level measurements made in the area since 1934 show a general rise of the water level in these wells during recent years. (See hydrographs of wells 3-27-8ac, 2-35-21bc, and 2-18-33cd in pl. 42.) Hydrographs showing water-level fluctuations in several wells during the period 1946–50 (pl. 43) show a decline of the water level in the fall and a rise in the spring and early summer. These are seasonal fluctuations caused by variations in the amount and distribution of the precipitation, by changes in temperature, which are reflected in changes in rates of evapotranspiration and pumping from wells, and by other factors that control ground-water recharge and discharge. Water-level fluctuations often differ noticeably in wells in adjacent localities.

Several wells were installed by the Bureau of Reclamation in the vicinities of Enders, Medicine Creek, and Trenton Reservoirs in order to observe the effect of the filling of those reservoirs upon adjacent water levels. A comparison of the water surface of Enders Reservoir with water levels in nearby observation wells is shown in figure 79, and a comparison of the water surface of Medicine Creek Reservoir with water levels in nearby observation wells is shown in figure 80. The rise of the water level in the wells near Enders Reservoir was about one-half to two-thirds the rate of the rise of the water surface of the reservoir. This indicates that the material surrounding and underlying the reservoir in the vicinities of these wells is permeable and becomes saturated rather rapidly. Enders Reservoir was closed for filling October 24, 1950, and water-level measurements in wells were in progress

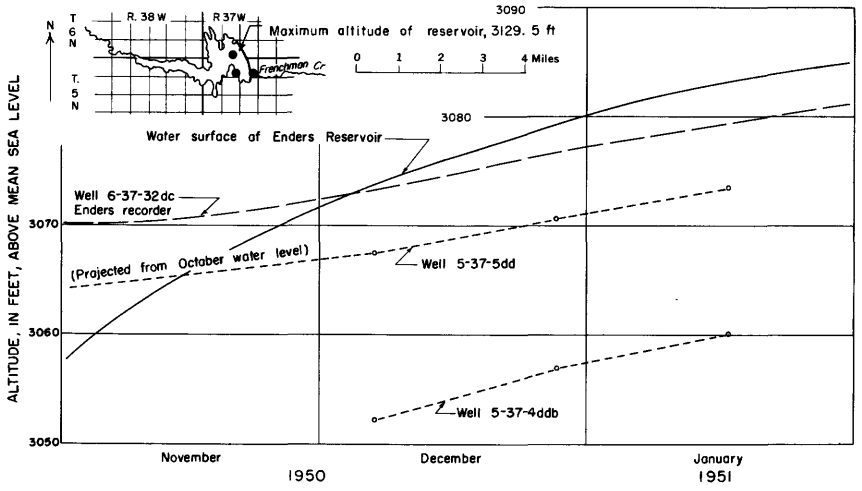

Figure 79.—Comparison of the water surface of Enders Reservoir with the water level in nearby wells.

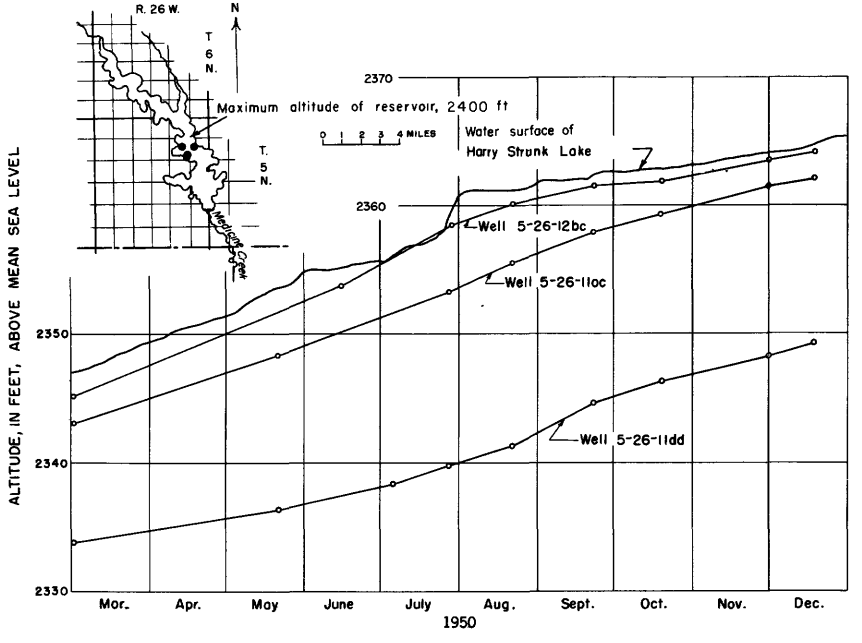

Figure 80.—Comparison of the water surface of Medicine Creek Reservoir with the water level in nearby wells.

for more than a year prior to that date. High bank storage is indicated in figure 80 by the rate of rise of the water level in wells adjacent to Medicine Creek Reservoir. This rate closely parallels the rate of rise of the water surface of the reservoir. This condition likewise indicates the existence of permeable materials between the bed of the reservoir and the aquifer tapped by the wells. Medicine Creek Reservoir was closed for filling August 10, 1949, but measurements in wells were not started until March 1950.

Water-level records of wells that are equipped with recording gages often show diurnal fluctuations caused principally by changes in the rates of evapotranspiration and by changes in atmospheric pressure. These variations generally are slight. A well situated near a municipal well field, however, may show extreme diurnal fluctuations because of the great difference in the daytime and nighttime pumping rates.

In general, water-level fluctuations in a deep well are small compared to those in a shallow well in which the water level is

Mineral constituents and related

[Analytical results in parts per

Well no.	Date of collection	Temperature (°F)	Silica (SiO_2)	Total iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)
1-37-19aa	May 2, 1947	.....	34	0.02	.....	79	27	56		409	0
1-38-21cb	Dec. 17, 1936	.....	.....	.....	.....	66	22	130		424	0
1-40-26aa	May 1, 1947	54	40	6.5	.....	236	85	205		311	0
1-41-27cd	April 30, 1947	55	53	4.0	.....	221	74	108		339	0
2-18-33ac	May 25, 1947	56	53	.....	0.0	102	19	17		362	0
2-19-21da	May 24, 1947	55	40	.....	.1	144	29	30		418	6
2-29- 5bc	May 22, 1947	.....	47	.20	.0	107	28	46	29	428	0
2-33- 2ab	May 1, 1947	53	40	.80	.....	97	29	68		397	0
2-34-18aa	.....do.....	53	38	.20	.....	105	40	103		447	0
2-36-29ac	May 2, 1947	53	33	.02	.....	68	22	43		285	0
3-21- 1aa	Dec. 11, 1936	.....	.....	.....	.....	76	16	21		330	0
3-21-12aa	May 24, 1947	56	51	.....	.0	105	24	21	18	388	0
3-27- 8ac	Dec. 9, 1936	.....	.....	.....	.....	61	21	16		284	0
3-27-18bc1	May 21, 1947	56	47	.10	.0	108	28	55		431	0
3-31-17ad	May 23, 1947	56	49	.....	.0	135	36	33	30	368	0
3-33-35dc	Dec. 6, 1936	.....	.....	.....	.....	102	30	53		408	0
4-23-23bc	May 21, 1947	56	34	.....	.0	101	26	29	23	355	20
4-25-26bb	Dec. 9, 1936	.....	.....	.....	.....	84	19	30		304	0
4-26-36ab	May 22, 1947	55	54	.....	.0	78	17	8.4		259	21
4-34- 1ab	June 8, 1947	54	64	.6	.0	56	15	20		234	8
5-36-11ac	May 23, 1947	57	60	.....	.0	52	14	13		218	4
5-36-11dc	Dec. 5, 1936	.....	.....	.....	.....	50	15	21		222	0

[1]Determined constituents (bicarbonate converted to equivalent carbonate before summation).

affected by river recharge, local precipitation, and plant transpiration. The fluctuations occur more slowly in wells tapping silt and fine sand than in wells tapping coarse sand and gravel.

CHEMICAL QUALITY

The report by Waite and others (1948) on the ground-water hydrology of the valleys of the Republican and Frenchman Rivers contained a section, prepared by H. A. Swenson, on the chemical character of the ground water. Swenson's discussion was based on the results of chemical analyses of 34 samples, 16 of which were collected in 1947 from wells in the report area. The present discussion is based on the analytical results obtained for these 16 samples and for 6 other samples that had been analyzed in 1936. (See table below and pl. 37.) All samples were from wells tapping deposits of Quaternary age.

characteristics of ground water

million except as indicated]

Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids		Hardness as $CaCO_3$		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH
					Residue on evaporation at 180°C	Sum[1]	Calcium, magnesium	Noncarbonate				
63	16	2.0	2.0	.....	525	.....	308	0	28	1.4	821	8.0
163	11	1.1	3.6	.....	.....	606	255	0	53	3.6	.....	.....
1,030	35	1.6	1.0	.....	1,850	1,790	938	683	32	2.9	2,290	8.0
708	52	.8	.8	.....	1,440	1,390	856	578	22	1.6	1,830	7.9
33	22	.2	10	0.14	477	.....	333	36	12	.4	666	8.4
105	55	.2	6.0	.10	711	.....	379	26	12	.6	958	8.3
131	30	.6	20	.25	658	.....	382	31	23	1.3	953	8.3
145	21	.8	2.0	.....	609	.....	361	35	29	1.6	951	8.0
214	39	1.4	4.0	.....	765	.....	439	72	34	2.2	1,170	8.2
99	8.7	1.4	.2	.....	420	.....	260	26	26	1.1	664	8.3
18	6.0	.4	1.8	.....	.....	302	256	0	15	.6	.....	.....
56	32	.4	8.0	.09	524	.....	361	43	11	.5	766	8.4
25	6.0	.4	6.9	.....	.....	276	239	6	13	.5	.....	.....
119	17	.6	3.0	.05	600	.....	385	32	24	1.2	856	8.1
168	55	.5	50	.11	828	.....	485	183	12	.7	1,060	7.7
93	29	.7	24	.....	.....	533	378	43	23	1.2	.....	.....
77	28	.6	6.0	.08	538	.....	357	32	14	.7	782	8.3
47	28	.4	19	.....	.....	377	278	29	19	.8	.....	.....
17	6.0	.5	10	.03	354	.....	265	17	7	.2	499	8.4
26	5.0	.7	6.0	.09	326	.....	201	0	18	.6	448	8.4
19	5.0	.9	2.0	.04	278	.....	187	2	13	.4	388	8.5
26	6.0	.9	14	.....	.....	242	186	4	19	.7	.....	.....

Ground water in the area is predominantly of the calcium magnesium bicarbonate type. In the extreme western part of the area, however, calcium and magnesium sulfates constitute the major part of the dissolved constituents. The presence of high sulfate concentrations in the Quaternary deposits in the western part of the area may be due in part to the influence of the underlying shale.

Throughout the report area both municipal and rural water supplies are obtained from underground sources. The suitability of the water for human consumption may be evaluated by comparing the chemical quality with the U. S. Public Health Service (1946) standards for drinking water. These standards, which are mandatory only for water used in interstate traffic but which have been accepted by the American Water Works Association as the criteria for public supplies, are given below.

Drinking-water standards of the U. S. Public Health Service and maximum and average concentrations of selected constituents in 22 samples of ground water

[In parts per million]

Constituent	U. S. Public Health Service maximum limit	Maximum in samples	Number of samples exceeding limit	Average in samples
Iron (Fe) and manganese (Mn) together	0.3	[a]6.5	[a]4	[a]1.4
Magnesium (Mg)	125	85	0	29
Chloride (Cl)	250	55	0	23
Fluoride (F)	1.5	2.0	2	.8
Sulfate (SO_4)	250	1,030	2	154
Total solids	[b]500	[c]1,850	[c]11	[c]681

[a]Iron and manganese together determined for 3 samples only; iron alone, for 6 samples; manganese alone, 7 samples.
[b]1,000 ppm permitted if water of better quality is not available.
[c]Dissolved solids, residue on evaporation at 180°C, 16 samples only.

High concentrations of iron and manganese are objectionable in water because these metals stain porcelain, linens, and other products. In addition, iron may cause turbidity in water and introduce an unpleasant taste. Of the 3 samples for which the concentration of both iron and manganese was determined, 1 contained more than the standard limit; of the 6 samples for which iron alone was determined, 3 contained more than the standard limit. Two samples, from wells 1–40–26aa and 1–41–27cd, contained 6.5 and 4.0 ppm (parts per million) total iron, respectively.

Magnesium is similar to calcium in that it produces hardness in water. Water containing high concentrations of magnesium salts has a pronounced physiological effect when drunk by persons

who normally consume water of low mineral content. However, a tolerance to relatively high concentrations of magnesium salts can be acquired in a moderately short time.

Sodium chloride in solution in amounts exceeding about 500 ppm gives a salty taste to water. Also, appreciable amounts of chloride in water are undesirable in many industrial processes. The maximum concentration of chloride in the samples collected in this area was 55 ppm, and the average was 23 ppm.

A fluoride concentration of about 1 ppm in drinking water lessens the incidence of dental caries in the permanent teeth of children, but a concentration in excess of about 1.5 ppm may cause the dental defect known as mottled enamel (Dean, 1938).

Sulfate is of little significance in water used for drinking except that amounts in excess of the recommended standard of 250 ppm may produce an objectionable taste or physiological effect. High concentrations of calcium sulfate are particularly objectionable in water used in steam boilers because this constituent is likely to form a boiler scale that is difficult to remove.

Water having a dissolved-solids content of less than 500 ppm is satisfactory for domestic and most industrial uses, but water containing more than 1,000 ppm may cause physiological disturbances except to those accustomed to drinking water of such mineralization.

Recent studies (Maxcy, 1950) show that a high concentration of nitrates in drinking water may be a contributing factor in the development of cyanosis in infants. Only the sample from well 3-31-17ad contained more than the generally accepted limit for supplies used for preparing feeding formulas.

Hardness caused by the calcium and magnesium equivalent to the bicarbonate in a water is called carbonate hardness and the remainder noncarbonate hardness. Excessive hardness is recognized by the quantity of soap required to produce a lather and by the formation of an insoluble curd in all washing processes in which soap is used. It is particularly objectionable in many industrial operations that require large volumes of water. Water containing more than 180 ppm of hardness is generally considered very hard; all samples analyzed contained hardness in excess of 180 ppm.

The suitability of the water for irrigation may be evaluated by the method of the U. S. Salinity Laboratory Staff (1954). (See fig. 81 and interpretation on p. 627.) Among the criteria for classifying irrigation waters are total dissolved material (salinity) and the relation of sodium concentration to total cations and sodium

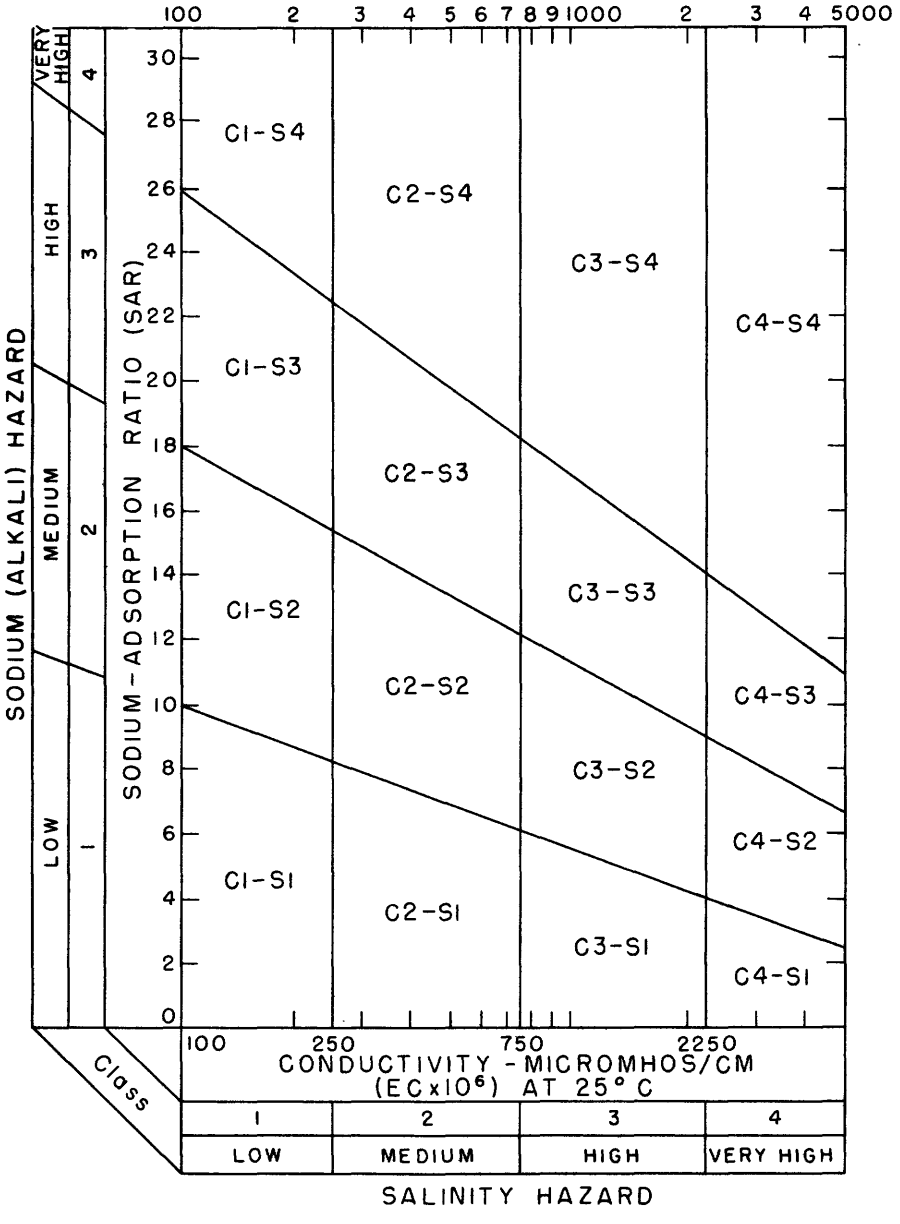

Figure 81.—Classification of irrigation water (After U. S. Salinity Laboratory Staff, 1954)

CLASSIFICATION OF IRRIGATION WATER

[After U. S. Salinity Laboratory Staff, 1954]

SALINITY HAZARD

LOW-SALINITY WATER (C_1) can be used for irrigation with most crops on most soils with little likelihood that soil salinity will develop. Some leaching is required, but this occurs under normal irrigation practices except in soils of extremely low permeability.

MEDIUM-SALINITY WATER (C_2) can be used if a moderate amount of leaching occurs. Plants with moderate salt tolerance can be grown in most cases without special practices for salinity control.

HIGH-SALINITY WATER (C_3) cannot be used on soils with restricted drainage. Even with adequate drainage, special management for salinity control may be required and plants with good salt tolerance should be selected.

VERY HIGH SALINITY WATER (C_4) is not suitable for irrigation under ordinary conditions, but may be used occasionally under very special circumstances. The soils must be permeable, drainage must be adequate, irrigation water must be applied in excess to provide considerable leaching, and very salt-tolerant crops should be selected.

SODIUM HAZARD

The classification of irrigation waters with respect to SAR is based primarily on the effect of exchangeable sodium on the physical condition of the soil. Sodium-sensitive plants may, however, suffer injury as a result of sodium accumulation in plant tissues when exchangeable sodium values are lower than those effective in causing deterioration of the physical condition of the soil.

LOW-SODIUM WATER (S_1) can be used for irrigation on almost all soils with little danger of the development of harmful levels of exchangeable sodium. However, sodium-sensitive crops such as stone-fruit trees and avocados may accumulate injurious concentrations of sodium.

MEDIUM-SODIUM WATER (S_2) will present an appreciable sodium hazard in fine-textured soils having high cation-exchange-capacity, especially under low-leaching conditions, unless gypsum is present in the soil. This water may be used on coarse-textured or organic soils with good permeability.

HIGH-SODIUM WATER (S_3) may produce harmful levels of exchangeable sodium in most soils and will require special soil management—good drainage, high leaching, and organic matter additions. Gypsiferous soils may not develop harmful levels of exchangeable sodium from such waters. Chemical amendments may be required for replacement of exchangeable sodium, except that amendments may not be feasible with waters of very high salinity.

VERY HIGH SODIUM WATER (S_4) is generally unsatisfactory for irrigation purposes except at low and perhaps medium salinity, where the solution of calcium from the soil or use of gypsum or other amendments may make the use of these waters feasible.

adsorption by the soil (sodium-adsorption ratio). Specific conductance is a measure of salinity, and sodium-adsorption ratio is defined as $Na/\sqrt{(Ca + Mg)/2}$ (concentrations in equivalents per million). The classification is based on use of water under average conditions with respect to soil texture, infiltration rate, drainage, quantity applied, salt tolerance of crops, and climate. The water in the report area was classified as having a low sodium hazard and a medium to high salinity hazard. However, good drainage minimizes the adverse effects resulting from the continued application of highly saline water.

Although small quantities of boron are essential to the growth of most plants, concentrations of boron exceeding about 0.3 ppm may be harmful in water used for the irrigation of boron-sensitive plants. Of the 10 samples for which the boron content was determined, none contained more than 0.25 ppm.

WATER-LEVEL MEASUREMENTS

All water-level measurements in observation wells made during the course of this investigation are given in appendix A.

WELL RECORDS

Records of the wells visited in the valleys of the Republican and Frenchman Rivers are given in appendix B. The wells are listed alphabetically by counties and by coordinate order in each county.

CONCLUSIONS

The principal accomplishments of the investigation were the establishment of an extensive network of observation wells and the periodic measurement of the water level in the wells. The observation of water-level fluctuations should be continued so that a rising or declining water level can be detected well in advance of possible drastic results, and efforts to alleviate the condition can be made. The measurement of water levels to date has made possible the delineation of certain areas in which ground-water problems exist. In some of these areas the installation of additional observation wells would be an aid to the study of the problems.

If the maximum potential use of the ground-water resources of the Republican River valley is to be realized, detailed hydrologic studies of the valley and adjacent uplands should be made. The making of such studies would require (1) the preparation of maps

showing the contour of the water table in the areas between the Platte and Republican Rivers and between Beaver Creek and the Republican River, (2) the determination of the hydrologic properties of the water-bearing materials, (3) the evaluation of all sources of recharge to and discharge from the aquifer, (4) the making of quantitative studies of the relationship between streamflow and ground water in the valleys of the Republican River and its tributaries, and (5) the collection and evaluation of additional data on the chemical quality of the water.

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APPENDIX A

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950

[An asterisk (*) indicates measurement by the U. S. Bureau of Reclamation; two asterisks (**) indicate measurement by the State of Nebraska]

CHASE COUNTY

5-36-7ba

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	15.70	July 19, 1949*	15.87	Apr. 4, 1950	15.85
Apr. 12	15.98	Aug. 4	16.20	June 1	15.91
June 11	16.25	Oct. 6	16.00	July 11	16.29
Aug. 5	16.28	Nov. 17	15.95	Aug. 11	16.18
Oct. 6	16.24	Dec. 20	15.95	Sept. 19	16.11
Dec. 10	15.78	Jan. 19, 1950	15.80	Oct. 16	16.16
Feb. 8, 1949	15.69	Mar. 1	15.81	Dec. 7	16.86
June 9	14.93				

5-36-10bb

Mar. 23, 1949*	6.53	Oct. 6, 1949	4.92	June 1, 1950	4.67
Apr. 22*	4.23	Nov. 17	4.70	July 11	5.18
June 9	3.33	Dec. 20	4.61	Aug. 11	5.04
July 19*	4.96	Jan. 19, 1950	3.35	Sept. 19	4.82
Aug. 4	5.27	Mar. 1	4.47	Oct. 16	4.87
Aug. 26*	5.33	Apr. 4	4.40	Dec. 7	5.66

5-37-2dc

Mar. 23, 1949*	6.53	Oct. 6, 1949	7.05	June 1, 1950	6.91
Apr. 22*	6.13	Nov. 17	6.86	July 11	7.61
June 9	5.73	Dec. 20	6.85	Aug. 11	7.49
July 19*	5.40	Jan. 19, 1950	6.81	Sept. 19	7.22
Aug. 4	7.10	Mar. 1	6.80	Oct. 16	7.23
Aug. 26*	7.46	Apr. 4	6.78	Dec. 7	7.93

5-37-3cc

Feb. 10, 1949*	25.40	Oct. 6, 1949	24.34	July 11, 1950	23.86
Mar. 23*	25.48	Nov. 18	23.85	Aug. 11	23.74
Apr. 22	25.19	Dec. 20	24.26	Sept. 19	23.82
June 9	24.88	Jan. 18, 1950	23.70	Oct. 16	23.78
July 19*	24.90	Mar. 6	23.54	Dec. 7	22.11
Aug. 4	25.00	Apr. 4	23.69	Dec. 28	20.72
Aug. 26*	25.25	June 1	23.62		

5-37-3cd

Apr. 22, 1949*	5.52	Nov. 18, 1949	5.81	July 11, 1950	6.39
June 9	5.10	Dec. 20	5.77	Aug. 11	6.30
July 19*	5.88	Jan. 18, 1950	5.80	Sept. 19	6.14
Aug. 4	6.02	Mar. 6	5.79	Oct. 16	6.23
Aug. 26*	6.30	Apr. 6	5.72	Dec. 7	6.91
Oct. 6	6.00	June 1	5.96	Dec. 28	6.70

5-37-4dac

Dec. 7, 1950	77.85	Dec. 28, 1950	74.20		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

CHASE COUNTY—Continued

5-37-4dad

Date	Water level	Date	Water level	Date	Water level
Mar. 23, 1949*	87.24	Nov. 18, 1949	86.15	July 11, 1950	86.18
Apr. 22*	87.26	Dec. 20	86.90	Aug. 11	86.14
June 9	87.08	Jan. 18, 1950	86.17	Sept. 19	86.22
July 19*	86.89	Mar. 1	85.86	Oct. 16	86.20
Aug. 4	86.80	Apr. 4	86.24	Dec. 7	81.93
Aug. 26*	87.14	June 1	85.99	Dec. 28	79.10
Oct. 6	86.87				

5-37-4dd

Dec. 7, 1950	67.36	Dec. 28, 1950	62.71		

5-37-5dd

Oct. 16, 1950	145.31	Dec. 7, 1950	140.81	Dec. 28, 1950	137.62

5-37-9adb1

Mar. 23, 1949*	67.97	Jan. 18, 1950	63.02	Sept. 19, 1950	62.84
Apr. 22*	67.97	Mar. 6	62.68	Oct. 16	62.86
June 9	68.00	Apr. 6	62.68	Nov. 16	61.98
Aug. 26*	67.87	June 1	62.71	Dec. 7	60.32
Oct. 6	63.97	July 11	62.84	Dec. 28	58.83
Nov. 18	63.29	Aug. 11	62.85		

5-37-9adb2

Apr. 22, 1949*	84.74	Dec. 20, 1949	79.13	Aug. 11, 1950	78.07
June 9	83.95	Jan. 18, 1950	78.50	Sept. 19	78.35
July 19*	83.94	Mar. 6	78.24	Oct. 16	78.24
Aug. 4	83.90	Apr. 6	78.24	Nov. 16	77.49
Aug. 26*	84.15	June 1	78.18	Dec. 7	75.88
Oct. 6	79.85	July 11	78.35	Dec. 28	74.20
Nov. 18	78.95				

5-37-9adb3

June 9, 1949	98.45	Dec. 20, 1949	93.57	Aug. 11, 1950	93.09
July 19	97.83	Jan. 18, 1950	93.37	Sept. 19	93.12
Aug. 4	98.42	Mar. 6	93.10	Oct. 16	93.09
Aug. 26	97.68	Apr. 6	93.08	Nov. 16	92.25
Oct. 6	95.00	June 1	93.04	Dec. 7	90.43
Nov. 18	93.85	July 11	93.16	Dec. 28	88.75

5-37-10ba

Apr. 22, 1949*	6.84	Nov. 18, 1949	6.99	July 11, 1950	7.67
June 9	5.37	Dec. 20	6.90	Aug. 11	7.60
July 19*	7.06	Jan. 18, 1950	7.07	Sept. 19	7.32
Aug. 4	7.57	Mar. 6	7.10	Oct. 16	7.51
Aug. 26*	7.52	Apr. 6	6.99	Dec. 7	8.24
Oct. 6	7.13	June 1	7.23	Dec. 28	8.19

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Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

CHASE COUNTY—Continued

5-37-10bbb

Date	Water level	Date	Water level	Date	Water level
Feb. 10, 1949*	7.30	Oct. 6, 1949	4.90	July 11, 1950	4.99
Mar. 23*	7.26	Nov. 18	4.76	Aug. 11	5.01
Apr. 22*	6.80	Dec. 20	4.67	Sept. 19	4.77
June 9	6.01	Jan. 18, 1950	4.68	Oct. 16	4.84
July 19*	6.39	Mar. 6	4.55	Dec. 7	4.54
Aug. 4	6.68	Apr. 4	4.60	Dec. 28	4.09
Aug. 26*	6.96	June 1	4.57		

5-37-10bbc

Date	Water level	Date	Water level	Date	Water level
Feb. 10, 1949*	14.48	Oct. 6, 1949	11.28	July 11, 1950	11.14
Mar. 23*	14.59	Nov. 18	11.06	Aug. 11	11.14
Apr. 22*	14.31	Dec. 20	10.95	Sept. 19	11.01
June 9	13.60	Jan. 18, 1950	10.88	Oct. 16	11.05
July 19*	13.86	Mar. 6	10.78	Dec. 7	11.02
Aug. 4	14.16	Apr. 4	10.85	Dec. 28	10.64
Aug. 26*	14.29	June 1	10.85		

5-37-10bc

Date	Water level	Date	Water level	Date	Water level
Mar. 23, 1949*	19.21	Nov. 18, 1949	15.20	July 11, 1950	14.92
Apr. 22*	18.94	Dec. 20	14.99	Aug. 11	14.88
June 9	18.36	Jan. 18, 1950	14.85	Sept. 19	14.87
July 19*	18.44	Mar. 6	14.69	Oct. 16	14.84
Aug. 4	18.59	Apr. 6	14.73	Dec. 7	14.55
Aug. 26*	18.78	June 1	14.72	Dec. 28	14.02
Oct. 6	15.81				

5-38-1bd

Date	Water level	Date	Water level	Date	Water level
Mar. 24, 1950	23.82	Nov. 16, 1950	23.91	Dec. 7, 1950	23.66
Oct. 16	24.18				

5-38-1da

Date	Water level	Date	Water level	Date	Water level
Mar. 24, 1950	6.67	Aug. 11, 1950	6.95	Nov. 16, 1950	6.20
June 1	6.60	Sept. 19	6.88	Dec. 7	6.61
July 11	7.02	Oct. 16	6.82		

5-38-2ac

Date	Water level	Date	Water level	Date	Water level
Mar. 24, 1950	12.96	Aug. 11, 1950	13.11	Oct. 16, 1950	12.97
June 1	12.85	Sept. 19	13.00	Dec. 7	12.83
July 11	13.20				

5-38-3ad

Date	Water level	Date	Water level	Date	Water level
Apr. 22, 1949*	6.26	Nov. 18, 1949	6.79	July 11, 1950	7.03
June 9	5.92	Dec. 20	6.55	Aug. 11	6.75
July 19*	6.28	Jan. 19, 1950	6.46	Sept. 19	6.83
Aug. 4	6.36	Mar. 1	6.36	Oct. 16	6.81
Aug. 26*	7.03	Apr. 6	6.33	Dec. 7	6.57
Oct. 6	6.85	June 1	6.58		

5-38-4aa

Date	Water level	Date	Water level	Date	Water level
Apr. 22, 1949*	10.96	Nov. 18, 1949	11.26	July 11, 1950	11.44
June 9	10.79	Dec. 20	11.21	Aug. 11	11.39
July 19*	11.07	Jan. 19, 1950	11.16	Sept. 19	11.27
Aug. 4	11.35	Mar. 1	11.10	Oct. 16	11.29
Aug. 26*	11.37	Apr. 6	11.08	Dec. 7	11.21
Oct. 6	11.24	June 1	11.05		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
CHASE COUNTY—Continued					
5-38-4ad					
Apr. 22, 1949*	4.51	Nov. 18, 1949	5.05	July 11, 1950	5.33
June 9	4.48	Dec. 20	4.97	Aug. 11	5.14
July 19*	5.28	Jan. 19, 1950	5.01	Sept. 19	4.98
Aug. 4	5.37	Mar. 1	4.91	Oct. 16	5.09
Aug. 26*	5.44	Apr. 6	4.84	Dec. 7	4.88
Oct. 6	5.15	June 1	4.96		
6-37-32ba					
Mar. 24, 1950	71.61	Dec. 7, 1950	71.98	Dec. 28, 1950	71.78
6-37-32dc					
Oct. 7, 1948*	19.65	Feb. 10, 1949*	18.95	Aug. 26, 1949*	19.20
Dec. 8*	19.34	Mar. 23*	18.90	Mar. 6, 1950	18.73

Day	Month									
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	18.87	18.89	18.86	.....	.....	19.19	19.14	18.84	16.46
2	.....	18.84	18.86	18.92	.....	.....	19.20	19.18	18.86	16.33
3	.....	18.81	18.88	18.92	.....	.....	19.21	19.17	18.86	16.22
4	.....	18.78	18.86	18.92	.....	.....	19.21	19.15	18.82	16.04
5	.....	18.76	18.84	18.92	.....	.....	19.21	19.11	18.78	15.98
6	.....	18.72	18.80	18.93	.....	.....	19.21	19.14	18.79	15.83
7	.....	18.75	18.80	18.97	.....	19.15	19.22	19.15	18.75	15.68
8	.....	18.75	18.79	18.99	.....	19.16	19.23	19.16	18.72	15.56
9	.....	18.74	18.80	19.02	.....	19.17	.....	19.14	18.72	15.40
10	.....	18.83	18.81	19.03	.....	19.18	.....	19.15	18.67	15.23
11	.....	18.83	18.80	19.02	19.17	19.18	19.23	19.16	18.57	15.02
12	.....	18.83	18.84	19.02	19.19	19.17	19.24	19.13	18.53	14.87
13	.....	18.83	18.83	19.05	19.19	19.17	19.24	19.13	18.48	14.70
14	.....	18.84	18.82	19.05	19.15	19.17	19.23	19.12	18.37	14.55
15	.....	18.85	18.82	19.07	19.18	.....	19.19	19.14	18.31	14.40
16	.....	18.85	18.85	19.07	19.18	.....	19.18	19.17	18.29	14.24
17	.....	18.83	18.85	19.00	19.16	.....	19.15	19.14	18.12	14.09
18	.....	18.87	18.85	19.00	19.19	19.19	19.17	19.14	18.02	13.92
19	.....	18.87	18.85	19.00	.....	19.21	19.17	19.16	17.92	13.76
20	.....	18.87	18.86	18.97	.....	19.21	19.16	19.14	17.88	13.61
21	.....	18.83	18.86	18.97	.....	19.19	19.17	19.15	17.74	13.47
22	.....	18.83	18.86	18.97	.....	19.19	19.16	19.16	17.64	13.30
23	.....	18.84	18.87	19.00	.....	19.22	19.15	19.16	17.56	13.14
24	.....	18.89	18.89	19.01	.....	19.24	19.15	19.21	17.45	13.00
25	.....	18.89	18.91	19.08	.....	19.24	19.14	19.20	17.30	12.81
26	.....	18.90	18.89	19.08	.....	19.23	19.13	19.15	17.19	12.69
27	.....	18.90	18.82	19.07	.....	19.23	19.16	19.16	17.06	12.53
28	.....	18.90	18.83	19.09	19.08	19.24	19.15	19.08	16.92	12.36
29	.....	18.92	18.83	19.08	19.09	19.23	19.12	18.85	16.76	12.24
30	18.81	18.92	18.88	.....	19.12	19.22	19.13	18.76	16.60	12.10
31	18.87	.....	18.88	.....	.....	19.20	.....	18.78	.....	11.90

Date	Water level	Date	Water level	Date	Water level
7-38-20dd					
Sept. 24, 1934	68.99	Jan. 11, 1935	68.95	Apr. 29, 1935	69.13
Nov. 20	68.94	Mar. 9	69.04	June 16	68.98

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level

CHASE COUNTY—Continued

7-38-20dd—Continued

July 19, 1935	69.00	Aug. 13, 1937	69.79	Feb. 8, 1949	68.93
Aug. 21	68.80	Oct. 20	69.70	Aug. 4	68.85
Sept. 25	68.98	June 28, 1938	69.98	Oct. 6	68.79
Oct. 27	68.95	Oct. 28	70.14	Dec. 19	68.49
Nov. 30	69.12	June 14, 1939	70.21	Jan. 18, 1950	68.51
Jan. 3, 1936	69.07	Dec. 9	70.26	Mar. 3	68.56
Jan. 23	69.04	Apr. 8, 1940	70.50	Apr. 6	68.32
Apr. 1	69.17	July 29	70.89	May 26	68.43
June 11	69.15	Nov. 11	70.84	July 11	68.07
Aug. 9	69.18	Nov. 19, 1942	71.10	Aug. 11	68.30
Sept. 17	69.15	Mar. 2, 1943	69.59	Sept. 19	68.33
Dec. 5	69.43	Dec. 8, 1944	70.25	Oct. 16	68.46
Apr. 9, 1937	69.61	Dec. 9, 1948	69.00	Dec. 7	68.14
June 25	69.75				

7-38-28cc

Day	Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75.32	75.34	75.38	75.39	75.25	75.22	75.17	75.20	75.14	75.17	75.18	.....
2	75.30	75.37	75.38	75.28	75.17	75.27	75.17	75.18	75.13	75.24	75.23	.....
3	75.36	75.33	75.32	75.40	75.22	75.28	75.19	75.12	75.14	75.22	75.23	.....
4	75.39	75.33	75.32	75.44	75.20	75.24	75.20	75.12	75.13	75.18	75.07	.....
5	75.41	75.26	75.32	75.44	75.30	75.16	75.20	75.13	75.14	75.07	75.15	.....
6	75.42	75.28	75.24	75.33	75.30	75.14	75.18	75.14	75.11	75.15	75.17	.....
7	75.32	75.29	75.44	75.31	75.34	75.23	75.25	75.15	75.11	75.18	75.09	75.08
8	75.29	75.34	75.43	75.31	75.26	75.25	75.13	75.16	75.12	75.18	75.18	75.18
9	75.22	75.28	75.35	75.25	75.30	75.26	75.17	75.16	75.09	75.14	75.22	75.22
10	75.41	75.28	75.33	75.42	75.33	75.28	75.17	75.14	75.14	75.16	75.17	75.21
11	75.33	75.25	75.37	75.43	75.32	75.22	75.14	75.11	75.13	75.19	75.09	75.12
12	75.33	75.32	75.37	75.34	75.25	75.13	75.22	75.12	75.12	75.16	75.13	75.09
13	75.33	75.33	75.35	75.35	75.24	75.17	75.22	75.12	75.15	75.12	75.12	75.10
14	75.24	75.29	75.31	75.30	75.20	75.21	75.10	75.11	75.13	75.15	75.08	75.15
15	75.40	75.31	75.35	75.28	75.22	75.26	75.13	75.12	75.12	75.09	75.24	75.15
16	75.33	75.29	75.33	75.29	75.24	75.24	75.17	75.15	75.13	75.18	75.23	75.16
17	75.33	75.33	75.28	75.27	75.26	75.20	75.20	75.20	75.13	75.14	75.08	75.15
18	75.40	75.35	75.36	75.34	75.19	75.22	75.15	75.16	75.13	75.14	75.03	75.13
19	75.45	75.28	75.34	75.35	75.28	75.22	75.16	75.18	75.13	75.19	75.24	75.14
20	75.36	75.21	75.31	75.32	75.25	75.17	75.19	75.14	75.14	75.13	75.23	75.13
21	75.35	75.37	75.33	75.22	75.25	75.17	75.20	75.10	75.19	75.11	75.16	75.13
22	75.31	75.37	75.32	75.21	75.19	75.11	75.17	75.08	75.16	75.15	75.21	75.12
23	75.29	75.25	75.31	75.20	75.17	75.14	75.17	75.09	75.16	75.13	75.23	75.13
24	75.33	75.26	75.32	75.31	75.25	75.15	75.20	75.14	75.14	75.17	.....	75.14
25	75.40	75.33	75.21	75.30	75.31	75.25	75.17	75.16	75.12	75.11	.....	75.17
26	75.45	75.33	75.26	75.32	75.25	75.27	75.15	75.14	75.08	75.12	.....	75.19
27	75.40	75.27	75.35	75.32	75.23	75.22	75.14	75.12	75.18	75.12	.....	75.10
28	75.31	75.34	75.45	75.26	75.20	75.25	75.11	75.14	75.17	75.14	.....	75.07
29	75.37	.....	75.47	75.32	75.21	75.22	75.12	75.15	75.08	75.12	.....	75.12
30	75.32	.....	75.46	75.30	75.27	75.18	75.13	75.12	75.14	75.08	.....	75.10
31	75.31	.....	75.39	.....	75.27	.....	75.19	75.13	.....	75.13	.....	75.14

Date	Water level	Date	Water level	Date	Water level

DUNDY COUNTY

1-37-7ab

Feb. 3, 1948	61.02	Aug. 3, 1948	61.15	Dec. 7, 1948	60.92
Apr. 10	60.85	Oct. 6	61.29	Feb. 8, 1949	60.84

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

DUNDY COUNTY—Continued

1-37-7ab—Continued

Date	Water level	Date	Water level	Date	Water level
Apr. 5, 1949	60.61	Dec. 17, 1949	60.27	July 12, 1950	60.05
June 6	60.52	Jan. 17, 1950	60.13	Aug. 10	59.92
July 6	60.40	Feb. 28	60.10	Sept. 20	59.90
Aug. 2	60.92	Apr. 14	61.20	Oct. 24	59.88
Oct. 4	60.60	June 2	60.20	Dec. 8	59.81
Nov. 15	60.36				

1-37-16dd

Feb. 4, 1948	38.77	June 6, 1949	38.54	Apr. 14, 1950	38.22
Apr. 12	38.87	Aug. 3	38.40	June 2	38.30
June 9	38.96	Oct. 4	37.92	July 12	38.38
Aug. 4	38.75	Nov. 15	37.91	Aug. 10	38.46
Oct. 6	38.70	Dec. 18	37.97	Sept. 20	38.43
Dec. 7	38.77	Jan. 17, 1950	38.03	Oct. 24	38.48
Feb. 8, 1949	38.85	Feb. 28	38.14	Dec. 8	38.59
Apr. 5	38.63				

1-37-19ba

Feb. 3, 1948	9.30	June 6, 1949	9.11	Feb. 28, 1950	12.59
Apr. 10	9.63	July 1*	10.18	Apr. 21	12.77
June 8	11.15	Aug. 2	12.22	June 2	12.91
Aug. 3	11.95	Sept. 13*	12.56	July 12	13.83
Oct. 5	14.00	Oct. 4	13.38	Aug. 10	14.01
Dec. 7	10.59	Nov. 16	13.16	Sept. 20	13.50
Feb. 8, 1949	11.28	Dec. 18	13.20	Oct. 24	14.47
Apr. 5	7.12	Jan. 17, 1950	13.12	Dec. 8	13.66

1-37-31cd

Feb. 3, 1948	4.80	June 6, 1949	4.39	Jan. 17, 1950	4.97
Apr. 10	4.44	June 20	4.58	Feb. 28,	4.83
June 8	4.30	July 1*	4.86	Apr. 25	4.85
Aug. 5	4.79	Aug. 2	5.77	June 2	4.95
Oct. 6	5.85	Sept. 13*	5.31	July 12	5.27
Dec. 7	5.22	Oct. 4	5.45	Sept. 20	5.44
Feb. 8, 1949	4.85	Nov. 16	5.20	Oct. 24	5.45
Apr. 5	3.21	Dec. 18	5.11	Dec. 8	5.18
Apr. 28	4.22				

1-38-20bd

Feb. 3, 1948	15.72	Oct. 4, 1949	15.02	Mar. 1, 1950	15.02
Apr. 9	15.71	Nov. 16	15.04	Apr. 21	14.93
June 8	15.50	Dec. 18	14.99	Oct. 24	14.75
Apr. 5, 1949	14.83	Jan. 17, 1950	14.99	Dec. 8	14.88
Aug. 2	14.75				

1-38-21cb

Oct. 5, 1948	6.43	Sept. 13, 1949*	5.50	June 2, 1950	4.50
Dec. 7	5.69	Oct. 4	5.45	July 12	3.74
Feb. 8, 1949	5.35	Nov. 16	5.25	Aug. 10	3.75
Apr. 5	4.15	Dec. 18	4.93	Sept. 20	3.99
June 6	5.20	Jan. 17, 1950	4.85	Oct. 24	4.51
July 8	4.48	Mar. 1	4.65	Dec. 8	4.56
Aug. 2	5.44	Apr. 21	4.51		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

DUNDY COUNTY—Continued

1-38-26ca

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	13.19	July 8, 1949	11.76	Apr. 21, 1950	12.58
Apr. 10	12.91	Aug. 2	12.72	June 2	12.64
June 8	12.32	Oct. 4	13.17	July 12	12.68
Aug. 3	12.84	Nov. 16	12.97	Aug. 11	12.25
Dec. 7	13.02	Dec. 18	12.90	Sept. 20	12.71
Feb. 8, 1949	12.79	Jan. 17, 1950	12.75	Oct. 24	13.07
Apr. 5	11.72	Mar. 1	13.21	Dec. 8	13.00
June 6	11.55				

1-38-28da

Date	Water level	Date	Water level	Date	Water level
Apr. 10, 1948	19.69	June 6, 1949	18.86	Apr. 21, 1950	19.50
June 8	19.95	Aug. 2	19.24	June 2	19.64
Aug. 3	19.85	Oct. 4	19.45	July 12	19.55
Oct. 5	20.42	Nov. 16	19.28	Aug. 10	19.56
Dec. 7	20.18	Dec. 18	19.53	Sept. 20	19.67
Feb. 8, 1949	19.75	Jan. 17, 1950	19.46	Oct. 24	19.84
Apr. 5	19.32	Mar. 1	19.39	Dec. 8	19.88

1-38-29ad

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	8.11	June 6, 1949	7.71	Apr. 21, 1950	7.03
Apr. 10	8.18	July 8	8.14	June 2	8.29
June 8	8.40	Aug. 2	8.67	July 12	8.19
Aug. 3	8.68	Oct. 4	8.31	Aug. 10	8.09
Oct. 5	9.03	Nov. 16	8.17	Sept. 20	8.39
Dec. 7	8.13	Dec. 18	7.95	Oct. 24	8.53
Feb. 8, 1949	7.52	Jan. 17, 1950	7.63	Dec. 8	8.34
Apr. 5	7.74	Mar. 1	7.97		

1-39-21ac

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	4.62	June 6, 1949	4.85	Apr. 21, 1950	5.13
Apr. 10	5.28	Aug. 2	5.90	June 2	5.21
June 8	5.43	Oct. 4	5.63	July 12	5.35
Aug. 3	5.30	Nov. 16	5.40	Aug. 10	5.10
Oct. 5	5.74	Dec. 18	5.40	Sept. 20	5.40
Dec. 7	5.20	Jan. 17, 1950	5.32	Oct. 24	5.35
Feb. 8, 1949	4.40	Mar. 1	5.31	Dec. 8	4.67
Apr. 5	4.27				

1-39-22cc

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	11.75	July 8, 1949*	13.37	Apr. 21, 1950	11.57
Apr. 10	11.62	Aug. 2	12.60	June 2	11.70
June 8	11.20	Oct. 4	12.38	July 12	12.32
Aug. 3	11.38	Nov. 16	12.02	Aug. 10	11.65
Oct. 5	12.69	Dec. 18	11.82	Sept. 20	11.81
Dec. 7	11.60	Jan. 17, 1950	11.49	Oct. 24	12.08
Apr. 5, 1949	10.50	Mar. 1	11.62	Dec. 8	11.70
June 6	10.80				

1-39-26aa

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	25.64	June 6, 1949	24.84	Apr. 21, 1950	24.49
Apr. 10	25.34	July 8*	24.87	June 2	24.71
June 8	25.90	Aug. 2	25.30	July 12	25.27
Aug. 3	25.58	Oct. 4	25.50	Aug. 10	25.18
Oct. 5	26.50	Nov. 16	25.04	Sept. 20	24.90
Dec. 7	25.68	Dec. 18	24.86	Oct. 24	24.88
Feb. 8, 1949	25.07	Jan. 17, 1950	24.71	Dec. 8	24.56
Apr. 5	24.77	Mar. 1	24.54		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

DUNDY COUNTY—Continued

1-39-30bb

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	12.08	June 6, 1949	8.23	Apr. 21, 1950	11.94
Apr. 10	11.94	July 6	11.41	June 2	12.14
June 8	11.37	Aug. 2	12.46	July 12	12.58
Aug. 3	11.04	Oct. 4	12.58	Aug. 10	9.86
Oct. 5	12.28	Nov. 16	12.28	Sept. 20	11.69
Dec. 7	12.17	Dec. 18	12.15	Oct. 24	12.37
Feb. 8, 1949	11.55	Jan. 17, 1950	11.84	Dec. 8	12.51
Apr. 5	10.98	Mar. 1	11.75		

1-40-20cb

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	3.40	June 7, 1949	2.75	Apr. 21, 1950	3.44
Apr. 10	3.42	July 5	3.53	June 2	3.73
June 8	3.88	Aug. 2	4.02	July 12	3.85
Aug. 3	3.65	Oct. 4	4.19	Aug. 10	2.08
Oct. 5	4.32	Nov. 16	3.67	Sept. 20	2.60
Dec. 7	3.60	Dec. 18	3.48	Oct. 24	3.49
Feb. 8, 1949	2.87	Jan. 17, 1950	3.19	Dec. 8	3.30
Apr. 5	1.80	Mar. 1	3.27		

1-40-24cd

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	8.40	Aug. 2, 1949	8.59	Apr. 21, 1950	7.89
Apr. 10	8.29	Oct. 4	8.27	June 2	7.98
June 8	8.45	Nov. 16	8.10	July 12	8.18
Aug. 3	8.21	Dec. 18	7.95	Sept. 20	8.33
Oct. 5	8.72	Jan. 17, 1950	7.72	Oct. 24	8.36
Dec. 7	8.39	Mar. 1	7.84	Dec. 8	8.25
June 6, 1949	7.70				

1-40-27ab

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	19.70	Apr. 5, 1949	18.67	Apr. 21, 1950	18.82
Apr. 10	19.40	June 6	18.40	June 2	18.86
June 8	19.60	Oct. 4	19.33	July 11	19.48
Aug. 3	19.05	Nov. 16	19.15	Aug. 10	18.62
Oct. 5	19.50	Dec. 18	19.11	Sept. 20	18.51
Dec. 7	19.35	Jan. 17, 1950	19.00	Dec. 8	19.09
Feb. 8, 1949	19.10	Mar. 1	18.92		

1-40-29bb

Day	Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.53	11.53	.....	11.45	11.50	11.55	11.80	12.01	10.25	10.44	10.76	10.94
2	11.53	11.53	.....	11.45	11.49	11.56	11.80	12.02	10.26	10.47	10.78	10.96
3	11.52	11.53	.....	11.45	11.49	11.57	11.81	12.01	10.29	10.48	10.79	10.96
4	11.52	11.53	.....	11.47	11.49	11.58	11.82	11.95	10.30	10.49	10.79	10.96
5	11.51	11.53	.....	11.47	11.49	11.58	11.83	11.87	10.31	10.47	10.79	10.98
6	11.52	.....	.....	11.47	11.50	11.59	11.83	11.80	10.32	10.47	10.81	10.98
7	11.52	.....	.....	11.45	11.51	11.60	11.84	11.75	10.34	10.51	10.81	10.97
8	11.53	.....	.....	11.45	11.51	11.60	11.85	11.70	10.36	10.52	10.83	10.97
9	11.53	.....	.....	11.45	11.51	11.61	11.86	11.65	10.37	10.52	10.84	10.98
10	11.52	.....	11.43	11.46	11.51	11.62	11.87	11.45	10.40	10.54	10.84	10.98
11	11.51	.....	11.43	11.47	11.50	11.62	11.87	11.09	10.42	10.55	10.83	10.97
12	11.52	.....	11.44	11.47	11.50	11.63	11.88	10.88	10.43	10.56	10.85	10.97

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

DUNDY COUNTY—Continued

1-40-29bb—Continued

Day	Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
13	11.52	.....	11.45	11.47	11.49	11.64	11.88	10.68	10.45	10.56	10.85	10.98
14	11.52	.....	11.44	11.47	11.48	11.65	11.89	10.54	10.47	10.57	10.84	10.98
15	11.52	.....	11.44	11.47	11.48	11.66	11.90	10.33	10.47	10.58	10.87	10.99
16	11.52	.....	11.44	11.47	11.48	11.67	11.91	10.24	10.40	10.60	10.88	11.00
17	11.52	.....	11.44	11.47	11.48	11.68	11.92	10.19	10.32	10.61	10.87	11.00
18	11.54	.....	11.44	11.47	11.48	11.68	11.92	10.16	10.27	10.62	10.87	11.00
19	11.55	.....	11.45	11.47	11.48	11.69	11.93	10.14	10.26	10.64	10.88	11.01
20	11.55	.....	11.45	11.47	11.49	11.70	11.94	10.14	10.25	10.65	10.90	11.01
21	11.55	.....	11.45	11.47	11.50	11.70	11.94	10.13	10.27	10.66	10.90	11.02
22	11.54	.....	11.45	11.47	11.50	11.71	11.95	10.12	10.28	10.67	10.90	11.02
23	11.54	.....	11.45	11.47	11.50	11.72	11.95	10.12	10.30	10.68	10.92	11.02
24	11.53	.....	11.45	11.47	11.50	11.73	11.96	10.15	10.31	10.70	10.92	11.02
25	11.53	.....	11.45	11.48	11.51	11.74	11.97	10.17	10.32	10.70	10.93	11.02
26	11.53	.....	11.43	11.48	11.53	11.75	11.98	10.19	10.33	10.71	10.93	11.03
27	11.54	.....	11.44	11.49	11.54	11.76	11.98	10.20	10.36	10.72	10.93	11.03
28	11.54	.....	11.45	11.49	11.54	11.77	11.98	10.22	10.37	10.73	10.94	11.03
29	11.53	.....	11.47	11.49	11.54	11.78	11.99	10.24	10.39	10.74	10.94	11.04
30	11.53	.....	11.47	11.50	11.54	11.79	12.00	10.24	10.40	10.74	10.94	11.04
31	11.53	.....	11.46	.....	11.55	.....	12.00	10.24	.....	10.75	.....	11.03

Date	Water level	Date	Water level	Date	Water level
1-41-20dd					
Feb. 3, 1948	2.52	June 6, 1949	2.70	Apr. 21, 1950	2.93
Apr. 10	2.90	Aug. 2	4.10	June 2	3.08
June 8	3.14	Sept. 13*	3.09	July 12	3.45
Aug. 3	3.60	Oct. 4	3.30	Aug. 10	3.03
Oct. 5	3.65	Nov. 16	2.84	Sept. 20	2.64
Dec. 7	2.56	Dec. 18	2.56	Oct. 24	3.16
Feb. 8, 1949	2.18	Jan. 17, 1950	2.43	Dec. 8	2.68
Apr. 5	1.75	Mar. 1	2.54		
1-41-27ca					
Feb. 3, 1948	3.24	June 6, 1949	3.99	Apr. 21, 1950	4.04
Apr. 10	4.08	July 5	3.98	June 2	4.39
June 8	4.52	Aug. 2	5.00	July 12	4.45
Aug. 3	5.05	Oct. 4	4.51	Aug. 10	4.19
Oct. 5	4.90	Nov. 16	4.25	Sept. 20	4.29
Dec. 7	4.25	Dec. 18	3.39	Oct. 24	4.51
Feb. 8, 1949	2.86	Jan. 17, 1950	2.94	Dec. 8	3.26
Apr. 5	3.40	Mar. 1	3.91		
1-42-10cd					
Feb. 3, 1948	4.35	Apr. 5, 1949	4.07	Jan. 17, 1950	3.71
Apr. 10	4.08	June 6	3.92	Mar. 1	3.68
June 8	4.65	Aug. 2	3.91	Apr. 21	3.69
Aug. 3	4.69	Oct. 4	3.84	June 2	3.67
Oct. 5	5.25	Nov. 16	3.77	July 12	3.57
Dec. 7	4.86	Dec. 18	3.74	Aug. 10	3.58
Feb. 8, 1949	4.27				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

DUNDY COUNTY—Continued

1-42-13bb

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	3.95	June 6, 1949	3.57	Apr. 21, 1950	4.00
Apr. 10	3.92	Aug. 2	5.15	June 2	4.37
June 8	4.44	Sept. 13*	4.35	July 12	4.91
Aug. 3	4.11	Oct. 4	4.62	Aug. 10	4.75
Oct. 5	4.90	Nov. 16	4.20	Sept. 20	4.21
Dec. 7	4.21	Dec. 18	4.15	Oct. 24	4.53
Feb. 8, 1949	3.35	Jan. 17, 1950	3.84	Dec. 8	4.13
Apr. 5	3.21	Mar. 1	3.98		

1-42-36aa

Date	Water level	Date	Water level	Date	Water level
Feb. 3, 1948	11.22	June 6, 1949	10.41	Apr. 21, 1950	11.33
Apr. 10	11.04	Aug. 2	12.20	June 2	10.48
June 8	11.03	Sept. 13*	10.57	July 12	10.24
Aug. 3	11.44	Oct. 4	10.72	Aug. 10	9.37
Oct. 5	10.68	Nov. 16	10.60	Sept. 20	10.22
Dec. 7	11.23	Dec. 18	11.25	Oct. 24	11.07
Feb. 8, 1949	11.62	Jan. 17, 1950	11.33	Dec. 8	10.60
Apr. 5	10.18	Mar. 1	10.99		

2-36-24ca

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	15.08	June 6, 1949	14.41	Apr. 14, 1950	14.44
Apr. 12	14.86	July 6*	14.30	June 2	14.50
June 9	15.19	Aug. 3	14.59	July 12	14.84
Aug. 4	15.43	Oct. 5	14.95	Aug. 10	14.62
Oct. 6	15.65	Nov. 17	14.85	Sept. 20	14.99
Dec. 9	15.55	Dec. 19	14.47	Oct. 24	15.08
Feb. 8, 1949	15.18	Jan. 17, 1950	14.65	Dec. 8	15.00
Apr. 6	14.79	Feb. 28	14.46		

2-36-24cd

Date	Water level	Date	Water level	Date	Water level
Aug. 29, 1950	15.75	Oct. 24, 1950	15.11	Dec. 8, 1950	15.00
Sept. 20	15.10				

2-36-29ac

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	22.10	June 9, 1949	21.34	Feb. 28, 1950	21.52
Apr. 12	21.92	July 6*	21.44	Apr. 14	21.41
June 9	22.14	Aug. 3	22.72	June 2	21.49
Aug. 4	22.48	Oct. 5	22.15	July 12	22.12
Oct. 6	22.77	Nov. 17	21.90	Sept. 20	22.01
Dec. 9	22.40	Dec. 19	21.70	Oct. 24	21.97
Feb. 8, 1949	22.19	Jan. 17, 1950	21.62	Dec. 8	21.75
Apr. 6	21.33				

2-36-31bc

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	21.95	June 9, 1949	20.95	Jan. 17, 1950	20.87
Apr. 12	21.61	June 20	20.80	Feb. 28	20.68
June 9	22.00	July 6	20.92	Apr. 14	20.64
Aug. 4	22.11	Aug. 3	21.17	May 26	20.75
Oct. 6	22.84	Sept. 13	21.20	June 29	21.22
Dec. 9	22.29	Oct. 5	21.32	July 12	21.38
Feb. 8, 1949	22.00	Nov. 17	20.73	July 28	21.42
Apr. 6	21.46	Dec. 19	20.90	Aug. 10	21.45

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
DUNDY COUNTY—Continued					
2-36-31bc—Continued					
Aug. 29, 1950	21.35	Sept. 27, 1950	21.56	Nov. 29, 1950	21.42
Sept. 20	21.55	Oct. 24	21.69	Dec. 8	21.35
2-37-36db					
Aug. 29, 1950	19.74	Oct. 24, 1950	19.80	Dec. 8, 1950	19.57
Sept. 20	19.69				
FRONTIER COUNTY					
5-26-11ac					
Mar. 2, 1950	38.63	Aug. 22, 1950	26.13	Nov. 30, 1950	20.16
May 22	33.39	Sept. 22	23.61	Dec. 19	19.45
July 28	28.25	Oct. 19	22.25		
5-26-11ba					
Aug. 20, 1950	22.46				
5-26-11dd					
Mar. 2, 1950	59.77	July 28, 1950	53.54	Oct. 19, 1950	46.99
May 22	57.10	Aug. 22	52.13	Nov. 30	45.18
July 5	54.99	Sept. 22	49.86	Dec. 19	44.01
5-26-12bc					
Mar. 2, 1950	35.13	Aug. 20, 1950	20.13	Nov. 30, 1950	16.69
June 14	26.51	Sept. 22	18.78	Dec. 19	15.96
July 28	21.67	Oct. 19	18.20		
5-26-13da					
July 28, 1950	95.40	Aug. 20, 1950	95.91	Sept. 22, 1950	95.35
5-26-14dc					
Mar. 2, 1950	37.33	July 28, 1950	23.53	Oct. 19, 1950	19.13
May 22	30.06	Aug. 22	21.36	Nov. 30	17.64
July 5	27.09	Sept. 22	19.87	Dec. 19	16.99
5-26-25aab					
Sept. 22, 1950	39.40	Nov. 30, 1950	39.13	Dec. 19, 1950	39.28
Oct. 19	39.54				
5-26-25aad					
Sept. 22, 1950	12.69	Nov. 30, 1950	12.44	Dec. 19, 1950	12.47
Oct. 19	13.81				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
FRONTIER COUNTY—Continued					
6-26-26cb					
Oct. 19, 1950	59.36	Nov. 30, 1950	58.87	Dec. 19, 1950	58.64
6-26-29ba					
Oct. 19, 1950	40.40	Nov. 30, 1950	40.00	Dec. 19, 1950	39.70
6-26-34ba					
Oct. 19, 1950	104.81				
6-26-34da					
Aug. 20, 1950	52.24	Oct. 19, 1950	49.44	Dec. 19, 1950	46.52
Sept. 22	50.71	Nov. 30	47.38		
FURNAS COUNTY					
3-21-2cc					
Feb. 5, 1948	9.25	June 10, 1949	6.79	May 5, 1950	8.82
Apr. 13	9.07	Aug. 5	9.04	June 27	8.80
June 11	9.73	Oct. 7	9.62	July 21	8.90
Aug. 5	8.63	Nov. 19	9.27	Aug. 17	8.73
Oct. 7	10.35	Dec. 21	9.10	Sept. 18	9.22
Dec. 10	9.72	Feb. 8, 1950	8.71	Oct. 24	9.34
Feb. 10, 1949	9.07	Mar. 20	8.66	Dec. 12	8.94
Apr. 7	8.07				
3-21-3ad					
Feb. 8, 1950	10.92	June 27, 1950	10.37	Sept. 18, 1950	11.04
Mar. 20	10.94	July 21	10.30	Oct. 24	11.30
May 5	11.03	Aug. 17	10.63	Dec. 12	11.51
3-21-4cb					
Feb. 8, 1950	10.02	June 27, 1950	9.24	Sept. 18, 1950	10.30
Mar. 20	9.75	July 21	9.64	Oct. 24	10.59
May 5	9.55	Aug. 17	9.95	Dec. 12	10.25
3-21-6bb					
Feb. 8, 1950	14.92	June 27, 1950	15.30	Sept. 18, 1950	15.90
Mar. 20	14.84	July 21	15.66	Oct. 24	15.98
May 5	14.90	Aug. 17	15.51	Dec. 12	15.56
3-21-11aa					
June 27, 1950	4.42	Aug. 17, 1950	4.28	Oct. 24, 1950	4.39
July 21	4.70	Sept. 18	4.51	Dec. 12	3.87

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
FURNAS COUNTY—Continued					
3-21-12ad					
June 27, 1950	7.09	Aug. 17, 1950	7.35	Oct. 24, 1950	7.56
July 21	7.56	Sept. 18	7.74	Dec. 12	7.00
3-21-12dc					
Feb. 5, 1948	5.26	June 11, 1949	3.61	May 5, 1950	4.43
Apr. 13	4.80	Aug. 5	5.69	June 27	5.62
June 11	6.19	Oct. 8	6.18	July 21	5.96
Aug. 5	4.84	Nov. 19	5.35	Aug. 17	6.02
Oct. 7	6.52	Dec. 21	5.22	Sept. 18	6.16
Dec. 10	5.52	Feb. 8, 1950	4.82	Oct. 24	6.35
Feb. 10, 1949	5.92	Mar. 20	4.43	Dec. 12	5.60
Apr. 7	3.62				
3-22-2ba					
Feb. 2, 1948	8.44	May 26, 1949	6.50	Mar. 17, 1950	8.45
Apr. 9	8.00	June 6	6.85	May 12	8.29
June 7	8.64	July 8	7.27	June 23	7.46
Aug. 2	7.68	Aug. 1	6.60	July 22	7.98
Oct. 1	8.84	Oct. 3	8.67	Aug. 18	8.12
Dec. 6	8.79	Nov. 15	8.84	Sept. 19	8.64
Feb. 7, 1949	8.10	Dec. 17	8.83	Oct. 25	8.96
Apr. 7	7.84	Jan. 19, 1950	8.82	Dec. 12	9.00
3-25-3ab					
May 23, 1950	35.52	Aug. 17, 1950	35.87	Oct. 18, 1950	35.46
June 9	35.45	Sept. 17	35.62	Dec. 5	35.53
July 18	35.52				
3-25-4aa					
June 9, 1950	13.63	Aug. 17, 1950	9.60	Oct. 18, 1950	11.60
July 18	11.40	Sept. 17	10.84	Dec. 5	12.09

3-25-4bb

Day	Month					Day	Month				
	May	June	July	Aug.	Sept.		May	June	July	Aug.	Sept.
1	.....	4.45	5.06	3.66	4.48	13	5.00	4.67	5.08	4.15	4.71
2	.....	4.45	5.09	3.73	4.50	14	4.95	4.70	5.08	4.17	4.73
3	5.11	4.45	5.12	3.79	4.51	15	4.92	4.73	5.08	4.18	4.75
4	5.12	4.45	5.14	3.86	4.53	16	4.90	4.75	5.09	4.21	4.76
5	5.12	4.46	5.14	3.92	4.55	17	4.90	4.77	5.10	4.24	4.78
6	5.11	4.47	5.14	3.97	4.57	18	4.90	4.78	5.11	4.27	4.79
7	5.11	4.49	5.12	3.99	4.59	19	4.89	4.79	5.12	4.29	4.80
8	5.11	4.51	5.10	4.02	4.61	20	4.86	4.81	5.13	4.31	[a]
9	5.08	4.56	5.09	4.04	4.63	21	4.81	4.82	5.14	4.32	.....
10	5.04	4.58	5.08	4.07	4.65	22	4.76	4.84	5.15	4.34	.....
11	5.03	4.62	5.08	4.09	4.67	23	4.74	4.85	5.15	4.36	.....
12	5.02	4.65	5.08	4.13	4.69	24	4.74	4.87	5.16	4.38	.....

[a] Water-level recording gage discontinued. Additional data: Water-level measurement on Oct. 18, 1950 was 5.19 and on Dec. 5, 1950 was 5.52.

Water-level measurements in wells, in feet below land-surface datum with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

3-25-4bb—Continued

Day	Month					Day	Month				
	May	June	July	Aug.	Sept.		May	June	July	Aug.	Sept.
25	4.74	4.90	5.17	4.40	.....	29	4.58	5.00	3.46	4.45	.....
26	4.74	4.92	5.17	4.42	.....	30	4.50	5.04	3.54	4.46	.....
27	4.73	4.95	3.29	4.44	.....	31	4.46	.....	3.60	4.47	.....
28	4.69	4.98	3.38	4.45	.....						

Date	Water level	Date	Water level	Date	Water level
3-25-5bd					
June 9, 1950	2.67	Aug. 15, 1950	2.69	Oct. 18, 1950	3.31
July 18	2.86	Sept. 19	2.11	Dec. 5	3.26
3-25-5ca					
June 9, 1950	18.24	Aug. 15, 1950	18.23	Oct. 18, 1950	18.82
July 18	18.35	Sept. 19	18.54	Dec. 5	18.85
3-25-6ad					
June 9, 1950	6.87	Aug. 15, 1950	6.67	Oct. 18, 1950	7.63
July 18	7.04	Sept. 19	7.36	Dec. 5	7.62
4-21-29dc					
Feb. 8, 1950	22.10	June 27, 1950	21.75	Sept. 18, 1950	21.92
Mar. 20	22.03	July 21	21.75	Oct. 24	22.07
May 5	21.99	Aug. 17	21.82	Dec. 12	22.02
4-21-30cb					
Feb. 8, 1950	16.81	June 23, 1950	16.36	Sept. 18, 1950	16.85
Mar. 20	16.60	July 21	16.57	Oct. 24	17.03
May 5	16.41	Aug. 17	16.74	Dec. 12	16.77
4-21-30dc					
May 18, 1950	19.47	Aug. 17, 1950	23.01	Oct. 24, 1950	23.92
June 23	21.24	Sept. 18	23.46	Dec. 12	24.56
July 21	22.34				
4-21-31bb					
Feb. 8, 1950	24.55	June 23, 1950	24.64	Sept. 18, 1950	25.94
Mar. 20	24.29	July 21	25.34	Oct. 24	26.23
May 5	24.24	Aug. 17	25.75	Dec. 12	25.76

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

FURNAS COUNTY—Continued

4-21-31bc

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1950	16.02	June 27, 1950	16.03	Sept. 18, 1950	16.85
Mar. 20	15.80	July 21	16.55	Oct. 24	17.13
May 5	15.80	Aug. 17	16.47	Dec. 12	16.73

4-21-32cc

Date	Water level	Date	Water level	Date	Water level
Feb. 5, 1948	13.59	Apr. 7, 1949	13.76	Mar. 20, 1950	13.87
Apr. 13	13.30	June 10	12.35	May 5	13.70
June 11	14.72	Aug. 5	14.37	June 27	13.10
Aug. 5	14.64	Oct. 7	15.10	July 21	13.82
Oct. 7	15.59	Nov. 19	14.35	Sept. 18	14.47
Dec. 10	14.87	Dec. 21	14.10	Oct. 24	14.28
Feb. 10, 1949	14.39	Feb. 8, 1950	14.07	Dec. 12	13.85

4-21-32dd

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1950	12.10	June 27, 1950	11.10	Sept. 18, 1950	11.87
Mar. 20	11.80	July 21	11.14	Oct. 24	12.19
May 5	11.54	Aug. 17	11.49	Dec. 12	12.12

4-22-19ac

Date	Water level	Date	Water level	Date	Water level
June 10, 1949	22.05	Dec. 21, 1949	21.72	July 21, 1950	21.80
July 18	21.84	Feb. 7, 1950	21.72	Aug. 17	21.80
Aug. 5	21.75	Mar. 20	21.73	Sept. 18	21.72
Sept. 9	21.66	May 8	21.72	Oct. 24	21.79
Oct. 7	21.65	June 23	21.76	Dec. 12	21.77
Nov. 19	21.61				

4-22-19ca

Date	Water level	Date	Water level	Date	Water level
June 10, 1949	1.00	Nov. 19, 1949	5.75	June 23, 1950	4.69
July 18	4.37	Dec. 21	5.69	Aug. 17	5.89
Aug. 5	5.45	Feb. 7, 1950	5.52	Sept. 18	6.12
Sept. 9	5.55	Mar. 20	5.27	Oct. 24	6.20
Oct. 7	5.82	May 8	5.03	Dec. 12	5.92

4-22-19cc

Date	Water level	Date	Water level	Date	Water level
Dec. 16, 1949	6.05	June 23, 1950	4.97	Sept. 18, 1950	6.24
Feb. 7, 1950	5.95	July 21	5.25	Oct. 24	6.32
Mar. 20	5.47	Aug. 17	5.75	Dec. 12	6.12
May 8	5.47				

4-22-25cc

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	11.74	June 10, 1949	9.32	Mar. 20, 1950	11.79
Apr. 13	11.24	July 18	10.12	May 5	11.75
June 11	11.94	Aug. 5	11.45	June 23	11.02
Aug. 5	11.15	Sept. 9	11.16	July 21	12.40
Oct. 7	12.85	Oct. 7	12.52	Aug. 17	12.35
Dec. 10	12.53	Nov. 19	12.34	Sept. 18	12.63
Feb. 10, 1949	11.97	Dec. 21	12.35	Oct. 24	12.92
Apr. 7	11.15	Feb. 8, 1950	12.01	Dec. 12	12.61

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

FURNAS COUNTY—Continued

4-22-25dc

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1950	9.82	June 23, 1950	9.06	Sept. 18, 1950	10.77
Mar. 20	9.55	July 21	9.97	Oct. 24	11.05
May 5	9.50	Aug. 17	10.31	Dec. 12	10.70

4-22-26cb

Feb. 7, 1950	11.19	June 23, 1950	11.01	Sept. 18, 1950	12.09
Mar. 20	10.90	July 21	11.92	Oct. 24	12.48
May 5	10.82	Aug. 17	12.22	Dec. 12	12.02

4-22-27cb

Dec. 16, 1949	18.32	June 23, 1950	18.64	Sept. 18, 1950	19.17
Feb. 7, 1950	18.51	July 21	18.92	Oct. 24	19.28
Mar. 20	18.55	Aug. 17	19.03	Dec. 12	19.29
May 8	18.66				

4-22-29aa

June 10, 1949	13.24	Dec. 21, 1949	13.10	July 21, 1950	13.10
July 18*	13.30	Feb. 7, 1950	13.00	Aug. 17	13.16
Aug. 5	13.32	Mar. 20	12.86	Sept. 18	13.10
Sept. 9*	13.22	May 8	12.84	Oct. 24	13.09
Oct. 7	13.39	June 23	12.94	Dec. 12	12.92
Nov. 19	13.15				

4-22-29ad

Feb. 4, 1948	15.90	Aug. 5, 1949	14.80	July 21, 1950	15.48
Apr. 13	15.88	Sept. 9*	15.09	July 28	15.44
June 11	16.10	Oct. 7	15.39	Aug. 17	15.57
Aug. 5	15.44	Nov. 19	15.67	Aug. 29	15.59
Oct. 7	16.04	Dec. 21	15.20	Sept. 18	16.32
Dec. 10	15.87	Feb. 7, 1950	15.91	Sept. 27	15.74
Feb. 10, 1949	15.69	Mar. 20	15.72	Oct. 24	15.90
Apr. 7	15.90	May 8	15.65	Oct. 28	15.90
June 11	15.02	May 27	15.64	Dec. 12	15.95
July 18*	14.82	June 29	15.48		

4-22-29da

June 10, 1949	14.55	Dec. 21, 1949	15.77	July 21, 1950	15.80
July 18*	14.92	Feb. 7, 1950	15.63	Aug. 17	15.91
Aug. 5	15.26	Mar. 20	15.39	Sept. 18	16.01
Sept. 9*	15.80	May 8	15.38	Oct. 24	16.06
Oct. 7	15.94	June 23	15.49	Dec. 12	15.92
Nov. 19	15.82				

4-22-30ba

Feb. 7, 1950	8.15	Aug. 17, 1950	8.45	Oct. 24, 1950	8.70
June 23	7.44	Sept. 18	8.76	Dec. 12	8.45

Water-level measurements in wells, in feet below land-surface datum with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
FURNAS COUNTY—Continued					
4-22-32dd					
Feb. 2, 1948	10.03	Apr. 7, 1949	8.84	Jan. 19, 1950	9.82
Apr. 9	9.32	June 6	8.15	Mar. 17	9.24
June 7	10.60	Aug. 1	11.42	May 12	9.04
Aug. 2	10.09	Oct. 3	11.06	June 23	9.61
Oct. 1	12.17	Nov. 15	10.35	July 22	10.49
Dec. 6	12.20	Dec. 17	10.08	Dec. 12	10.18
Feb. 7, 1949	11.89				
4-22-33aa					
June 10, 1949	12.85	Mar. 20, 1950	14.87	Aug. 17, 1950	15.55
July 18*	12.90	May 8	15.03	Sept. 18	15.54
Sept. 9*	13.60	June 23	14.69	Oct. 24	15.39
Dec. 21	14.31	July 21	15.43	Dec. 12	15.13
Feb. 7, 1950	14.77				
4-22-34bb					
Feb. 4, 1948	14.05	June 10, 1949	12.76	May 8, 1950	14.68
Apr. 13	13.85	July 18*	13.60	June 23	14.52
June 11	15.61	Oct. 7	15.40	July 21	15.29
Oct. 7	15.55	Nov. 19	14.65	Sept. 18	15.45
Dec. 10	15.23	Dec. 21	14.39	Oct. 24	15.34
Feb. 10, 1949	14.45	Feb. 7, 1950	14.52	Dec. 12	15.03
Apr. 7	13.75	Mar. 20	14.57		
4-22-35bd					
May 18, 1950	2.10	Aug. 17, 1950	2.58	Oct. 24, 1950	3.06
June 23	2.84	Sept. 18	2.72	Dec. 12	2.60
July 21	2.94				
4-23-7dc					
Apr. 24, 1950	22.99	July 21, 1950	20.89	Oct. 24, 1950	18.97
May 9	22.87	Aug. 17	20.03	Dec. 12	18.88
June 22	21.69	Sept. 18	19.30		
4-23-15da					
June 10, 1949	39.58	Jan. 20, 1950	39.55	Aug. 17, 1950	39.52
July 18	39.22	Mar. 17	39.31	Sept. 18	39.57
Oct. 7	39.42	May 8	39.19	Oct. 24	39.65
Nov. 19	39.49	June 23	39.45	Dec. 12	39.68
Dec. 21	39.49	July 21	39.50		
4-23-15db					
May 18, 1950	32.74	Sept. 27, 1950**	32.65	Nov. 14, 1950**	32.37
Sept. 11	32.72	Oct. 24	32.50	Dec. 12	32.12
Sept. 18	32.64	Oct. 27**	32.47		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

4-23-17bd

Date	Water level	Date	Water level	Date	Water level
June 10, 1949	28.55	Dec. 21, 1949	28.79	July 21, 1950	28.25
July 18*	28.50	Jan. 20, 1950	28.27	Aug. 17	28.18
Sept. 9*	28.36	Mar. 17	28.29	Sept. 18	28.12
Oct. 7	28.35	May 9	28.34	Oct. 24	28.08
Nov. 19	28.31	June 22	28.26	Dec. 12	27.99

4-23-18ad

Apr. 24, 1950	18.67	Aug. 21, 1950	18.10	Oct. 24, 1950	18.25
June 22	17.89	Sept. 18	18.14	Dec. 12	18.37
July 21	18.03				

4-23-18ccb

Jan. 12, 1950*	11.50	June 22, 1950	10.45	Sept. 18, 1950	11.12
Jan. 20	11.55	July 21	10.87	Oct. 18	11.60
Mar. 17	11.58	Aug. 17	10.95	Dec. 12	11.71
May 9	11.38				

4-23-18ccc

Jan. 20, 1950	16.04	June 22, 1950	15.17	Sept. 18, 1950	15.97
Mar. 17	16.31	July 20	15.62	Oct. 24	16.41
May 9	16.16	Aug. 17	15.70	Dec. 12	16.57

4-23-19ab

June 22, 1950	11.65	Aug. 17, 1950	12.73	Oct. 24, 1950	13.59
July 20	12.40	Sept. 18	13.21	Dec. 12	13.69

4-23-19ad

June 10, 1949	4.12	Dec. 21, 1949	7.37	July 21, 1950	6.67
July 18*	5.83	Jan. 20, 1950	7.23	Aug. 17	7.06
Aug. 5	6.56	Mar. 17	6.76	Sept. 18	7.31
Sept. 9*	6.85	May 9	6.41	Oct. 24	7.64
Oct. 7	7.60	June 22	5.75	Dec. 12	7.48
Nov. 19	7.42				

4-23-19ba

Jan. 12, 1950*	10.42	May 9, 1950	10.33	Sept. 18, 1950	12.28
Jan. 20	10.50	June 22	9.00	Oct. 24	10.71
Mar. 17	10.44	Aug. 17	9.97	Dec. 12	10.87

4-23-19bb

Jan. 20, 1950	12.73	June 22, 1950	11.46	Sept. 18, 1950	12.50
Mar. 17	12.57	July 21	12.94	Oct. 24	12.92
May 9	12.56	Aug. 17	12.10	Dec. 12	13.02

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

4-23-19bc

Date	Water level	Date	Water level	Date	Water level
Jan. 20, 1950	9.20	June 22, 1950	8.17	Sept. 18, 1950	9.28
Mar. 17	8.80	July 21	8.76	Oct. 24	9.59
May 9	8.70	Aug. 17	8.94	Dec. 12	9.53

4-23-20ab

Feb. 4, 1948	27.19	June 10, 1949	26.32	Mar. 16, 1950	27.77
Apr. 13	27.21	July 18*	26.42	May 9	27.78
June 11	28.28	Sept. 9*	27.68	June 22	26.95
Oct. 7	27.59	Oct. 7	27.52	July 21	28.07
Dec. 10	27.82	Nov. 19	27.58	Sept. 18	28.27
Feb. 10, 1949	27.62	Dec. 21	27.52	Oct. 24	27.80
Apr. 4	27.22	Jan. 20, 1950	27.73	Dec. 12	27.67

4-23-20bb

June 10, 1949	17.63	Dec. 21, 1949	19.16	July 21, 1950	18.80
July 18*	17.35	Jan. 20, 1950	19.28	Aug. 17	18.93
Aug. 5	17.74	Mar. 16	19.32	Sept. 18	19.24
Sept. 9*	18.06	May 9	19.40	Oct. 24	19.50
Oct. 7	18.69	June 22	18.54	Dec. 12	19.60
Nov. 19	19.05				

4-23-21ad

Jan. 12, 1950*	29.36	June 22, 1950	28.95	Sept. 18, 1950	29.54
Jan 20	29.37	July 21	29.17	Oct. 24	29.61
Mar. 17	29.28	Aug. 17	29.24	Dec. 12	29.63

4-23-22dc

June 10, 1949	14.25	Dec. 21, 1949	15.18	July 21, 1950	15.54
July 18	15.85	Jan. 20, 1950	15.07	Aug. 17	15.35
Aug. 5	15.44	Mar. 17	14.75	Sept. 18	15.39
Oct. 7	15.59	May 8	15.03	Oct. 24	15.34
Nov. 19	15.33	June 23	15.21	Dec. 12	15.17

4-23-23bd

Feb. 4, 1948	29.34	June 10, 1949*	28.42	May 8, 1950	29.27
Apr. 13	29.26	Aug. 5	29.08	June 23	29.19
June 11	29.68	Oct. 7	29.63	July 21	29.51
Aug. 5	29.35	Nov. 19	29.50	Aug. 17	29.51
Oct. 7	30.15	Dec. 21	29.43	Sept. 18	29.45
Dec. 10	29.92	Jan. 20, 1950	29.33	Oct. 24	29.69
Feb. 10, 1949	29.40	Mar. 17	29.10	Dec. 12	29.43
Apr. 7	28.90				

4-23-24bc

Jan. 12, 1950	14.60	June 23, 1950	15.00	Sept. 18, 1950	14.94
Feb. 7	14.32	July 21	15.04	Oct. 24	15.28
Mar. 20	14.40	Aug. 17	14.95	Dec. 12	14.74
May 8	14.63				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

FURNAS COUNTY—Continued

4-23-24bd

Date	Water level	Date	Water level	Date	Water level
Jan. 12, 1950	8.44	May 8, 1950	7.82	Sept. 18, 1950	8.85
Feb. 7	8.38	June 23	6.61	Oct. 24	9.08
Mar. 20	7.89	July 21	7.92	Dec. 12	8.89

4-23-25aa

Dec. 16, 1949	7.72	June 23, 1950	6.90	Sept. 18, 1950	8.04
Feb. 7, 1950	7.43	July 21	7.59	Oct. 24	8.01
Mar. 20	7.13	Aug. 17	7.76	Dec. 12	7.76
May 8	7.05				

4-23-27bb

June 16, 1950	10.19	Aug. 17, 1950	10.87	Oct. 24, 1950	11.32
June 22	10.25	Sept. 18	11.19	Dec. 12	11.24
July 21	10.78				

4-23-27dd

Feb. 2, 1948	10.64	June 6, 1949	8.55	May 12, 1950	10.59
Apr. 9	10.15	Aug. 1	9.62	June 23	10.60
June 7	10.85	Oct. 7	11.00	July 22	11.17
Aug. 2	9.75	Nov. 19	11.00	Aug. 18	11.43
Oct. 1	11.35	Dec. 17	10.97	Sept. 19	11.61
Dec. 6	11.36	Jan. 19, 1950	10.94	Oct. 25	11.63
Feb. 7, 1949	11.16	Mar. 17	10.67	Dec. 12	11.49
Apr. 4	9.92				

4-23-30cc

Feb. 2, 1948	52.63	Oct. 3, 1949	53.55	June 23, 1950	53.27
June 7	52.92	Nov. 15	53.40	July 21	53.27
Aug. 2	54.69	Dec. 17	53.25	Aug. 18	53.74
Oct. 1	53.68	Jan. 19, 1950	53.19	Sept. 19	53.53
Dec. 6	53.81	Mar. 17	53.03	Oct. 25	53.45
June 6, 1949	52.59	May 12	53.06	Dec. 12	53.38
Aug. 1	54.07				

4-23-36aa

Feb. 2, 1948	20.45	June 6, 1949	17.43	May 12, 1950	19.65
Apr. 9	20.12	Aug. 1	18.53	June 23	19.40
June 7	20.59	Oct. 3	19.96	July 22	19.88
Aug. 2	19.04	Nov. 15	20.17	Aug. 18	20.10
Oct. 1	20.52	Dec. 17	20.10	Sept. 19	20.41
Dec. 6	20.82	Jan. 19, 1950	20.08	Oct. 25	20.45
Feb. 7, 1949	20.51	Mar. 17	19.82	Dec. 12	20.35
Apr. 7	20.07				

4-24-13aa

Jan. 12, 1950*	25.62	June 22, 1950	25.07	Sept. 18, 1950	24.09
Jan. 20	25.73	July 20	24.75	Oct. 24	23.91
Mar. 17	25.84	Aug. 17	24.45	Dec. 12	23.88
May 9	25.81				

***Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950*—Continued**

FURNAS COUNTY—Continued

4-24-13bb

Date	Water level	Date	Water level	Date	Water level
June 10, 1949	20.33	Dec. 21, 1949	20.13	July 20, 1950	19.09
July 18*	20.19	Jan. 20, 1950	20.29	Aug. 17	18.53
Aug. 5	20.15	Mar. 17	20.38	Sept. 18	18.05
Sept. 9*	20.85	May 9	20.37	Oct. 24	17.76
Oct. 7	20.10	June 22	19.70	Dec. 12	17.77
Nov. 19	20.13				

4-24-13cd

Feb. 4, 1948	17.52	Apr. 4, 1949	17.15	Jan. 20, 1950	17.59
Apr. 13	17.64	June 10	16.62	Mar. 17	17.75
June 11	18.04	July 18*	16.26	May 9	17.62
Aug. 5	16.65	Aug. 5	16.45	June 22	16.88
Oct. 7	17.12	Oct. 7	16.90	July 20	17.08
Dec. 10	17.55	Nov. 19	17.42	Oct. 24	17.57
Feb. 10, 1949	17.79	Dec. 21	17.50	Dec. 12	18.58

4-24-14cb

June 10, 1949	20.73	Dec. 21, 1949	23.07	July 20, 1950	20.65
July 18*	21.28	Jan. 20, 1950	23.25	Aug. 17	20.50
Aug. 6	22.34	Mar. 16	23.33	Sept. 18	20.29
Sept. 9*	22.50	May 9	23.62	Oct. 24	20.42
Oct. 7	22.77	June 22	20.94	Dec. 12	20.74
Nov. 19	23.02				

4-24-14cc

June 10, 1949	21.50	Nov. 19, 1949	22.68	Aug. 17, 1950	22.30
July 18*	21.44	Dec. 21	22.76	Sept. 18	22.30
Aug. 5	21.90	Mar. 16, 1950	21.48	Oct. 24	22.69
Sept. 9*	22.50	June 22	21.98	Dec. 12	22.46
Oct. 7	22.80	July 20	22.45		

4-24-14da

June 10, 1949	16.80	Dec. 21, 1949	17.37	July 20, 1950	17.16
July 18*	16.66	Jan. 20, 1950	17.50	Aug. 17	17.23
Aug. 5	17.89	Mar. 16	17.54	Sept. 18	16.61
Sept. 9*	16.77	May 9	17.59	Oct. 24	17.39
Oct. 7	17.02	June 22	16.93	Dec. 12	17.23
Nov. 19	17.42				

4-24-15cb

June 10, 1949	15.18	Dec. 21, 1949	15.93	July 20, 1950	12.37
July 18*	14.88	Jan. 20, 1950	16.00	Aug. 21	11.90
Aug. 5	15.00	Mar. 16	15.85	Sept. 19	11.37
Sept. 9*	15.03	May 9	14.50	Oct. 19	12.27
Oct. 7	15.46	June 21	12.70	Dec. 12	13.38
Nov. 18	15.78				

4-24-15cc

Feb. 4, 1948	13.37	June 10, 1948	13.55	Oct. 7, 1948	13.33
Apr. 13	12.97	Aug. 5	12.14	Dec. 10	13.70

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

FURNAS COUNTY—Continued

4-24-15cc—Continued

Date	Water level	Date	Water level	Date	Water level
Feb. 10, 1949	13.50	Oct. 7, 1949	13.16	June 21, 1950	11.45
Apr. 4	12.52	Nov. 18	13.35	July 20	11.74
Apr. 21	12.35	Dec. 21	13.33	Aug. 21	11.64
June 10	11.44	Jan. 20, 1950	13.28	Sept. 19	11.55
July 18	11.86	Mar. 16	13.08	Oct. 19	11.71
Aug. 5	12.35	May 9	12.61	Dec. 12	12.12

4-24-17cc

June 10, 1949	19.79	Aug. 5, 1949	19.10	Oct. 7, 1949	19.70
July 18*	19.75	Sept. 9*	19.68		

4-24-19cb

June 10, 1949	12.32	Dec. 20, 1949	13.96	July 20, 1950	10.71
July 18*	12.25	Jan. 20, 1950	13.97	Aug. 21	13.03
Aug. 5	13.10	Mar. 16	13.71	Sept. 19	12.67
Sept. 9*	13.09	May 9	11.10	Oct. 19	13.12
Oct. 7	13.52	June 21	10.55	Dec. 6	13.16
Nov. 18	14.02				

4-24-19cd

Feb. 4, 1948	14.26	June 10, 1949	11.77	May 9, 1950	12.22
Apr. 13	13.76	July 18*	12.67	June 21	11.51
June 10	14.59	Aug. 5	15.12	July 20	12.36
Aug. 5	14.16	Oct. 7	13.90	Aug. 21	12.80
Oct. 7	14.40	Nov. 18	14.22	Sept. 19	13.33
Dec. 10	14.40	Dec. 20	14.02	Oct. 19	13.22
Feb. 10, 1949	13.80	Jan. 20, 1950	13.80	Dec. 6	13.50
Apr. 4	13.04	Mar. 16	13.08		

4-24-19da

Apr. 24, 1950	6.89	July 20, 1950	6.11	Oct. 19, 1950	6.74
May 9	6.29	Aug. 21	6.30	Dec. 6	6.58
June 21	5.61	Sept. 19	6.59		

4-24-20ca

Apr. 24, 1950	5.34	July 20, 1950	5.34	Oct. 19, 1950	5.64
May 9	5.00	Aug. 21	5.62	Dec. 6	5.34
June 21	4.76	Sept. 19	5.58		

4-24-20cbb

June 10, 1949	3.29	Dec. 20, 1949	6.74	July 20, 1950	5.82
July 18*	5.82	Jan. 20, 1950	6.66	Aug. 21	6.00
Aug. 5	6.16	Mar. 16	6.45	Sept. 19	6.21
Sept. 9*	6.55	May 9	5.98	Oct. 19	6.41
Oct. 7	6.94	June 21	5.34	Dec. 6	6.23
Nov. 18	6.83				

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Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

4-24-20cbc

Date	Water level	Date	Water level	Date	Water level
June 10, 1949	4.54	Dec. 20, 1949	5.99	July 20, 1950	5.93
July 18*	6.01	Jan. 20, 1950	5.86	Aug. 21	5.97
Aug. 5	6.44	Mar. 16	5.58	Sept. 19	6.08
Oct. 7	6.42	May 9	5.64	Oct. 19	6.07
Nov. 18	6.15	June 21	5.66	Dec. 6	5.88

4-24-20cc

Apr. 24, 1950	5.49	June 21, 1950	5.15	Dec. 6, 1950	6.16
May 9	5.47				

4-24-21ac

Apr. 24, 1950	4.93	July 20, 1950	5.25	Oct. 25, 1950	5.30
May 9	4.54	Aug. 21	5.10	Dec. 6	5.04
June 21	5.22	Sept. 19	4.99		

4-24-21ad

Dec. 16, 1949*	5.00	June 21, 1950	4.87	Sept. 19, 1950	5.10
Jan. 20	4.80	July 20	5.25	Oct. 25	5.15
Mar. 16	4.64	Aug. 21	5.04	Dec. 6	4.91
May 9	4.55				

4-24-21bc

Apr. 24, 1950	7.91	July 20, 1950	8.43	Oct. 19, 1950	8.61
May 9	7.64	Aug. 21	8.36	Dec. 6	8.01
June 21	7.66	Sept. 19	8.35		

4-24-21da

Dec. 16, 1949*	5.88	June 21, 1950	6.17	Sept. 19, 1950	6.15
Jan. 20, 1950	5.57	July 20	6.31	Oct. 25	6.28
Mar. 16	5.46	Aug. 21	6.16	Dec. 6	5.92
May 9	5.55				

4-24-22bb

June 10, 1949	7.15	Dec. 21, 1949	9.88	July 20, 1950	9.51
July 18*	8.97	Jan. 20, 1950	9.75	Aug. 21	9.27
Aug. 5	10.33	Mar. 16	9.48	Sept. 19	9.38
Oct. 7	10.22	May 9	9.38	Oct. 25	9.46
Nov. 18	10.02	June 21	8.93	Dec. 6	9.43

4-24-22dd2

June 9, 1950	6.30	Aug. 17, 1950	6.60	Oct. 18, 1950	8.01
July 22	8.14	Sept. 17	7.71	Dec. 5	7.75

4-24-23aa

June 10, 1949	14.79	Aug. 5, 1949	16.95	Oct. 7, 1949	17.00
July 18*	15.62	Sept. 9*	16.42	Nov. 19	16.75

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

4-24-23aa—Continued

Date	Water level	Date	Water level	Date	Water level
Dec. 21, 1949	16.69	June 22, 1950	15.72	Sept. 18, 1950	16.82
Jan. 20, 1950	16.56	July 20	16.49	Oct. 24	16.96
Mar. 17	16.18	Aug. 17	16.53	Dec. 12	16.73
May 9	16.32				

4-24-23bc

June 10, 1949	16.22	Dec. 21, 1949	17.79	July 20, 1950	18.17
July 18	17.80	Jan. 20, 1950	17.49	Aug. 17	17.84
Aug. 5	18.57	Mar. 16	17.30	Sept. 18	17.97
Oct. 7	18.47	May 9	17.43	Oct. 24	18.31
Nov. 19	17.93	June 22	18.02	Dec. 12	17.87

4-24-24bc

Dec. 16, 1949	6.80	June 22, 1950	6.02	Sept. 18, 1950	7.05
Jan. 20, 1950	6.65	July 20	6.82	Oct. 24	7.13
Mar. 17	6.29	Aug. 17	6.75	Dec. 12	6.87
May 9	6.30				

4-24-29cd

Feb. 2, 1948	21.08	June 6, 1949	20.13	May 12, 1950	20.47
Apr. 9	20.86	Aug. 1	21.26	June 9	20.11
June 7	21.40	Oct. 3	21.03	July 22	21.72
Aug. 2	21.60	Nov. 15	20.80	Aug. 17	21.55
Oct. 1	22.00	Dec. 17	20.68	Sept. 17	20.91
Dec. 6	21.35	Jan. 19, 1950	20.54	Oct. 18	21.00
Feb. 7, 1949	20.97	Mar. 16	20.40	Dec. 5	20.86
Apr. 7	20.60				

4-24-29da

June 9, 1950	6.42	Aug. 17, 1950	7.15	Oct. 18, 1950	8.18
July 22	7.50	Sept. 17	7.75	Dec. 5	7.84

4-24-30dd

June 9, 1950	11.23	Aug. 17, 1950	11.47	Oct. 18, 1950	11.49
July 22	11.45	Sept. 17	11.45	Dec. 5	11.50

4-24-32bc

June 9, 1950	25.29	Sept. 17, 1950	25.85	Dec. 5, 1950	25.80
Aug. 17	26.35	Oct. 18	26.26		

4-25-25ab

Apr. 24, 1950	4.32	July 20, 1950	4.19	Oct. 19, 1950	5.79
May 9	5.42	Aug. 21	4.74	Dec. 6	5.46
June 21	3.25	Sept. 19	5.21		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

FURNAS COUNTY—Continued

4-25-25ac

Date	Water level	Date	Water level	Date	Water level
Apr. 24, 1950	4.28	Aug. 21, 1950	5.04	Oct. 19, 1950	5.47
June 21	4.09	Sept. 19	5.30	Dec. 6	5.07
July 20	4.92				

4-25-26ada

Apr. 24, 1950	6.34	July 20, 1950	6.47	Oct. 19, 1950	7.49
May 9	5.93	Aug. 21	6.98	Dec. 6	7.23
June 21	5.31	Sept. 19	7.33		

4-25-26add

Apr. 24, 1950	6.00	July 20, 1950	6.72	Oct. 19, 1950	6.95
May 9	5.62	Aug. 21	6.59	Dec. 6	6.51
June 21	5.89	Sept. 19	6.74		

4-25-27adc

Dec. 7, 1948*	7.85	Sept. 9, 1949*	9.30	June 21, 1950	10.06
Jan. 7, 1949*	9.85	Oct. 7	9.90	July 20	10.59
Feb. 3*	9.71	Nov. 18	10.25	Aug. 21	10.70
Apr. 7*	7.72	Dec. 20	10.42	Sept. 19	10.91
June 6*	6.90	Jan. 20, 1950	10.57	Oct. 19	11.11
July 18*	7.33	Mar. 16	10.64	Dec. 6	11.16
Aug. 5	8.00	May 9	10.26		

4-25-27add

Dec. 7, 1948*	6.44	Oct. 7, 1949	7.65	June 21, 1950	7.34
Jan. 7, 1949*	6.49	Nov. 18	7.80	July 20	8.11
Feb. 3*	6.47	Dec. 20	7.94	Aug. 21	8.09
Apr. 7*	4.39	Jan. 20, 1950	8.08	Sept. 19	8.26
June 6*	3.40	Mar. 16	8.08	Oct. 19	8.42
July 18*	4.56	May 9	7.80	Dec. 6	8.42
Sept. 9*	7.28				

4-25-27daa1

Dec. 7, 1948*	6.63	Oct. 7, 1949	7.67	June 21, 1950	7.32
Jan. 7, 1949*	6.69	Nov. 18	7.65	July 20	8.04
Feb. 3*	6.61	Dec. 20	7.74	Aug. 21	8.03
Apr. 7*	4.89	Jan. 20, 1950	7.67	Sept. 19	8.22
June 6*	4.02	Mar. 16	7.72	Oct. 19	8.36
July 18*	5.38	May 9	7.66	Dec. 6	8.23
Sept. 9*	7.48				

4-25-27daa2

Dec. 7, 1948*	7.15	July 18, 1949*	7.30	Aug. 21, 1950	7.95
Jan 7, 1949*	7.23	Mar. 16, 1950	7.86	Sept. 19	8.03
Feb. 3*	6.86	May 9	7.30	Oct. 19	8.22
Apr. 7*	5.87	June 21	8.25	Dec. 6	7.98
June 6*	5.78	July 20	8.44		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
FURNAS COUNTY—Continued					
4-25-30dd					
June 14, 1950	8.27	Aug. 15, 1950	8.45	Oct. 17, 1950	8.86
July 19	8.40	Sept. 17	8.60	Dec. 6	8.99
4-25-31bb					
June 14, 1950	6.88	Aug. 15, 1950	6.82	Oct. 17, 1950	7.63
July 19	7.12	Sept. 17	7.35	Dec. 6	7.76
4-25-32ab					
June 14, 1950	6.37	Aug. 15, 1950	6.49	Oct. 17, 1950	7.07
July 19	7.00	Sept. 17	6.86	Dec. 6	6.72
4-25-32bb					
June 14, 1950	8.12	Aug. 15, 1950	8.80	Oct. 17, 1950	9.31
July 19	8.50	Sept. 17	9.08	Dec. 6	9.39
4-25-32cd					
Feb. 2, 1948	5.35	June 6, 1949	4.00	May 2, 1950	5.03
Apr. 9	5.05	Aug. 1	5.60	June 9	4.70
June 7	5.79	Sept. 9*	5.10	July 18	4.94
Aug. 2	5.12	Oct. 3	5.60	Aug. 15	4.55
Oct. 1	6.58	Nov. 15	5.40	Sept. 19	5.15
Dec. 6	5.62	Dec. 17	5.20	Oct. 18	5.37
Feb. 7, 1949	5.37	Jan. 19, 1950	5.10	Dec. 5	5.17
Apr. 7	3.06	Mar. 16	4.60		
4-25-33cb					
June 9, 1950	4.84	Aug. 17, 1950	5.79	Oct. 18, 1950	6.03
July 18	6.26	Sept. 17	6.05	Dec. 5	4.61
4-25-33db					
June 9, 1950	3.53	Aug. 17, 1950	3.56	Oct. 18, 1950	4.19
July 18	4.37	Sept. 17	3.92	Dec. 5	5.31
4-25-34aa					
June 9, 1950	4.12	Aug. 17, 1950	4.55	Oct. 18, 1950	5.75
July 18	5.44	Sept. 17	5.34	Dec. 5	5.73
4-25-34ad					
Feb. 2, 1948	17.02	June 6, 1949	14.13	May 12, 1950	15.50
Apr. 9	16.29	Aug. 1	11.39	June 9	14.96
June 7	17.54	Oct. 3	17.05	July 18	16.68
Aug. 2	17.19	Nov. 15	16.78	Aug. 17	15.51
Dec. 6	16.86	Dec. 17	16.62	Sept. 17	16.09
Feb. 7, 1949	16.54	Jan. 19, 1950	16.53	Oct. 18	16.54
Apr. 7	14.65	Mar. 16	16.00	Dec. 5	16.57

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
FURNAS COUNTY—Continued					
4-25-34dc					
June 9, 1950	18.71	Aug. 17, 1950	18.58	Oct. 18, 1950	18.67
July 18	18.89	Sept. 17	18.46	Dec. 5	18.82
4-25-36ab					
June 9, 1950	4.32	Aug. 17, 1950	5.27	Oct. 18, 1950	5.51
July 22	5.62	Sept. 17	5.40	Dec. 5	5.18
4-25-36cb					
June 9, 1950	34.44	Aug. 17, 1950	34.49	Oct. 18, 1950	34.65
July 22	34.52	Sept. 17	34.48	Dec. 5	34.86
HARLAN COUNTY					
2-18-29cc					
June 27, 1950	17.88	Aug. 18, 1950	18.01	Oct. 25, 1950	17.81
July 22	17.98	Sept. 18	18.12	Dec. 12	17.79
2-18-30cb					
Oct. 25, 1950	43.90	Dec. 12, 1950	43.89		
2-18-33cd					
Sept. 27, 1934	14.42	June 26, 1937	13.00	June 11, 1948	10.22
Nov. 26	14.35	Aug. 13	13.22	Aug. 5	9.93
Jan. 1, 1935	14.19	Oct. 21	13.58	Oct. 7	11.22
Mar. 12	14.05	June 30, 1938	13.13	Dec. 10	10.56
May 11	14.04	Oct. 29	13.20	Feb. 10, 1949	11.75
June 21	12.41	June 16, 1939	12.97	Apr. 7	10.80
July 22	11.28	Dec. 11	13.62	June 11	9.00
Aug. 24	11.73	Apr. 10, 1940	13.21	Aug. 6	9.38
Sept. 26	11.15	Jan. 21, 1941	12.89	Oct. 8	10.80
Oct. 29	11.47	Oct. 29	12.93	Nov. 19	11.02
Dec. 3	11.85	Nov. 24, 1942	11.25	Dec. 21	11.22
Jan. 6, 1936	12.01	Dec. 9, 1944	11.17	Feb. 8, 1950	11.27
Jan. 25	12.13	Feb. 14, 1946	11.80	Mar. 22	11.06
Apr. 4	12.39	June 9, 1947	8.55	May 4	11.48
June 13	11.90	Aug. 1	5.68	June 27	11.10
Aug. 11	12.68	Oct. 9	9.50	Aug. 18	11.35
Sept. 20	13.03	Dec. 1	10.12	Sept. 18	11.59
Dec. 11	13.41	Feb. 5, 1948	10.39	Oct. 25	11.61
Apr. 11, 1937	13.06	Apr. 13	10.05	Dec. 12	11.72
2-19-5bc					
Mar. 22, 1950	7.15	July 22, 1950	8.12	Oct. 25, 1950	7.71
May 5	7.18	Aug. 18	7.86	Dec. 12	7.39
June 27	7.49	Sept. 18	7.85		

Water level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
HARLAN COUNTY—Continued					
2-19-5cb					
Feb. 5, 1948	20.90	June 11, 1949	19.99	June 27, 1950	20.85
Apr. 13	20.70	Oct. 8	21.40	July 22	22.06
June 11	21.62	Nov. 19	21.04	Aug. 18	21.40
Oct. 7	22.65	Dec. 21	20.89	Sept. 18	21.32
Dec. 10	21.42	Feb. 8, 1950	20.80	Oct. 25	21.22
Feb. 10, 1949	20.96	Mar. 22	19.98	Dec. 12	20.84
Apr. 7	20.32	May 5	20.56		
2-19-6ba					
June 27, 1950	4.32	Aug. 18, 1950	5.09	Oct. 25, 1950	5.20
July 22	5.21	Sept. 18	5.93	Dec. 12	4.34
2-19-7da					
June 27, 1950	5.16	Sept. 18, 1950	5.71	Dec. 12, 1950	5.61
July 22	6.02	Oct. 25	5.91		
2-19-8bc					
Feb. 8, 1950	4.90	June 27, 1950	5.56	Sept. 18, 1950	5.88
Mar. 22	4.13	July 22	6.18	Oct. 25	5.95
May 4	4.57	Aug. 18	5.33	Dec. 12	5.57
2-19-8bd					
June 27, 1950	13.61	Aug. 18, 1950	13.82	Oct. 25, 1950	14.53
July 22	14.27	Sept. 18	14.30	Dec. 12	14.02
2-19-16cc					
June 27, 1950	20.93	Aug. 18, 1950	21.31	Oct. 25, 1950	21.54
July 22	21.08	Sept. 18	21.39	Dec. 12	21.70
2-19-17cb					
Feb. 10, 1950	5.15	June 27, 1950	5.17	Sept. 18, 1950	5.82
Mar. 22	4.26	July 22	5.84	Oct. 25	6.06
May 4	4.57	Aug. 18	5.35	Dec. 12	5.56
2-19-17da					
Feb. 2, 1948	20.77	June 11, 1949	19.37	May 4, 1950	21.15
Apr. 13	20.36	Aug. 6	20.68	June 27	21.32
June 11	21.32	Oct. 8	21.72	July 22	21.93
Aug. 5	20.60	Nov. 19	21.63	Aug. 18	21.52
Oct. 7	22.16	Dec. 21	21.49	Sept. 18	21.88
Dec. 10	22.22	Feb. 8, 1950	21.43	Oct. 25	22.20
Feb. 10, 1949	21.68	Mar. 22	20.69	Dec. 12	22.01
Apr. 7	20.12				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

HARLAN COUNTY—Continued

2-19-17dd

Date	Water level	Date	Water level	Date	Water level
June 27, 1950	6.19	Aug. 18, 1950	5.33	Oct. 25, 1950	6.58
July 22	6.45	Sept. 18	5.68	Dec. 12	6.20

2-19-22cb

May 4, 1950	24.61	Aug. 18, 1950	25.70	Oct. 25, 1950	25.98
June 27	25.08	Sept. 18	26.19	Dec. 12	25.56
July 22	26.42				

2-19-28aa

Feb. 10, 1950	10.00	June 27, 1950	8.71	Sept. 18, 1950	9.32
Mar. 22	9.25	July 22	9.20	Oct. 25	9.07
May 4	9.28	Aug. 18	9.05	Dec. 12	10.12

2-19-28da

Feb. 10, 1950	7.76	June 27, 1950	7.95	Sept. 18, 1950	8.24
Mar. 22	7.57	July 22	8.12	Oct. 25	8.65
May 4	7.70	Aug. 18	7.30	Dec. 12	8.65

2-19-28dd

Feb. 5, 1948	9.04	June 11, 1949	6.59	May 4, 1950	8.71
Apr. 13	8.74	Aug. 6	8.92	June 27	9.05
June 11	9.34	Oct. 8	9.50	July 22	9.06
Aug. 5	8.12	Nov. 19	9.15	Aug. 18	8.37
Oct. 7	9.80	Dec. 21	9.03	Sept. 18	9.15
Dec. 10	9.25	Feb. 10, 1950	8.60	Oct. 25	9.73
Feb. 10, 1949	8.38	Mar. 22	8.60	Dec. 12	9.71
Apr. 7	7.66				

2-19-34bc

Feb. 5, 1948	21.15	Apr. 7, 1949	20.20	May 4, 1950	21.04
Apr. 13	21.03	June 11	19.53	June 27	21.49
June 11	21.55	Oct. 8	21.80	July 22	21.30
Aug. 5	20.95	Nov. 19	21.34	Aug. 18	20.97
Oct. 7	22.10	Dec. 21	21.20	Sept. 18	21.69
Dec. 10	21.38	Feb. 10, 1950	20.54	Oct. 25	22.22
Feb. 10, 1949	20.53	Mar. 22	20.77	Dec. 12	22.07

3-20-7aa

June 27, 1950	26.91	Aug. 17, 1950	27.96	Oct. 24, 1950	27.31
July 21	27.23	Sept. 18	27.23	Dec. 12	27.15

3-20-7ab

Feb. 5, 1948	29.82	June 11, 1949	29.60	May 5, 1950	29.16
Apr. 13	29.82	Aug. 6	29.95	June 27	29.36
Oct. 7	30.22	Oct. 8	29.80	July 21	30.48
Dec. 10	30.05	Nov. 19	29.55	Sept. 18	29.72
Feb. 10, 1949	29.70	Dec. 21	29.45	Oct. 24	29.83
Apr. 7	29.30	Feb. 8, 1950	29.32	Dec. 12	29.59

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

HARLAN COUNTY—Continued

3-20-7ad

Date	Water level	Date	Water level	Date	Water level
June 27, 1950	13.26	Aug. 17, 1950	8.94	Oct. 24, 1950	12.10
July 21	7.25	Sept. 18	10.54	Dec. 12	12.94

3-20-8dd

June 27, 1950	4.68	Aug. 17, 1950	4.58	Oct. 24, 1950	5.27
July 21	4.21	Sept. 18	4.97	Dec. 12	5.04

3-20-16bb

Feb. 5, 1948	7.65	June 11, 1949	3.89	May 5, 1950	6.83
Apr. 13	6.93	Aug. 6	7.40	June 27	6.55
June 11	7.85	Oct. 8	8.10	July 21	5.93
Aug. 5	7.08	Nov. 19	7.57	Aug. 17	6.98
Oct. 7	8.74	Dec. 21	7.40	Sept. 18	7.52
Dec. 10	7.95	Feb. 8, 1950	7.17	Oct. 24	7.61
Feb. 10, 1949	7.50	Mar. 20	6.71	Dec. 12	7.29
Apr. 7	5.82				

3-20-16bd

June 27, 1950	3.87	Aug. 17, 1950	4.95	Oct. 24, 1950	5.73
July 21	4.34	Sept. 18	5.53	Dec. 12	5.41

3-20-16cd

Feb. 8, 1950	5.57	June 27, 1950	5.07	Sept. 18, 1950	6.30
Mar. 20	5.24	July 21	5.31	Oct. 25	6.25
May 5	5.27	Aug. 17	5.96	Dec. 12	5.88

3-20-16dd

June 27, 1950	8.69	Aug. 17, 1950	9.88	Oct. 25, 1950	10.42
July 21	9.18	Sept. 18	10.37	Dec. 12	10.16

3-20-17aa

Feb. 8, 1950	5.20	June 27, 1950	5.02	Sept. 18, 1950	5.53
Mar. 20	4.71	July 21	4.08	Oct. 24	5.62
May 5	4.93	Aug. 17	5.11	Dec. 12	5.29

3-20-18cb

Feb. 5, 1948	14.50	Apr. 7, 1949	14.22	May 5, 1950	14.22
Apr. 13	14.15	June 11	13.59	June 27	14.05
June 11	14.52	Oct. 8	14.77	July 21	14.33
Aug. 5	13.83	Nov. 19	14.77	Sept. 18	14.98
Oct. 7	14.95	Dec. 21	14.68	Oct. 24	15.08
Dec. 10	15.05	Feb. 8, 1950	14.55	Dec. 12	14.90
Feb. 10, 1949	14.70				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
HARLAN COUNTY—Continued					
3-20-21ac					
June 27, 1950	8.71	Aug. 17, 1950	8.85	Oct. 24, 1950	8.69
July 21	8.99	Sept. 18	8.93	Dec. 12	8.40
3-20-22ba					
June 27, 1950	12.78	Aug. 17, 1950	13.55	Oct. 25, 1950	13.82
July 21	13.28	Sept. 18	13.78	Dec. 12	13.69
3-20-22dd					
Feb. 5, 1948	25.29	Feb. 10, 1949	24.87	Dec. 21, 1949	24.81
Apr. 13	25.25	Apr. 7	24.52	Mar. 22, 1950	24.66
June 11	25.90	June 11	24.13	May 5	24.65
Aug. 5	25.38	Aug. 6	25.06	June 27	25.33
Oct. 7	25.83	Oct. 8	25.50	July 21	25.74
Dec. 10	25.30	Nov. 19	24.95		
3-20-23cd					
June 27, 1950	18.02	Aug. 18, 1950	14.78	Oct. 24, 1950	17.09
July 21	18.39	Sept. 18	15.41	Dec. 12	18.21
3-20-25cc					
Feb. 5, 1948	13.86	June 11, 1949	11.56	May 5, 1950	14.37
Apr. 13	13.11	Aug. 5	13.23	June 27	14.67
June 11	14.42	Oct. 8	15.02	July 21	15.33
Aug. 5	13.42	Nov. 19	15.07	Aug. 18	15.02
Oct. 7	15.50	Dec. 21	14.97	Sept. 18	15.44
Dec. 10	15.43	Feb. 8, 1950	14.80	Oct. 25	15.85
Feb. 10, 1949	14.32	Mar. 22	14.35	Dec. 12	15.44
Apr. 7	13.20				
3-20-35aab					
Feb. 8, 1950	6.20	June 27, 1950	5.90	Sept. 18, 1950	6.61
Mar. 22	5.80	July 21	6.47	Oct. 25	6.99
May 5	6.08	Aug. 18	5.99	Dec. 12	6.76
3-20-35aad					
Feb. 8, 1950	5.30	June 27, 1950	4.37	Sept. 18, 1950	5.53
Mar. 22	4.45	July 21	4.66	Oct. 25	5.95
May 5	4.58	Aug. 18	4.13	Dec. 12	5.63
3-20-36da					
June 27, 1950	8.31	Aug. 18, 1950	9.74	Oct. 25, 1950	9.33
July 22	8.77	Sept. 18	8.95	Dec. 12	9.22
3-20-36db					
June 27, 1950	4.92	Aug. 18, 1950	5.75	Oct. 25, 1950	6.54
July 22	5.68	Sept. 18	6.33	Dec. 12	6.10

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
HAYES COUNTY					
5-33-30cb					
Feb. 4, 1948	19.26	June 9, 1949	17.86	Mar. 6, 1950	18.91
Apr. 12	19.34	July 19*	19.32	Apr. 14	18.98
June 9	19.57	Oct. 6	19.40	July 11	19.38
Aug. 4	19.71	Nov. 17	19.14	Sept. 20	19.23
Oct. 6	19.78	Dec. 20	19.13	Oct. 16	19.28
Dec. 9	19.23	Jan. 19, 1950	18.98	Dec. 6	19.13
Apr. 6, 1949	18.83				
5-33-31dc					
Feb. 4, 1948	13.54	Aug. 4, 1949	12.58	July 28, 1950	10.56
Apr. 12	11.75	Oct. 6	13.30	Aug. 11	11.27
June 9	13.40	Nov. 17	12.85	Aug. 29	11.83
Aug. 4	13.25	Dec. 20	13.19	Sept. 20	11.81
Oct. 6	14.55	Jan. 19, 1950	12.96	Sept. 27	12.14
Dec. 9	13.05	Mar. 6	12.89	Oct. 16	12.48
Feb. 8, 1949	12.92	Apr. 14	13.06	Oct. 27	12.24
Apr. 6	12.14	May 26	12.68	Nov. 29	12.72
June 9	11.54	June 29	12.71	Dec. 6	12.85
July 19	12.08	July 11	13.19		
5-34-28bc					
Mar. 19, 1946	57.67	Aug. 4, 1948	60.25	Dec. 20, 1949	57.61
May 29	58.30	Oct. 5	58.30	Jan. 19, 1950	57.50
Aug. 15	58.48	Dec. 9	57.61	Mar. 6	57.19
July 30, 1947	57.70	Feb. 8, 1949	57.39	Apr. 6	57.83
Oct. 8	56.91	Apr. 6	57.20	May 26	57.45
Dec. 5	57.87	June 9	57.03	Aug. 11	58.16
Feb. 4, 1948	57.62	July 19*	57.32	Sept. 20	58.83
Apr. 12	57.60	Oct. 6	57.90	Oct. 16	58.18
June 9	58.42	Nov. 17	57.68	Dec. 6	58.12
5-34-30ba					
Feb. 4, 1948	10.72	June 9, 1949	10.05	Apr. 6, 1950	10.75
Apr. 12	11.02	July 19*	10.93	May 26	10.72
June 9	11.31	Aug. 4	11.25	July 11	11.13
Aug. 4	11.38	Oct. 6	11.16	Aug. 11	11.04
Oct. 5	11.53	Nov. 17	10.98	Sept. 20	11.09
Dec. 9	10.87	Dec. 20	10.85	Oct. 16	11.01
Feb. 8, 1949	9.63	Jan. 19, 1950	10.11	Dec. 6	11.84
Apr. 6	10.45	Mar. 6	10.60		
5-34-34aa					
July 11, 1950	20.94	Sept. 20, 1950	20.88		
5-34-35ac					
June 9, 1948	30.00	Aug. 4, 1949	30.94	May 26, 1950	29.80
Oct. 6	30.30	Oct. 6	29.90	July 11	30.34
Dec. 9	29.29	Dec. 20	29.79	Aug. 11	30.17
Feb. 8, 1949	29.34	Jan. 19, 1950	29.45	Sept. 20	30.22
Apr. 6	28.57	Mar. 6	29.54	Oct. 16	30.23
June 9	28.02	Apr. 14	29.81	Dec. 6	30.73

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
HAYES COUNTY—Continued					
5-35-7cc					
July 11, 1950	7.99	Sept. 20, 1950	7.77	Dec. 7, 1950	8.52
Aug. 11	7.76	Oct. 16	7.77		
5-35-16dd					
Feb. 4, 1948	8.41	June 9, 1949	7.70	Apr. 6, 1950	8.50
Apr. 12	8.70	Aug. 4	9.20	May 26	8.59
June 11	9.15	Oct. 6	8.90	July 11	9.21
Aug. 4	9.32	Nov. 17	8.69	Aug. 11	8.97
Oct. 6	9.33	Dec. 20	8.62	Sept. 20	8.97
Dec. 10	8.58	Jan. 19, 1950	7.68	Oct. 16	8.87
Feb. 8, 1949	6.83	Mar. 6	8.66	Dec. 7	9.74
Apr. 6	7.96				
5-35-17ac					
July 11, 1950	17.85	Sept. 20, 1950	17.67	Dec. 7, 1950	18.43
Aug. 11	17.58	Oct. 16	17.59		
5-35-23ac					
July 11, 1950	17.81	Sept. 20, 1950	17.74	Dec. 7, 1950	19.49
Aug. 11	17.73	Oct. 16	17.66		
HITCHCOCK COUNTY					
2-32-6bc					
June 19, 1950	5.90	Aug. 12, 1950	4.59	Oct. 20, 1950	5.88
July 14	6.23	Sept. 22	5.77	Dec. 7	5.61
2-32-6da					
June 19, 1950	24.55	Aug. 12, 1950	24.16	Oct. 20, 1950	24.17
July 14	24.54	Sept. 22	24.11	Dec. 7	24.26
2-32-6db					
June 19, 1950	25.43	Sept. 22, 1950	25.20	Dec. 7, 1950	25.38
July 14	25.49	Oct. 20	25.28		
2-33-1cc					
June 19, 1950	14.80	Aug. 12, 1950	14.61	Oct. 20, 1950	14.89
July 14	14.95	Sept. 22	14.84	Dec. 7	14.81
2-33-2aa					
Feb. 4, 1948	10.53	June 8, 1949	9.51	Jan. 17, 1950	10.07
Apr. 12	10.16	July 5	10.56	Feb. 23	9.93
Oct. 6	12.05	Sept. 12	10.78	Apr. 26	10.04
Dec. 9	10.90	Oct. 6	10.52	June 2	10.30
Feb. 8, 1949	10.04	Nov. 17	10.40	July 13	11.18
Apr. 4	9.51	Dec. 19	10.35	Aug. 12	10.44

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
2-33-3bd					
Feb. 2, 1950	4.98	June 5, 1950	5.07	Oct. 17, 1950	6.00
Mar. 10	4.83	July 13	6.10	Dec. 8	5.29
Apr. 26	4.91	Aug. 9	5.09		
2-33-3dd					
Aug. 3, 1949	9.54	Mar. 10, 1950	8.75	Aug. 10, 1950	8.58
Oct. 6	9.55	Apr. 26	8.83	Sept. 12	9.28
Nov. 15	9.28	June 5	8.98	Oct. 17	9.26
Dec. 17	9.22	July 13	9.46	Dec. 8	9.06
Feb. 2, 1950	8.64				
2-33-4ad					
Oct. 5, 1949	13.28	Mar. 10, 1950	11.91	Aug. 9, 1950	13.06
Nov. 17	12.87	Apr. 26	11.68	Sept. 12	13.15
Dec. 17	12.54	June 5	11.67	Oct. 17	12.94
Feb. 2, 1950	12.37	July 13	12.74	Dec. 8	12.65
2-33-4da					
Oct. 6, 1950	8.05	Mar. 10, 1950	7.08	Aug. 9, 1950	7.49
Nov. 17	7.63	Apr. 26	7.14	Sept. 12	8.03
Dec. 17	7.41	June 5	7.27	Oct. 17	7.69
Feb. 2, 1950	7.08	July 13	7.95	Dec. 8	7.43
2-33-6cb					
Feb. 4, 1948	9.66	June 6, 1949	8.94	Mar. 10, 1950	8.97
Apr. 12	9.73	July 5	9.32	Apr. 26	9.02
June 9	10.24	Aug. 3	10.12	June 5	9.18
Aug. 4	10.82	Sept. 7	10.14	July 13	9.66
Oct. 6	11.32	Oct. 4	10.35	Aug. 9	9.44
Dec. 9	9.96	Nov. 17	9.97	Sept. 12	9.98
Feb. 8, 1949	8.65	Dec. 19	9.65	Oct. 17	9.90
Apr. 4	7.69	Feb. 2, 1950	8.88	Dec. 8	9.74
2-33-8aaa1					
Aug. 3, 1949	2.56	Mar. 10, 1950	1.59	Aug. 10, 1950	1.82
Nov. 15	2.97	Apr. 26	3.62	Sept. 12	2.85
Dec. 17	2.07	June 5	5.04	Oct. 17	2.25
Feb. 2, 1950	.32	July 13	3.34	Dec. 8	1.90
2-33-8aaa2					
Aug. 3, 1949*	4.90	Mar. 10, 1950	4.19	Aug. 10, 1950	4.46
Nov. 15	5.75	Apr. 26	6.92	Sept. 12	5.23
Dec. 17	4.77	June 5	8.75	Oct. 17	4.86
Feb. 2, 1950	3.05	July 13	6.31	Dec. 8	4.51
2-33-8aad					
Aug. 3, 1949*	7.59	Nov. 15, 1949	8.95	Feb. 2, 1950	6.24
Sept. 2*	8.76	Dec. 18	7.90	Mar. 10	7.12

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

HITCHCOCK COUNTY—Continued

2-33-8aad—Continued

Date	Water level	Date	Water level	Date	Water level
Apr. 26, 1950	10.53	Aug. 10, 1950	7.76	Oct. 17, 1950	7.96
June 5	12.68	Sept. 12	8.48	Dec. 8	7.56
July 13	10.01				

2-33-8ada

Nov. 5, 1949	14.90	Apr. 26, 1950	18.17	Aug. 10, 1950	16.28
Dec. 17	13.60	June 5	21.72	Sept. 12	14.68
Feb. 2, 1950	12.15	July 13	18.99	Dec. 8	13.26
Mar. 10	11.95				

2-33-8dad

Aug. 3, 1949*	50.20	Feb. 2, 1950	50.93	Sept. 12, 1950	51.68
Oct. 5	50.35	Mar. 10	50.89	Oct. 17	51.51
Nov. 15	50.60	Apr. 26	51.01	Dec. 8	51.42
Dec. 18	50.82	Aug. 10	51.58		

2-33-8dda

Aug. 3, 1949*	46.20	Feb. 2, 1950	46.14	Aug. 10, 1950	46.11
Sept. 2*	46.03	Mar. 10	48.11	Sept. 12	46.06
Oct. 5	46.05	Apr. 26	46.02	Oct. 17	46.08
Nov. 15	46.02	June 5	46.15	Dec. 8	46.08
Dec. 18	46.10	July 13	46.18		

2-33-8ddd

Aug. 3, 1949*	55.30	Feb. 2, 1950	55.45	Aug. 10, 1950	55.34
Sept. 2*	55.15	Mar. 10	55.50	Sept. 12	55.37
Oct. 5	55.95	Apr. 26	55.43	Oct. 17	55.38
Nov. 15	55.18	June 5	55.48	Dec. 8	55.45
Dec. 17	55.29				

2-33-9ac

Feb. 8, 1949*	27.50	Oct. 5, 1949	27.67	June 5, 1950	27.44
Mar. 11*	27.17	Nov. 15	27.56	July 13	27.61
Apr. 28*	27.28	Dec. 18	27.52	Aug. 10	27.65
June 7*	27.34	Feb. 2, 1950	27.42	Sept. 12	27.54
July 5*	27.30	Mar. 10	27.21	Oct. 17	27.56
Aug. 3*	27.62	Apr. 26	27.31	Dec. 8	27.53
Sept. 2*	27.78				

2-33-9ad

Feb. 8, 1949*	28.86	Oct. 5, 1949	28.79	June 5, 1950	28.50
Mar. 11*	28.68	Nov. 15	28.73	July 13	28.76
Apr. 28*	29.49	Dec. 17	28.67	Aug. 10	28.79
June 7*	28.38	Feb. 2, 1950	28.57	Sept. 12	28.70
July 5*	28.35	Mar. 10	28.41	Oct. 17	28.80
Aug. 3*	28.52	Apr. 26	28.48	Dec. 8	28.77
Sept. 2*	28.76				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

HITCHCOCK COUNTY—Continued

2-33-9bca1

Date	Water level	Date	Water level	Date	Water level
June 30, 1948*	5.05	June 7, 1949*	3.94	Apr. 26, 1950	5.37
Aug. 31*	5.05	Aug. 3*	8.90	June 5	6.04
Sept. 28*	6.25	Sept. 2*	4.68	July 13	5.73
Oct. 27*	5.25	Oct. 6	5.36	Aug. 10	4.81
Dec. 3*	4.85	Dec. 17	5.10	Sept. 12	6.82
Feb. 8, 1949*	3.99	Feb. 2, 1950	4.22	Oct. 17	5.45
Mar. 11*	4.07	Mar. 10	4.61	Dec. 8	4.76
Apr. 28*	4.22				

2-33-9bca2

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1949*	15.50	Oct. 6, 1949	16.35	June 5, 1950	16.63
Mar. 23*	15.70	Nov. 15	16.35	July 13	17.08
Apr. 28*	15.69	Dec. 18	16.37	Aug. 10	16.53
June 7*	15.59	Feb. 2, 1950	15.68	Sept. 12	17.10
July 5*	16.03	Mar. 10	15.85	Oct. 17	16.52
Aug. 3*	17.39	Apr. 26	16.23	Dec. 8	16.37
Sept. 2*	16.08				

2-33-9bcd

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1949*	19.95	Oct. 6, 1949	19.73	June 5, 1950	20.36
Mar. 11*	18.92	Nov. 15	20.05	July 13	20.82
Apr. 28*	19.19	Dec. 17	20.11	Aug. 10	20.73
June 7*	19.17	Feb. 2, 1950	19.78	Sept. 12	18.92
July 5*	19.34	Mar. 10	19.61	Oct. 17	19.94
Aug. 3*	19.28	Apr. 26	19.96	Dec. 8	20.10
Sept. 2*	19.34				

2-33-9bd

Date	Water level	Date	Water level	Date	Water level
June 30, 1948*	13.72	July 5, 1949*	13.84	Apr. 26, 1950	13.85
Sept. 28*	15.22	Aug. 3*	15.05	June 5	14.13
Oct. 27*	14.55	Sept. 2*	13.72	July 13	14.56
Dec. 3*	14.23	Oct. 6	14.05	Aug. 10	13.89
Feb. 8, 1949*	13.21	Nov. 15	14.00	Sept. 12	14.55
Mar. 11*	13.45	Dec. 17	13.90	Oct. 17	14.20
Apr. 28*	13.50	Feb. 2, 1950	13.28	Dec. 8	14.08
June 7*	13.33	Mar. 10	13.55		

2-33-9cbb

Date	Water level	Date	Water level	Date	Water level
Feb. 8, 1949*	20.00	Sept. 2, 1949*	20.04	June 5, 1950	24.95
Mar. 11*	19.72	Oct. 6	21.25	July 13	25.40
Apr. 28*	19.48	Nov. 15	22.28	Aug. 10	24.81
June 7*	19.30	Dec. 17	22.19	Sept. 12	23.61
July 5*	19.34	Mar. 10, 1950	21.05	Oct. 17	23.89
Aug. 3*	19.54	Apr. 26	22.94	Dec. 8	22.30

2-33-9cbc

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	27.81	Feb. 2, 1950	28.43	Aug. 10, 1950	28.92
Sept. 2*	27.79	Mar. 10	28.37	Sept. 12	28.88
Oct. 6	27.95	Apr. 26	28.48	Oct. 17	28.80
Nov. 15	28.17	June 5	28.63	Dec. 8	28.83
Dec. 18	28.33	July 13	28.79		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

HITCHCOCK COUNTY—Continued

2-33-10ab

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1948	7.24	June 8, 1949	6.69	Mar. 10, 1950	8.71
Apr 9	7.05	July 5*	7.36	Apr. 26	6.83
June 7	7.80	Aug. 3	7.97	June 5	7.10
Aug. 2	8.18	Sept. 2*	7.91	July 13	7.83
Oct. 4	8.72	Oct. 6	7.75	Aug. 10	6.46
Dec. 6	7.75	Nov. 15	7.40	Sept. 12	7.26
Feb. 7, 1949	6.80	Dec. 17	7.26	Oct. 17	7.44
Apr. 6	6.44	Feb. 2, 1950	6.78	Dec. 8	7.13
Apr. 28*	6.75				

2-34-7cd

Aug. 3, 1949*	17.87	Mar. 10, 1950	17.63	Aug. 9, 1950	18.32
Oct. 6	18.40	Apr. 26	17.50	Sept. 12	18.33
Nov. 17	18.21	June 5	17.80	Oct. 17	18.19
Dec. 19	18.04	July 13	18.56	Dec. 8	17.98
Feb. 2, 1950	17.85				

2-34-8ad

Oct. 5, 1949	30.25	Mar. 10, 1950	29.25	Aug. 11, 1950	29.30
Nov. 17	30.03	Apr. 26	29.26	Sept. 12	30.01
Dec. 19	29.96	June 5	29.48	Oct. 17	29.80
Feb. 2, 1950	29.53	July 13	29.90	Dec. 8	29.54

2-34-8cb

Aug. 3, 1949*	13.37	Feb. 2, 1950	13.64	Aug. 9, 1950	13.49
Sept. 7*	14.06	Mar. 10	13.41	Sept. 12	14.20
Oct. 5	14.12	Apr. 26	13.34	Oct. 17	14.13
Nov. 17	14.02	June 5	13.70	Dec. 8	13.90
Dec. 19	13.85	July 13	13.99		

2-34-8cd

Aug. 4, 1949	5.95	Feb. 2, 1950	4.85	July 13, 1950	5.50
Sept. 7	5.95	Mar. 10	4.71	Aug. 9	4.97
Oct. 6	5.92	Apr. 26	4.81	Oct. 17	5.61
Nov. 16	5.47	June 5	5.09	Dec. 8	5.22
Dec. 19	5.28				

2-34-8da

Feb. 4, 1948	19.35	June 6, 1949	18.24	Dec. 19, 1949	19.37
Apr. 13	19.10	July 5*	18.58	Feb. 2, 1950	19.00
Oct. 6	20.72	Aug. 3	19.76	Mar. 10	18.77
Dec. 9	19.94	Oct. 5	19.80	July 13	19.53
Feb. 8, 1949	19.15	Nov. 17	19.71	Aug. 9	18.76
Apr. 4	18.40				

2-34-8db

Aug. 3, 1949*	11.18	Feb. 2, 1950	10.91	Aug. 9, 1950	10.60
Sept. 7*	11.73	Mar. 10	10.62	Sept. 12	11.52
Oct. 5	11.70	Apr. 26	10.73	Oct. 17	11.51
Nov. 17	11.45	June 5	10.98	Dec. 8	11.18
Dec. 19	11.28	July 13	11.30		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

HITCHCOCK COUNTY—Continued

2-34-11dc

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1948	11.04	Apr. 28, 1949*	10.20	Feb. 2, 1950	10.25
Apr. 12	10.87	June 7*	10.06	Mar. 10	10.22
June 9	11.30	June 8	10.06	Apr. 26	10.43
Aug. 4	11.53	July 5*	10.33	June 5	10.56
Oct. 6	11.95	Aug. 3	10.90	July 13	11.01
Oct. 27*	11.63	Sept. 2*	11.02	Aug. 10	9.47
Dec. 3*	11.18	Oct. 6	11.05	Sept. 12	10.25
Dec. 9	11.19	Nov. 15	10.73	Oct. 17	10.46
Feb. 8, 1949	11.45	Dec. 17	10.57	Dec. 8	10.48
Mar. 11	10.48				

2-34-12da

June 30, 1948*	15.10	June 7, 1949*	13.75	Mar. 10, 1950	14.44
Aug. 31*	14.85	July 5*	14.16	Apr. 26	14.31
Sept. 28*	15.70	Aug. 3*	15.22	June 5	14.25
Oct. 27*	15.36	Sept. 2*	15.38	July 13	14.70
Dec. 3*	15.48	Oct. 6	15.01	Aug. 10	14.06
Feb. 8, 1949*	14.80	Nov. 15	15.18	Sept. 12	13.91
Mar. 11*	14.42	Dec. 17	15.10	Oct. 17	14.16
Apr. 28*	14.06	Feb. 2, 1950	14.57	Dec. 8	14.16

2-34-16cc

Aug. 3, 1949*	13.43	Feb. 2, 1950	13.30	Aug. 10, 1950	13.43
Sept. 2*	13.71	Mar. 10	13.21	Sept. 12	13.23
Oct. 5	13.90	Apr. 26	13.11	Oct. 17	13.32
Nov. 15	13.84	June 5	13.19	Dec. 8	13.24
Dec. 17	13.69	July 13	13.77		

2-34-16db

Aug. 3, 1949*	14.16	Feb. 2, 1950	13.95	Aug. 10, 1950	14.08
Sept. 2*	14.44	Mar. 10	13.76	Sept. 12	14.08
Oct. 5	14.47	Apr. 26	13.69	Oct. 17	14.13
Nov. 15	14.35	June 5	13.95	Dec. 8	13.95
Dec. 18	14.22	July 13	14.44		

2-34-17bb

Aug. 3, 1949*	14.55	Feb. 2, 1950	13.20	Aug. 9, 1950	13.35
Sept. 7*	14.06	Mar. 10	12.98	Sept. 12	14.75
Oct. 5	13.94	Apr. 26	13.67	Oct. 17	13.77
Nov. 15	13.85	June 5	13.66	Dec. 8	13.49
Dec. 19	13.49	July 13	13.81		

2-34-17bc

Aug. 3, 1949*	8.81	Feb. 2, 1950	8.80	Aug. 9, 1950	9.06
Sept. 7*	8.52	Mar. 10	8.88	Sept. 12	9.32
Oct. 5	9.60	Apr. 26	8.78	Oct. 17	9.34
Nov. 15	9.40	June 5	9.14	Dec. 8	9.07
Dec. 19	9.20	July 13	9.49		

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Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

HITCHCOCK COUNTY—Continued

2-34-18ab

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	17.90	Feb. 2, 1950	17.52	Aug. 9, 1950	18.11
Sept. 7*	18.27	Mar. 10	17.30	Sept. 12	18.31
Oct. 5	18.17	Apr. 26	17.24	Oct. 17	18.12
Nov. 17	17.94	June 5	17.69	Dec. 8	17.85
Dec. 19	17.77	July 13	18.67		

2-34-18acb

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	21.22	Feb. 2, 1950	20.12	Aug. 9, 1950	20.78
Sept. 7*	21.03	Mar. 10	20.02	Sept. 12	21.12
Oct. 5	20.87	Apr. 26	20.06	Oct. 17	20.67
Nov. 17	20.62	June 5	20.45	Dec. 8	20.55
Dec. 19	20.50	July 13	21.33		

2-34-18acc

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	8.61	Feb. 2, 1950	7.86	Aug. 9, 1950	8.58
Sept. 7*	8.30	Mar. 10	8.08	Sept. 12	8.85
Oct. 5	8.65	Apr. 26	8.13	Oct. 17	8.69
Nov. 17	8.42	June 5	8.38	Dec. 8	8.43
Dec. 19	8.31	July 13	8.89		

2-34-18bb

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	24.94	Feb. 2, 1950	23.52	Aug. 9, 1950	24.47
Sept. 7*	25.11	Mar. 10	23.27	Sept. 12	25.30
Oct. 5	24.44	Apr. 26	23.55	Oct. 17	24.54
Nov. 17	24.09	June 5	24.27	Dec. 8	23.99
Dec. 19	23.82	July 13	24.22		

2-34-18bc

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	13.61	Feb. 2, 1950	12.31	Aug. 9, 1950	12.93
Sept. 7*	14.15	Mar. 10	12.68	Sept. 12	13.49
Oct. 5	13.35	Apr. 26	12.76	Oct. 17	13.44
Nov. 17	13.04	June 5	12.93	Dec. 8	13.21
Dec. 19	12.87	July 13	13.16		

2-34-19aa

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	10.88	Feb. 2, 1950	10.27	Aug. 10, 1950	9.55
Sept. 2*	10.84	Mar. 10	10.19	Sept. 12	10.39
Oct. 5	10.98	Apr. 26	10.20	Oct. 17	10.47
Nov. 17	10.57	June 5	10.28	Dec. 8	10.28
Dec. 19	10.41	July 13	10.85		

2-34-19ab

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	3.73	Feb. 2, 1950	2.44	July 13, 1950	3.25
Sept. 2*	3.68	Mar. 10	2.11	Sept. 12	2.96
Oct. 5	3.55	Apr. 26	2.33	Oct. 17	2.88
Nov. 17	2.92	June 5	2.34	Dec. 8	3.49
Dec. 19	2.74				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
2-34-19acb					
Aug. 3, 1949*	6.05	Feb. 2, 1950	5.00	Aug. 10, 1950	2.26
Sept. 2*	6.06	Mar. 10	4.66	Sept. 12	5.29
Oct. 5	5.94	Apr. 26	4.79	Oct. 17	5.31
Nov. 17	5.37	June 5	4.83	Dec. 8	4.98
Dec. 19	5.17	July 13	5.76		
2-34-19acc					
Aug. 3, 1949*	3.76	Feb. 2, 1950	3.51	July 13, 1950	4.03
Sept. 2*	4.25	Mar. 10	3.26	Sept. 12	3.57
Oct. 5	4.29	Apr. 26	3.07	Oct. 17	3.70
Nov. 17	3.99	June 5	3.19	Dec. 8	3.47
Dec. 19	3.72				
2-34-19bb					
Aug. 3, 1949*	9.05	Feb. 2, 1950	7.72	Aug. 9, 1950	6.99
Sept. 2*	8.38	Mar. 10	7.35	Sept. 12	8.31
Oct. 5	8.87	Apr. 26	7.54	Oct. 17	8.28
Nov. 17	8.22	June 5	7.51	Dec. 8	7.91
Dec. 19	7.99	July 13	8.57		
2-34-20ab					
Aug. 3, 1949*	26.75	Feb. 2, 1950	26.75	Aug. 10, 1950	26.73
Sept. 2*	27.15	Mar. 10	26.53	Sept. 12	26.59
Oct. 5	27.32	Apr. 26	26.39	Oct. 17	26.74
Nov. 17	27.16	June 5	26.49	Dec. 8	26.55
Dec. 19	26.97	July 13	27.10		
2-34-20bbc					
Sept. 2, 1949*	7.96	Feb. 2, 1950	7.11	July 13, 1950	7.74
Oct. 5	7.91	Mar. 10	7.04	Oct. 17	7.35
Nov. 17	7.38	Apr. 26	7.09	Dec. 8	7.17
Dec. 19	7.23	June 5	7.17		
2-34-20bbd					
Aug. 3, 1949*	9.03	Feb. 2, 1950	8.48	Aug. 10, 1950	7.66
Sept. 2*	9.37	Mar. 10	8.29	Sept. 12	8.71
Oct. 5	9.34	Apr. 26	8.21	Oct. 17	8.69
Nov. 17	8.82	June 5	8.38	Dec. 8	8.37
Dec. 19	8.62	July 13	9.07		
2-35-12dc					
Aug. 3, 1949*	23.44	Feb. 2, 1950	23.12	Aug. 9, 1950	23.31
Sept. 2*	23.99	Mar. 10	22.90	Sept. 12	23.24
Oct. 5	21.95	Apr. 26	22.91	Oct. 17	23.84
Nov. 17	23.67	June 5	23.06	Dec. 8	23.54
Dec. 19	23.45	July 13	23.42		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

HITCHCOCK COUNTY—Continued

2-35-12dd

Date	Water level	Date	Water level	Date	Water level
Aug. 3, 1949*	25.78	Feb. 2, 1950	25.01	Aug. 9, 1950	25.61
Sept. 7*	26.55	Mar. 10	24.79	Sept. 12	26.18
Oct. 5	25.92	Apr. 26	24.82	Oct. 17	25.66
Nov. 17	25.52	June 5	25.28	Dec. 8	25.28
Dec. 19	25.30	July 13	25.53		

2-35-13bba

Feb. 4, 1948	15.25	Mar. 11, 1949	14.60	Dec. 19, 1949	15.03
Apr. 12	14.67	Apr. 4	14.40	Mar. 10, 1950	14.75
June 9	14.82	Apr. 28*	14.52	Apr. 26	14.66
Aug. 4	15.00	June 6	14.19	June 5	14.61
Oct. 6	15.46	June 20*	14.01	July 13	14.64
Oct. 27*	15.64	July 5*	13.96	Aug. 9	14.67
Dec. 3*	15.54	Aug. 3	14.14	Sept. 12	14.73
Dec. 9	15.58	Oct. 5	14.74	Oct. 17	14.92
Feb. 8, 1949	15.25	Nov. 17	14.55	Dec. 8	15.03

2-35-13bbc

Aug. 3, 1949*	19.17	Feb. 2, 1950	19.28	Aug. 9, 1950	19.51
Sept. 2*	19.99	Mar. 10	19.01	Sept. 12	19.82
Oct. 5	20.10	Apr. 26	18.94	Oct. 17	20.01
Nov. 17	19.81	June 5	19.03	Dec. 8	19.74
Dec. 19	19.59	July 13	19.65		

2-35-13bd

Sept. 2, 1949*	13.56	Mar. 10, 1950	12.85	Aug. 9, 1950	13.38
Oct. 5	13.88	Apr. 26	13.02	Sept. 12	13.72
Nov. 17	13.65	June 5*	13.07	Oct. 17	14.26
Dec. 19	13.36	July 13	13.46	Dec. 8	13.70
Feb. 2, 1950	12.87				

2-35-13cc

Aug. 3, 1949*	11.14	Feb. 2, 1950	10.86	July 13, 1950	11.38
Oct. 5	11.49	Mar. 10	10.60	Aug. 9	11.20
Nov. 17	11.32	Apr. 26	10.46	Oct. 17	11.49
Dec. 19	11.13	June 5	10.57	Dec. 8	11.15

2-35-13cd

July 22, 1948*	5.39	June 20, 1949*	3.42	Mar. 10, 1950	4.66
Aug. 31*	5.95	July 5*	4.51	Apr. 26	4.52
Sept. 28*	6.30	Aug. 3*	5.49	June 5	4.52
Oct. 27*	5.98	Sept. 2	6.09	July 13	5.34
Dec. 3*	5.65	Oct. 5	5.80	Aug. 9	4.73
Feb. 8, 1949*	6.06	Nov. 17	5.30	Sept. 12	5.21
Mar. 11*	4.63	Dec. 19	5.12	Oct. 17	5.31
Apr. 28*	4.00	Feb. 2, 1950	4.74	Dec. 8	5.05

2-35-13dc

Aug. 3, 1949*	7.98	Oct. 5, 1949	8.56	Dec. 19, 1949	7.90
Sept. 2*	8.56	Nov. 17	8.10	Feb. 2, 1950	7.57

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

HITCHCOCK COUNTY—Continued

2-35-13dc—Continued

Date	Water level	Date	Water level	Date	Water level
Mar. 10, 1950	7.33	July 13, 1950	8.11	Oct. 17, 1950	8.00
Apr. 26	7.30	Aug. 9	6.93	Dec. 8	7.79
June 5	7.30	Sept. 12	7.84		

2-35-19ca

Oct. 27, 1948*	10.22	July 6, 1949*	7.28	Sept. 20, 1950	9.55
Dec. 3*	9.88	Sept. 13*	9.23	Oct. 24	9.63
Apr. 28, 1949*	8.35	Aug. 29, 1950	9.27	Dec. 8	9.29
June 20*	7.70				

2-35-21bc

Feb. 4, 1948	20.28	June 6, 1949	19.77	Feb. 28, 1950	20.00
Apr. 12	20.50	Aug. 3	19.79	Apr. 14	19.96
June 9	20.61	Sept. 13*	20.08	June 2	19.96
Aug. 4	20.75	Oct. 5	20.18	July 12	20.15
Oct. 6	21.11	Nov. 17	20.22	Aug. 10	19.80
Dec. 9	20.83	Dec. 19	20.17	Sept. 20	20.13
Feb. 8, 1949	20.80	Jan. 17, 1950	20.18	Oct. 24	20.24
Apr. 4	20.40				

2-35-23aa

July 22, 1948*	13.64	Aug. 3, 1949*	13.34	Apr. 14, 1950	12.85
Sept. 28*	13.50	Sept. 2*	12.70	June 5	12.96
Oct. 27*	14.30	Oct. 5	13.95	July 12	13.77
Dec. 3*	13.95	Nov. 17	13.64	Sept. 12	13.88
Apr. 28, 1949*	12.69	Dec. 19	13.42	Oct. 17	13.92
June 20*	12.25	Jan. 17, 1950	13.29	Dec. 8	13.56
July 5*	12.47	Feb. 23	13.03		

2-35-23cb

July 22, 1948*	28.13	Mar. 11, 1949*	27.85	Sept. 2, 1949*	27.38
Aug. 31*	28.45	Apr. 28*	27.69	Oct. 5	29.05
Sept. 28*	28.65	June 20*	26.93	Nov. 17	28.00
Oct. 27*	28.58	July 5*	27.15	Dec. 19	27.89
Dec. 3*	28.40	Aug. 3*	27.69	Jan. 17, 1950	27.82

2-35-24aa

Feb. 4, 1948	5.32	June 9, 1949	3.67	Mar. 10, 1950	4.74
Apr. 12	4.88	July 5*	5.37	Apr. 26	4.94
June 9	5.86	Aug. 2	6.39	June 5	4.92
Aug. 4	6.60	Sept. 2*	6.40	July 13	5.94
Oct. 6	6.90	Oct. 5	6.25	Aug. 9	4.50
Dec. 9	5.87	Nov. 16	5.59	Sept. 12	5.67
Feb. 8, 1949	5.12	Dec. 19	5.40	Oct. 17	5.67
Apr. 6	4.21	Feb. 2, 1950	5.09	Dec. 8	6.33

2-35-24ab

Aug. 3, 1949*	4.78	Feb. 2, 1950	4.35	Aug. 9, 1950	3.30
Sept. 2*	5.52	Mar. 10	4.15	Sept. 12	4.31
Oct. 5	5.20	Apr. 26	4.01	Oct. 17	4.68
Nov. 17	4.67	June 5	4.07	Dec. 8	4.52
Dec. 18	4.49	July 13	4.84		

Water-level measurements in wells, in feet below land-surface dstum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
2-35-24ada					
Sept. 2, 1949*	3.61	Mar. 10, 1950	2.35	Aug. 9, 1950	1.19
Oct. 5	3.66	Apr. 26	2.40	Sept. 12	2.81
Nov. 18	3.12	June 5	2.43	Oct. 17	3.03
Dec. 19	2.89	July 13	3.45	Dec. 8	2.72
Feb. 2, 1950	2.70				
2-35-24add					
Aug. 3, 1949*	3.40	Feb. 2, 1950	7.84	June 5, 1950	7.49
Oct. 5	8.58	Mar. 10	7.61	Sept. 12	7.73
Nov. 17	8.31	Apr. 26	7.62	Dec. 8	7.86
Dec. 19	8.03				
2-35-24bc					
Aug. 3, 1949*	17.48	Feb. 2, 1950	17.80	Aug. 9, 1950	18.07
Sept. 2*	17.91	Mar. 10	17.65	Sept. 12	18.11
Oct. 5	18.12	Apr. 26	17.50	Oct. 17	18.03
Nov. 17	18.08	June 5	17.48	Dec. 8	17.91
Dec. 19	17.98	July 13	17.95		
3-31-7cd					
July 10, 1950	12.15	Sept. 19, 1950	11.69	Dec. 6, 1950	11.72
Aug. 9	11.62	Oct. 18	12.00		
3-31-9dd					
July 10, 1950	12.06	Sept. 19, 1950	10.49	Dec. 6, 1950	10.52
Aug. 11	11.95	Oct. 18	8.95		
3-31-13cb					
July 10, 1950	4.28	Sept. 18, 1950	3.79	Dec. 6, 1950	3.37
Aug. 11	4.02	Oct. 18	3.59		
3-31-14ab					
July 10, 1950	22.69	Sept. 18, 1950	21.60	Dec. 6, 1950	21.24
Aug. 9	22.32	Oct. 18	21.25		
3-31-14bc					
Feb. 4, 1948	14.62	Feb. 23, 1950	14.45	Oct. 7, 1950	13.88
Apr. 12	14.69	Apr. 14	14.80	Oct. 13	13.98
June 11	14.81	May 26	14.93	Oct. 18	13.97
Aug. 4	15.05	July 10	14.99	Oct. 21	13.95
Oct. 6	14.45	Aug. 5	14.11	Oct. 28	13.99
Dec. 10	14.12	Aug. 11	14.25	Nov. 4	13.95
Feb. 8, 1949	14.08	Aug. 19	14.11	Nov. 11	13.89
Apr. 4	14.90	Aug. 26	14.44	Nov. 18	13.85
June 8	14.00	Sept. 2	14.14	Nov. 24	13.90
Aug. 4	14.84	Sept. 9	14.28	Dec. 2	13.90
Oct 6	14.77	Sept. 16	13.35	Dec. 6	13.95
Nov. 18	14.60	Sept. 18	13.33	Dec. 16	13.98
Dec. 17	14.62	Sept. 30	13.89	Dec. 22	14.02
Jan. 19, 1950	14.68				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
3-31-15cc2					
June 19, 1950	5.31	Sept. 22, 1950	5.02	Dec. 7, 1950	4.98
Aug. 13	4.76	Oct. 20	5.09		
3-31-17cd					
Feb. 2, 1948	7.18	June 8, 1949	6.15	Feb. 23, 1950	7.19
Apr. 9	7.66	July 5	7.86	Apr. 26	7.59
June 7	8.18	Aug. 1	8.69	June 2	7.79
Aug. 2	8.69	Sept. 12	8.20	July 10	8.53
Oct. 4	8.70	Oct. 3	8.33	Aug. 9	8.04
Dec. 6	7.52	Nov. 15	7.65	Sept. 19	7.97
Feb. 7, 1949	7.00	Dec. 17	7.54	Oct. 18	7.95
Apr. 4	6.92	Jan. 17, 1950	7.00	Dec. 6	7.65
3-31-20ad					
June 19, 1950	7.44	Aug. 12, 1950	7.30	Oct. 20, 1950	7.67
July 14	7.87	Sept. 22	7.69	Dec. 7	7.53
3-31-20cc					
June 19, 1950	10.20	Aug. 12, 1950	9.40	Oct. 20, 1950	10.10
July 14	10.57	Sept. 22	9.91	Dec. 7	10.02
3-31-20da					
Feb. 2, 1948	8.10	June 8, 1949	7.33	Feb. 23, 1950	8.15
Apr. 9	7.94	July 5	7.46	Apr. 26	8.01
June 7	7.85	Aug. 1	7.92	June 2	7.93
Aug. 2	8.12	Sept. 12*	8.18	July 14	8.30
Oct. 4	8.40	Oct. 3	8.45	Aug. 12	6.98
Dec. 6	8.52	Nov. 15	8.25	Sept. 22	7.82
Feb. 7, 1949	8.42	Dec. 17	8.29	Oct. 20	8.00
Apr. 4	8.15	Jan. 17, 1950	8.24	Dec. 7	8.04
3-31-21cc					
June 19, 1950	15.91	Aug. 13, 1950	15.58	Oct. 20, 1950	15.87
July 14	16.06	Sept. 22	15.78	Dec. 7	15.91
3-31-22ba					
June 19, 1950	4.85	Aug. 12, 1950	4.41	Oct. 20, 1950	4.91
July 14	4.96	Sept. 22	4.60	Dec. 7	4.85
3-31-22bb					
June 19, 1950	12.45	Aug. 13, 1950	11.99	Oct. 20, 1950	12.43
July 14	12.67	Sept. 22	12.29	Dec. 7	12.29
3-31-22bc					
June 19, 1950	28.25	Aug. 13, 1950	28.03	Oct. 20, 1950	28.27
July 14	28.39	Sept. 22	28.18	Dec. 7	28.28

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

HITCHCOCK COUNTY—Continued

3-31-22da

Date	Water level	Date	Water level	Date	Water level
June 19, 1950	10.73	Aug. 13, 1950	10.38	Oct. 20, 1950	10.86
July 14	10.88	Sept. 22	10.66	Dec. 7	10.82

3-31-23ad

June 19, 1950	9.99	Aug. 13, 1950	9.88	Oct. 20, 1950	10.63
July 14	10.40	Sept. 22	10.44	Dec. 7	10.64

3-31-23bb

June 19, 1950	5.48	Aug. 13, 1950	5.56	Oct. 20, 1950	6.02
July 14	5.67	Sept. 22	5.78	Dec. 7	5.94

3-31-23da

June 19, 1950	21.36	Aug. 13, 1950	21.26	Oct. 20, 1950	21.86
July 14	21.63	Sept. 22	21.69	Dec. 7	21.97

3-31-30ad

June 19, 1950	30.46	Aug. 12, 1950	30.24	Oct. 20, 1950	30.26
July 14	30.66	Sept. 22	30.17	Dec. 7	30.44

3-31-30cc

June 19, 1950	27.25	Sept. 22, 1950	27.36	Dec. 7, 1950	27.28
July 14	27.51	Oct. 20	27.49		

3-32-2bc

July 10, 1950	14.23	Sept. 19, 1950	13.68	Dec. 6, 1950	13.73
Aug. 9	14.94	Oct. 18	13.59		

3-32-11bb

Feb. 4, 1948	13.11	Apr. 6, 1949	12.95	Apr. 14, 1950	13.40
Apr. 12	13.42	June 9	12.83	May 26	13.68
June 9	13.85	Aug. 4	13.60	July 10	14.16
Aug. 4	14.05	Oct. 6	14.01	Aug. 9	13.90
Oct. 6	14.15	Nov. 17	13.55	Sept. 19	13.99
Dec. 9	13.40	Dec. 20	13.50	Oct. 18	13.19
Feb. 8, 1949	12.65	Jan. 19, 1950	13.08	Dec. 6	13.92

3-32-12cc

Feb. 9, 1949	21.22	June 9, 1949*	21.12	Oct. 18, 1950	21.79
Apr. 6	21.39	Aug. 26*	21.80	Dec. 6	21.66

3-32-13ba

July 10, 1950	9.34	Sept. 19, 1950	8.53	Dec. 6, 1950	8.90
Aug. 9	9.10	Oct. 18	9.07		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
		HITCHCOCK COUNTY—Continued			
		3-32-25db			
June 19, 1950	15.03	Aug. 12, 1950	14.77	Oct. 20, 1950	15.09
July 14	15.26	Sept. 22	14.96	Dec. 7	14.99
		3-32-26cd			
June 19, 1950	5.75	Aug. 12, 1950	5.10	Oct. 20, 1950	5.55
July 14	6.14	Sept. 22	5.36	Dec. 7	5.38
		3-32-26da			
June 19, 1950	4.85	Aug. 12, 1950	4.11	Oct. 20, 1950	4.72
July 14	5.24	Sept. 22	4.57	Dec. 7	4.50
		3-32-26db			
June 19, 1950	5.44	Aug. 12, 1950	4.74	Oct. 20, 1950	5.29
July 14	5.96	Sept. 22	5.00	Dec. 7	4.98
		3-32-26dd			
Feb. 2, 1948	28.30	July 5, 1949*	27.95	Apr. 26, 1950	28.05
Apr. 9	28.03	Sept. 12*	28.72	June 2	28.10
June 7	28.05	Oct. 3	28.88	July 14	28.78
Oct. 4	29.32	Nov. 15	28.55	Aug. 12	27.73
Dec. 6	28.92	Dec. 17	28.42	Sept. 22	28.13
Feb. 7, 1949	28.61	Jan. 17, 1950	28.31	Oct. 20	29.36
June 8	28.08	Feb. 23	28.14	Dec. 7	28.14
		3-32-31aa			
Feb. 4, 1948	6.48	June 8, 1949	5.42	Apr. 14, 1950	5.83
Apr. 12	6.19	July 19*	5.80	June 5	6.10
June 9	6.67	Sept. 12	6.50	July 12	6.57
Aug. 4	6.84	Oct. 6	6.67	Aug. 12	5.82
Oct. 6	7.35	Nov. 17	6.43	Sept. 12	6.35
Dec. 9	6.63	Dec. 19	6.30	Oct. 17	6.43
Feb. 8, 1949	5.94	Jan. 17, 1950	7.05	Dec. 8	6.26
Apr. 4	5.32	Feb. 23	5.65		
		3-32-31dd			
June 19, 1950	14.90	Aug. 12, 1950	14.45	Oct. 20, 1950	14.77
July 14	15.08	Sept. 22	14.77	Dec. 7	14.67
		3-32-32da			
June 19, 1950	5.91	Aug. 12, 1950	4.96	Oct. 20, 1950	5.81
July 14	6.06	Sept. 22	5.63	Dec. 7	5.74
		3-32-33cd			
June 19, 1950	11.39	Aug. 12, 1950	10.07	Oct. 20, 1950	10.60
July 14	11.36	Sept. 22	10.39	Dec. 7	10.84

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
3-32-33da					
June 19, 1950	15.20	Aug. 12, 1950	14.59	Oct. 20, 1950	14.44
July 14	15.28	Sept. 22	14.35	Dec. 7	14.53
3-32-34bc					
June 19, 1950	7.68	Aug. 12, 1950	6.69	Oct. 20, 1950	7.19
July 14	8.17	Sept. 22	7.08	Dec. 7	7.19
3-32-35ba					
June 19, 1950	20.52	Aug. 12, 1950	20.06	Oct. 20, 1950	20.35
July 14	20.77	Sept. 22	20.18	Dec. 7	20.33
3-32-35bb					
June 19, 1950	8.63	Aug. 12, 1950	7.89	Oct. 20, 1950	8.45
July 14	8.91	Sept. 22	8.29	Dec. 7	8.34
3-32-35bc					
June 19, 1950	8.94	Aug. 12, 1950	8.43	Oct. 20, 1950	8.83
July 14	9.28	Sept. 22	8.81	Dec. 7	8.62
3-33-35dc					
Feb. 4, 1948	10.72	June 10, 1949	9.38	Apr. 26, 1950	9.82
Apr. 12	10.29	Aug. 3	10.57	June 2	9.94
June 9	10.75	Oct. 6	10.96	July 13	9.99
Aug. 4	11.38	Nov. 17	10.64	Aug. 12	10.73
Oct. 6	12.04	Dec. 19	10.39	Sept. 12	10.95
Dec. 9	11.32	Jan. 17, 1950	10.19	Oct. 17	11.06
Feb. 8, 1949	10.57	Feb. 23	9.94	Dec. 8	11.32
Apr. 4	9.95				
4-32-30dc					
Apr. 12, 1948	17.89	July 19, 1949*	18.03	Feb. 23, 1950	17.49
June 9	18.47	Aug. 4	18.35	Apr. 14	17.77
Aug. 4	18.73	Aug. 26*	18.67	May 26	18.20
Oct. 6	18.95	Oct. 6	18.70	Aug. 11	18.42
Dec. 9	18.10	Nov. 17	18.20	Sept. 19	18.64
Feb. 8, 1949	17.36	Dec. 20	18.04	Oct. 18	18.72
Apr. 6	17.15	Jan. 19, 1950	17.71	Dec. 6	18.52
June 9*	17.58				
4-32-33db					
Mar. 19, 1946	34.54	Nov. 17, 1949	34.30	July 10, 1950	35.61
May 29	34.85	Dec. 20	34.21	Aug. 11	35.25
Apr. 6, 1949	34.18	Jan. 19, 1950	33.94	Sept. 19	35.25
June 9*	33.75	Mar. 6	34.49	Oct. 18	35.25
Aug. 26*	35.52	Apr. 14	34.58	Dec. 6	35.02
Oct. 6	37.80				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
HITCHCOCK COUNTY—Continued					
4-32-33dd					
July 10, 1950	9.73	Sept. 19, 1950	9.52	Dec. 6, 1950	9.32
Aug. 11	9.38	Oct. 18	9.55		
4-33-8bb					
Feb. 4, 1948	55.09	June 9, 1949	54.43	Apr. 14, 1950	54.67
Apr. 12	54.94	July 19*	54.65	May 26	55.10
June 9	55.49	Oct. 6	55.64	July 11	55.57
Aug. 4	55.73	Nov. 17	55.27	Aug. 11	55.56
Oct. 6	56.05	Dec. 20	55.02	Sept. 19	55.78
Dec. 9	55.42	Jan. 19, 1950	54.94	Oct. 16	55.71
Feb. 8, 1949	54.85	Mar. 6	54.75	Dec. 6	55.53
Apr. 6	54.51				
4-33-9dd					
July 11, 1950	23.98	Sept. 19, 1950	23.42	Dec. 6, 1950	23.47
Aug. 11	23.65	Oct. 18	23.76		
4-33-23ad					
Feb. 4, 1948	12.73	July 19, 1949*	13.00	Apr. 14, 1950	12.01
Apr. 12	12.66	Aug. 4	13.57	May 26	13.02
June 9	13.29	Aug. 26*	13.47	June 1	13.02
Aug. 4	13.79	Oct. 6	13.35	July 11	13.67
Oct. 6	13.86	Nov. 17	12.75	Aug. 11	13.25
Dec. 9	12.68	Dec. 20	12.67	Sept. 19	13.34
Feb. 9, 1949	11.82	Jan. 19, 1950	12.29	Oct. 18	13.39
Apr. 6	11.73	Mar. 6	12.28	Dec. 6	13.09
June 9	11.70				
4-33-24cc					
Aug. 11, 1950	31.84	Dec. 6, 1950	31.50		
4-33-25aa					
July 11, 1950	8.87	Sept. 18, 1950	8.90	Dec. 6, 1950	8.67
Aug. 11	8.64	Oct. 18	8.62		
RED WILLOW COUNTY					
2-29-3bd					
July 18, 1950	32.70	Sept. 22, 1950	31.70	Dec. 11, 1950	32.81
Aug. 13	32.89				
2-29-4aa					
Feb. 4, 1948	10.39	June 11, 1949	8.52	May 27, 1950	10.08
Apr. 12	10.14	Aug. 4	10.42	June 29	10.55
June 11	10.93	Oct. 7	11.20	July 18	6.25
Aug. 5	10.40	Nov. 18	10.74	July 28	8.53
Oct. 6	11.52	Dec. 20	10.60	Aug. 13	9.12
Dec. 10	10.85	Feb. 8, 1950	10.37	Sept. 22	9.82
Feb. 9, 1949	10.59	Mar. 8	10.25	Oct. 20	10.14
Apr. 6	9.42	May 2	10.22	Dec. 11	10.15

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
		RED WILLOW COUNTY—Continued			
		2-29-4ad			
Aug. 13, 1950	24.63	Aug. 26, 1950	24.56	Sept. 9, 1950	24.73
Aug. 19	24.54	Sept. 2	24.84		

Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.
1	.....	.....	28.15	28.33	17	27.93	28.03	28.25	28.38
2	.....	.....	28.15	28.33	18	27.92	28.04	28.25	28.38
3	.....	.....	28.16	28.33	19	27.92	28.05	28.26	28.38
4	.....	.....	28.16	28.34	20	27.92	28.06	28.27	28.38
5	.....	.....	28.16	28.34	21	27.91	28.07	28.27	28.38
6	.....	.....	28.17	28.35	22	27.90	28.08	28.28	28.40
7	.....	27.92	28.18	28.35	23	27.89	28.08	28.29	28.40
8	.....	27.93	28.19	28.36	24	27.89	28.09	28.30	28.40
9	.....	27.94	28.20	28.36	25	27.89	28.09	28.30	28.40
10	.....	27.95	28.21	28.36	26	27.89	28.10	28.31	28.41
11	.....	27.97	28.21	28.36	27	27.89	28.11	28.31	28.41
12	.....	27.98	28.22	28.36	28	27.90	28.11	28.32	28.41
13	.....	27.99	28.23	28.36	29	27.90	28.12	28.32	28.41
14	27.96	28.00	28.23	28.37	30	27.90	28.13	28.32	28.41
15	27.95	28.01	28.24	28.37	31	.....	28.14	.....	28.41
16	27.93	28.02	28.24	28.37					

Date	Water level	Date	Water level	Date	Water level
		2-29-4cba			
June 13, 1950	14.65	Aug. 13, 1950	12.73	Oct. 20, 1950	14.03
July 18	14.72	Sept. 22	13.70	Dec. 11	14.47
		2-29-4cbc			
July 18, 1950	21.56	Sept. 22, 1950	19.09	Dec. 11, 1950	20.23
Aug. 13	20.75	Oct. 20	19.71		
		2-29-4da			
July 18, 1950	26.80	Aug. 13, 1950	25.07		
		2-29-4dd			
July 18, 1950	25.18	Sept. 22, 1950	24.20	Dec. 11, 1950	24.48
Aug. 13	24.62	Oct. 20	24.27		
		2-29-5ab			
Feb. 4, 1948	18.35	June 11, 1949	17.70	May 2, 1950	19.44
Apr. 12	18.31	Aug. 4	19.88	June 8	18.86
June 11	19.80	Oct. 6	19.42	July 18	19.17
Oct. 6	19.92	Nov. 18	19.13	Aug. 13	18.19
Dec. 10	19.21	Dec. 20	19.05	Sept. 22	18.20
Feb. 9, 1949	18.89	Feb. 8, 1950	18.80	Oct. 20	18.76
Apr. 7	18.42	Mar. 8	18.99	Dec. 11	18.90

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

RED WILLOW COUNTY—Continued

2-29-5ca

Date	Water level	Date	Water level	Date	Water level
June 13, 1950	21.71	Aug. 13, 1950	21.40	Oct. 20, 1950	21.34
July 18	22.60	Sept. 22	21.08	Dec. 11	21.55

2-29-6bc

June 5, 1950	16.14	Sept. 16, 1950	15.09	Nov. 11, 1950	16.00
July 14	16.41	Sept. 22	15.27	Nov. 18	15.98
Aug. 5	15.68	Sept. 30	15.43	Nov. 24	16.04
Aug. 13	13.07	Oct. 7	15.53	Dec. 2	16.09
Aug. 19	13.75	Oct. 13	15.63	Dec. 7	16.08
Aug. 26	14.26	Oct. 20	15.69	Dec. 16	16.08
Sept. 2	14.63	Oct. 28	15.84	Dec. 22	16.12
Sept. 9	14.89	Nov. 4	15.91		

2-29-9bb

July 18, 1950	28.43	Sept. 22, 1950	27.32	Oct. 20, 1950	27.40
Aug. 13	27.65				

2-30-1aa

Feb. 4, 1948	9.86	Mar. 8, 1950	9.40	Sept. 30, 1950	9.48
Apr. 12	9.68	Apr. 12	9.55	Oct. 7	9.56
June 11	10.63	June 8	9.56	Oct. 13	9.66
Aug. 4	11.42	July 14	10.36	Oct. 20	9.71
Oct. 6	11.38	Aug. 5	9.29	Oct. 28	9.80
Dec. 10	10.30	Aug. 7	6.15	Nov. 4	9.82
Feb. 9, 1949	9.86	Aug. 8	2.91	Nov. 11	9.86
Apr. 7	9.13	Aug. 9	3.76	Nov. 18	9.81
June 11	8.90	Aug. 13	5.61	Nov. 24	9.89
Aug. 4	11.60	Aug. 26	7.92	Dec. 2	9.83
Oct. 7	10.70	Sept. 2	8.45	Dec. 7	9.80
Nov. 18	10.00	Sept. 9	8.90	Dec. 16	9.80
Dec. 20	9.80	Sept. 16	9.17	Dec. 22	9.82
Feb. 8, 1950	9.43	Sept. 22	9.31		

2-30-6dd

Aug. 4, 1950	107.51	Oct. 20, 1950	107.43	Dec. 7, 1950	107.47
Sept. 22	107.48				

2-30-12aa

Sept. 22, 1950	22.54	Oct. 28, 1950	22.63	Dec. 2, 1950	22.89
Sept. 30	22.53	Nov. 4	22.67	Dec. 7	22.47
Oct. 7	22.53	Nov. 11	22.73	Dec. 16	23.03
Oct. 13	22.56	Nov. 18	22.77	Dec. 22	23.08
Oct. 20	22.57	Nov. 24	22.87		

2-30-12ad

Feb. 4, 1948	28.91	Dec. 10, 1948	29.12	Oct. 7, 1949	29.32
Apr. 12	29.47	Feb. 9, 1949	29.60	Nov. 18	29.25
June 11	29.62	Apr. 7	29.89	Dec. 20	29.34
Aug. 5	29.34	June 11	29.31	Feb. 8, 1950	29.64
Oct. 6	27.76	Aug. 4	30.15	Mar. 8	29.91

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

RED WILLOW COUNTY—Continued

2-30-12ad—Continued

Date	Water level	Date	Water level	Date	Water level
Apr. 12, 1950	30.15	Sept. 2, 1950	28.78	Oct. 20, 1950	28.30
June 8	30.21	Sept. 9	28.70	Nov. 11	28.72
July 14	29.50	Sept. 16	28.67	Nov. 18	28.73
Aug. 5	29.45	Sept. 22	28.65	Nov. 24	28.84
Aug. 13	28.94	Sept. 30	28.63	Dec. 7	28.60
Aug. 19	28.89	Oct. 7	28.34	Dec. 16	28.71
Aug. 26	28.81	Oct. 13	28.31	Dec. 22	28.73

2-30-12cb

Aug. 3, 1950	31.92	Sept. 22, 1950	28.93	Oct. 20, 1950	29.44

2-30-12dd

July 14, 1950	21.54	Sept. 22, 1950	19.40	Nov. 11, 1950	19.49
Aug. 5	20.95	Sept. 30	19.38	Nov. 18	19.53
Aug. 13	19.96	Oct. 7	19.34	Nov. 24	19.60
Aug. 19	19.78	Oct. 13	19.38	Dec. 2	19.64
Aug. 26	19.81	Oct. 20	19.42	Dec. 7	19.67
Sept. 2	19.59	Oct. 28	19.42	Dec. 16	19.74
Sept. 9	19.43	Nov. 4	19.47	Dec. 22	19.80
Sept. 16	19.35				

2-30-24ba

Aug. 4, 1950	108.75	Sept. 22, 1950	108.81	Oct. 20, 1950	108.53

3-26-1ac

June 9, 1950	7.44	Sept. 19, 1950	7.80	Dec. 5, 1950	7.89
July 18	7.61	Oct. 18	7.96		

3-26-1cc

May 23, 1950	39.50	June 9, 1950	39.23		

3-26-3ab

June 14, 1950	3.73	Aug. 15, 1950	2.95	Oct. 17, 1950	3.79
July 19	3.38	Sept. 17	3.44	Dec. 6	3.62

3-26-3bb

June 14, 1950	6.35	Aug. 15, 1950	5.99	Dec. 6, 1950	6.95
July 19	6.21	Oct. 17	7.07		

3-26-3dd

June 9, 1950	6.32	Aug. 15, 1950	5.47	Oct. 18, 1950	6.66
July 18	6.28	Sept. 19	6.38	Dec. 5	6.67

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
RED WILLOW COUNTY—Continued					
3-26-5bb					
Feb. 4, 1948	44.57	June 11, 1949	43.17	May 4, 1950	42.95
Apr. 13	44.08	Sept. 9	45.74	June 14	41.89
June 10	43.70	Oct. 7	44.44	July 19	42.88
Oct. 7	44.78	Nov. 18	43.75	Aug. 15	42.79
Dec. 10	44.19	Dec. 20	43.53	Sept. 17	42.74
Feb. 9, 1949	43.77	Jan. 20, 1950	43.42	Oct. 17	42.64
Apr. 4	43.49	Mar. 17	43.15	Dec. 6	42.73
3-26-5cb					
Apr. 13, 1948	16.35	June 11, 1949	15.57	May 4, 1950	16.08
June 10	16.72	Aug. 4	16.22	June 14	15.68
Aug. 5	16.38	Oct. 7	16.80	July 19	16.08
Oct. 7	17.35	Nov. 18	16.60	Aug. 15	15.60
Dec. 10	16.96	Dec. 20	16.42	Sept. 17	15.94
Feb. 9, 1949	16.59	Jan. 20, 1950	16.24	Oct. 17	16.11
Apr. 4	15.75	Mar. 17	15.97	Dec. 6	16.17
3-26-5cc					
June 14, 1950	9.91	Aug. 15, 1950	9.31	Oct. 17, 1950	9.92
July 19	9.97	Sept. 17	9.77	Dec. 6	10.87
3-26-5db					
June 14, 1950	3.24	Sept. 17, 1950	2.72	Dec. 6, 1950	3.12
July 19	2.74	Oct. 17	3.14		
3-26-6cc					
June 14, 1950	12.32	Aug. 15, 1950	11.46	Oct. 17, 1950	12.23
July 19	12.42	Sept. 17	11.92	Dec. 6	12.35
3-26-7bc					
June 14, 1950	6.33	Aug. 15, 1950	5.22	Oct. 17, 1950	6.50
July 19	6.47	Sept. 17	6.25	Dec. 6	7.52
3-26-8cc					
June 9, 1950	11.45	Aug. 15, 1950	11.21	Oct. 18, 1950	11.89
July 18	11.75	Sept. 19	11.71	Dec. 5	11.73
3-26-9aa					
June 9, 1950	7.41	Aug. 15, 1950	5.72	Oct. 18, 1950	7.43
July 18	6.94	Sept. 19	6.99	Dec. 5	7.69
3-26-9ad					
June 9, 1950	9.48	Aug. 15, 1950	6.75	Oct. 18, 1950	8.70
July 18	8.36	Sept. 19	8.06	Dec. 5	9.21

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

RED WILLOW COUNTY—Continued

3-26-9bd

Date	Water level	Date	Water level	Date	Water level
June 9, 1950	11.34	Aug. 15, 1950	9.98	Oct. 18, 1950	10.95
July 18	10.84	Sept. 19	10.53	Dec. 5	11.40

3-26-9cb

Feb. 2, 1948	16.69	June 6, 1949	15.60	May 2, 1950	15.99
Apr. 9	16.51	Aug. 1	15.55	June 9	16.07
June 7	16.90	Oct. 3	16.10	July 18	15.58
Aug. 2	16.04	Nov. 15	16.19	Aug. 15	15.10
Oct. 1	16.75	Dec. 17	16.17	Sept. 19	15.38
Dec. 6	16.82	Jan. 19, 1950	16.25	Oct. 18	15.79
Feb. 7, 1949	16.72	Mar. 16	16.05	Dec. 5	15.98
Apr. 7	16.12				

3-26-11ab

Sept. 19, 1950	39.30	Oct. 18, 1950	39.15	Dec. 5, 1950	39.14

3-26-11ac

June 9, 1950	49.38	Sept. 19, 1950	49.82	Dec. 5, 1950	49.34
July 18	49.29	Oct. 18	49.44		

3-26-11bb

Feb. 2, 1948	8.85	June 6, 1949	7.85	May 2, 1950	8.29
Apr. 9	8.52	Aug. 1	8.35	June 9	8.10
June 7	8.77	Sept. 9	8.86	July 18	7.63
Aug. 2	8.05	Oct. 7	9.04	Aug. 15	6.40
Oct. 4	9.43	Nov. 15	8.82	Sept. 19	7.85
Dec. 6	9.27	Dec. 17	8.71	Oct. 18	8.28
Feb. 7, 1949	8.81	Jan. 19, 1950	8.54	Dec. 5	8.47
Apr. 7	8.21	Mar. 16	8.16		

3-26-12aa

May 18, 1950	45.68	Aug. 15, 1950	45.62	Oct. 18, 1950	45.58
June 9	45.65	Sept. 19	45.53	Dec. 5	45.72
July 18	45.57				

3-26-18bb

June 9, 1950	10.39	Aug. 14, 1950	9.83	Oct. 18, 1950	10.46
July 18	10.48	Sept. 19	10.24	Dec. 5	10.13

3-27-2cc

June 8, 1950	3.61	Aug. 15, 1950	2.62	Oct. 17, 1950	4.12
July 19	4.56	Sept. 17	3.47	Dec. 6	3.86

3-27-2da

June 14, 1950	17.59	Aug. 5, 1950	17.32	Oct. 17, 1950	17.26
July 19	17.63	Sept. 17	17.10	Dec. 6	17.33

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

RED WILLOW COUNTY—Continued

3-27-7cd

Date	Water level	Date	Water level	Date	Water level
June 8, 1950	13.68	Sept. 16, 1950	14.30	Nov. 11, 1950	14.57
July 19	14.61	Sept. 17	14.28	Nov. 18	14.44
Aug. 5	13.97	Sept. 23	14.45	Nov. 24	14.50
Aug. 13	13.64	Sept. 30	14.56	Dec. 2	14.45
Aug. 15	13.64	Oct. 7	14.65	Dec. 5	14.48
Aug. 19	13.78	Oct. 13	14.68	Dec. 9	14.44
Aug. 26	13.98	Oct. 17	14.64	Dec. 16	14.35
Sept. 2	14.07	Oct. 28	14.66	Dec. 22	14.29
Sept. 9	14.25	Nov. 4	14.56		

3-27-7db

June 8, 1950	8.88	Aug. 17, 1950	8.28	Oct. 17, 1950	9.42
July 19	9.62	Sept. 17	8.89	Dec. 5	9.40

3-27-7dc

Feb. 4, 1948	9.72	June 11, 1949	6.95	May 4, 1950	8.54
Apr. 12	9.32	Aug. 4	8.32	June 8	8.12
June 10	9.85	Sept. 9	9.10	July 19	8.75
Aug. 5	8.04	Oct. 7	9.48	Aug. 15	7.37
Oct. 8	9.25	Nov. 18	9.44	Sept. 17	8.18
Dec. 10	9.52	Dec. 20	9.25	Oct. 17	8.68
Feb. 8, 1949	9.27	Jan. 20, 1950	9.06	Dec. 5	8.89
Apr. 4	8.40	Mar. 17	8.45		

3-27-7dd

June 8, 1950	11.26	Aug. 17, 1950	10.98	Oct. 17, 1950	11.85
July 19	11.99	Sept. 17	11.56	Dec. 5	11.88

3-27-8ac

Feb. 4, 1948	11.60	Dec. 10, 1948	11.74	Oct. 7, 1949	11.34
Apr. 12	11.54	Feb. 8, 1949	11.53	Nov. 18	11.27
June 10	11.90	Apr. 4	11.09	Dec. 20	11.02
Aug. 5	10.90	June 11	10.12	Jan. 20, 1950	11.58
Oct. 7	11.49	Aug. 4	10.94		

3-28-8db

June 8, 1950	10.80	Aug. 17, 1950	10.00	Oct. 17, 1950	10.85
July 19	11.10	Sept. 17	10.51	Dec. 5	11.09

3-27-8dc

June 8, 1950	10.02	July 19, 1950	11.03	Aug. 15, 1950	9.82

3-27-9ad

June 8, 1950	10.15	Aug. 15, 1950	9.00	Oct. 17, 1950	10.22
July 19	10.62	Sept. 17	9.69	Dec. 5	10.55

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Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

RED WILLOW COUNTY—Continued

3-27-10aa

Date	Water level	Date	Water level	Date	Water level
June 8, 1950	4.75	Oct. 17, 1950	5.26	Dec. 6, 1950	5.40
Sept. 17	4.48				

3-27-10cb

June 8, 1950	7.66	Aug. 15, 1950	6.61	Oct. 17, 1950	7.85
July 19	8.25	Sept. 17	7.47	Dec. 5	8.02

3-27-11aa2

June 14, 1950	5.55	Aug. 15, 1950	3.46	Oct. 17, 1950	5.19
July 19	5.92	Sept. 17	4.63	Dec. 6	5.55

3-27-11bc

June 8, 1950	5.29	Aug. 15, 1950	3.61	Oct. 17, 1950	5.56
July 19	5.90	Sept. 17	4.98	Dec. 6	5.72

3-27-11cb

June 8, 1950	6.35	Aug. 15, 1950	5.61	Oct. 17, 1950	6.57
July 19	6.81	Sept. 17	6.32	Dec. 6	6.65

3-27-11cc

June 8, 1950	6.46	Oct. 17, 1950	6.73	Dec. 6, 1950	6.69
July 19	6.94				

3-27-12bb

Dec. 10, 1948	6.90	Feb. 17, 1950	7.74	Aug. 15, 1950	5.12
Feb. 9, 1949	6.81	May 4	7.73	Sept. 17	6.41
Nov. 18	8.29	June 14	7.62	Oct. 17	7.12
Dec. 20	8.23	July 19	8.00	Dec. 6	7.47
Jan. 20, 1950	8.13				

3-27-12cc

June 8, 1950	13.47	Aug. 14, 1950	12.81	Oct. 18, 1950	13.59
July 18	13.74	Sept. 19	13.34	Dec. 5	13.43

3-27-14ab

Feb. 2, 1948	16.42	Aug. 1, 1949	17.49	May 2, 1950	16.97
Apr. 9	16.77	Oct. 3	17.52	June 9	17.10
June 7	17.08	Nov. 15	17.14	July 18	17.34
Aug. 2	17.35	Dec. 17	16.88	Aug. 14	16.54
Oct. 4	17.90	Jan. 19, 1950	16.50	Oct. 18	17.35
Dec. 6	17.10	Mar. 8	16.79	Dec. 5	17.08
June 6, 1949	16.70				

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

Date	Water level	Date	Water level	Date	Water level
RED WILLOW COUNTY—Continued					
3-27-16ad					
June 9, 1950	10.92	Aug. 14, 1950	10.66	Oct. 18, 1950	11.27
July 18	11.16	Sept. 19	11.19	Dec. 5	11.05
3-27-17cb					
Feb. 2, 1948	9.65	June 6, 1949	9.90	May 2, 1950	9.32
Apr. 9	9.47	Aug. 1	9.89	June 9	9.25
June 7	9.77	Oct. 3	10.27	July 18	9.83
Aug. 2	9.62	Nov. 15	9.87	Aug. 14	8.61
Oct. 4	10.65	Dec. 17	9.68	Sept. 19	9.61
Dec. 6	10.17	Jan. 19, 1950	9.31	Oct. 18	9.84
Feb. 7, 1949	10.01	Mar. 8	9.12	Dec. 5	9.71
Apr. 7	8.51				
3-27-18bc2					
June 8, 1950	6.84	Aug. 15, 1950	6.59	Oct. 17, 1950	7.24
July 19	7.19	Sept. 17	7.09	Dec. 5	6.98
3-27-18ca					
June 8, 1950	6.39	Aug. 15, 1950	6.07	Oct. 17, 1950	6.75
July 19	6.67	Sept. 17	6.53	Dec. 5	6.42
3-28-5cd					
Oct. 13, 1950	26.20	Oct. 17, 1950	26.28	Dec. 5, 1950	25.59
3-28-8ca					
June 9, 1950	23.78	Sept. 16, 1950	24.92	Oct. 28, 1950	25.02
July 19	24.70	Sept. 17	24.89	Nov. 11	24.88
Aug. 5	23.86	Sept. 23	25.07	Nov. 18	24.80
Aug. 13	24.20	Sept. 30	25.14	Nov. 24	24.80
Aug. 15	24.29	Oct. 7	25.15	Dec. 2	24.60
Aug. 19	24.48	Oct. 13	25.16	Dec. 9	24.55
Aug. 26	24.74	Oct. 17	25.14	Dec. 16	24.43
Sept. 2	24.84	Oct. 21	25.11	Dec. 22	24.42
3-28-8dc					
June 9, 1950	18.30	Aug. 15, 1950	18.84	Oct. 17, 1950	19.59
July 19	19.14	Sept. 17	19.34	Dec. 5	18.95
3-28-14ad					
June 29, 1950	6.55	Oct. 17, 1950	7.10	Dec. 5, 1950	6.95
3-28-14db					
June 8, 1950	4.44	Sept. 17, 1950	4.94	Dec. 5, 1950	4.93
Aug. 15	4.07	Oct. 17	5.23		

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

RED WILLOW COUNTY—Continued

3-28-15bd

Date	Water level	Date	Water level	Date	Water level
June 9, 1950	7.29	Aug. 15, 1950	7.81	Oct. 17, 1950	8.42
July 19	7.90	Sept. 17	8.24	Dec. 5	8.32

3-28-16bd

Date	Water level	Date	Water level	Date	Water level
June 9, 1950	10.74	Aug. 15, 1950	10.87	Oct. 17, 1950	11.50
July 19	11.21	Sept. 17	11.29	Dec. 5	11.17

3-28-17da

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1948	10.92	June 8, 1950	9.94	Oct. 13, 1950	11.47
Apr. 9	10.50	July 19	11.09	Oct. 17	11.44
June 7	11.35	Aug. 5	10.85	Oct. 21	11.41
Aug. 2	10.67	Aug. 13	10.91	Oct. 28	11.32
Oct. 4	11.80	Aug. 15	10.94	Nov. 4	11.27
Dec. 6	11.21	Aug. 19	11.12	Nov. 11	11.19
Feb. 7, 1949	10.72	Aug. 26	11.23	Nov. 18	11.08
Apr. 7	9.60	Sept. 2	11.30	Nov. 24	11.05
June 6	9.59	Sept. 9	11.40	Nov. 28	10.97
Aug. 1	10.54	Sept. 16	11.38	Dec. 2	10.90
Oct. 3	11.52	Sept. 17	11.35	Dec. 5	10.92
Nov. 15	10.97	Sept. 23	11.48	Dec. 9	10.87
Dec. 17	10.68	Sept. 27	11.51	Dec. 16	10.80
Jan. 19, 1950	10.39	Sept. 30	11.50	Dec. 22	10.76
Mar. 8	9.95	Oct. 7	11.47	Dec. 30	10.71
May 4	10.09				

3-28-20ad

Date	Water level	Date	Water level	Date	Water level
June 13, 1950	6.75	Aug. 14, 1950	6.40	Oct. 20, 1950	7.27
July 18	6.83	Sept. 25	7.20	Dec. 11	6.86

3-28-20ba

Date	Water level	Date	Water level	Date	Water level
June 9, 1950	5.70	Aug. 15, 1950	6.40	Oct. 17, 1950	7.04
July 19	6.85	Sept. 17	7.02	Dec. 5	6.58

3-28-20bbc1

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1948	10.68	June 6, 1949	9.19	Mar. 8, 1950	9.61
Apr. 9	10.30	July 7	8.99	May 4	9.70
June 7	11.20	Aug. 1	9.65	June 9	9.73
Aug. 2	10.52	Sept. 7	10.30	July 19	10.39
Oct. 4	11.22	Oct. 3	10.56	Aug. 15	10.18
Dec. 6	10.63	Nov. 15	10.34	Sept. 17	10.50
Feb. 17, 1949	9.85	Dec. 17	10.06	Oct. 17	10.67
Apr. 7	8.79	Jan. 19, 1950	9.87	Dec. 5	10.39

3-28-20bbc2

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1	.....	7.86	7.37	5	.....	7.79	7.45
2	.....	7.86	7.41	6	7.63	7.80	.....
3	.....	7.85	7.41	7	7.65	7.77	.....
4	.....	7.78	7.43	8	7.65	7.80	.....

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

RED WILLOW COUNTY—Continued

3-28-20bbc2—Continued

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
9	7.62	7.79	7.36	21	7.80	7.52	7.23
10	7.63	7.75	7.35	22	7.79	7.52	7.21
11	7.65	7.66	7.30	23	7.75	7.55	7.22
12	7.65	7.65	7.29	24	7.77	7.46	7.22
13	7.68	7.64	7.28	25	7.76	7.46	7.26
14	7.70	7.58	7.29	26	7.77	7.46	7.27
15	7.72	7.64	7.30	27	7.81	7.43	7.23
16	7.75	7.64	7.27	28	7.83	7.43	7.18
17	7.74	7.56	7.28	29	7.82	7.42	7.20
18	7.78	7.52	7.25	30	7.81	7.40	7.13
19	7.79	7.57	7.25	31	7.84	.....	7.21
20	7.78	7.57	7.23				

Date	Water level	Date	Water level	Date	Water level
3-28-21cd					
Feb. 2, 1948	8.95	June 6, 1949	8.40	May 2, 1950	8.64
Apr. 9	8.92	Aug. 1	8.83	June 8	8.62
June 7	9.11	Oct. 3	9.04	July 18	8.83
Aug. 2	8.81	Nov. 15	8.82	Aug. 14	8.43
Oct. 4	9.41	Dec. 17	8.54	Sept. 25	8.91
Dec. 6	9.17	Jan. 19, 1950	8.38	Oct. 20	8.97
Feb. 7, 1949	8.47	Mar. 8	8.48	Dec. 11	8.80
3-28-24ac					
Aug. 1, 1949	13.52	Mar. 8, 1950	11.78	Aug. 14, 1950	12.06
Oct. 3	14.12	May 2	11.71	Sept. 25	13.06
Nov. 15	12.66	June 8	12.16	Oct. 20	12.75
Dec. 17	12.24	July 18	13.21	Dec. 11	11.96
Jan. 19, 1950	12.38				
3-28-28bb					
June 13, 1950	9.87	Aug. 14, 1950	9.22	Oct. 20, 1950	10.44
July 18	9.92	Sept. 25	10.30	Dec. 11	10.15
3-28-29bb					
June 13, 1950	6.35	Aug. 14, 1950	6.06	Oct. 20, 1950	6.84
July 18	6.82	Sept. 25	6.68	Dec. 11	6.64
3-28-29bc					
June 8, 1950	5.03	Aug. 14, 1950	4.64	Oct. 20, 1950	5.57
July 18	5.43	Sept. 25	5.43	Dec. 11	5.62
3-28-30ca					
June 13, 1950	7.62	Aug. 14, 1950	6.56	Oct. 20, 1950	8.06
July 18	7.49	Sept. 25	7.81	Dec. 11	8.05
3-28-30cd					
June 8, 1950	13.47	Aug. 14, 1950	13.09	Oct. 20, 1950	13.66
July 18	13.73	Sept. 25	13.49	Dec. 11	13.68

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— *Continued*

Date	Water level	Date	Water level	Date	Water level
RED WILLOW COUNTY—Continued					
3-29-25cd					
June 8, 1950	5.79	Aug. 14, 1950	5.42	Oct. 20, 1950	6.91
July 18	6.14	Sept. 25	6.70	Dec. 11	6.73
3-29-31cc					
June 13, 1950	5.61	Sept. 16, 1950	4.85	Nov. 11, 1950	5.36
July 14	6.11	Sept. 22	5.24	Nov. 18	5.19
Aug. 5	4.87	Sept. 30	5.31	Nov. 24	5.31
Aug. 13	2.77	Oct. 7	5.27	Dec. 2	5.23
Aug. 19	3.89	Oct. 13	5.32	Dec. 7	5.18
Aug. 26	4.50	Oct. 20	5.25	Dec. 16	5.11
Sept. 2	4.85	Oct. 28	5.35	Dec. 22	5.14
Sept. 9	5.22	Nov. 4	5.35		
3-29-32cc					
June 13, 1950	4.41	Sept. 22, 1950	4.00	Dec. 11, 1950	3.83
July 14	5.52	Oct. 20	4.06		
3-29-32db					
Feb. 4, 1948	5.99	June 11, 1949	4.60	May 2, 1950	5.88
Apr. 12	5.80	Aug. 4	6.83	June 8	5.55
June 11	6.47	Oct. 6	7.02	July 18	6.31
Aug. 4	6.83	Nov. 18	6.35	Aug. 13	4.54
Oct. 6	7.85	Dec. 20	5.98	Sept. 22	6.04
Dec. 10	6.58	Feb. 8, 1950	5.43	Oct. 20	6.37
Feb. 9, 1949	5.96	Mar. 8	5.67	Dec. 11	6.27
Apr. 7	4.95				
3-29-33ca					
May 31, 1950	8.54	Aug. 13, 1950	7.46	Oct. 20, 1950	9.12
July 18	9.01	Sept. 22	8.96	Dec. 11	9.15
3-29-34cb					
June 13, 1950	3.38	Aug. 13, 1950	2.08	Oct. 20, 1950	3.32
July 18	3.08	Sept. 22	3.24	Dec. 11	3.18
3-29-35ad					
June 8, 1950	7.20	Aug. 13, 1950	6.36	Sept. 25, 1950	7.63
July 18	7.80				
3-29-35cc					
Sept. 14, 1950	15.79	Oct. 13, 1950	15.88	Nov. 24, 1950	15.68
Sept. 16	15.68	Oct. 20	15.85	Dec. 2	15.66
Sept. 23	15.68	Oct. 28	15.87	Dec. 9	15.67
Sept. 25	15.70	Nov. 4	15.78	Dec. 11	15.61
Sept. 30	15.74	Nov. 11	15.79	Dec. 16	15.62
Oct. 7	15.82	Nov. 18	15.68	Dec. 22	15.63

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

Date	Water level	Date	Water level	Date	Water level
RED WILLOW COUNTY—Continued					
3-29-35da2					
June 8, 1950	16.82	Aug. 13, 1950	16.39	Sept. 25, 1950	16.84
July 18	17.24				
3-29-36bc					
Feb. 4, 1948	19.12	Aug. 4, 1949	17.99	May 2, 1950	18.50
Apr. 12	19.02	Oct. 7	18.15	June 18	18.56
June 11	19.79	Nov. 18	18.42	July 18	18.55
Aug. 4	19.61	Dec. 20	18.29	Aug. 14	18.24
Oct. 6	18.70	Feb. 8, 1950	18.65	Sept. 25	18.26
Dec. 10	18.33	Mar. 8	18.67	Dec. 11	18.71
Apr. 7, 1949	18.84				
3-29-36bd					
June 8, 1950	22.57	Aug. 14, 1950	22.48	Oct. 20, 1950	22.58
July 18	22.67	Sept. 25	22.40	Dec. 11	22.72
3-30-7dd					
July 10, 1950	25.16	Oct. 18, 1950	25.09	Dec. 6, 1950	24.61
Sept. 18	25.09				
3-30-17da					
July 10, 1950	8.32	Sept. 18, 1950	7.85	Dec. 6, 1950	7.91
Aug. 9	7.48	Oct. 18	7.88		
3-30-18bb					
July 12, 1950	30.35	Oct. 18, 1950	27.04	Dec. 6, 1950	27.16
Sept. 18	27.46				
3-30-19ad					
Aug. 9, 1950	9.89	Oct. 18, 1950	10.45	Dec. 6, 1950	10.20
Sept. 18	10.29				
3-30-19bb					
July 7, 1949	6.88	Jan. 19, 1950	6.76	Aug. 9, 1950	7.10
Aug. 4	7.59	Mar. 6	6.62	Sept. 18	7.52
Oct. 6	7.12	Apr. 14	6.90	Oct. 18	7.32
Nov. 15	6.95	May 26	6.76	Dec. 6	6.99
Dec. 17	6.77	July 10	7.83		
3-30-20aa					
July 10, 1950	14.37	Sept. 16, 1950	14.07	Nov. 4, 1950	14.15
Aug. 5	14.21	Sept. 18	14.10	Nov. 11	14.18
Aug. 9	14.20	Sept. 30	14.07	Nov. 18	14.18
Aug. 13	14.22	Oct. 7	14.08	Nov. 24	14.26
Aug. 19	14.18	Oct. 13	14.10	Dec. 2	14.24
Aug. 26	14.15	Oct. 18	14.08	Dec. 6	14.27
Sept. 2	14.13	Oct. 21	14.11	Dec. 16	14.29
Sept. 9	14.12	Oct. 28	14.14	Dec. 22	14.31

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

RED WILLOW COUNTY—Continued

3-30-20bb

Date	Water level	Date	Water level	Date	Water level
July 10, 1950	18.12	Sept. 18, 1950	17.98	Dec. 6, 1950	18.15
Aug. 9	17.76	Oct. 18	18.06		

3-30-21cb

Date	Water level	Date	Water level	Date	Water level
July 10, 1950	9.00	Sept. 18, 1950	8.90	Dec. 6, 1950	8.86
Aug. 9	7.95	Oct. 18	9.07		

3-30-21da

Date	Water level	Date	Water level	Date	Water level
July 10, 1950	6.36	Sept. 18, 1950	6.11	Dec. 6, 1950	6.60
Aug. 9	4.97	Oct. 18	6.52		

3-30-25dd

Date	Water level	Date	Water level	Date	Water level
July 10, 1950	7.41	Sept. 16, 1950	6.87	Nov. 4, 1950	7.30
Aug. 5	5.91	Sept. 18	6.86	Nov. 11	7.29
Aug. 9	5.27	Sept. 30	7.08	Nov. 18	7.24
Aug. 13	5.61	Oct. 7	7.11	Nov. 24	7.23
Aug. 19	5.97	Oct. 13	7.17	Dec. 2	7.17
Aug. 26	6.25	Oct. 18	7.19	Dec. 6	7.15
Sept. 2	6.46	Oct. 21	7.23	Dec. 16	7.10
Sept. 9	6.70	Oct. 28	7.29	Dec. 22	7.02

3-30-26bc

Date	Water level	Date	Water level	Date	Water level
Feb. 2, 1948	8.22	Apr. 4, 1949	7.78	Apr. 12, 1950	8.24
Apr. 9	8.35	June 6	8.15	June 8	8.45
June 7	8.85	Oct. 3	9.30	July 10	9.32
Aug. 2	9.75	Nov. 15	8.65	Aug. 9	8.47
Oct. 4	10.35	Dec. 17	8.57	Sept. 18	8.82
Dec. 6	10.08	Feb. 8, 1950	7.49	Oct. 18	9.01
Feb. 7, 1949	7.45	Mar. 8	8.14	Dec. 6	8.78

3-30-26da

Date	Water level	Date	Water level	Date	Water level
July 10, 1950	4.31	Sept. 8, 1950	4.41	Dec. 6, 1950	4.13
Aug. 9	2.97	Oct. 18	4.64		

3-30-28cbb

Date	Water level	Date	Water level	Date	Water level
June 19, 1950	11.66	Aug. 13, 1950	12.29	Oct. 20, 1950	12.43
July 14	12.38	Sept. 22	11.99	Dec. 7	12.53

3-30-29aa

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	3.86	June 11, 1949	2.35	Mar. 8, 1950	2.92
Apr. 12	3.49	July 7	3.63	Apr. 12	3.09
June 11	4.20	Aug. 4	4.68	June 8	3.23
Aug. 4	4.62	Sept. 12	4.35	July 10	3.89
Oct. 6	5.03	Oct. 7	4.56	Aug. 9	3.26
Dec. 10	4.17	Nov. 18	3.97	Sept. 18	4.24
Feb. 9, 1949	3.55	Dec. 20	3.75	Oct. 20	4.19
Apr. 7	1.92	Feb. 8, 1950	3.11	Dec. 6	3.81

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950—Continued

RED WILLOW COUNTY—Continued

3-30-30bb

Date	Water level	Date	Water level	Date	Water level
June 19, 1950	10.69	Aug. 12, 1950	11.18	Oct. 20, 1950	11.76
July 14	11.19	Sept. 22	11.57	Dec. 7	11.80

3-30-33ab

June 19, 1950	11.01	Aug. 13, 1950	11.99	Oct. 20, 1950	11.46
July 14	11.40	Sept. 22	11.25	Dec. 7	11.55

3-30-34aa

June 19, 1950	5.18	Aug. 13, 1950	4.73	Oct. 20, 1950	5.47
July 14	5.49	Sept. 22	5.62	Dec. 7	5.11

3-30-34bb

Feb. 4, 1948	13.42	July 7, 1949	13.30	Apr. 12, 1950	13.34
Apr. 12	13.30	Aug. 4	15.12	June 8	13.12
June 11	14.10	Sept. 12	14.27	July 14	14.01
Oct. 6	14.73	Oct. 7	14.30	Aug. 13	13.47
Dec. 10	14.02	Nov. 18	13.85	Sept. 22	13.95
Feb. 9, 1949	13.46	Dec. 20	13.73	Oct. 20	13.90
Apr. 7	12.86	Feb. 8, 1950	13.20	Dec. 7	13.67
June 11	12.53	Mar. 8	13.21		

3-30-35cb

June 19, 1950	5.88	Aug. 13, 1950	5.42	Oct. 20, 1950	6.28
July 14	6.15	Sept. 22	6.34	Dec. 7	5.96

3-30-35cd

June 19, 1950	19.25	Aug. 13, 1950	19.14	Oct. 20, 1950	19.65
July 14	19.57	Sept. 22	19.46	Dec. 7	19.55

3-30-35db

June 19, 1950	5.28	Aug. 13, 1950	4.80	Oct. 20, 1950	5.65
July 14	5.65	Sept. 22	5.57	Dec. 7	5.40

3-30-35dc

June 19, 1950	14.91	Aug. 13, 1950	14.18	Oct. 20, 1950	15.22
July 14	15.31	Sept. 22	14.93	Dec. 7	15.07

3-30-36ca

June 19, 1950	5.56	Aug. 13, 1950	4.17	Oct. 20, 1950	5.87
July 14	5.84	Sept. 22	5.81	Dec. 7	5.69

3-30-36cc

June 19, 1950	10.73	Aug. 13, 1950	9.08	Oct. 20, 1950	11.07
July 14	11.09	Sept. 22	10.85	Dec. 7	10.67

Water-level measurements in wells, in feet below land-surface datum, with recorder chart readings of lowest daily water levels in 1950— Continued

RED WILLOW COUNTY—Continued

4-26-34db

Date	Water level	Date	Water level	Date	Water level
Feb. 4, 1948	20.75	Apr. 4, 1949	20.12	May 4, 1950	20.06
Apr. 13	20.38	June 11	19.77	June 14	19.90
June 10	20.67	Oct. 7	20.79	July 19	19.80
Aug. 5	20.35	Nov. 18	20.60	Aug. 15	19.42
Oct. 7	21.28	Dec. 20	20.55	Sept. 17	19.71
Dec. 10	21.19	Jan. 20, 1950	20.47	Oct. 17	20.03
Feb. 9, 1949	20.82	Mar. 17	20.18	Dec. 6	20.28

4-26-34dc

June 14, 1950	11.84	Aug. 15, 1950	12.14	Oct. 17, 1950	12.11
July 19	11.60	Sept. 17	11.73	Dec. 6	12.23

4-26-35ad

June 14, 1950	10.60	Aug. 15, 1950	10.15	Oct. 17, 1950	11.02
July 19	10.52	Sept. 17	10.50	Dec. 6	11.25

4-26-35db

June 14, 1950	6.85	Aug. 15, 1950	6.78	Oct. 17, 1950	7.60
July 19	7.09	Sept. 17	7.38	Dec. 6	7.67

APPENDIX B

Well no.: See text for description of well-numbering system.
Type of well: Dn, driven; Dr, drilled; Du, dug; J, jetted.
Type of casing: B, brick; C, concrete; Gs, galvanized steel; I, iron; S, steel.
Type of pump: C, centrifugal; Cy, cylinder; J, jet; N, none; T, turbine; Vc, vertical centrifugal.
Kind of power: E, electric; G, gasoline; H, hand-operated; N, none; T, tractor; W, wind.
Use of water: D, domestic; I, irrigation; N, none; O, observation; PS, public supply; S, stock.
Measuring point: Bp, base of pump; Cf, car frame; Cpb, crack in pump base; Eb, edge of beam; Ep, edge of pump; Hca, hole in side of casing; Hcv, hole in cover; Hpb, hole in pump base; Hst, hole in side of turbine; LS, land surface; Osc, opening in side of casing; Osp, opening in side of pump; Pgp, plug in pump; Plp, plank under pump; Tca, top of casing; Tcl, top of collar; Tp, top of pipe; Tpl, top of planks over well pit; Tpp, top of 1-inch pipe next to pump; Wp, well platform.
Altitude: Altitude above mean sea level estimated from U. S. Geological Survey topographic map.
Depth to water: All measurements were made in October 1950, except those measurements prefaced by lowercase letters which were made as follows: a, Dec. 1950; b, Mar. 1950; c, Sept. 1950; d, Aug. 1950; e, July 1950; f, Oct. 1949; g, June 1950; h, Jan. 1950; i, May 1950.

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
Chase County													
5-36- 7ba	U. S. Geological Survey	1946	Dn	19.1	1¼	I	N	N	O	Tp	0.7	.....	16.86
-10bb	U. S. Bureau of Reclamation	1949	J	16.5	1¼	I	N	N	O	Tp	1.0	2,954.80	5.87
-11ac	City of Wauneta	.....	Dr	60	18	.....	T	E	PS	.....	.....	.....	.....
-11dc	John N. Redden	1934	Dr	71.5	8	I	N	N	N	Tca	0.5	.....	64.24
5-37- 2dc	U. S. Bureau of Reclamation	1949	J	13.5	1¼	I	N	N	O	Tp	1.0	3,027.0	8.23
- 3cc	....do	1949	J	42.0	1¼	I	N	N	O	Tp	1.0	3,062.39	24.78
- 3cd	....do	1949	J	12.0	1¼	I	N	N	O	Tp	.5	3,035.0	6.73
- 4dac	....do	1949	J	84.0	1¼	I	N	N	O	Tp	.5	3,129.18	[a]78.35
- 4dad	....do	1949	J	100.5	1¼	I	N	N	O	Tp	.5	3,126.11	86.70
- 4dd	....do	1949	J	72.0	1¼	I	N	N	O	Tp	1.0	3,120.68	[a]68.36
- 5dd	....do	.....	Dr	170.0	4	S	N	N	O	Tca	.5	3,208.90	145.81
- 9adb1	....do	1949	J	69.0	1¼	I	N	N	O	Tp	.5	3,104.59	63.36
- 9adb2	....do	1949	J	89.0	1¼	I	N	N	O	Tp	1.0	3,121.77	79.24
- 9adb3	....do	1949	J	102.0	1¼	I	N	N	O	Tp	.3	3,137.88	93.39
-10ba	....do	1949	J	14.0	1¼	I	N	N	O	Tp	1.0	3,036.52	8.51
-10bbb	....do	1949	J	19.0	1¼	I	N	N	O	Tp	.2	3,039.9	5.04
-10bbc	....do	1949	J	22.5	1¼	I	N	N	O	Tp	.5	3,046.64	11.55

-10bc	.....do.....	1949	J	32.0	1¼	I	N	N	O	Tp	.3	3,052.45	15.14
5-38- 1bd	.....do.....	.....	Dr	39.0	6	Gs	N	N	O	Tca	1.0	3,098.0	25.18
- 1da	.....do.....	.....	Dr	16.5	8	Gs	N	N	O	Tca	1.5	3,126.65	8.32
- 2ac	.....do.....	.....	Dr	22.5	6	Gs	N	N	O	Tca	2.0	3,127.76	14.97
- 3ad	.....do.....	1949	J	18.5	1¼	I	N	N	O	Tp	1.0	3,137.34	7.81
- 4aa	.....do.....	1949	J	22.8	1¼	I	N	N	O	Tp	1.0	3,152.20	12.29
- 4ad	.....do.....	1949	J	13.2	1¼	I	N	N	O	Tp	.5	3,146.06	5.59
6-37-32ba	.....do.....	.....	Dr	74.5	4	S	N	N	O	Tca	2.0	3,159.94	[b]73.61
-32dc	.....do.....	.....	Dr	.....	18	S	N	N	O	Tca	.0	3,089.8	19.16
7-38-20dd	A. R. Banks.....	1896	Dr	89.4	6	Gs	N	N	O	Tca	1.0	.....	69.46
-28cc	R. Hust.....	1941	Dr	143.0	18	S	N	N	O	Tca	.3	.....	75.48

Dundy County

1-37- 7ab	R. H. Lingo.....	1937	Dr	77.0	24	S	T	G	I, O	Hpb	3.0	.....	62.88
-16dd	M. Jones.....	1945	Dr	.....	24	S	T	E	I, O	Hpb	.0	2,988	38.48
-19aa	City of Benkelman.....	1932	Dr	42.0	18	.....	T	E	PS	.....	.....	.....	.....
-19ba	U. S. Geological Survey.....	1946	Dn	18.3	1¼	I	N	N	O	Tp	1.0	2,990	15.47
-31cd	.....do.....	1946	Dn	12.5	1¼	I	N	N	O	Tp	1.5	3,007	6.95
1-38-20bc[1]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-20bd	Ough.....	.....	Dr	26.0	6	Gs	Cy	W	S, O	Tca	1.5	3,072	16.25
-21cb	University of Nebraska.....	1936	Dn	17.7	1	I	N	N	O	Tp	3.0	3,042	7.51
-25bd[2]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-26ca	Dave Jones.....	1936	Dr	42.0	24	S	T	T	I, O	Tca	1.0	2,996	14.07
-28da	.....	.....	Dr	33.0	5	Gs	N	N	O	Tca	1.0	.....	20.84
-29ad	U. S. Geological Survey.....	1946	Dn	22.2	1¼	I	N	N	O	Tp	1.0	3,038	9.53
1-39-21ac	L. Krutsinger.....	1927	Dr	15.5	6	Gs	N	N	O	Tca	.0	3,096	5.35
-22cc	Dundy County.....	1940	Dr	21.0	4	Gs	N	N	O	Osc	1.0	3,101	13.08
-26aa	Pringle.....	.....	Dr	39.5	6	Gs	N	N	O	Tca	3.2	3,092	28.08
-30bb	U. S. Geological Survey.....	1946	Dn	18.5	1¼	I	N	N	O	Tp	1.0	3,141	13.37
1-40-20cb	.....do.....	1946	Dn	12.5	1¼	I	N	N	O	Tp	1.0	3,194	4.49
-24cd	.....do.....	1946	Dn	18.0	1¼	I	N	N	O	Tp	1.0	3,139	9.36
-26aa	Lee Clegg.....	1942	Dr	80.0	16	.....	T	G	I	.....	.....	.....	.....
-27ab	A. H. Minton.....	1945	Dr	94.0	16	S	T	G	I, O	Hpb	1.5	3,182	[c]20.01
-29bb	U. S. Geological Survey.....	1946	Dr	21.0	8	Gs	N	N	O	Tca	1.6	3,207	12.30
1-41-20dd	.....do.....	1946	Dn	12.5	1¼	I	N	N	O	Tp	1.0	3,271	4.16
-27ca	.....do.....	1946	Dn	12.6	1¼	I	N	N	O	Tp	1.0	3,248	5.51

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
Dundy County—Continued													
1-41-27cd	City of Haigler	1946	Dr	90	10	.....	T	E	PS	.....	.....	.....	.....
1-42-10cd	U. S. Geological Survey	1946	Dn	18.5	1½	I	N	N	O	Tp	1.0	3,356	d4.58
-13bb	..... do	1946	Dn	12.6	1¼	I	N	N	O	Tp	1.0	3,319	5.53
-36aa	..... do	1946	Dn	16.8	1¼	I	N	N	O	Tp	1.0	3,293	12.07
2-36-24ca	..... do	1946	Dn	22.5	1¼	I	N	N	O	Tp	1.0	2,856	16.08
-24cd	F. E. Whipps	1949	Dr	44.0	18	S	T	E	I, O	Hpb	.0	2,855	15.11
-29ac	Alva Howard	1943	Dr	37.0	18	S	T	G	I, O	Hpb	.5	2,902	22.47
-31bc	U. S. Geological Survey	1946	Dn	27.5	1¼	I	N	N	O	Tp	1.0	2,917	22.69
2-37-36db	H. White	.....	Dr	40.0	18	S	T	G	I, O	Tpl	.0	2,923	19.80
Frontier County													
5-26-11ac	U. S. Bureau of Reclamation	.....	Dr	64.0	5	Gs	N	N	O	Tca	1.0	2,382.69	23.25
-11ba	..... do	.....	Dr	.....	5	Gs	N	N	O	Tca	.5	2,383.26	d22.96
-11dd	..... do	.....	Dr	66.0	5	Gs	N	N	O	Tca	.5	2,393.97	47.49
-12bc	..... do	.....	Dr	.....	5	Gs	N	N	O	Tca	1.0	2,381.27	19.20
-13da	..... do	.....	Dr	100.0	5	Gs	Cy	W	O	Cpb	1.0	2,432.7	d96.91
-14dc	..... do	.....	Dr	70.0	5	Gs	N	N	O	Tca	.0	.....	19.13
-25aab	..... do	.....	.....	.....	.....	I	N	N	O	Tp	2.0	.....	41.54
-25aad	..... do	.....	.....	.....	.....	I	N	N	O	Tp	6.0	.....	19.81
6-26-26cb	..... do	.....	Dr	65.5	5	Gs	N	N	O	Tca	1.0	2,424.76	60.36
-29ba	..... do	.....	Dr	51.5	5	Gs	Cy	H	O	Tca	.0	.....	40.40
-34ba	..... do	.....	Dr	121.5	5	Gs	Cy	W	O	Tca	.5	.....	105.31
-34da	..... do	.....	Dr	71.5	5	Gs	N	N	O	Tca	.5	2,401.86	49.94
Furnas County													

3-21- 1aa	A. H. Asker	1934	Dr	80.5	4	I	Cy	H	N	Tca	0.5		70.20
- 2cc	U. S. Geological Survey	1946	Dn	16.4	1½	I	N	N	O	Tp	1.0	2,066	10.34
- 3ad	U. S. Bureau of Reclamation	1949	J	17.5	1½	I	N	N	O	Tp	.5		11.80
- 4cb	do	1949	J	22.5	1¼	I	N	N	O	Tp	.5		11.09
- 6bb	do	1949	J	27.0	1¼	I	N	N	O	Tp	.5		16.48
-11aa	U. S. Geological Survey	1950	J	21.5	¾	I	N	N	O	Tp	1.5		5.89
-12aa	City of Oxford	1928	Dr	40.0	18		T	E	PS				
-12ad	U. S. Geological Survey	1950	J	14.5	¾	I	N	N	O	Tp	2.5		10.06
-12dc	do	1946	Dn	13.5	1½	I	N	N	O	Tp	1.0	2,054	7.35
3-22- 2ba	do	1946	Dn	13.6	1¼	I	N	N	O	Tp	1.0	2,117	9.96
3-25- 3ab	Furnas County		Dr	39.0	5	Gs	Cy	H	O	Tca	.0	2,277.72	35.46
- 4aa	U. S. Geological Survey	1950	J	32.0	¾	I	N	N	O	Tp	1.0	2,260.67	12.60
- 4bb	do	1946	Dr	21.8	8	Gs	N	N	O	Tca	1.7	2,260	6.89
- 5bd	do	1950	J	14.0	¾	I	N	N	O	Tp	1.0	2,263.92	4.31
- 5ca	do	1950	J	31.0	¾	I	N	N	O	Tp	3.0	2,283.01	21.82
- 6ad	do	1950	J	20.5	¾	I	N	N	O	Tp	1.5	2,273.33	9.13
4-21-29dc	U. S. Bureau of Reclamation	1949	J	43.0	1½	I	N	N	O	Tp	1.0		23.07
-30cb	do	1949	J	50.5	1½	I	N	N	O	Tp	.5		17.53
-30dc	U. S. Geological Survey	1950	J	42.0	¾	I	N	N	O	Tp	3.0		26.92
-31bb	U. S. Bureau of Reclamation	1949	J	33.5	1¼	I	N	N	O	Tp	.5		26.73
-31bc	do	1949	J	33.0	1¼	I	N	N	O	Tp	.0		17.13
-32cc	Claud Rhynolds	1946	Dr	40.0	18	S	N	N	O	Tca	1.0		15.28
-32dd	U. S. Bureau of Reclamation	1949	J	30.5	1½	I	N	N	O	Tp	.5		12.69
4-22-19ac	do	1949	J	30.0	1½	I	N	N	O	Tp	.5	2,156.61	22.29
-19ca	do	1949	J	14.0	1¼	I	N	N	O	Tp	1.0	2,132.93	7.20
-19cc	do	1949	J	12.5	1¼	I	N	N	O	Tp	.3	2,135.20	6.62
-25cc	Norah Hayes	1941	Dr	35.8	18	S	T	T	I, O	Tca	.0	2,109.04	12.92
-25dc	U. S. Bureau of Reclamation	1949	J	24.8	1½	I	N	N	O	Tp	1.2	2,106.49	12.25
-26cb	do	1949	J	25.0	1½	I	N	N	O	Tp	.0	2,118.99	12.48
-27cb	do	1949	J	26.0	1¼	I	N	N	O	Tp	1.5	2,135.17	20.78
-29aa	do	1949	J	25.5	1¼	I	N	N	O	Tp	.5	2,136.81	13.59
-29ad	U. S. Geological Survey	1946	Dn	23.1	1½	I	N	N	O	Tp	1.0	2,135.73	16.90
-29da	U. S. Bureau of Reclamation	1949	J	24.5	1¼	I	N	N	O	Tp	1.5	2,134.12	17.56
-30ba			Dr	25.0	4	Gs	Cy	W	S, O	Tca	3.0	2,137.00	11.70
-32dd	Mrs. E. Coker	1930	Dr	40.2	24	S	T	T	I, O	Tca	1.5	2,124.67	e11.99
-33aa	U. S. Bureau of Reclamation	1949	J	19.0	1¼	I	N	N	O	Tp	1.0	2,124.77	16.39
-34ba[3]													

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Furnas County—Continued								
4-22-34bb	Clyde Payne	1941	Dr	61.0	18	S	T	G	I, O	Hpb	0.5	2,122.84	15.84
-35bd	U. S. Geological Survey	1950	J	13.0	¾	I	N	N	O	Tp	2.0	2,103.84	5.06
4-23- 7dc	U. S. Bureau of Reclamation	1950	Dr	47.0	1¼	I	N	N	O	Tp	1.5	.....	20.47
-15da	....do	1949	J	42.0	1¼	I	N	N	O	Tp	.8	2,190.05	40.45
-15db	M. Anderson	.....	Dr	43.0	6	Gs	N	N	O	Tca	2.0	2,186.88	34.50
-17bd	U. S. Bureau of Reclamation	1949	J	41.6	1¼	I	N	N	O	Tp	.5	.....	28.58
-18ad	....do	1950	Dr	35.8	1¼	I	N	N	O	Tp	2.0	.....	20.25
-18ccb	....do	1949	J	31.0	1¼	I	N	N	O	Tp	1.0	.....	12.60
-18ccc	....do	1949	J	29.5	1¼	I	N	N	O	Tp	.5	.....	16.91
-19ab	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	1.0	.....	14.59
-19ad	U. S. Bureau of Reclamation	1949	J	11.8	1¼	I	N	N	O	Tp	.3	2,175.83	7.94
-19ba	....do	1949	J	24.7	1¼	I	N	N	O	Tp	1.0	2,186.61	11.71
-19bb	....do	1949	J	24.8	1¼	I	N	N	O	Tp	1.0	.....	13.92
-19bc	....do	1949	J	22.5	1¼	I	N	N	O	Tp	.3	.....	9.89
-20ab	Clyde Larson	1940	Dr	80.0	18	S	T	G	I, O	Hpb	2.0	.....	29.80
-20bb	U. S. Bureau of Reclamation	1949	J	32.0	1¼	I	N	N	O	Tp	1.0	2,191.23	20.50
-21ad	....do	1949	J	33.0	1¼	I	N	N	O	Tp	1.0	.....	30.61
-22dc	....do	1949	J	22.0	1¼	I	N	N	O	Tp	1.0	.....	16.34
-23bc	City of Arapahoe	1945	Dr	72.0	24	.....	T	E	PS	.....	.....	.....	.....
-23bd	O. V. Moore	.....	Dr	43.0	6	Gs	Cy	H	O	Hca	.7	.....	30.39
-24bc	U. S. Bureau of Reclamation	1949	J	19.0	1¼	I	N	N	O	Tp	.3	.....	15.58
-24bd	....do	1949	J	18.8	1¼	I	N	N	O	Tp	1.0	.....	10.08
-25aa	....do	1949	J	20.0	1¼	I	N	N	O	Tp	1.0	.....	9.01
-27bb	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	3.5	.....	14.82
-27dd	....do	1946	Dn	17.3	1¼	I	N	N	O	Tp	1.0	.....	12.63
-30cc	Breming Bros	1939	Dr	93.0	24-29	S	T	E	I, O	Hpb	.5	.....	53.95
-36aa	Harold Watson	.....	Dr	63.0	18	S	T	E	I, O	Osp	3.0	.....	23.45

4-24-13aa	U. S. Bureau of Reclamation	1949	J	38.7	1½	I	N	N	O	Tp	1.0		24.91
-13bb	do	1949	J	32.0	1½	I	N	N	O	Tp	1.0		18.76
-13cd	Cecil Thomas	1939	Dr	59.0	18-24	S	T	T	I, O	Plp	.6		18.17
-14cb	U. S. Bureau of Reclamation	1949	J	32.0	1½	I	N	N	O	Tp	.8		21.22
-14cc	do	1949	J	22.0	1½	I	N	N	O	Tp	-1.0		21.69
-14da	do	1949	J	32.0	1½	I	N	N	O	Tp	1.5		18.89
-15cb	do	1949	J	22.0	1½	I	N	N	O	Tp	1.0		13.27
-15cc	U. S. Geological Survey	1946	Dn	23.0	1½	I	N	N	O	Tp	1.0		12.71
-17cc	U. S. Bureau of Reclamation	1949	J	22.0	1½	I	N	N	O	Tp	2.0		[f]21.70
-19cb	do	1949	J	22.0	1½	I	N	N	O	Tp	.3		13.42
-19cc[4]													
-19cd	E. T. Purington	1937	Dr	30.0	22	S	T	T	I, O	Hca	-1.0		12.22
-19da	U. S. Bureau of Reclamation	1950	Dr	17.7	1¼	I	N	N	O	Tp	1.5		8.24
-20ca	do	1950	Dr	16.0	1½	I	N	N	O	Tp	.8		6.44
-20cbb	do	1949	J	11.6	1½	I	N	N	O	Tp	.5		6.91
-20cbc	do	1949	J	12.0	1½	I	N	N	O	Tp	.5		6.57
-20cc	do	1950	Dr	19.0	1½	I	N	N	O	Tp	1.0		[g]6.15
-21ac	do	1950	Dr	17.3	1¼	I	N	N	O	Tp	1.0		6.30
-21ad	do	1949	J	22.0	1½	I	N	N	O	Tp	.5		5.65
-21bc	do	1950	Dr	18.7	1½	I	N	N	O	Tp	1.0		9.61
-21da	do	1949	J	21.5	1½	I	N	N	O	Tp	1.0		7.28
-22bb	do	1949	J	12.0	1½	I	N	N	O	Tp	.5		9.96
-22dd2[5]	U. S. Geological Survey	1950	J	15.0	¾	I	N	N	O	Tp	1.0	2,200.60	9.01
-23aa	U. S. Bureau of Reclamation	1949	J	22.0	1½	I	N	N	O	Tp	1.0		17.96
-23bc	do	1949	J	22.0	1½	I	N	N	O	Tp	.5		18.81
-24bc	do	1949	J	22.0	1½	I	N	N	O	Tp	.5		7.63
-29cd	D. Andrews	1940	Dr	80.0	18	S	T	T	I, O	Osp	.6		21.60
-29da	U. S. Geological Survey	1950	J	18.0	¾	I	N	N	O	Tp	2.0	2,217.31	10.18
-30dd	do	1950	J	23.0	¾	I	N	N	O	Tp	1.0	2,230.28	12.49
-32bc	R. Schultz			85.0	18	S	T	G	I, O	Bp	.0	2,243.86	26.26
4-25-25ab	U. S. Bureau of Reclamation	1950	Dr	18.9	1½	I	N	N	O	Tp	1.0		6.79
-25ac	do	1950	Dr	16.8	1½	I	N	N	O	Tp	1.0		6.47
-26ada	do	1950	Dr	13.2	1¼	I	N	N	O	Tp	1.6		9.09
-26add	do	1950	Dr	12.9	1¼	I	N	N	O	Tp	2.0		8.95
-26bb	George Sayer	1934	Du	23.1	3	B	Cy	W, H	S	Wp	.8		20.94
-27adc	U. S. Bureau of Reclamation	1949	J	16.5	1¼	I	N	N	O	Tp	1.0		12.11

See footnotes at end of table

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Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Furnas County—Continued								
4-25-27add	U. S. Bureau of Reclamation	1949	J	12.0	1¼	I	N	N	O	Tp	0.5	.....	8.92
-27daa1	....do	1949	J	11.0	1¼	I	N	N	O	Tp	.5	.....	8.86
-27daa2	....do	1949	J	13.5	1¼	I	N	N	O	Tp	1.3	.....	9.52
-30dd	U. S. Geological Survey	1950	J	17.0	¾	I	N	N	O	Tp	2.0	.....	10.86
-31bb	....do	1950	J	15.5	¾	I	N	N	O	Tp	1.0	.....	8.63
-32ab	....do	1950	J	17.5	¾	I	N	N	O	Tp	3.5	.....	10.57
-32bb	....do	1950	J	14.5	¾	I	N	N	O	Tp	2.0	.....	11.31
-32cd	....do	1946	Dn	12.3	1¼	I	N	N	O	Tp	1.0	2,262.84	6.37
-33cb	....do	1950	J	15.5	¾	I	N	N	O	Tp	2.0	2,258.90	8.03
-33db	....do	1950	J	16.0	¾	I	N	N	O	Tp	2.5	2,253.58	6.69
-34aa	....do	1950	J	15.5	¾	I	N	N	O	Tp	1.0	2,243.38	6.75
-34ad	J. C. Sayer	1938	Dr	73.5	18	S	T	T	I, O	Bp	.0	2,253.7	16.54
-34dc	R. Schultz	.....	Dr	42.0	18	S	T	T	I, O	Bp	1.0	2,262.80	19.67
-36ab	U. S. Geological Survey	1950	J	14.0	¾	I	N	N	O	Tp	1.0	2,233.23	6.51
-36cb	R. Sayer	.....	Dr	.....	18	S	T	T	I, O	Bp	.0	2,265.09	34.65
					Harlan County								
2-18-29cc	U. S. Geological Survey	1950	J	31.5	¾	I	N	N	O	Tp	4.5	.....	22.31
-30cb	School District No. 76	.....	Dr	48.0	5	Gs	Cy	H	O	Tca	.0	.....	43.90
-33ac	City of Alma	1947	Du, Dr	52.0	24	.....	T	E	PS	.....	.....	.....	.....
-33cd	C. A. Feese	1932	Du	26.7	60	C	C	G	I, O	Tca	.5	.....	12.11
2-19- 5bc	U. S. Bureau of Reclamation	1949	J	33.5	1¼	I	N	N	O	Tp	1.5	.....	9.21
- 5cb	L. E. Short	1941	Dr	51.0	18	S	T	G	I, O	Pgp	1.0	.....	22.22
- 6ba	U. S. Geological Survey	1950	J	23.5	¾	I	N	N	O	Pgp	3.0	.....	8.20
- 7da	....do	1950	J	24.0	¾	I	N	N	O	Pgp	4.0	.....	9.91
- 8bc	U. S. Bureau of Reclamation	1949	J	14.0	1¼	I	N	N	O	Pgp	.8	.....	6.75

- 8bd	U. S. Geological Survey	1950	J	20.5	¾	I	N	N	O	Pgp	2.5	.....	17.03
-16cc	.....do.....	1950	J	31.0	¾	I	N	N	O	Pgp	1.5	.....	23.04
-17cb	U. S. Bureau of Reclamation	1949	J	17.0	1¼	I	N	N	O	Pgp	1.5	.....	7.56
-17da	B. Korte	1928	Du	42.0	72	B	Vc	T	I, O	Wp	1.0	.....	23.20
-17dd	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	1.5	.....	8.08
-21da	City of Orleans	1926	Du, Dr	45.0	24	.....	T	E	PS	.....	.....	.....	.....
-22cb	Landergren	.....	Dr	31.0	5	Gs	Cy	H	O	Tca	.2	.....	26.18
-28aa	U. S. Bureau of Reclamation	1949	J	22.5	1½	I	N	N	O	Tp	1.0	.....	10.07
-28da	.....do.....	1949	J	15.6	1½	I	N	N	O	Tp	1.0	.....	9.65
-28dd	University of Nebraska	1940	Dn	22.0	1	I	N	N	O	Tp	1.2	.....	10.93
-34bc	C. Fishbeck	1946	Dr	61.0	24	S	T	T	I, O	Bp	1.0	.....	23.22
3-20- 7aa	U. S. Geological Survey	1950	J	38.3	¾	I	N	N	O	Tp	2.0	.....	29.31
- 7ab	C. L. Struve	1946	Dr	90.0	24	S	T	E	I, O	Bp	1.0	.....	30.83
- 7ad	U. S. Geological Survey	1950	J	29.5	¾	I	N	N	O	Tp	3.0	.....	15.10
- 8dd	.....do.....	1950	J	20.5	¾	I	N	N	O	Tp	1.0	.....	6.27
-16bb	.....do.....	1946	Dn	17.4	1¼	I	N	N	O	Tp	1.0	.....	8.61
-16bd	.....do.....	1950	J	21.0	¾	I	N	N	O	Tp	1.5	.....	7.23
-16cd	U. S. Bureau of Reclamation	1949	J	15.5	1¼	I	N	N	O	Tp	.5	.....	6.75
-16dd	U. S. Geological Survey	1950	J	22.0	¾	I	N	N	O	Tp	2.0	.....	12.42
-17aa	U. S. Bureau of Reclamation	1949	J	22.0	1¼	I	N	N	O	Tp	.3	.....	5.92
-18ca[6]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-18cb	L. E. Dusenberry	1946	Dr	57.0	18	S	T	T	I, O	Bp	1.0	.....	16.08
-21ac	U. S. Geological Survey	1950	J	20.5	¾	I	N	N	O	Tp	2.0	.....	10.69
-22ba	.....do.....	1950	J	31.5	¾	I	N	N	O	Tp	2.0	.....	15.82
-22dd	C. Murdock	.....	Dr	47.0	10	Gs	Cy	N	O	Tca	1.0	.....	e26.74
-23cd	U. S. Geological Survey	1950	J	35.5	¾	I	N	N	O	Tp	2.0	.....	19.09
-25cc	.....do.....	1946	Dn	23.8	1¼	I	N	N	O	Tp	1.0	.....	16.85
-35aab	U. S. Bureau of Reclamation	1949	J	17.5	1¼	I	N	N	O	Tp	1.0	.....	7.99
-35aad	.....do.....	1949	J	12.0	1¼	I	N	N	O	Tp	.3	.....	6.25
-36da	U. S. Geological Survey	1950	J	33.5	¾	I	N	N	O	Tp	2.0	.....	11.33
-36db	.....do.....	1950	J	19.0	¾	I	N	N	O	Tp	2.0	.....	8.54

Hayes County

5-33-30cb	R. Scott	1944	Dr	90.0	22	S	T	E	I, O	Pgp	0.6	.....	19.88
-31dc	University of Nebraska	1936	Dn	23.0	1	I	N	N	O	Tp	2.7	.....	15.18

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Hayes County—Continued								
5-34-28bc	T. T. Schreiber	1944	Dr	131	16	S	T	G	I, O	Tpp	0.5	.....	58.68
-30ba	U. S. Geological Survey	1946	Dn	17.0	1¼	I	N	N	O	Tp	1.0	.....	12.01
-34aa	W. Meirr	1942	Dr	79.0	14	S	T	E	I, O	Osp	.8	.....	[c]21.68
-35ac	W. F. Lady	1948	Dr	117	18	S	T	G	I, O	Pgp	.6	.....	30.83
5-35- 7cc	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	1.0	.....	8.77
-16dd	....do	1946	Dn	12.7	1¼	I	N	N	O	Tp	1.0	.....	9.87
-17ac	....do	1950	J	24.0	¾	I	N	N	O	Tp	3.5	.....	21.09
-17da[7]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-23ac	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	1.5	.....	19.16
					Hitchcock County								
2-32- 6bc	U. S. Geological Survey	1950	J	12.0	¾	I	N	N	O	Tp	1.5	.....	7.38
- 6da	....do	1950	J	30.0	¾	I	N	N	O	Tp	1.5	.....	25.67
- 6db	W. Kalthoff	.....	Dr	.....	24	S	T	T	I, O	Tca	.0	.....	25.28
2-33- 1cc	U. S. Geological Survey	1950	J	24.0	¾	I	N	N	O	Tp	2.0	.....	16.89
- 2aa	M. O. Wertz	1944	Dr	47.0	18	Gs	T	E	I, O	Bp	1.0	.....	[d]11.44
- 2ab	City of Trenton	1943	Dr	42.0	24	.....	T	E	PS	.....	.....	.....	.....
- 3bd	U. S. Bureau of Reclamation	1949	J	44.0	1¼	I	N	N	O	Tp	1.0	2,682.78	7.00
- 3dd	....do	1949	J	40.4	1¼	I	N	N	O	Tp	1.0	2,680.70	10.26
- 4ad	....do	1949	J	36.0	1¼	I	N	N	O	Tp	.8	2,693.27	13.74
- 4da	....do	1949	J	35.7	1¼	I	N	N	O	Tp	1.0	2,687.28	8.69
- 6cb	U. S. Geological Survey	1946	Dn	16.5	1¼	I	N	N	O	Tp	1.0	.....	10.90
- 8aaa1	U. S. Bureau of Reclamation	1949	J	31.6	1¼	I	N	N	O	Tp	.7	2,692.73	2.95
- 8aaa2	....do	1949	J	29.7	1¼	I	N	N	O	Tp	.5	2,695.00	5.36
- 8aad	....do	1949	J	30.0	1¼	I	N	N	O	Tp	.5	2,697.91	8.46
- 8ada	....do	1949	J	39.4	1¼	I	N	N	O	Tp	1.0	2,704.35	d17.28

- 8dad	.....do.....	1949	J	64.0	1¼	I	N	N	O	Tp	1.2	2,752.92	52.71
- 8dda	.....do.....	1949	J	56.7	1¼	I	N	N	O	Tp	3.0	2,762.11	49.08
- 8ddd	.....do.....	1949	J	.....	1¼	I	N	N	O	Tp	1.0	2,775.41	56.38
- 9ac	.....do.....	1949	J	35.1	1¼	I	N	N	O	Tp	.6	2,715.07	28.16
- 9ad	.....do.....	1949	J	39.6	1¼	I	N	N	O	Tp	.5	2,711.52	29.30
- 9bca1	McConnell.....	1939	Dr	29.0	24	S	T	G	I, O	Tca	.5	.....	5.95
- 9bca2	U. S. Bureau of Reclamation.....	1949	J	31.9	1¼	I	N	N	O	Tp	.5	2,704.95	17.02
- 9bcd	.....do.....	1949	J	41.2	1¼	I	N	N	O	Tp	1.0	2,710.88	20.94
- 9bd	McConnell.....	1939	Dr	32.0	18	S	T	T	I, O	Bp	1.0	.....	15.20
- 9cbb	U. S. Bureau of Reclamation.....	1949	J	31.5	1¼	I	N	N	O	Tp	.6	2,714.27	24.49
- 9cbc	.....do.....	1949	J	35.6	1¼	I	N	N	O	Tp	1.0	2,727.11	29.80
-10ab	U. S. Geological Survey.....	1946	Dn	16.5	1¼	I	N	N	O	Tp	1.0	.....	8.44
2-34- 7cd	U. S. Bureau of Reclamation.....	1949	J	34.0	1¼	I	N	N	O	Tp	.5	2,782.75	18.69
- 8ad	.....do.....	1949	J	49.0	1¼	I	N	N	O	Tp	.5	2,779.09	30.30
- 8cb	.....do.....	1949	J	42.1	1¼	I	N	N	O	Tp	.8	2,773.16	14.93
- 8cd	.....do.....	1949	J	39.1	1¼	I	N	N	O	Tp	.5	2,760.22	6.11
- 8da	H. Pollman.....	1938	Dr	58.0	24	S	T	T	I, O	Ep	.0	.....	[d]18.76
- 8db	U. S. Bureau of Reclamation.....	1949	J	38.4	1¼	I	N	N	O	Tp	.5	2,765.46	12.01
-11dc	U. S. Geological Survey.....	1946	Dn	18.5	1¼	I	N	N	O	Tp	1.0	.....	11.46
-12da	L. Hall.....	1937	Dr	38.0	24	S	T	T	I, O	Tca	1.0	.....	15.16
-16cc	U. S. Bureau of Reclamation.....	1949	J	36.2	1¼	I	N	N	O	Tp	1.8	2,767.76	15.12
-16db	.....do.....	1949	J	39.2	1¼	I	N	N	O	Tp	.5	2,762.56	14.63
-17bb	.....do.....	1949	J	46.0	1¼	I	N	N	O	Tp	1.0	2,773.70	14.77
-17bc	.....do.....	1949	J	42.7	1¼	I	N	N	O	Tp	.4	2,769.84	9.74
-18aa	L. W. Melchert.....	1944	Dr	48.0	18	.....	T	E	I	.....	.....	.....	.....
-18ab	U. S. Bureau of Reclamation.....	1949	J	44.0	1¼	I	N	N	O	Tp	.5	2,781.84	18.62
-18acb	.....do.....	1949	J	51.9	1¼	I	N	N	O	Tp	.5	2,785.66	21.17
-18acc	.....do.....	1949	J	40.0	1¼	I	N	N	O	Tp	.6	2,774.78	9.29
-18bb	.....do.....	1949	J	51.0	1¼	I	N	N	O	Tp	1.0	2,793.06	25.54
-18bc	.....do.....	1949	J	45.8	1¼	I	N	N	O	Tp	.5	2,784.37	13.94
-19aa	.....do.....	1949	J	32.2	1¼	I	N	N	O	Tp	1.5	2,775.00	11.97
-19ab	.....do.....	1949	J	24.5	1¼	I	N	N	O	Tp	1.5	2,771.52	4.38
-19acb	.....do.....	1949	J	25.6	1¼	I	N	N	O	Tp	.0	2,773.01	5.31
-19acc	.....do.....	1949	J	29.3	1¼	I	N	N	O	Tp	1.5	2,773.89	5.20
-19bb	.....do.....	1949	J	33.6	1¼	I	N	N	O	Tp	.4	2,780.37	8.68
-20ab	.....do.....	1949	J	46.0	1¼	I	N	N	O	Tp	1.0	2,784.49	27.74
-20bbc	.....do.....	1949	J	28.9	1¼	I	N	N	O	Tp	1.0	2,770.28	8.35

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska— Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Hitchcock County—Continued								
2-34-20bbd	U. S. Bureau of Reclamation	1949	J	30.7	1¼	I	N	N	O	Tp	0.6	2,769.80	9.29
2-35-12dc	do	1949	J	38.7	1¼	I	N	N	O	Tp	.5	2,798.31	24.34
-12dd	do	1949	J	52.2	1¼	I	N	N	O	Tp	.5	2,794.56	26.16
-13bb[8]													
-13bba	U. S. Geological Survey	1946	Dn	22.0	1¼	I	N	N	O	Tp	1.0		15.92
-13bbc	U. S. Bureau of Reclamation	1949	J	44.0	1¼	I	N	N	O	Tp	1.2	2,799.95	21.21
-13bd	do	1949	J	40.1	1¼	I	N	N	O	Tp	.5	2,790.81	14.76
-13cc	do	1949	J	40.7	1¼	I	N	N	O	Tp	1.0	2,793.81	12.49
-13cd	Stratton Gun Club	1934	Dr	29.0	5	Gs	N	N	O	Tca	.0		5.31
-13dc	U. S. Bureau of Reclamation	1949	J	40.1	1¼	I	N	N	O	Tp	.5	2,785.01	8.50
-19ca	F. E. Whipps	1935	Dr	26.5	18	S	T	G	I, O	Tca	7.0	2,834	2.63
-21bc	O. Brownfield	1934	Dr	46.6	16	S	T	N	O	Bp	.0	2,831	20.24
-23aa	L. Hall	1935	Dr	27.0	4	Gs	N	N	O	Tca	.0	2,798	13.92
-23cb	do	1934	Dr	41.0	5	Gs	Cy	W	S, O	Tca	.0	2,810	h27.82
-24aa	U. S. Geological Survey	1946	Dn	12.1	1¼	I	N	N	O	Tp	1.0	2,779	6.67
-24ab	U. S. Bureau of Reclamation	1949	J	34.8	1¼	I	N	N	O	Tp	.6	2,782.48	5.28
-24ada	do	1949	J	27.5	1¼	I	N	N	O	Tp	1.0	2,776.81	4.03
-24add	do	1949	J	30.2	1¼	I	N	N	O	Tp	1.2	2,782.71	c8.93
-24bc	do	1949	J	44.4	1¼	I	N	N	O	Tp	1.2	2,801.40	19.23
-36-29ac[9]													
3-31- 7cd	U. S. Geological Survey	1950	J	20.5	¾	I	N	N	O	Tp	2.5		14.50
- 9dd	do	1950	J	21.5	¾	I	N	N	O	Tp	2.5		11.45
-13cb	do	1950	J	16.5	¾	I	N	N	O	Tp	1.0		4.59
-14ab				35.0	5	Gs	N	N	O	Tca	.3		21.55
-14bc	U. S. Geological Survey	1946	Dn	26.2	1¼	I	N	N	O	Tp	1.0	2,570	14.97
-15cc2	do	1950	J	13.5	¾	I	N	N	O	Tp	1.0		6.09
-17ad	City of Culbertson	1932	Dr	62	18			E	PS				

-17cd	U. S. Geological Survey	1946	Dn	17.9	1¼	I	N	N	O	Tp	1.0	8.95
-20ad	do	1950	J	14.5		I	N	N	O	Tp	2.0	9.67
-20cc	do	1950	J	21.5		I	N	N	O	Tp	3.5	13.60
-20da	do	1946	Dn	12.8	1¼	I	N	N	O	Tp	1.0	9.00
-21cc	do	1950	J	23.0		I	N	N	O	Tp	2.0	17.87
-22ba	do	1950	J	15.0		I	N	N	O	Tp	1.0	5.91
-22bb	do	1950	J	16.0		I	N	N	O	Tp	1.0	13.43
-22bc	do	1950	J	31.0		I	N	N	O	Tp	2.0	30.27
-22da	do	1950	J	18.5		I	N	N	O	Tp	1.5	12.36
-23ad	E. Schultz		Dr	26.5	5	Gs	N	N	O	Tca	2.0	12.63
-23bb	U. S. Geological Survey	1950	J	15.0		I	N	N	O	Tp	1.5	7.52
-23da	do	1950	J	31.0		I	N	N	O	Tp	4.0	25.86
-30ad	do	1950	J	34.0		I	N	N	O	Tp	2.0	32.26
-30cc	M. T. Boulware		Dr	31.0	6	Gs	Cy	W	S, O	Tca	.0	27.49
3-32- 2bc	U. S. Geological Survey	1950	J	22.0		I	N	N	O	Tp	1.5	15.09
-11bb	do	1946	Dn	18.5	1¼	I	N	N	O	Tp	1.0	14.19
-12cc	M. Morthale	1940	Dr	81.0	24	S	T	G	I, O	Bp	.0	21.79
-13ba	U. S. Geological Survey	1950	J	16.5		I	N	N	O	Tp	2.0	11.07
-25db	do	1950	J	31.0		I	N	N	O	Tp	1.5	16.59
-26cd	do	1950	J	20.5		I	N	N	O	Tp	1.5	7.05
-26da	do	1950	J	20.0		I	N	N	O	Tp	3.5	8.22
-26db	do	1950	J	15.5		I	N	N	O	Tp	1.5	6.79
-26dd	E. Meintz	1946	Dr	74.0	18	S	T	T	I, O	Bp	1.0	30.36
-31aa	U. S. Geological Survey	1946	Dn	12.5	1¼	I	N	N	O	Tp	1.0	7.43
-31dd	do	1950	J	20.5		I	N	N	O	Tp	3.5	18.27
-32da	do	1950	J	15.5		I	N	N	O	Tp	1.5	7.31
-33cd	do	1950	J	20.5		I	N	N	O	Tp	1.5	12.10
-33da	do	1950	J	20.5		I	N	N	O	Tp	2.5	16.94
-34bc	do	1950	J	18.0		I	N	N	O	Tp	1.5	8.69
-35ba	do	1950	J	31.5		I	N	N	O	Tp	2.0	22.35
-35bb	do	1950	J	18.5		I	N	N	O	Tp	1.5	9.95
-35bc	do	1950	J	20.5		I	N	N	O	Tp	2.0	10.83
3-33-35dc	S. H. Lawrence		Dn	26.9	1¼	I	N	N	O	Tp	1.5	12.56
4-32-30dc		1946	Dr	27.0	4	Gs	N	N	O	Tca	.5	19.22
-33db	J. F. Bowen	1945	Dr	92.0	18	S	T	E	I, O	Pgp	.8	36.05
-33dd	U. S. Geological Survey	1950	J	20.0		I	N	N	O	Tp	1.5	11.05
4-33- 8bb	R. Handel	1942	Dr	93.6	18	S	T	T	I, O	Bp	1.0	56.71

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no.	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Hitchcock County—Continued								
4-33- 9dd	U. S. Geological Survey	1950	J	26.0	3/4	I	N	N	O	Tp	1.5		25.26
-23ad	do	1946	Dn	18.9	1¼	I	N	N	O	Tp	1.0		14.39
-24cc	J. Freece	1940	Dr	85.0			T	E	I, O	Osp	.5		[d]32.34
-25aa	U. S. Geological Survey	1950	J	20.5	3/4	I	N	N	O	Tp	1.5		10.12
4-34- 1ab	City of Palisade		Dr	105.0	24		T	E	PS				
					Red Willow County								
2-29- 3bd	D. Rowland	1928	Dr	85.0	18		T	E	I, O	Pgp	3.0		[d]35.89
- 4aa	U. S. Geological Survey	1946	Dn	16.7	1¼	I	N	N	O	Tp	1.0	2,462	11.14
- 4ad	R. S. Haberman			40.0	26	S	N	N	O	Tca	-3.0		25.11
- 4cba	U. S. Geological Survey	1950	J	29.0	3/4	I	N	N	O	Tp	2.5		16.53
- 4cbc	Waisa	1947	Dr	87.0	24	S	T	T	I, O	Bp	.5		20.21
- 4da	Clark		Dr		14	S	T	T	I, O	Pgp	.3		[e]27.10
- 4dd	G. W. Ruppert				5	I	N	N	S, O	Tca	2.0		26.27
- 5ab	W. H. Davis		Dr	52.0			Vc	T	I, O	Eb	1.0		19.76
- 5bc	City of McCook		Dr	84.0	26		T	E	PS				
- 5ca	U. S. Geological Survey	1950	J	29.0	3/4	I	N	N	O	Tp	3.0		24.34
- 6bc	L. V. Nicholson	1944	Dr	72.0	18	I	T	T	I, O	Bp	.5		16.19
- 9bb	Waisa	1947	Dr		6	I	J	E	D, O	Tca	1.0		28.40
2-30- 1aa	U. S. Geological Survey	1946	Dn	18.4	1¼	I	N	N	O	Tp	1.0		10.71
- 6dd	Peters		Dr	115	6	Gs	N	N	O	Tcl	2.0		109.43
-12aa	U. S. Geological Survey	1950	J	43.0	3/4	I	N	N	O	Tp	1.0		23.57
-12ad	C. Schmidt	1945	Dr	75.3	22	S	T	T	I, O	Bp	1.3		29.60
-12cb	Kiska			40.0	5	Gs	N	N	O	Tca	1.0		30.44
-12dd	Dutton		Dr	89.0	5	Gs	N	N	O	Hcv	.0		19.42
-24ba	Hesterworth			119	5	Gs	N	N	O	Tca	.0		108.53

3-26- 1ac	U. S. Geological Survey	1950	J	15.0	3/4	I	N	N	O	Tp	1.0	8.96
- 1cc	Johnson Bros.		Dr	49.0	5	Gs	Cy	W	S, O	Tcl	1.0	[i]40.50
- 3ab	U. S. Geological Survey	1950	J	10.5	3/4	I	N	N	O	Tp	1.0	4.79
- 3bb	do	1950	J	15.5	3/4	I	N	N	O	Tp	1.0	8.07
- 3dd	do	1950	J	16.0	3/4	I	N	N	O	Tp	1.0	7.66
- 5bb	H. H. Carr	1943		97.0	18	I	T	G	I, O	Bp	.0	42.64
- 5cb		1945	Dr	61.0	24	S	T	T	I, O	Bp	.5	16.61
- 5cc	U. S. Geological Survey	1950	J	21.0	3/4	I	N	N	O	Tp	2.0	11.92
- 5db	do	1950	J	15.0	3/4	I	N	N	O	Tp	1.5	4.64
- 6cc	do	1950	J	21.0	3/4	I	N	N	O	Tp	1.5	13.73
- 7bc	do	1950	J	14.0	3/4	I	N	N	O	Tp	1.0	7.50
- 8cc	do	1950	J	16.0	3/4	I	N	N	O	Tp	1.0	12.89
- 9aa	do	1950	J	15.5	3/4	I	N	N	O	Tp	1.0	8.43
- 9ad	do	1950	J	21.0	3/4	I	N	N	O	Tp	1.5	10.20
- 9bd	do	1950	J	20.5	3/4	I	N	N	O	Tp	2.0	12.95
- 9cb	C. Pucha	1941	Dr	46.0	18	S	T	E	I, O	Bp	.0	15.79
-11ab	Hammond	1942	Dr	95.0	24	S	T	G	I, O	Bp	.5	39.65
-11ac	do	1946	Dr	115	24	S	T	G	I, O	Bp	.5	49.94
-11bb	U. S. Geological Survey	1946	Dn	17.7	1 1/4	I	N	N	O	Tp	1.0	9.28
-12aa	R. B. Conlin		Dr	109	18	S	T	E	I, O	Hst	1.0	46.58
-18bb	U. S. Geological Survey	1950	J	21.0	3/4	I	N	N	O	Tp	3.0	13.46
3-27- 2cc	do	1950	J	15.5	3/4	I	N	N	O	Tp	1.0	5.12
- 2da	do	1950	J	29.0	3/4	I	N	N	O	Tp	3.5	20.76
- 7cd	do	1950	J	26.5	3/4	I	N	N	O	Tp	3.0	17.64
- 7db	do	1950	J	20.0	3/4	I	N	N	O	Tp	1.5	10.92
- 7dc	A. J. Helm	1936	Du	29.0	26	S	T	T	I, O	Bp	.0	8.68
- 7dd	U. S. Geological Survey	1950	J	15.5	3/4	I	N	N	O	Tp	3.0	14.85
- 8ac	B. Smith		Dr	22.5	4	I	Cy	H	O	Tca	1.1	[f]12.44
- 8db	U. S. Geological Survey	1950	J	19.0	3/4	I	N	N	O	Tp	2.0	12.85
- 8dc				15.0	5	Gs	Cy	H	O	Tca	.0	[d]9.82
- 9ad	U. S. Geological Survey	1950	J	16.0	3/4	I	N	N	O	Tp	3.0	13.22
-10aa	do	1950	J	15.5	3/4	I	N	N	O	Tp	1.0	6.26
-10cb	do	1950	J	16.0	3/4	I	N	N	O	Tp	3.0	10.85
-11aa[10]												
-11aa2	U. S. Geological Survey	1950	J	16.0	3/4	I	N	N	O	Tp	2.5	7.69
-11bc	do	1950	J	15.5	3/4	I	N	N	O	Tp	1.0	6.56
-11cb	do	1950	J	15.5	3/4	I	N	N	O	Tp	2.0	8.57
-11cc	do	1950	J	15.5	3/4	I	N	N	O	Tp	2.5	9.23

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska— Continued

Well no	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Red Willow County—Continued								
3-27-11cd[11]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-12bb	U. S. Geological Survey	1948	Dn	.....	1¼	I	N	N	O	Tp	1.0	.....	8.12
-12cc	....do	1950	J	21.0	¾	I	N	N	O	Tp	4.0	2,340.83	17.59
-14ab	J. Tiller	1941	Dr	64.0	18	S	T	E	I, O	Bp	.1	.....	17.45
-16ad	U. S. Geological Survey	1950	J	21.0	¾	I	N	N	O	Tp	3.5	2,353.97	14.77
-17cb	....do	1946	Dn	16.4	1¼	I	N	N	O	Tp	1.0	2,367.88	10.84
-18bc1	City of Indianola	1930	Dr	64.0	18	.....	T	E	PS	.....	.....	.....	.....
-18bc2	U. S. Geological Survey	1950	J	15.5	¾	I	N	N	O	Tp	1.0	2,370.64	8.24
-18ca	....do	1950	J	16.0	¾	I	N	N	O	Tp	1.0	2,370.33	7.75
3-28- 5cd	....do	1950	J	30.5	¾	I	N	N	O	Tp	2.0	2,439.01	28.28
- 8ca	....do	1950	J	31.0	¾	I	N	N	O	Tp	2.0	2,434.52	27.14
- 8dc	....do	1950	J	26.5	¾	I	N	N	O	Tp	2.5	2,426.17	22.09
-14ad	....do	1950	J	20.5	¾	I	N	N	O	Tp	.5	2,384.13	7.60
-14db	....do	1950	J	16.0	¾	I	N	N	O	Tp	1.5	2,383.45	6.73
-15bd	....do	1950	J	15.5	¾	I	N	N	O	Tp	2.5	2,398.33	10.92
-16bd	....do	1950	J	27.5	¾	I	N	N	O	Tp	.5	2,407.84	12.00
-17da	....do	1946	Dn	18.1	1¼	I	N	N	O	Tp	1.0	2,410.80	12.44
-20ad	....do	1950	J	18.0	¾	I	N	N	O	Tp	1.5	2,408.66	8.77
-20ba	....do	1950	J	16.0	¾	I	N	N	O	Tp	4.0	2,413.26	11.04
-20bb[12]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-20bbc1	L. England	1944	Dr	39.0	15	S	T	T	O	Tp	1.0	2,419.90	11.67
-20bbc2	....do	.....	.....	36.0	14	S	N	N	O	Tca	.5	.....	8.30
-21cd	P. Vogue	1944	.....	45.0	18	S	T	T	I, O	Bp	1.0	2,408.56	9.97
-24ac	American Legion	.....	.....	23.0	4	Gs	N	N	O	Tca	.7	2,381.27	13.45
-28bb	U. S. Geological Survey	1950	J	19.0	¾	I	N	N	O	Tp	1.5	2,413.33	11.94
-29bb	....do	1950	J	20.0	¾	I	N	N	O	Tp	1.5	.....	8.34
-29bc	H. R. Bernot	.....	Du	23.0	36	C	N	N	O	Hcv	.0	.....	5.57
-30ca	U. S. Geological Survey	1950	J	17.5	¾	I	N	N	O	Tp	1.5	.....	9.56

-30cd	.....do.....	1950	J	20.5		I	N	N	O	Tp	3.0	.....	16.66
3-29-25cd	.....do.....	1950	J	16.5		I	N	N	O	Tp	2.0	.....	8.91
-31cc	.....do.....	1950	J	15.5		I	N	N	O	Tp	1.5	.....	6.75
-32cc	.....do.....	1950	J	17.0		I	N	N	O	Tp	1.5	.....	5.56
-32db	University of Nebraska.....	1940	Dn	20.0	1	I	N	N	O	Tp	1.2	.....	7.57
-33ca	Nochnagel.....	1950	Dr	42.0	18	S	T	T	I, O	Bp	.2	.....	9.32
-34cb	U. S. Geological Survey.....	1950	J	20.0		I	N	N	O	Tp	2.5	.....	5.82
-35ad	.....do.....	1950	J	18.5		I	N	N	O	Tp	2.0	.....	[c]9.63
-35cc	.....do.....	1950	J	31.5		I	N	N	O	Tp	3.5	.....	19.35
-35da[13]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
-35da2	U. S. Geological Survey.....	1950	J	27.0		I	N	N	O	Tp	2.5	.....	[c]19.34
-36bc	L. Hickman.....	1925	.....	40.0	24	I	C	G	I, O	Cf	2.0	.....	[c]20.26
-36bd	U. S. Geological Survey.....	1950	J	23.5		I	N	N	O	Tp	2.0	.....	24.58
3-30- 7dd	Zaky.....	.....	.....	41.0	5	Gs	N	N	O	Tca	.3	.....	25.39
-17da	U. S. Geological Survey.....	1950	J	20.5		I	N	N	O	Tp	.5	.....	8.38
-18bb	V. Sanders.....	1942	Dr	79.0	18	S	T	G	I, O	Pgp	.3	.....	27.34
-19ad	C. A. Cappel.....	.....	.....	32.0	12	S	Cy	W	I, O	Tca	.3	.....	10.75
-19bb	G. V. Ernst.....	1939	Dr	.....	24	S	C	T	I, O	Tca	-6.0	2,535	1.32
-20aa	U. S. Geological Survey.....	1950	J	21.0		I	N	N	O	Tp	1.5	.....	15.58
-20bb	.....do.....	1950	J	23.0		I	N	N	O	Tp	2.0	.....	20.06
-21cb	.....do.....	1950	J	20.5		I	N	N	O	Tp	1.5	.....	10.57
-21da	.....do.....	1950	J	19.0		I	N	N	O	Tp	3.5	.....	10.02
-25dd	.....do.....	1950	J	15.5		I	N	N	O	Tp	1.5	.....	8.69
-26bc	O. Brown.....	1943	Dr	58.0	18	S	T	T	I, O	Hca	1.0	2,500	10.01
-26da	U. S. Geological Survey.....	1950	J	17.5		I	N	N	O	Tp	1.0	.....	5.64
-28cbb	.....do.....	1950	J	16.0		I	N	N	O	Tp	1.5	.....	13.93
-29aa	.....do.....	1946	Dn	12.3	1½	I	N	N	O	Tp	1.0	2,513	5.19
-30bb	.....do.....	1950	J	20.0		I	N	N	O	Tp	2.5	.....	14.26
-33ab	.....do.....	1950	J	20.0		I	N	N	O	Tp	2.5	.....	13.96
-34aa	.....do.....	1950	J	16.0		I	N	N	O	Tp	1.0	.....	6.47
-34bb	J. C. Hauxwell.....	1944	Dr	53.0	18	S	T	G	I, O	Osp	1.0	.....	14.90
-35cb	U. S. Geological Survey.....	1950	J	20.0		I	N	N	O	Tp	1.5	.....	7.78
-35cd	.....do.....	1950	J	21.5		I	N	N	O	Tp	1.5	.....	21.15
-35db	.....do.....	1950	J	15.5		I	N	N	O	Tp	2.0	.....	7.65
-35dc	McCormick.....	1940	Dr	72.0	14	S	T	T	I, O	Pgp	.8	.....	16.02
-36ca	U. S. Geological Survey.....	1950	J	15.5		I	N	N	O	Tp	1.0	.....	6.87
-36cc	G. Wilcox.....	1940	Dr	70.0	12	.....	T	G	I, O	Bp	.3	.....	11.37
4-26-34db	J. E. Selover.....	1945	Dr	76.0	24	S	T	G	I, O	Bp	1.0	.....	21.03
-34dc	U. S. Geological Survey.....	1950	J	21.0		I	N	N	O	Tp	2.0	.....	14.11
-35ad	.....do.....	1950	J	20.0		I	N	N	O	Tp	1.5	.....	12.52

See footnotes at end of table.

Records of wells in the valleys of the Republican and Frenchman Rivers, Nebraska—Continued

Well no	Owner or user	Year completed	Type of well	Depth of well (feet)	Diameter of well (inches)	Type of casing	Type of pump	Kind of power	Use of water	Measuring point: Description	Measuring point: Distance above or below (-) land surface (feet)	Measuring point: Altitude above mean sea level (feet)	Depth to water level below measuring point (feet)
					Red Willow County—Continued								
4-26-35db	U. S. Geological Survey	1950	J	16.0	¾	I	N	N	O	Tp	1.5		9.10
-36ab	City of Cambridge	1935	Dr	50.0	22		T	E	PS				

[1]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 1-38-20bd.
[2]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 1-38-26ca.
[3]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 4-22-34bb.
[4]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 4-24-19cd
[5]Well replaces well 4-24-22dd1, which is no longer measurable.
[6]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 3-20-18cb.
[7]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 5-35-16dd.
[8]Well number in U. S. Geol. Survey Circ. 19 has been modified to 2-35-13bba.
[9]Well was incorrectly shown in U. S. Geol. Survey Circ. 19 to be in Hitchcock County; see same well number in Dundy County.
[10]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 3-27-12bb.
[11]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 3-27-14ab.
[12]Well number in U. S. Geol. Survey Circ. 19 has been modified to 3-28-20bbc1.
[13]Well number incorrectly assigned in U. S. Geol. Survey Circ. 19 to well 3-29-36bc.

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