GROUND-WATER REPORT 8

General Occurrence and Quality of Ground Water in Union County, New Mexico

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Abstract

Union County occupies the northeastern corner of New Mexico. The southeastern corner and most of the eastern edge of the county lie on the High Plains; the remainder of the county consists largely of relatively flat plains studded with dissected, lava-capped plateaus and buttes. The climate is semiarid, having an average annual precipitation of about 16 inches. Stock-raising and farming are the principal occupations.

The rocks that crop out in Union County range in age from Triassic to Quaternary. The Dakota Sandstone and Purgatoire Formation, undifferentiated, of Cretaceous age and the Ogallala Formation of Tertiary age are the principal aquifers.

Serving principally stock and domestic uses, the ground water in Union County occurs in adequate quantities. Public supplies are obtained from 16 wells and 1 spring; 7 wells supply industrial users. Irrigation supplies are available, generally, only along the eastern side of the county.

Most of the ground water in Union County is hard. The chemical quality of water from the Dakota Sandstone and Purgatoire Formation, undifferentiated, varies and locally is undesirable for domestic use, but in most places the water is suitable for stock and irrigation uses. Water from the Ogallala Formation is more uniform in quality and generally suitable for all uses. Water from other aquifers in Union County varies in quality and may, at places, be undesirable for domestic use.

Most of the water wells in Union County are drilled, but a few are dug. They range in depth from 7 to 800 feet. Water levels in the wells range from above land surface to 634 feet below land surface. Yields of wells range from a few gpm (gallons per minute) to 1000 or more gpm.

This report contains records of 2083 wells, 34 springs, and 236 chemical analyses of water from both, as well as logs of 92 water wells, oil tests, and exploratory holes in the area.

Introduction

Water from wells provides the principal source of supply for domestic, stock, municipal, industrial, and irrigation needs in Union County. Water probably constitutes the most important natural resource of the county.

Prior to 1953, sparse geologic and hydrologic information was available for this area, and the community of Clayton, the county seat, requested information on ground water from the New Mexico Bureau of Mines and Mineral Resources. Brewster Baldwin and Francis X. Bushman, of the Bureau, therefore began a field study of the geology and ground-water resources of Union County early in 1953. Studies were made during the summers of 1953, 1954, and 1955, some additional time being spent in the field during 1956 and for several weeks each during 1957 and 1959.

Generally, the study consisted of an inventory of most of the wells, drilled or dug, used or unused, to determine location, depth, water level, yield, use, and water-bearing formation; an inventory of selected springs to determine location, yield, use, improvement, and water-bearing formation; mapping of surface features; mapping of geology, including description of subsurface features; determination of altitudes of geologic features and of wells and springs; description of water-bearing characteristics of principal aquifers; pumping tests on selected wells to determine hydraulic characteristics of the aquifers; and collection of water samples from selected wells and springs to determine the chemical quality of the ground water.

In 1957, Baldwin and Bushman published hydrologic data for 480 square miles, about one eighth of the county, in the vicinity of Clayton (Circular 46), and in 1959, Baldwin and William R. Muehlberger published information on the geology of Union County (Bulletin 63).

The present report contains all hydrologic data collected by Baldwin and Bushman from 1953 to 1959 plus information on a few wells drilled since that time. Most of these data have not previously been published. To complete the countywide coverage of water-well and water-quality data contained herein necessitated some duplication of information in Circular 46 and Bulletin 63. The purpose of this report is to provide data for evaluation of the quantity, availability, and quality of ground water in Union County and to make it possible to relate its occurrence and movement to the geology, as described by Baldwin and Muehlberger (1959).

Begun under the general supervision of Eugene Callaghan, then director of the New Mexico Bureau of Mines and Mineral Resources, the work continued under the general direction of Alvin J. Thompson,

present director. After Baldwin and Bushman left the Bureau, personnel of the Water Resources Division of the U.S. Geological Survey compiled the basic data previously collected and prepared this report.

Field records of the well and spring inventory made by the New Mexico Bureau and chemical analyses from the files of the U.S. Geological Survey were assembled, examined, and tabulated by Survey personnel, who also interpreted stratigraphic units given in the well, spring, and chemical analyses tables from geologic maps accompanying Bulletin 63 and from drillers' logs. In most instances, only the principal water-bearing unit is indicated, although water may enter the well from two or more aquifers.

Union County, the northeastern most county in New Mexico, is bounded on the north by Colorado and on the east by Oklahoma and Texas. It has an area of 3817 square miles. The U.S. Bureau of Census (1960) reported a population of 6068, of which 3314 resided in Clayton, the county seat. Figure 1 shows locations of Union County and of other areas in New Mexico described in previous ground-water reports.

The climate of Union County is semiarid, having an average annual precipitation of about 16 inches. Most of the nonagricultural areas in the county are grassland; trees are sparse.

The system of numbering wells and springs in this report follows that used by the U.S. Geological Survey and is based on the common subdivision of public lands into sections. Figure 2 illustrates the system. In addition to designating the well or spring, the number locates its position to the nearest 10-acre tract in the land network. Periods divide the number into four segments, the first of which denotes the township north of the New Mexico base line, the second denotes the range east of the New Mexico principal meridian, the third denotes the section, and the fourth, consisting of three digits, locates the well in a particular 10-acre tract.

Numbers 1, 2, 3, and 4 designate respectively the northwest, northeast, southwest, and southeast quarters of the section. The first digit of the last segment indicates the *quarter* section, usually a tract of 160 acres, divided into four 40-acre tracts numbered in the same manner. The second digit denotes which 40-acre tract that, in *turn,* is divided into four 10-acre tracts, denoted by the third digit.

Thus, well 28.36.24.343 in Union County is in the SWIASEIASW ¼ sec. 24, T. 28 N., R. 36 E. If a well cannot be located accurately to a 10-acre tract, the third digit becomes a zero, and if it cannot be located accurately to a 40-acre tract, both the second and third digits become zeros. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted. Letters a, b, c, d, and so on added to the last segment designates the second, third, fourth, and succeeding wells in the same 10-acre tract.

GEOGRAPHY AND GEOLOGIC FORMATIONS

Union County lies in the Great Plains province of the Interior Plains (Fenneman, 1946). Most of the county is within the Raton section of the province ("trenched peneplain surrounded by dissected, lava-capped plateaus and buttes"). The southeastern part of the

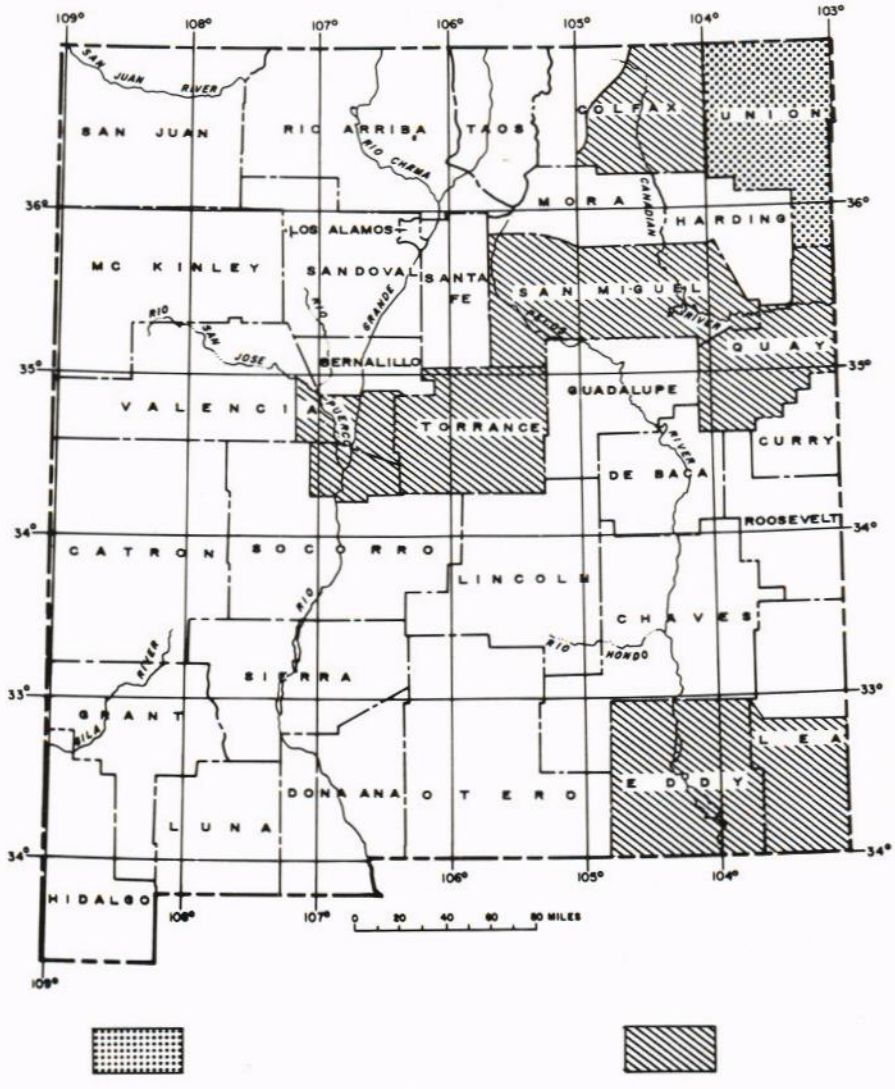

Figure 1

AREAS IN NEW MEXICO DESCRIBED IN PREVIOUS GROUND-WATER REPORTS

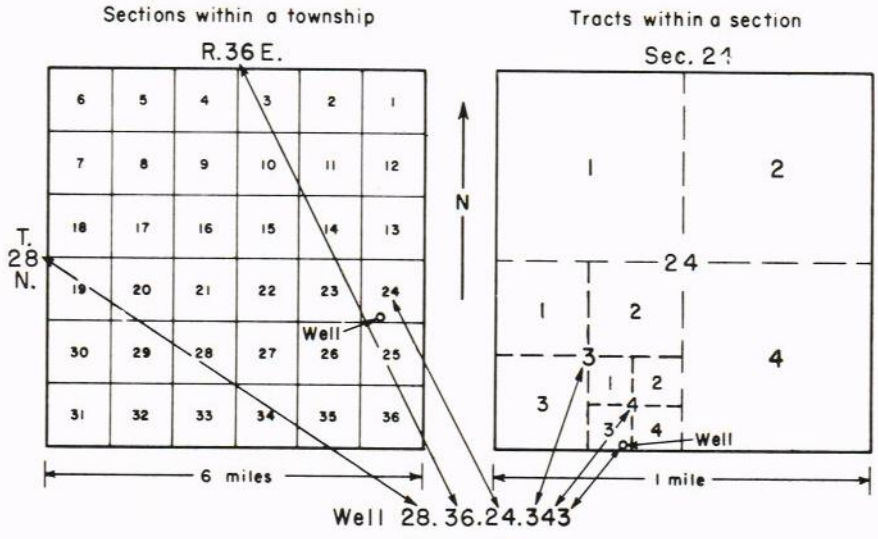

Figure 2

SYSTEM OF NUMBERING WELLS

county and most of the eastern edge is within the High Plains section ("broad intervalley remnants of smooth fluviatile plains").

The surface of Union County slopes generally eastward and is dissected by eastward-southeastward-trending drainages. Deep canyons with as much as 1000 feet of relief characterize the northern and southwestern parts of the county; gently rolling upland with valleys 100 to 200 feet deep comprises the remainder. About 80 inactive volcanoes are in groups that extend from the western edge of the county to the east-central part near Clayton.

Altitudes in the county range from about 4300 feet above sea level where Monia Creek leaves the southeastern corner of the county and enters Texas to 8732 feet at the summit of Sierra Grande in the northwestern part of the county.

The county is in the Arkansas River drainage basin. The northern part is drained by the Cimarron River, the central part by the North Canadian River, and the southwestern part by tributaries of the Canadian River. The drainages have little permanent flow; surface water runs out of the county only after heavy rains.

The rocks that crop out in Union County range in age from Triassic to Quaternary. Most of them are of sedimentary origin, but some are igneous. Some of the rocks yield water readily to wells, some may yield small quantities or in places none at all, and some yield no water.

Table 1 gives a generalized section of the geologic formations ex-

TABLE 1. GENERALIZED SECTION OF GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES IN UNION COUNTY, N. MEX.

System	Stratigraphic unit	Thickness (feet)	Physical character	Distribution	Water supply
Quaternary	Alluvium	0 - 100	Silt, sand, and gravel; locally includes slope wash and terrace deposits.	Countywide along drainage courses. Thickest near Capulin where sheetlike alluvium covers an area of about 20 square miles.	Yields adequate quantities of water to domestic and stock wells in many stream valleys. Alluvium near Capulin, and in Cimarron River valley near the east edge of the county, may yield 100 to 300 gpm to wells. Chemical quality generally satisfactory for stock, domestic, and irrigation use.
Quaternary and Tertiary	Extrusive rocks	?	Basalt, dacite, andesite, tuff, and volcanic cinders.	Covers about 725 square miles of Union County, principally in western and central parts of the county.	Lies above water table in many localities. Yields 1,000 gpm, or more, to a few wells at Capulin. Springs are common at base of basalt flows. Chemical quality generally is better than that of water from deeper aquifers.
Tertiary	Ogallala Formation	0 - 400	Tan sandy clay, silt, sand, and gravel; caliche common near top. Fills ancient valleys formed in underlying bedrock.	Thickest along eastern side of Union County. Underlies basalt in central and west-central parts. Generally absent in south-central part of and in northern one-third of the county.	Yields adequate quantities of water to domestic and stock wells at nearly all localities where present. Yields 300 to 1,000 gpm to wells drilled into thick sections of saturated material in buried bedrock valleys along the eastern edge of Union County. Chemical quality is generally suitable for stock, domestic, and irrigation use.
Cretaceous	Niobrara Formation	0 - 1050	Black shale with some thin beds of limestone and marl; light-tan limestone at base.	Crops out only in northwestern corner of Union County.	Not known to yield water in Union County.
	Carlile Shale	0 - 200	Dark-gray shale, with thin beds of limestone at top.	Crops out only in northwestern corner of Union County.	Not known to yield water in Union County.
	Greenhorn Limestone	0 - 30	Light-tan limestone with thin beds of shale. Fossiliferous.	Crops out only in northwestern corner of Union County; may be present in the subsurface in central and western parts of the county.	Not known to yield water in Union County.

System	Stratigraphic unit	Thickness (feet)	Physical character	Distribution	Water supply
Cretaceous	Graneros Shale	0 - 125	Dark-gray shale with two or three thin beds of limestone. Fossiliferous.	Crops out at many places in the upland areas of Union County. Thickest in the northwestern corner of the county.	Not known to yield water in Union County.
	Dakota Sandstone	0 - 190	Lenticular to parallel-bedded gray shale, shaly sandstone, and sandstone; basal unit is a persistent massive sandstone.	Crops out in large areas of Union County; directly underlies the Ogallala Formation in part of the county.	Yields adequate quantities of water to stock and domestic wells in most of county. Massive sandstone at base may yield 100 gpm or more at some localities. Chemical quality varies; generally is suitable for stock and irrigation use; occasionally undesirable for domestic use.
	Purgatoire Formation	0 - 100	Upper member is dark-gray shale with minor sandstone, locally cut out by channel of Dakota Sandstone. Lower member is light-colored to white sandstone, locally absent.	Crops out principally along the Cimarron River valley. Underlies Dakota Sandstone except where locally absent.	Lower sandstone member, where present, may yield 500 gpm or more to wells in Union County. Chemical quality is similiar to, or better than, water from the Dakota Sandstone.
Jurassic	Morrison Formation	0 - 550	Greenish-gray, green, and reddish-brown sandy clay with local beds of white to brown sandstone, siltstone, and minor limestone; nodules of reddish-orange chalcedony ("agate") near base.	Crops out along the Cimarron River valley, and in the south-central part of Union County, and at other scattered localities. Underlies all of the county except where the Entrada Sandstone or Dockum Group is at the surface.	Local sandstone at top may yield some water to wells. Generally does not yield sufficient water for stock or domestic use in Union County. Chemical quality generally unsuitable for domestic use; satisfactory for stock use.
	Entrada Sandstone	0 - 80	Massive white to pink, fine-grained sandstone.	Crops out along the Cimarron River valley and at scattered localities throughout Union County.	Yields water to several stock and domestic wells in Union County. Yields 500 to 600 gpm to wells along Tramperos Creek. In most of county, the sandstone is too deeply buried to be a useful aquifer. Chemical quality generally is better than water from other deep aquifers.
Triassic	Dockum Group	245 - 900	Thin-bedded, light-brown sandstone; light-green, red, red reddish-brown, and purple mudstone.	Crops out only along the Cimarron River valley and tributary valleys; underlies all of Union County.	Yields small quantities of water to stock and domestic wells in the Cimarron River valley in Union County. Chemical quality generally undesirable for domestic use; satisfactory for stock use.

posed in Union County and their physical character, distribution, and water-bearing properties. Baldwin and Muehlberger's report includes geologic maps of Union County.

The Dakota Sandstone and the underlying Purgatoire Formation, both of Cretaceous age and widespread in Union County, are dependable aquifers where they lie below the water table. Both formations consist of sandstone, shaly sandstone, and light- to dark-gray or black mudstone or shale. Baldwin and Muehlberger included both formations under the term *Dakota Group;* however, they treated them as separate units in their report. Because of problems of picking the exact contact between the Purgatoire Formation and the underlying Morrison Formation, they mapped the Purgatoire with the Morrison.

Because of the physical similarity of the Dakota and the Purgatoire Formation and because the Purgatoire is included with the Dakota Sandstone or the Morrison Formation on geologic maps of Union County, no attempt is made herein to separate the Dakota and Purgatoire in drillers' logs of wells or in the determination of the stratigraphic units yielding water to wells. We use the term *Dakota Sandstone and Purgatoire Formation, undifferentiated.*

The logs of wells drilled for water, oil, or exploratory purposes indicate the presence, character, and depth of the rocks underlying the surface at places in Union County. Table 2 contains the logs of 92 wells and gives descriptions of the formations penetrated during drilling.

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL—TEST, AND WATER—TEST WELLS IN UNION COUNTY, N. MEX.

Drillers' logs of 92 water and test wells that follow were chosen for area coverage and for stratigraphic significance. Wording of the original logs has been slightly modified for uniformity of presentation. Most of these logs came from a more complete table given by Baldwin and Muehlberger (p. 97-107) . The well number and the name of the owner designate individual logs. Where known, the altitude of the land surface at the well, in feet above mean sea-level datum, follows the owner's name. Table 3 lists other data for the water and the test wells.

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	18.34.15.422	C. KEMPPEL	4760
		Ogallala Formation	
135	135	Sand and caliche	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
25	160(?)	Sandstone	
45	205	Shale, light to dark gray	
5	210	Sandstone	
		Morrison Formation	
8	218	Shale, light grayish green and light brown	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	18.35.11.422	O. K. GAMBLE	4485
		Ogallala Formation	
210	210	Clay, sandy	
10	220	Sand (water)	
		Bedrock	
40	260	Red beds	
7	267	Sand (water)	
	18.36.10.213	H. E. GEORGE (TEST WELL)	4385
		Ogallala Formation	
10	10	Surface	
30	40	Clay	
20	60	Caliche	
10	70	Clay and sand	
10	80	Sand, hard	
10	90	Sand, soft	
10	100	Sand and soapstone	
90	190	Sandstone, soft, and sand	
6	196	Clay	
14	210	Sand, soft, fine	
		Morrison (?) Formation	
15	225	Sand, coarse, with red streaks	
2	227	Clay	
13	240	Sand, coarse	
25	265	Sand, fine, red	
5	270	Sand, coarse	
20	290	Sand, fine, and clay streaks	
10	300	Sand, coarse	
—	300	Clay	
	19.34.24.234	C. E. KIMBER	4671
		Surface	
10	10	Soil	
		Ogallala Formation	
22	32	Clay, hard	
18	50	Sand, hard	
30	80	Clay	
15	95	Sand, soft, with layers of clay	
12	107	Sand, soft	
3	110	Sandstone	
10	120	Sand, soft	
		Bedrock	
30	150	Red beds	
	19.35.15.312	O. EARLE	
		Ogallala Formation	
20	20	Caliche	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
40	60	Pack sand	
30	90	Water	
		Bedrock	
—	90	Clay, red	
	19.36.30.313	J. COPELAND (TEST WELL)	4475
		Ogallala Formation	
25	25	Sand, silty	
10	35	Caliche	
10	45	Sand, silty	
5	50	Sand, medium	
48	98	Sand, silty	
1	99	Clay, plastic, yellow	
6	105	Sandstone, silty	
		Dockum (?) Group	
114	219	Mudstone, silty, reddish brown	
49	268	Sandstone, fine	
27	295	Sandstone, fine, and gray clay	
5	300	Clay, bluish gray, and lignite	
40	340	Mudstone, silty, reddish brown	
	19.37.19.334	V. P. HOBSON	4284
		Ogallala Formation	
110	110	No record	
10	120	Soil, sandy	
20	140	Sand, light	
		Bedrock (?)	
10	150	Sandrock	
3	153	Sand (water)	
	20.34.32.241	C. W. JACOBS	
		Ogallala Formation	
20	20	Topsoil	
20	40	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
90	130	Clay, blue	
10	140	Sandstone	
—	140	Sand (water)	
	20.35.5.421	K. PERSCHBACHER	
		Ogallala Formation	
30	30	Pack sand	
10	40	Sand and clay	
		Morrison (?) Formation	
10	50	Sandrock	
10	60	Rock	
10	70	Rock (water)	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
	20.36.30.111	NUNN No. 1 WALLACE (OIL-TEST WELL) 4480
		Ogallala Formation
10	10	Topsoil
10	20	Caliche
10	30	Caliche and clay
		Morrison Formation
8	38	Rock, hard
4	42	Gravel and clay
28	70	Clay
28	98	Rock, slate, gray
2	100	Gravel and clay (water)
18	118	Clay and rock
5	123	Rock, hard
12	135	Clay
		Entrada Sandstone
13	148	Sandrock
		Dockum Group
8	156	Clay and slate
19	175	Clay and shale, red
30	205	Clay, red, and some lime
95	300	Clay and shale, red, and lime
37	337	Increased amount of red gum clay
15	352	Shale and clay, grayish green
3	355	Soapstone and green shale
12	367	Clay, brown, red, and green
15	382	Shale and clay, mixed colors
58	440	Clay, red, and some sand
8	448	Shale, grayish green
52	500	Shale, red, hard
79	579	Shale, red, and grayish green
13	592	Shale, red, and some sand and green shale
19	611	Shale, dark red, very hard
11	622	Sand
37	659	Clay and shale
31	690	Clay, sandy, dark brown
58	748	Conglomerate of green, brown, and yellow, very rotten
	21.35.18.442	B. DEINKEN 4726
		Ogallala Formation
20	20	Soil and clay
20	40	Sand and clay
		Dakota Sandstone and Purgatoire Formation, undifferentiated
30	70	Sand, hard
60	130	Shale, gray
20	150	Shale, black
25	175	Sand (water)
—	175	Shale, blue

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	21.35.23.343	J. DEINKEN	4614
		Surface	
20	20	Soil and clay	
		Ogallala Formation	
20	40	Caliche	
10	50	Clay and sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
40	90	Sandrock	
60	150	Sand and shale	
30	180	Shale, blue	
17	197	Sand (water)	
	21.36.23.333	R. CONNELL	4467
		Surface	
10	10	Soil	
		Ogallala Formation	
10	20	Sandrock	
30	50	Sand	
20	70	Clay and gravel	
10	80	Caliche	
30	110	Sand	
10	120	Clay and gravel	
18	138	Quicksand (water)	
2	140	Limerock and gravel	
38	178	Sand and gravel, coarse (water)	
	21.36.29.110	OIL EXPLORATION No. 1 IRWIN (OIL-TEST WELL)*	4519
85	85	Ogallala Formation	
100	185	Dakota Sandstone	
40	225	Purgatoire Formation	
190	415	Morrison Formation	
20	435	Entrada Sandstone	
565	1000	Dockum Group	
	22.32.14.313	F. B. MAPES (TEST WELL)	4909
		Surface	
28	28	Sand	
		Morrison Formation	
87	115	Shale, blue, rock at 98 feet	
		Entrada Sandstone	
54	169	Sand and yellow clay	
		Dockum Group	
171	340	Red beds	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	22.33.8.143	M. D. SMITHSON	5035
		Ogallala Formation	
20	20	Dirt	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
50	70	Sand and clay	
80	150	Shale	
20	170	Sandrock	
		Morrison (?) Formation	
80	250	Soapstone	
	22.33.35.131a	N. O'NEAL	
		Surface	
5	5	Soil	
10	15	Sand and gravel	
		Morrison Formation	
7	22	Clay, white	
2	24	Rock	
6	30	Sand and rock streaks	
30	60	Shale	
12	72	Rock	
98	170	Shale, blue	
3	173	Sandrock, soft, white	
22	195	Shale, brown	
		Entrada Sandstone	
35	230	Sand, semicoarse, white	
	22.35.12.131	R. VANDIVER	4615
		Ogallala Formation	
20	20	Soil and caliche	
10	30	Caliche	
10	40	Sandrock	
10	50	Pack sand	
40	90	Sand	
10	100	Cave sand (dry)	
40	140	Sand	
10	150	Rock sand	
10	160	Cave sand	
20	180	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	190	Sandstone	
8	198	Sand (water)	
	22.36.33.411	A. B. HUGHES	4518
		Ogallala Formation	
129	129	No record	
46	175	Gravel	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
		Bedrock	
10	185	Clay, soapstone, and sandstone	
25	210	Sand, white (water)	
30	240	Sandstone, hard (no water)	
	23.28.1.111	W. WILKINSON	
		Surface	
35	35	Dirt	
95	130	Basalt	
	23.28.5.424	J. KRIZAN	6045
		Surface	
6	6	Caliche	
		Basalt	
5	11	Malpais	
264	275	Cinders	
		Ogallala Formation	
20	295	Gravel	
		Graneros (?) Shale	
90	385	Gumbo	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
44	429	Sandstone	
3	432	Sand (some water)	
56	488	No record	
	23.32.24.320	MRS. L. P. BAKER	
		Alluvium	
20	20	Soil and clay	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
20	40	Sandrock	
10	50	Clay	
30	80	Sandrock	
10	90	Shale, blue	
10	100	Sand and shale	
20	120	Shale, gray	
20	140	Sandrock	
15	155	Sand, water	
	23.33.2.122	DILLARD No. 1 STATE (OIL-TEST WELL) *	5119
10	10	Purgatoire Formation	
225	235	Morrison Formation	
15	250	Entrada Sandstone	
154	404	Dockum Group and older formations	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	23.34.10.442	W. R. MORGAN	4993
		Ogallala Formation	
2	2	Soil	
16	18	Rock, white	
29	47	Sand	
5	52	Clay	
		Graneros Shale	
28	80	Shale	
6	86	Sand, hard (limestone bed?)	
49	135	Shale	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
85	220	Sand, gray	
6	226	Shale	
72	298	Sand and shale, red	
8	306	Shale	
16	322	Sand (water)	
4	326	Shale, gray	
	23.34.36.422	E. L. LEIGHTON ESTATE	
		Ogallala Formation	
20	20	Soil and clay	
20	40	Caliche	
20	60	Sand and clay	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
20	80	Sandrock	
10	90	Shale, blue	
30	120	Shale, gray	
10	130	Sand	
20	150	Sandrock	
30	180	Shale, gray	
40	220	Shale, blue	
10	230	Sandrock	
26	256	Sand (water)	
	23.35.26.321	NUNN No. 1 HOPSON (OIL-TEST WELL)*	4743
280	280	Ogallala Formation	
30	310	Graneros Shale	
160	470	Dakota Sandstone	
35	505	Purgatoire Formation	
290	795	Morrison Formation	
10	805	Entrada Sandstone	
164	969	Dockum Group	
NOTE: Good water sand from 240-270 feet; no good water sands below 270 feet			
	23.36.21.434	M. ADAMS	4665
		Surface	
20	20	Topsoil	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
		Ogallala Formation	
10	30	Clay, brown	
10	40	Sand, red, limy	
20	60	Clay, brown, and gravel	
40	100	Caliche and sand	
10	110	Sand and gravel	
		Bedrock (?)	
60	170	Caliche and sandstone	
10	180	Sand (dry)	
10	190	Sandstone, hard	
30	220	Shale, brown	
20	240	Clay, red	
20	260	Shale, white	
5	265	Shale, brown	
3	268	Sand (water)	
	24.28.15.222	W. WILKINSON	
		Surface	
10	10	Dirt	
		Basalt	
115	125	Malpais	
		Ogallala Formation	
31	156	Gravel (confined water)	
	24.29.18.321	LEMON, MILLER, AND MANESS	5969
		Surface	
6	6	Dirt	
		Basalt	
44	50	Malpais	
		Graneros (?) Shale	
30	80	Shale, blue	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	90	Shale and sandrock	
90	180	Sandrock	
20	200	Clay, yellow	
20	220	Sandrock, white	
	24.30.2.231	J. MONDRAGON	6055
		Ogallala Formation	
60	60	Clay	
20	80	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
90	170	Shale	
10	180	Sandstone	
10	190	Shale, dark	
30	220	Sand	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
		Morrison (?) Formation
90	310	Shale, sandy
10	320	Sand (water)
	24.30.14.444	BLANKENSHIP PETROLEUM CO., HERRINGA 1 (OIL-TEST WELL) 5790
45	45	Graneros Shale
281	326	Dakota Sandstone and Purgatoire Formation, undifferentiated
259	585	Morrison Formation
50	635	Entrada Sandstone
2152	2787	Dockum Group and older formations
	24.30.31.141	PASAMONTE RANCH
		Surface
50	50	Dirt
		Dakota Sandstone and Purgatoire Formation, undifferentiated
80	130	Shale, blue
50	180	Sandrock, yellow
20	200	Sand, white (water)
—	200	Rock
	24.31.29.411	FARBER RANCH 5716
		Ogallala Formation
50	50	Sand and clay
		Graneros Shale
10	60	Shale, blue
		Dakota Sandstone and Purgatoire Formation, undifferentiated
2	62	Sand, hard
16	78	Sand
15	93	Sand (water)
75	168	Sandstone and gray shale
83	251	Sand
19	270	No record
—	270	(Water)
	24.33.10.221	R. V. BELL
		Ogallala Formation
10	10	Soil and sand
10	20	Sand and caliche
10	30	Clay, yellow
10	40	Sand
10	50	Sand and shells
10	60	Gravel
10	70	Gravel and sand
		Dakota Sandstone and Purgatoire Formation, undifferentiated
10	80	Sand and shale
10	90	Shale
10	100	Shale, dark

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
10	110	Sand and shale	
26	136	Sand (water)	
	24.34.5.122	S. T. STREET	5200
		Surface	
20	20	Soil and clay	
		Basalt	
10	30	Malpais	
		Ogallala Formation	
120	150	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
20	170	Shale, gray	
20	190	Shale, blue	
10	200	Sand and lime	
10	210	Sand	
10	220	Shale	
21	241	Sand (water)	
	24.34.24.313	R. E. MCCARLEY	
		Ogallala Formation	
20	20	Sand	
40	60	Sand and clay	
10	70	Sand	
10	80	Sand and gravel	
30	110	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated(?)	
10	120	Shale	
8	128	Sand (water)	
	24.35.33.334	A. T. WISDOM	
		Ogallala Formation	
50	50	Sand and gravel	
45	95	Sand, fine	
15	110	Rock	
10	120	Caliche	
15	135	Rock, hard, and gravel	
35	170	Sand, soft, rusty colored	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
30	200	Shale, blue	
5	205	Coal	
95	300	Rock	
12	312	Sand	
	24.36.2.440	CONTINENTAL No. 1 FEDERAL LAND BANK	
		(OIL-TEST WELL) *	4688
110	110	Ogallala Formation	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
135	245	Dakota Sandstone	
350	595	Morrison Formation	
50	645	Entrada Sandstone	
1526	2171	Dockum Group and older formations	
	24.36.12.244	MRS. L. KEHOE	4630
		Ogallala Formation	
40	40	Caliche	
10	50	Sand, hard, yellow	
25	75	Gravel, coarse	
		Graneros Shale	
15	90	Clay, blue and yellow	
29	119	Coal and bluish shale	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
23	142	Sand, coarse	
38	180	Shale, bluish	
40	220	Sand, hard, yellow and white	
80	300	Sand, soft, white	
40	340	Shale, bluish	
20	360	Sand, white	
		Morrison Formation	
—	360	Shale, red	
	25.28.18.321	O. C. MCDADE	
		Alluvium	
5	5	Dirt	
20	25	Gravel	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
5	30	Sandrock	
2	32	Clay, yellow	
23	55	Sandrock, gray	
12	67	Sandrock, yellow	
13	80	Clay and shale, black	
10	90	Sandrock, gray	
10	100	Sandrock, yellow	
20	120	Sandrock, white	
2	122	Sandrock, yellow	
	25.28.25.443	A. MANESS	6066
		Basalt	
160	160	Malpais	
		Ogallala Formation	
16	176	Sand and gravel	
	25.29.34.342	R. LARGENT	6553
		Surface	
2	2	Soil	
9	11	Caliche	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
		Basalt	
96	107	Malpais	
		Ogallala Formation	
124	231	Sand	
		Graneros Shale	
100	331	Shale, dark	
	25.32.4.341	MRS. C. T. WILEY	5573
		Ogallala Formation	
60	60	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
110	170	Shale and sandrock	
40	210	Sandrock, yellow	
	25.33.20.441	MRS. J. SWAGERTY	5466
		Surface	
20	20	Dirt	
		Basalt	
20	40	Malpais	
		Ogallala Formation	
100	140	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
50	190	Clay	
15	205	Sandstone	
	25.34.14.442	E. B. MILLER	5102
		Ogallala Formation	
5	5	Soil and sand	
20	25	Clay	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
20	45	Sandrock	
5	50	Lime, hard	
8	58	Sand and shale	
32	90	Shale, blue	
18	108	Sand (water)	
52	160	Sand and shells	
21	181	Sand (water)	
	25.35.33.423	E. J. LEAVITT	4928
		Ogallala Formation	
20	20	Soil and clay	
20	40	Caliche	
20	60	Clay	
10	70	Sand and clay	
		Graneros (?) Shale	
20	90	Shale, blue	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
30	120	Sand and shale	
10	130	Sandrock	
10	140	Shale, sandy	
24	164	Sand (water)	
	25.36.7.111	B. J. ALTMAN	4907
		Surface	
10	10	Soil	
		Ogallala Formation	
20	30	Clay, red	
10	40	Caliche	
5	45	Clay, red	
5	50	Clay, sandy	
18	68	Sand, fine, soft	
2	70	Clay	
10	80	Sand	
5	85	Clay, yellow	
		Bedrock	
45	130	Shale, black	
190	320	Shale, blue	
	26.28.28.431	C. M. GARRETT	6282
		Surface	
20	20	Dirt	
10	30	Gravel	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
20	50	Sandrock	
10	60	Malpais (iron-cemented sandstone?)	
40	100	Shale	
20	120	Sandrock	
10	130	Shale	
2	132	Sandrock	
	26.29.12.231	E. A. JONES	6236
		Surface	
20	20	Soil and sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	30	Clay, yellow	
10	40	Shale, brown	
10	50	Shale and sand	
30	80	Shale, blue	
10	90	Sand, white	
5	95	Sand	
35	130	Shale	
10	140	Sand	
10	150	Sand and shale	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
10	160	Sand, brown
10	170	Sand and shale
10	180	Sand, white
20	200	Sand, brown
35	235	Sand, white
6	241	Shale, black
	26.29.32.241	B. DOITCHINOFF
		Graneros (?) Shale
50	50	Dirt
		Dakota Sandstone and Purgatoire Formation, undifferentiated
30	80	Rock
50	130	Shale
11	141	Sandrock
	26.30.22.324	REED AND SNYDER 6077
		Surface
20	20	Dirt
		Basalt
30	50	Malpais
		Ogallala Formation
20	70	Sand, red
30	100	Clay and shale
		Dakota Sandstone and Purgatoire Formation, undifferentiated
60	160	Rock, gray
60	220	Sandrock, yellow
40	260	Clay and sandrock
25	285	Sandrock, white
	26.32.1.131	COLORADO AND SOUTHERN RAILWAY 5717
		Surface
3	3	Topsoil
16	19	Caliche
		Basalt
67	86	Malpais
		Ogallala Formation
94	180	Sand and clay, yellow
35	215	Quicksand
8	223	Sand and clay
22	245	Sand
		Dakota Sandstone and Purgatoire Formation, undifferentiated
4	249	Shale, blue
6	255	Caliche
4	259	Sand, soft (water)
3	262	Sand, gray, hard

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
23	285	Shale, black	
10	295	Lime, gray, sandy, and shells	
5	300	Shale, blue, sandy	
8	308	Caliche	
27	335	Lime, gray, sandy, and shells	
27	362	Lime, gray, hard	
16	378	Sand, soft (water)	
17	395	Sand, hard, sharp, and lime	
13	408	Shale, blue, sandy	
6	414	Shale, pink	
14	428	Lime, gray, hard	
4	432	Shale, blue	
8	440	Shale and shell	
15	455	Lime, gray	
	26.32.5.344	G. JONES	5798
		Surface	
20	20	Topsoil	
		Basalt	
20	40	Malpais	
30	70	Cinders	
		Ogallala Formation	
105	175	Clay, red	
10	185	Gravel (water)	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
78	263	Shale, blue	
40	303	Sand (Dakota)	
	26.32.27.240	HOXSEY No. 1 JONES (OIL-TEST WELL)*	5509
75	75	Graneros Shale	
200	275	Dakota Sandstone and Purgatoire Formation, undifferentiated	
215	490	Morrison Formation	
20	510	Entrada Sandstone	
475	985	Dockum Group	
	26.34.25.243	C. KILGORE	5115
		Ogallala Formation	
20	20	Soil and clay	
50	70	Sand and shale	
10	80	Sand	
		Graneros Shale	
25	105	Shale, dark	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	115	Sand (water)	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	26.35.34.422	TOWN OF CLAYTON No. 5*	5049
50	50	Basalt	
40	90	Ogallala Formation	
80	170	Graneros Shale	
145	315	Dakota Sandstone	
70	385	Purgatoire (?) Formation	
370	755	Morrison Formation	
20	775	Entrada Sandstone	
25	800	Dockum Group	
	26.36.2.333	COLORADO INTERSTATE GAS CO., No. 2	4762
		Ogallala Formation	
35	35	Caliche	
108	143	Clay, sand, and caliche	
27	170	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
5	175	Clay, blue	
39	214	Sand (water)	
	27.31.1.133	F. WEESE	5861
		Ogallala Formation	
112	112	Sand	
10	122	Sand (water)	
12	134	Clay	
		Graneros (?) Shale	
34	168	Shale, dark	
6	174	Sand, hard (limestone?)	
41	215	Shale, dark	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
6	221	Sand, gray, hard	
4	225	Shale, light-colored	
16	241	Shale, dark	
14	255	Sand, gray (water)	
	27.33.26.432	J. B. KIMBLE	5505
		Surface	
6	6	Soil	
		Basalt	
56	62	Malpais	
		Ogallala Formation	
58	120	Sand, silty	
5	125	Caliche	
45	170	Sand, silty	
7	177	Sand	
52	229	Sand, silty	
16	245	Sand, coarse (water)	
14	259	Gravel	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	27.34.15.341	B. P. JORDAN	5298
		Surface	
8	8	Soil	
		Basalt	
21	29	Malpais	
		Ogallala Formation	
14	43	Clay, light yellow	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
14	57	Sandstone, light gray	
8	65	Sandstone, red	
1	66	Shale, dark gray	
124	190	Sandstone, some shale	
3	193	Shale, black	
	27.36.25.111a	HERNDON No. 1 MOCK (OIL-TEST WELL)*	4797
85	85	Ogallala Formation	
65	150	Dakota Sandstone	
70	220	Purgatoire Formation	
545	765	Morrison Formation	
45	810	Entrada Sandstone	
3745	4555	Dockum Group and older formations	
	27.36.29.411	C. W. LAWRENCE	
		Surface	
20	20	Clay	
		Basalt	
30	50	Malpais	
		Ogallala Formation	
70	120	Sand and gravel (dry)	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
90	210	Sandstone	
10	220	Sand (water)	
	27.37.6.442	J. E. FONES	4789
		Ogallala Formation	
141	141	Sand, clay, and caliche	
10	151	Quicksand	
10	161	Caliche	
10	171	Quicksand	
10	181	Caliche	
10	191	Sand	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
3	194	Clay, yellow	
9	203	Sand (water)	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
37	240	Sandstone	
25	265	Sandstone, hard, red	
60	325	No record	
	28.28.22.444	O. D. CLICK	6766
		Basalt	
54	54	Malpais	
		Ogallala Formation	
66	120	Sand and gravel	
		Bedrock	
12	132	Shale, blue	
	28.30.7.414	COLORADO AND SOUTHERN RAILWAY	6369
		Basalt	
35	35	Malpais rock	
		Ogallala Formation	
10	45	Sand and clay, red	
19	64	Sandrock, gray	
16	80	Pack sand, red	
40	120	Conglomerate (gravel?)	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
30	150	Sandrock, gray	
15	165	Malpais rock (caved)	
5	170	Granite rock, hard (sandstone?)	
5	175	Ore rock, hard (sandstone?)	
10	185	Sandrock, light-colored (water)	
15	200	Sandrock, dark-colored (water)	
5	205	Malpais rock (caved?)	
20	225	Shale, black	
10	235	Sandrock (water)	
5	240	Malpais rock (caved?)	
24	264	Sandrock, white (water)	
	28.31.21.343	W. M. MONK	6010
		Ogallala Formation	
20	20	Soil and sand	
10	30	Caliche	
135	165	Sand	
—	165	Sand (water)	
	28.33.31.140	J. D. PRICE	
		Ogallala Formation	
20	20	Soil and clay	
40	60	Clay	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	70	Sandstone	
30	100	Shale and sand	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
10	110	Sandstone	
11	121	Sand, white (water)	
	28.35.1.413	W. AND O. HARRIS	5023
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
30	30	Sandrock	
54	84	Sand and clay	
14	98	Shale	
62	160	Shale and shells	
32	192	Sand	
15	207	Sand (water)	
5	212	Shale	
	28.37.6.242	R. G. MOCK	4785
		Ogallala Formation	
20	20	Dirt	
30	50	Caliche	
20	70	Sand	
10	80	Rock	
		Graneros Shale	
20	100	Shale, yellow	
2	102	Rock	
18	120	Shale, blue	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
30	150	Shale, gray	
3	153	Sandstone, yellow	
	29.28.3.111	CORNAY RANCH	
		Basalt	
304	304	Lava flows and cinders	
		Ogallala Formation	
21	325	Clay, brown	
9	334	Sand	
2	336	Gravel, coarse	
12	348	Sand and gravel	
		Graneros (?) Shale	
4	352	Shale	
		Dakota Sandstone	
7	359	Sandstone	
	29.28.18.323	R. A. PACHTA	6810
		Surface	
18	18	Dirt	
10.5	28.5	Gravel	
		Basalt	
20	48.5	Cinders	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
	29.29.3.211	GRUEMMER No. 2 GRUEMMER (OIL-TEST WELL)*	6687
110	110	Basalt	
190	300	Dakota Sandstone	
95	395	Purgatoire Formation	
720	1115	Morrison Formation	
100	1215	Entrada Sandstone	
600	1815	Dockum Group	
200	2015	Pre-Dockum red beds	
	29.32.22.111	FREEMAN No. 1 SMITH (OIL-TEST WELL)*	5570
300	300	Morrison Formation	
15	315	Entrada Sandstone	
2650	2965	Dockum Group and older formations†	
	29.33.9.344	G. LARKIN	5412
50	50	No record	
		Morrison Formation	
170	220	Shale	
		Entrada (?) Sandstone	
20	240	Sand (water)	
	29.34.22.343	MRS. B. MCLAUGHLIN*	5225
35	35	Ogallala Formation	
45	80	Dakota Sandstone	
90	170	Purgatoire Formation	
32	202	Morrison Formation	
		NOTE: Water reported only 48-60 feet	
	29.35.15.332	A. WITT	5076
		Surface	
8	8	Gravel	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
52	60	Sandstone	
12	72	Shale, pink	
16	88	Sandstone	
4	92	Shale, dark-colored	
6	98	Shale, brown	
13	111	Shale, black	
9	120	Sand	
		Morrison Formation	
6	126	Shale, light-colored	
9	135	Shale, red	
5	140	Sand	

*Thicknesses and depths approximate to within 5 feet

† Reported to have reached Precambrian rock

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
15	155	Shale, red
5	160	Sand
10	170	Shale, sandy
10	180	Shale, light-colored
8	188	Sand, hard
10	198	Shale, light-colored
5	203	Sand
7	210	Shale, light-colored
5	215	Sand
5	220	Shale, light-colored
13	233	Sand
20	253	Shale
4	257	Sand
4	261	Shale, light-colored
4	265	No record
	30.28.3.133	W. J. LARGEN AND SONS 6636
		Alluvium
3	3	Soil
2	5	Rocks
9	14	Clay, brown
9	23	Lava boulders and clay
7	30	Clay, brown
11	41	Clay, yellow
20	61	Lava boulders and yellow clay
		Graneros Shale
6	67	Clay, black
14	81	Shale, hard, black
6	87	Sandstone, dark-colored
1	88	Shale and white clay (half gpm water)
21	109	Shale and black mud (half gpm water)
15	124	Mud, black
1	125	Soapstone, whitish
18	143	Shale, black
20	163	Shale and mud
		Dakota Sandstone and Purgatoire Formation, undifferentiated
7	170	Sandstone, dark gray (1¾ gpm water)
42	212	Sandstone, with black specks
2	214	Sandstone, very hard, crystalline, white
4	218	Clay, muddy, pinkish gray
4	222	Sandstone, white
20	242	Clay, muddy, light gray
11	253	Sandstone, white
6	259	Clay, light gray (2 gpm water)
1	260	Sandstone, soft, white
4	264	Sandstone, medium soft (4 gpm water)
7	271	Shale, black

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
	30.28.14.111	JOHNSON CATTLE CO. 6449
		Alluvium
3	3	Soil
2	5	Boulders
18	23	Mud, black
9	32	Mud, brown
11	43	Gravel
2	45	Marl, brown and green
8	53	Marl, white and yellow
		Purgatoire Formation
26	79	Sandstone, brown
		Morrison Formation
2	81	Shale, sandy, green, and sandstone
12	93	Sandstone, white
9	102	Shale, red and green, and thin sandstone
6	108	Limestone, white
2	110	Shale, green
7	117	Sandstone, green
3	120	Shale, green
2	122	Clay, white
5	127	Sandstone, gray
6	133	Clay, white
1	134	Shale, green
2	136	Limestone, white
1	137	Shale, white
3	140	Sandstone, gray
3	143	Shale, green
2	145	Sandstone
19	164	Clay and shale, green and white, and some limestone
10	174	Sandstone, coarse, white
1	175	Clay, white
1	176	Sandstone, hard
18	194	Clay, sticky, green
8	202	Sandstone, hard, white
2	204	Clay, white
8	212	Sandstone, gray
4	216	Clay, white
7	223	Clay and shale, green
7	230	Sandstone
4	234	Clay, green
7	241	Sandstone, hard
9	250	Clay, white and green
12	262	Sandstone, green
4	266	Clay, sticky, green
34	300	Sandstone, light green, and streaks of green clay
2	302	Shale, dark gray to green
10	312	Sandstone, gray, hard
8	320	Shale, dark gray
22	342	Sandstone, dark brown

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL-TEST, AND WATER-TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
6	348	Shale, dark gray	
11	359	Sandstone, orange	
8	367	Clay, brown, and thin beds of white and pink quartz	
27	394	Sandstone and white quartzite	
11	405	Shale and mud, brown	
		Entrada Sandstone	
8	413	Sandstone, brown	
3	416	Sandstone	
5	421	Sandstone, brown to gray	
7	428	Sandstone	
3	431	Shale, brown	
1	432	Sandstone	
	30.34.34.333	G. EVERETT	5367
		Ogallala Formation	
10	10	Soil and clay	
10	20	Clay	
40	60	Sand and gravel	
20	80	Sand (water)	
		Bedrock	
11	91	Shale, dark-colored	
	30.35.27.313	L. BRAY (TEST WELL)*	5133
20	20	Ogallala (?) Formation	
195	215	Dakota Sandstone and Purgatoire Formation, undifferentiated	
10	225	Morrison Formation	
	31.28.34.144	W. J. LARGEN AND SONS	7022
		Surface	
2	2	Soil	
8	10	Lava boulders in clay	
		Basalt	
48	58	Lava, black	
10	68	Lava, brown	
17	85	Lava, blue	
26	111	Lava, porphyry, black	
8	119	Lava, blue	
5	124	Crevice	
23	147	Lava, blue	
		Ogallala Formation	
22	169	Sand, coarse, orange, with some lava pebbles	
		Niobrara Formation	
92	261	Clay and shale, yellow to light gray	
3	264	Limestone, light gray	
8	272	Shale, dark gray	

* Thicknesses and depths approximate to within 5 feet

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL	
		Fort Hays Limestone Member of Niobrara Formation	
3	275	Limestone, light gray	
4	279	Shale, dark gray	
8	287	Limestone, light gray to white	
14	301	Limestone	
		Carlile Shale	
10	311	Shale, black, with thin limestone beds	
13	324	Limestone, brown	
178	502	Shale, black	
		Greenhorn Limestone	
28	530	Limestone, black	
29	559	Limestone, hard gray	
		Graneros Shale	
36	595	Shale, black	
7	602	Sandstone, hard, dense, brown to gray	
68	670	Shale, black	
3	673	Shale and marl	
		Dakota Sandstone and Purgatoire Formation, undifferentiated	
4	677	Shale and thin beds of dark-colored sandstone	
15	692	Sandstone, light gray	
36	728	Sandstone, hard, light to dark gray	
13	741	No record	
	31.34.8.323	L. G. HOWARD	4777
		Dockum Group	
30	30	Clay and shale	
50	80	Rock, red, and shale	
24	104	Sand (water)	
	31.35.13.430	W. C. HANNERS	
		Dockum Group	
35	35	Dirt	
5	40	Shale	
3	43	Sand and shale	
17	60	Rock, green	
20	80	Shale, red and green	
3	83	Rock, hard, red	
10	93	Shale (water)	
	32.29.31.111a	W. J. DOHERTY (TEST WELL)	6486
		Surface	
4	4	Soil	
8	12	Landslide rubble	
		Carlile (?) Shale	
15	27	Clay, yellow	
5	32	Shale	

TABLE 2. SELECTED DRILLERS' LOGS OF WATER, OIL–TEST, AND WATER–TEST WELLS IN UNION COUNTY, N. MEX. (cont)

THICKNESS (feet)	DEPTH (feet)	STRATIGRAPHIC UNIT AND MATERIAL
		Greenhorn Limestone
23	55	Limestone, dark gray, thin-bedded, and black shale
		Graneros Shale
17	72	Shale with two thin bentonite beds
112	184	Shale, black
		Dakota Sandstone and Purgatoire Formation, undifferentiated
55	239	Sandstone and shale
13	252	Sandstone
35	287	Sandstone and shale
31	318	Silt and sandy shale
75	393	Sandstone
		Morrison Formation
9	402	Clay, red and green
2.5	404.5	Sandstone, white
1.5	406	Clay, red and green
9	415	Sandstone
—	415	Shale
	32.31.26.314	W. BURCHARD 5883
		Dakota Sandstone and Purgatoire Formation, undifferentiated
80	80	No record
120	200	Sandstone
		Morrison Formation
30	230	Shale
11	241	Sand (water)

Ground Water

Tables 3 and 4 give records of 2083 wells and 34 springs obtained during this investigation. Plate 1 shows the locations of the wells and springs, the depths of the wells, the depths to water, the altitudes of the water levels, and the stratigraphic units yielding water.

Water wells in Union County range in depth from 7 to 800 feet. Water levels in the wells range from above land surface to 634 feet below land surface. Yields of wells range from a few gpm to 1000 or more gpm.

Water in the Ogallala Formation, in the extrusive rocks and in the alluvium, occurs under water-table conditions at most places; that is, it is not under pressures that cause it to rise above the level at which it is found during drilling of a well. Water in the Dakota Sandstone and Purgatoire Formation, undifferentiated, the Morrison Formation, the Entrada Sandstone, and sandstones of Triassic age is under artesian pressure throughout the county, except near areas of outcrop. Generally, the water is not under sufficient pressure to cause it to flow above the surface from a well; however, a few wells along Tramperos Creek in T. 22 N., R. 33 E. reportedly flow 50 gpm or more from the Entrada Sandstone.

The ground water moves generally from west to east, with southeasterly trends, across Union County. Altitudes of water level (pl. 1) range from about 6800 feet in the northwest part of the county to about 4100 feet in the southeast.

The source of all the ground water in the Ogallala Formation is precipitation that falls on the outcrop of the formation within the county. Most of the recharge to the older water-bearing formations also comes from precipitation on their outcrops within the county; however, part may derive from areas to the west and north.

UTILIZATION

Uses of the wells and springs in Union County (tables 3 and 4) divide as follows: 7 wells for industrial supplies; 11 oil-test wells; 16 wells and 1 spring for public supplies; 36 water-test wells; 47 wells for irrigation supplies; and 86 unused wells (formerly for domestic and stock needs). Current domestic and stock supplies constitute the balance.

The community of Clayton has 8 public-supply wells that range in depth from 125 to 800 feet: Two tap the Ogallala Formation and 4

tap the Dakota and Purgatoire, undifferentiated. Two wells are drilled into the Entrada Sandstone; however, most of the water probably comes from the Dakota and Purgatoire, undifferentiated. Des Moines' supply comes from 4 wells that tap sandstone of Cretaceous age at depths of about 200 feet. Grenville has 2 wells that tap the Dakota and Purgatoire, undifferentiated, at depths of 270 and 280 feet, and Mt. Dora's 235-foot-deep well finishes in the Ogallala Formation.

The National Park Service owns a well used for public supply at the Capulin Mountain National Monument nine miles west of Des Moines. This well is 680 feet deep and taps water in basaltic cinders and in sand of the underlying Ogallala Formation.

The village of Branson, Colorado, about one mile north of the New Mexico state line north of Folsom, receives its water from several springs in T. 32 N., R. 28 E., Union County. These springs yield about 50 gpm from basaltic lava flows that cap a large mesa.

The Colorado Interstate Gas Company operates 4 industrial wells at its plant about seven miles northeast of Clayton. These wells finish in the Dakota and Purgatoire, undifferentiated, at depths of slightly more than 200 feet.

The Colorado and Southern Railway has 2 wells at Mt. Dora and 1 at Grande, about six miles southeast of Des Moines. The main well at Mt. Dora, 455 feet deep, finishes in the Dakota and Purgatoire, undifferentiated. The second well, used as a standby, finishes in the Entrada Sandstone at a depth of 720 feet. The well at Grande finishes in the Dakota and Purgatoire, undifferentiated, at a depth of 264 feet.

Most of the irrigation wells are located along the east side of the county from a few miles north of Clayton southward to the Quay county line. In this area, the Ogallala Formation attains its greatest thickness in Union County and yields large amounts of water to wells. At places, the Dakota and Purgatoire, undifferentiated, underlies the Ogallala and also yields large amounts of water.

Logs of the wells in Table 2 and data on oil-test wells in Table 3 are included in this report because of the stratigraphic information they provide.

FLUCTUATION OF WATER LEVEL

A program of periodic water-level measurement in selected wells in Union County was started in December 1965. Eight wells, chiefly in the vicinity of Clayton, were revisited and water-level measurements taken. In addition, a well recently drilled was selected for future observation.

The location number, the initial measurement (or reported meas-

urement, indicated by "R") and date, the repeat measurement and date, and the water-level change in each well observed are as follows:

LOCATION NUMBER	INITIAL MEASUREMENT DEPTH TO WATER (feet)	INITIAL MEASUREMENT DATE	REPEAT MEASUREMENT DEPTH TO WATER (feet)	REPEAT MEASUREMENT DATE	WATER-LEVEL CHANGE (feet)
22.36. 5.131	R185.0	8-10-53	190.34	12-8-65	—5.34
25.35. 2.441	R100.0	5-16-56	102.90	12-8-65	—2.90
26.34.25.433	44.2	10-20-54	46.34	12-9-65	—2.14
26.36. 9.212	—	—	121.06	12-8-65	—
26.36.13.231	R129.0	7- 3-54	127.76	12-8-65	+1.24
27.34.15.341	155.78	5-16-55	137.59	12-9-65	+18.19
27.36.17.434	73.1	7- 7-54	74.79	12-7-65	—1.69
27.37. 6.442	R140.0	7- 6-54	137.0	12-8-65	+3.00
28.32.30.331	35.9	7-28-55	35.32	12-7-65	+0.58

Wells 22.36.5.131, 25.35.2.441, and 27.36.17.434 tap the Ogallala Formation; the others tap the Dakota and Purgatoire, undifferentiated. All are used for irrigation except wells 26.34.25.433 and 27.34.15.341, which supply stock.

Well 27.34.15.341 is about a quarter of a mile south of Clayton Lake, which was developed since the initial measurement in this well. The Dakota Sandstone crops out around the perimeter of the lake; leakage from the lake into the sandstone probably causes the large rise (18.19 feet) in water level in the well.

ADDITIONAL DEVELOPMENT

Water obtained from wells throughout Union County supplies domestic and stock needs. Its quantity and quality vary; however, adequate reserves of potable water are available except where the red beds of Triassic age occur at the surface.

Most of the many new irrigation wells drilled in Union County since this field work lie in the vicinity of Clayton and Seneca southward to the Quay county line along a strip about eight miles wide between the state line and State Highway 18. The Ogallala Formation is the main aquifer in this area; however, the Dakota Sandstone and Purgatoire Formation, undifferentiated, underlies the Ogallala at many places and also contributes water to some wells.

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX.

Location number: See explanation of well-numbering system in text
Owner or name: The owner of, or name used for, well at time of visit
Depth and water levels: Those expressed to nearest tenth of foot are measured; those in whole feet are reported
Stratigraphic unit: Qal, alluvium; QTb, extrusive rocks; To, Ogallala Formation; Kdp, Dakota Sandstone and Purgatoire Formation, undifferentiated; Jm, Morrison Formation; Je, Entrada Sandstone; Rd, Dockum Group
Altitude of water level: Altitudes of land surface at wells were determined mainly by aneroid
Remarks: All wells are drilled and are used for domestic and stock water unless otherwise indicated in remarks column. Ca, chemical analyses in Table 5; L, log of well in Table 2

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
18.34. 1.443	-	80	Je	60	-	4661	-
7.122	H. H. Tate	118	To	-	-	-	6-in. casing to 118 ft
9.111	H. H. Tate	180	To	140	-	4709	6-in. casing to 180 ft
9.222	H. H. Tate	208	To	160.0	9- 7-56	4688	Quicksand at 150 ft
12.241	-	-	Je	-	9- 8-56	-	Ca
15.422	C. Kemppel (Ione P. O.)	174.3	Kdp	104.0	10-12-53	4656	Irrigation; 8-in. test well to 218 ft ; 12-in. casing to 174 ft; Ca; L
16.322	G. Cator	100	To	85	-	4659	-
18.134	R. Forester	140	To	120	-	4662	Ca
18.444	Wamble	200	Je	75	-	4658	-
20.311	Wamble	122.1	To	105.3	-	4659	-
24.412	Chris Connell	105	To	-	-	-	6-in. casing to 93 ft
28.123	G. Cator	180	Je	100	-	4615	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
30.131	Wamble	127.4	To	119.6	9- 6-56	4652	-
32.233	G. Cator	101	To	85	-	4624	-
18.35. 3.211	F. Leek	218.7	To	207.3	9-10-56	4360	-
4.331	O. K. Gamble	140	To	128.1	9- 8-56	4432	-
4.414	O. K. Gamble	180	To	165	-	4382	-
11.222	O. K. Gamble	190	To	170	-	4323	-
11.422	O. K. Gamble	267	Je(?)	200	-	4285	6-in. casing to 267 ft ; L*
13.113	J. Bradley	260	To	130	-	4390	-
15.344	J. Bradley	246.1	To	228.5	9- 9-56	4368	Pumping level
20.111	C. Connell	179	To	-	-	-	8-in. casing
23.332	H. J. Parmin	200	Je	200	-	4311	-
26.221	Blanton	170	Je	-	-	-	-
35.124	H. L. Forker	137	Je	62	-	4366	-
18.36. 1.224	J. Baird	180	To	160	-	4144	-
2.133	J. Baird	200	To	190	-	-	-
2.442	H. A. George	202	To	188	-	-	5-in. casing
6.322	J. Copeland	290.0	-	-	-	-	Test well

7.133	J. Copeland	180	To	-	-	-	-
8.443	J. Copeland	246.0	To	218.5	7-21-53	4204	Pumping level; Ca
10.124	H. E. George	305	To/Jm(?)	195	11- 2-53	4190	Irrigation; reported yield 1,000 gpm; 20-in. hole cased with 16-in. casing slotted from 205-305 and gravel packed
10.213	H. E. George	300	To/Jm(?)	-	-	-	Test well; L
11.233	H. E. George	190	To	-	-	-	Test well*
12.211	L. Lee	210	To	190	-	-	Irrigation
12.333	H. A. George	173	To	131.0	10-30-54	4163	Pumping level
12.424	G. W. Jones	200	To	175	-	-	-
13.222	G. W. Jones	200	To	187	-	4111	-
14.233	H. E. George	125	To	90	-	4169	Cased to bottom
15.222	H. E. George	214	To	180	-	4163	6-in. casing
16.113	H. L. Forker	250	To	-	-	-	-
17.222	-	219.0	To	218.0	7-21-53	4194	-
22.244	L. Lee	140	To	100	-	4232	-
24.333	G. W. Jones	220	To	200	-	4200	-
26.131	G. W. Jones	170	To	155	-	4225	-
27.121	Mrs. B. Watts	100	To	80	-	4220	Ca
29.242	Mrs. B. Watts	150	To	120	-	4228	-
30.142	Mrs. B. Watts	157.0	To	139.0	9- 6-56	4250	-
31.144	Mrs. B. Watts	195.3	To	180.5	9- 6-56	4254	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
36.113	G. W. Jones	218	To	-	-	-	-
18.37. 6.111	G. W. Jones	200	To	170.2	9- 6-54	4138	Irrigation; 12- or 14-in. casing
6.343	G. W. Jones	189.6	To	181.2	10-30-54	4115	-
18.122	G. W. Jones	220	To	168.5	6-11-53	4108	Ca
30.213	G. W. Jones	265	To	240	-	4035	-
19.34. 4.300	G.C. and C.Hutcherson	217	Jm(?)	-	-	-	6-in. casing to 217 ft
7.242	G.C. and C.Hutcherson	170	Jm(?)	-	-	-	6-in. casing to 170 ft
11.244	G.C. and C.Hutcherson	92	To	-	-	-	6-in. casing to 92 ft
19.213	G.C. and C.Hutcherson	94.2	To	74.2	9-10-56	4820	Ca
24.234	C. E. Kimber	150.0	To	63.0	8-10-53	4608	Test well; L
24.234a	C. E. Kimber	125.0	To	-	-	-	Irrigation; 14-in. casing
24.242	C. E. Kimber	52	To	-	-	-	5-in. casing
24.334	C. E. Kimber	111.3	To	106.2	9-10-56	4618	Unused; 4-in. casing
24.434	C. E. Kimber	142	To	95	-	4597	14-in. casing to 132 ft ; slotted 112 to 132 ft ; reported yield 80 gpm
25.222	C. E. Kimber	90	To	-	-	-	5-in. casing to 90 ft
26.100	W. G. Bolz	227	To	-	-	-	-

32.200	O. Earle	140	Jm(?)	-	-	-	6-in. casing
34.300	N. R. Ellis	64	To	-	-	-	6-in. casing to 64 ft
35.113	G. L. Cleveland	60	To	-	-	-	6-in. casing to 60 ft; reported finished in quicksand
20.36. 1.422	C. Koger	141.0	To	122.2	-	-	-
3.143	W. Thomas	40	Qal	28	-	4342	-
3.344	W. Thomas	35.0	Qal	31.0	-	4331	Reported finished in fine gravel; Ca
4.224	W. Thomas	66	Kdp	54	-	4334	6-in. casing to 66 ft
4.424	H. M. Kieson	194	Kdp	170	-	-	Reported finished in white shale below 25 ft of soft sandrock
5.333	R. Rickeson	110	Kdp(?)	-	-	-	4-in. casing
6.311	R. Rickeson	160	Kdp	-	-	-	-
6.442	R. Rickeson	185	Kdp	-	-	-	6-in. casing
9.411	R. Rickeson	225	Kdp	-	-	-	-
11.342	C. Koger	75	To	60	-	4297	6-in. casing
11.413	W. Thomas	15	Qal	10.8	8-12-59	4320	-
13.224	C. Koger	50	Qal(?)	-	-	-	-
13.411	C. Koger	30	Qal(?)	-	-	-	Ca
16.421	A. Roberts	200	Je(?)	185	-	-	-
17.111	A. Roberts	100	Jm(?)	85	-	4416	Ca
18.444	-	-	-	158.1	8-11-59	4360	Unused
19.242	C. R. Shields	169.0	Je	38.2	-	4360	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
19.424	C. R. Shields	160	Je	-	-	-	Ca
21.333	-	198.2	Je	179.5	8-13-59	4275	-
22.244	C. R. Shields	190	Je	160	-	4278	Ca
23.132	C. R. Shields	178.0	Je(?)	158.4	8-12-59	4290	-
25.344	C. Koger	184	To(?)	164	-	4219	-
26.333	C. R. Shields	180	Je(?)	150	-	4255	-
27.133	C. R. Shields	195	Je(?)	150	-	4272	-
30.111	Nunn No. 1 Wallace	748	Td	156	8-11-59	4324	Oil-test well; 6-in. casing to 611 ft ; L
30,433	Mrs. G. C. Cleveland	144	Je	-	-	-	-
31.112	Amistad School	200	Je(?)	-	-	-	Ca
31.314	H. M. Jones	168	Je(?)	-	-	-	-
31.323	Amistad School	500	Td	-	-	-	6-in. casing to 300 ft ; Ca
33.311	A. Jernigan	267	Je(?)	-	-	-	5-in. casing to 267 ft
35.211	Garver	165	To	153	-	4262	-
36.144	V. & H. Meadows	154	To	-	-	-	6-in. casing to 153 ft
20.37. 7.112	C. Koger	135	To	-	-	-	-

18.333	C. Koger	85	To	65	-	4258	4-in. casing to 85 ft ; reported finished in quicksand; Ca
30.331	H. L. Goats	160	To	-	-	-	6-in. casing to 160 ft ; reported finished in sand and gravel
31.313	P. Shields	135.1	To	128.2	8-13-59	4234	-
21.34. 1.131	J. Zurich	58	Je	30.1	6- 2-54	-	Pumping level
10.134	J. Zurich	38	Qal	-	-	-	Ca
11.113	J. Zurich	50	Kdp	50	-	-	Weak well; Ca
19.123	J. Zurich	115	Kdp	36.9	6- 2-54	-	Ca
20.143	J. Zurich	115	Kdp	30.4	6- 2-54	-	6-in casing
23.114	J. Zurich	30	Qal	12.0	6- 2-54	-	Pumping level; Ca
25.132	J. Sparlin	216	Jm	80	-	-	Ca
27.200	J. Sparlin	85	Kdp	77.6	10- 5-53	-	Ca
32.242	F. Helman	150	Kdp	123.4	6- 2-54	-	7-in. casing
33.222	J. Hauser	240	Kdp	87.7	6- 2-54	-	-
33.222a	J. Hauser	150	Kdp	129.1	6- 2-54	-	Cased to 108 ft.; Ca
34.414	J. Hauser	85	Jm	-	-	-	-
35.344	J. Hauser	85.8	Jm	60.4	11- 2-54	4695	-
36.144	J. Sparlin	-	-	77.8	6- 2-54	-	-
21.35. 6.413	J. Cain	60	Jm	17.4	1953	4550	Ca
6.423	J. Cain	11.5	Qal	10.1	6-24-54	-	Dug; Ca
12.422	Wright Bros.	100	To	77.3	10- 9-53	-	Reported finished in sand

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Strati-graphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
15.133	A. J. Deinken	150	Jm	60	-	4477	Reported finished in rock
15.333	A. J. Deinken	90	Kdp	-	-	-	6-in. casing to 90 ft
17.234	B. Deinken	270	Jm	60	-	4638	6-in. casing to 270 ft
18.442	B. Deinken	175	Kdp	80	-	4646	6-in. casing to 175 ft ; L
19.142	J. Sparlin	173.0	Kdp	125	10- 7-53	4637	Pumping level
19.434	J. Sparlin	260	Jm	-	-	-	-
20.344	J. Sparlin	103.5	Kdp	67.3	10- 3-53	4603	-
21.122	B. Deinken	89	Kdp	80	-	4580	6-in. casing to 89 ft
23.132	A. J. Deinken	165	Kdp	146.3	10- 6-53	4462	-
23.343	A. J. Deinken	197	Kdp	145.8	10- 6-53	4469	5-in. casing to 197 ft ; reported yield 6-7 gpm; L
25.131	A. J. Deinken	194	Kdp	137	-	4463	Cased to bottom, perforated
26.443	A. J. Deinken	125.0	Kdp	119.8	10- 6-53	4441	Original depth 165 ft
27.343	H. Steen	120	Kdp	50	-	4535	-
27.444	H. Steen	74.0	Kdp	44.9	10- 7-53	4547	-
29.224	J. Sparlin	65	Kdp	55	-	4592	-
30.442	J. Sparlin	-	Kdp	98.5	10- 7-53	4584	-

31.224	J. Sparlin	85	Kdp	65	-	4606	-
33.134	J. Sparlin	68	Kdp	55	10- 3-53	4560	Pumping level; Ca
34.122	H. Steen	120	Kdp	47.0	10- 7-53	4543	Ca
21.36. 1.111	M. Morris	140	To	120.7	4-26-54	4391	-
1.414	F. R. Spriggs	125	To	113	-	4366	Pumping level; yield less than 1 gpm; Ca
2.131	-	-	To	-	5-17-56	-	Ca
4.113	Mrs. C. Smith	140	To	-	-	-	-
5.133	H. Taylor	130	To	-	-	-	-
6.133	W. W. Cyphers	187	To	144.8	10- 9-52	4417	-
9.133	Mrs. C. Smith	100	To	-	-	-	-
10.113	C. Wallace	195	To	-	-	-	-
10.331	C. Wallace	153	To	136	-	4374	-
11.131	E. A. Shaha	125	To	111.0	4-26-54	-	6-in. casing to 125 ft
12.111	B. Hill	131	To	118.6	4-26-54	-	-
12.423	J. Pettigrew	119	To	60	-	4398	-
13.344	R. Bradshaw	125	To	80	-	4347	-
14.112	B. Adams	113	To	98	-	-	-
14.311	G. A. Lerchner	158	To	124	-	4360	Water reported to occur in quicksand and gravel
16.422	M. Irwin	130.5	To	98	4-29-54	4390	-
18.341	Wright Bros.	30	Qal	16	-	-	Finished in sand
20.114	W. J. Scott	90	To	55	-	-	Ca
20.222	W. J. Scott	35	Qal	20	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
22.144	R. Connell	175.0	To	129.0	-	4371	-
23.333	R. Connell	178	To	105.8	10-10-53	4361	6-in. casing to 140 ft ; L
25.434	J. Pettigrew	132	To	122.4	4-26-54	4322	Ca
26.443	B. R. Kohrman	120	To	117.0	4-26-54	4340	-
27.122	B. R. Kohrman	121	To	-	-	-	-
28.112	Irwin	26.0	Qal	22.8	10- 6-53	-	-
29.110	Oil Exploration No.1 Irwin	1000	-	-	-	4519	Oil-test well; L
30.133	H. Steen	156	Kdp	-	-	-	-
31.111	H. Wright	170	Kdp	-	-	-	-
32.321	H. Ricketson	88	Kdp	72.1	10- 6-53	4403	-
33.212	S. Steen	70	Kdp	30	-	-	-
34.143	M. D. Irwin	78	Kdp	-	-	-	-
34.143a	M. D. Irwin	70	Kdp	29.3	10- 6-53	-	10-in. casing to 56 ft
22.30. 5.232	J.L. and D.Doak	170	Kdp	155	-	-	Ca
7.141	J.L. and D.Doak	180	Kdp	150	-	-	-
8.213	J.L. and D.Doak	200	Kdp	170	-	-	-

10.132	Pasamonte Ranch	212.0	Kdp	-	-	-	Ca
13.232	A. Grine	150	Kdp	35	-	-	-
13.232a	A. Grine	12	Qal	8.0	5-28-55	-	Dug
14.211	-	10.8	Qal	9.8	5-28-55	-	Dug
17.311	J.L. and D.Doak	160	Kdp	145	-	-	-
18.320	J.L. and D.Doak	210	Kdp	-	-	-	6-in. casing to 50 ft
20.422	J.L. and D.Doak	154	Kdp	130	-	-	6-in. casing to 35 ft
35.322	J. Ulibarri	150	Kdp	-	-	-	-
35.343	C. Tixier	90	Kdp	60	-	5285	Ca
35.343a	-	-	Kdp	-	5- -56	-	Ca
36.344	C. Tixier	65	Kdp	47	-	-	-
22.31. 3.214	Carter	40	Qal	20	-	5113	-
5.443	S. Sanchez	36.0	Qal	29.5	5-28-55	-	Dug
9.313	H. Grine	32	Qal	27	-	-	Dug
13.343	-	68.4	Jm	24.8	5-27-55	5108	-
15.233	Lowder	30	Qal	-	-	-	Dug
23.323	Lowder	118.8	Jm	31.5	6-28-55	-	-
25.441	J. C. Padilla	160	Je	80	-	4859	-
27.142	-	-	-	-	5-21-56	-	Ca
22.32. 4.312	C. Rendervoort	80	Jm	40	-	5027	-
8.112	J. M. Poling	-	-	47.5	5-27-55	4974	5-in. casing
8.223	Murphy	40.2	Qal	30.2	5-27-55	4962	Dug
8.442	J. M. Poling	25.4	Qal	22.8	5-27-55	4951	Dug

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
11.323	F. B. Mapes	39	Qal	2	-	4953	10-in. hole
14.313	F. B. Mapes	340	Je	27.1	5-27-55	4882	Test well; bridged at 154 ft ; Ca; L
15.321	J. M. Poling	39	Qal	-	-	-	5-in. casing
18.344	J. M. Poling	52.0	Jm	39.6	-	4985	-
22.224	B. Walker	30	Qal	10	-	4890	-
25.413	T. Lovato, Jr.	178	Je	4	5-27-54	-	Test well; flowed when first drilled; Ca
26.434	A. Poling	25	Qal	15	-	-	Dug; Ca
30.431	-	20	Qal	15.3	5-30-55	4897	Dug
32.413	Woodson	44.7	Qal	30.4	5-30-55	4869	-
34.143	J. M. Poling	85	Jm	48.4	5-28-54	-	Pumping level; 5-in. casing to 45 ft
34.312	J. M. Poling	250	Je(?)	40.4	5-28-54	-	Test well; Ca
22.33. 1.243	School Dist. 7, Clapham	130	Jm	60	-	-	-
1.244	J. E. Park	156	Jm	46.3	5-19-54	-	Ca
1.422	J. E. Park	300	Jm	80	-	-	Reported small yield; Ca
3.331	W. G. Howard	150	Kdp	60	-	-	6-in. casing to 80 ft

3.331a	W. G. Howard	150	Kdp	60	-	-	6-in. casing to 80 ft
5.334	-	112.0	Kdp	90.4	5-28-54	-	5-in. casing
6.324	-	-	-	-	5-31-54	-	Ca
8.143	M. D. Smithson	250	Kdp	144.4	5-19-54	4891	6-in. casing to 240 ft ; L
9.122	-	-	-	115.9	5-19-54	-	4-in. casing
10.111	-	120	Kdp	60	-	-	Reported strong well
11.342	J. E. Park	-	-	56.2	5-19-54	-	Reported weak well
14.311	C. Howe	180	Kdp	-	-	-	-
16.241	M. D. Smithson	235	Kdp	173.5	5-19-54	-	6-in. casing to 235 ft ; Ca
23.144	C. Howe	200	Kdp	100	-	-	Ca
24.122	J. E. Park	78.0	Kdp	72.4	5-19-54	-	4-in. casing
24.443	J. E. Park	109	Kdp	96.4	5-19-54	-	6-in. casing to 109 ft
29.422	M. D. Smithson	50.0	Jm	24.9	5-27-54	-	Ca
29.434	M. D. Smithson	230	Je	-	5-27-54	-	Flows 50 gpm; reported to pump 600 gpm; Ca
30.132	T. Lovato, Jr.	80	Jm	42	-	-	Pumping level; yield 2 gpm ; Ca
30.322	M. D. Smithson	230	Je	-	5-27-54	-	Irrigation; flows 2.6 gpm; reported to pump 500 gpm; Ca
35.131	N. O'Neal	130	Jm	-	-	-	6-in. casing to 130 ft
35.131a	N. O'Neal	230	Je	-	5-20-54	-	Irrigation; 5-in. casing to 38 ft ; reported to have flowed 65 gpm when drilled; Ca; L
22.34. 2.114	-	56.5	Jm	31.7	5-18-54	-	5-in. casing
6.211	N. O'Neal	-	-	71.2	5-18-54	-	-
9.442	Gerlock	42.0	Jm	-	-	-	4-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
11.143	H. L. Holland	30	Jm	8	-	-	6-in. casing to 30 ft ; reported drilled through rock into soft sand; strong well
11.144	H. L. Holland	120	Jm	40	-	-	Weak well
14.131	H. L. Holland	127.4	Jm	84.4	-	-	4-in. casing
15.121	Gerlock	32.0	Jm	6.8	5-18-54	-	-
16.221	-	20.6	Jm	7.3	5-18-54	-	5-in. casing
22.424	H. L. Holland	74.0	Jm	12.6	-	-	-
24.243	H. L. Holland	54.5	Je	7.0	-	-	-
30.344	N. O'Neal	110	Jm	8.7	-	-	6-in. casing to 110 ft
32.243	J. Zurich	115	Kdp	-	-	-	5-in casing; Ca
22.35. 1.112	J. Blackwell	220	Kdp	135	-	4545	Cased to 220 ft ; Ca
1.222	C. Butts	-	-	176.4	8-10-53	-	5-in. casing
2.444	S. R. Vand	200	Kdp	-	-	-	4-in. casing
4.221	T. Boulware	260	Kdp	250	-	4558	6-in. casing to 250 ft; Ca
5.222	H. L. Holland	275	Kdp	271	-	4527	6-in. casing to 270 ft
8.122	H. L. Holland	280.0	Kdp	275.1	-	4487	Unused
8.423	H. Erickson	250	Kdp	-	-	-	Ca

10.222	U. E. Furgeson	230	Kdp	215.5	8-11-53	4467	6-in. casing to 230 ft
10.434	E. Erickson	400	Jm(?)	218	-	4428	-
12.131	R. Vandiver	198	Kdp	180.0	10-28-53	4435	6-in. casing to 198 ft ; L
13.212	D. Kirk	200	Kdp	-	-	-	-
13.444	D. Kirk	134.5	To	-	-	-	-
14.411	M. Garnett	165	Kdp	157.8	6-18-53	4419	4-in. casing; Ca
15.434	-	191	Kdp	177.4	6-17-53	-	-
16.444	H. Erickson	180	Kdp	-	-	-	Ca
19.232	H. Erickson	180	Je(?)	165.2	-	4507	-
19.332	B. Renfro	30	Jm	28	-	-	Dug; reported 4 ft into rock; Ca
20.422	G. L. Bean	252	Je(?)	200	-	4474	-
23.322	A. D. Jenkins	174	To,Kdp	144.7	10- 9-53	-	6-in. casing to 170 ft
24.422	A. D. Jenkins	-	-	142.3	-	-	-
27.222	E. Bush	-	-	156.5	10- 2-53	-	-
27.333	T. Reeser, Jr.	180	To	-	-	-	-
27.444	C. H. Monroe	180	To	170	-	4427	-
28.113	W. D. Cyphers	220	Kdp	-	-	-	-
29.244	M. L. Almgren	240	Kdp(?)	219.6	10- 2-53	4438	Water level rising when measured
32.342	J. Cain	75	Jm	29.6	10- 2-53	4538	Ca
33.112	T. Reeser	275	Kdp	187.0	6-24-54	4452	Irrigation; 12-in. casing to 204 ft , 10-in. casing 200 ft to 275 ft ; slotted from 140± ft to 204 ft ; reported yield 400 gpm; reported finished in coarse sand below red beds; Ca

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
33.244	T. Reeser	180	Kdp	169.6	10- 2-53	-	-
34.211	C. H. Monroe	180	Kdp	166	-	-	-
35.221	F. Boggs	233	Kdp	150.8	10- 9-52	4438	-
36.343	Wright Bros.	230	Kdp	146.8	10- 9-53	4431	4-in. casing
22.36. 1.213	C. C. Goats	-	-	139	-	4405	4-in. casing
1.334	Newton	165	To	146.0	8-14-53	4405	4-in. casing; Ca
2.342	C. C. Goats	190	To	162	-	4397	4-in. casing
5.131	J. Parker	224	To	185	-	4461	Irrigation; 14-in. casing to 224 ft ; perforated from 144 ft to 224 ft ; reported yield 400 gpm; Ca
6.242	J. Parker	200	To	-	-	-	-
7.444	W. Richards	185	To	-	-	-	8-in. casing to 185 ft
8.311	Spriggs	176	To	-	-	-	Irrigation
8.333	A. B. Seely	225	To	170.6	7-14-53	-	5-in. casing to 215 ft ; Ca
9.244	H. Stein	187.0	To	172.3	7-14-52	4406	-
9.331	Newman	-	-	174.5	8-17-53	-	-
10.211	J. Bush	170	To	158	-	4421	5-in. casing to 20± ft ; Ca

11.223	Cowan	200	To	-	-	-	Irrigation
13.222	H. Taylor	125	To	121.4	7-14-53	4394	Ca
14.111	W. Ritchey	247	To	148.8	8-17-53	-	Test well
14.121	W. Ritchey	170	To	140	-	4404	-
14.244	H. Taylor	125	To	105	-	4423	Ca
16.121	D. Kirk	200	To	165	-	-	-
17.111	Sedan School Dist. 50	220	To	-	-	-	Ca
17.111a	E. Richards	187	To	165.8	7-14-53	4422	Ca
17.131	C. Smith	200	To	-	-	-	-
17.212	-	-	-	160.3	-	-	-
18.112	R. L. Smith	150	To	-	-	-	Ca
18.222	W. Perkins	185	To	-	-	-	5-in. casing
19.113	G. W. Lechner	150	To	-	-	-	Ca
20.422	Mrs. M. F. Perkins	152	To	140	-	4405	5-in. casing to 152 ft
21.121	W. J. Lobb	180	To	143.5	8-18-53	4410	-
21.222	A. Price	180	To	150	-	4407	-
21.444	O. C. Barnhart	162	To	-	-	-	-
22.344	W. D. Thompson	162	To	130	-	4404	-
23.311	J. W. Pettigrew	155	To	100	-	-	-
24.112	G. Leichner	120	To	-	-	-	-
25.121	L. Cowan	160	To	117.9	4-29-54	4421	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
27.244	L. Cowan	160	To	140	-	4385	-
28.111	J. Thompson	165	To	145	-	-	-
29,224	Mrs. Fudge	160	To	128.8	4-29-54	4407	-
31.242	E. Bush	-	-	139.2	7-14-53	4411	Ca
32.211	W. Fowlks	162	To	135	-	4409	-
33.113	A. E. Barnhart	175	To	137.8	10-10-53	4407	-
33.411	A. B. Hughes	240	Kdp	131.2	-	4387	Irrigation; 14-in. casing to 210 ft ; reported yield 1000 gpm; L
34.334	O. C. Barnhart	170	To	-	-	-	-
34.343	O. C. Barnhart	160	To	143.6	4-29-54	-	14-in. casing
34.442	F. W. Barnhart	160	To	100	-	4418	-
35.344	M. Morris	137	To	115	-	-	-
36.421	M. Morris	150	To	-	-	-	-
23.28. 1.111	W. Wilkinson	130	QTb	115	-	-	Well destroyed; L
1.432	B. O'Beard	140	QTb	70.5	1-19-55	5701	-
2.444	J. Krizan	100	QTb	60	-	5720	-
3.233	J. Krizan	25	Qal	15	-	-	-

5.424	J. Krizan	488	Kdp	418	-	5627	L
6.222	A. Bada	412	Kdp	275	-	5777	-
8.443	J. Krizan	150	QTb	110	-	5815	-
9.321	J. Krizan	240	QTb	215	-	-	-
14.341	J. Nix	100	QTb	-	-	-	Ca
16.232	J. Nix	120	QTb	-	-	-	-
22.412	J. Nix	100	QTb	-	-	-	-
24.122	J. Nix	125	QTb	-	-	-	-
24.433	F. Lacy	90	QTb	86.6	1-19-55	5652	-
29.432	-	148	QTb	131.0	1-19-55	5691	-
35.422	T. Martinez	107	QTb	81.0	1-19-55	5626	-
23.29. 1.412	E. H. Albers	152	Kdp	60	-	-	-
2.133	E. H. Albers	175	Kdp	-	-	-	5-in. casing to 175 ft
4.222	E. H. Albers	165	Kdp	-	-	-	-
7.333	-	112.0	QTb	86.6	-	5654	6-in. casing
11.244	E. H. Albers	100	Kdp	73.6	1-18-55	5589	5-in. casing to 100 ft
13.113	E. H. Albers	93	Kdp	30	-	-	5-in. casing to 93 ft
13.211	Mrs. Olive See	170	Kdp	68.9	1-18-55	5574	5-in. casing to 170 ft
14.111	E. H. Albers	100	Kdp	35	-	5627	-
14.313	E. H. Albers	103	Kdp	35	-	5613	5-in. casing to 103 ft
15.113	J. Wiley	164	Kdp	-	-	-	-
16.134	-	-	-	-	5-21-56	-	Ca
20.111	-	168.0	Kdp	99.5	1-17-55	5594	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
21.343	E. Rivera	15	Kdp	4	-	-	Dug
21.422	J. Wiley	25	Kdp	8	-	5484	-
25.444	J.L. and D.Doak	80	Kdp	60	-	-	Ca
25.444a	J.L. and D.Doak	208	Kdp	180	-	-	Ca
29.334	-	100.0	QTb	76.7	1-17-55	5586	-
30.211	J. Nix	125	QTb	-	-	-	-
31.424	-	90	QTb	70.5	1-17-55	5575	5-in. casing
33.143	-	-	-	104.2	1-17-55	5518	5-in. casing
36.114	Doak	200	Kdp	165	-	-	-
23.30. 5.222	Pasamonte Ranch	120.7	Kdp	113.6	1-18-55	5569	Unused; 5-in. casing
18.114	Pasamonte Ranch	171.0	Kdp	-	-	-	-
18.224	Pasamonte Ranch	191.5	Kdp	173.3	1-18-55	5439	4-in. casing
29.143	J.L. and D.Doak	280	Kdp	260.6	5-14-55	5361	4-in. casing
30.424	J.L. and D.Doak	292	Kdp	270	-	-	-
31.323	J.L. and D.Doak	200	Kdp	180	-	-	-
23.31. 5.123	Farber Ranch	220	Kdp	190	-	5450	-
10.221	C. S. Sivyer	200	Kdp	160	-	5417	-

12.422	Sanchez	18.4	Kdp	14.7	7-17-55	5358	Dug
13.133	C. S. Sivyer	180	Kdp	150	-	5407	-
20.134	C. S. Sivyer	200	Kdp	180	-	5352	-
21.223	T. Sanchez	38.0	Kdp	30.4	5-17-55	5244	-
29.413	Carter	118	Kdp	98	-	-	-
36.344	J. M. Poling	63.9	Kdp(?)	45.3	5-17-55	5102	Pumping level; 5-in. casing to 40 ft
23.32. 1.133	G. Daves	160	Kdp	145	-	5183	-
2.122	G. Daves	160	Kdp	145	-	5209	-
4.133	M. E. Gonzales	45	Kdp	30	-	-	4-in. casing
5.241	M. E. Gonzales	11	Qal	8	-	-	Dug
7.421	M. D. Sanchez	125	Jm(?)	25	-	-	Test well
7.423	M. D. Sanchez	38	Qal	17.5	5-17-55	5287	Irrigation
7.424	M. D. Sanchez	21.0	Qal	19.3	5-17-55	-	Dug
8.143	M. D. Sanchez	25	Qal	22	-	5264	Dug
10.433	M. Sisneros	18	Qal	16	-	-	Dug
11.443	J. Magee	130	Kdp	-	-	-	Very strong well; Ca
20.232	F. Sanchez	50	Kdp	25	-	-	-
21.311	M. E. Gonzales	122.1	Kdp	78.1	5-27-55	-	Unused; 6-in casing
23.244	J. Magee	-	-	105.0	6- 3-54	5217	-
24.320	Mrs. L. P. Baker	155	Kdp	-	-	-	5-in casing to 155 ft; L
25.341	-	-	-	-	5-31-54	-	Ca
31.112	C. Sivyer	27.9	Qal	15.5	5-27-55	-	Dug; pumping level

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
23.33. 2.122	Dillard No. 1 State	403.6	-	-	-	-	Oil-test well; L
13.242	L. O. Bullard	82.0	Je	36.1	5-14-54	-	-
13.413	L. O. Bullard	70	Je	17	-	-	-
15.133	Browder Bros.	50	Jm	-	-	-	-
15.133a	Browder Bros.	12	Jm	8	-	-	Dug
22.343	-	-	-	-	6-24-54	-	Ca
28.333	P. Schrager	50.0	Kdp	20	6-24-54	-	Ca
28.433	P. Schrager	140	Kdp	68.0	6-24-54	4953	6-in. casing to 135 ft ; Ca
28.443	P. Schrager	55	Kdp	-	-	-	Ca
30.311	D. Cherry	155.0	Kdp	126.7	5-31-54	-	Pumping level; Ca
34.112	P. Schrager	90.5	Kdp	78.0	6-24-54	-	4-in. casing
35.334	Purvis	146.0	Jm(?)	22.9	6-24-54	-	-
23.34. 1.212	-	163.4	Kdp	126.4	5-15-54	-	-
1.424	W. Manglesdorf	275	Kdp	-	-	-	8-in. casing
2.113	W. Manglesdorf	-	-	184.1	5-15-54	-	7-in. casing
2.344	Mrs. Craft	285	Kdp	191.8	5-13-54	-	4-in. casing
3.333	W. Manglesdorf	340	Kdp	260	-	4767	5-in. casing to 340 ft
4.242	-	143.5	Kdp	141.2	5-15-54	-	4-in. casing

4.341	Morris	278	Kdp	-	-	-	6-in. casing to 80 ft
5.222	B. Bell	178.3	Kdp	165.1	10-29-54	-	-
6.321	B. Bell	45	Kdp	21.1	6-24-54	-	Pumping level
7.324	L.O. Bullard	13.5	Qal	13.0	-	-	Possibly caved
8.214	L.O. Bullard	153	Kdp	78	-	-	-
8.332	R.O. Bullard	60	Kdp	25.2	5-14-54	-	-
9.112	Mrs. E. Morris	180	Kdp	160	-	-	-
9.222	C. Hines	-	-	166.3	5-15-54	-	4-in. casing
10.133	C. Hines	275	Kdp	-	-	-	5-in. casing to 219 ft ; Ca
10.442	W. R. Morgan	326	Kdp	290	-	4703	5-in. casing to 326 ft; Ca; L
11.122	Mrs. Craft	302	Kdp	-	-	-	Cased to 302 ft; perforated from 285-302 ft
11.212	V. Sowers	160	Kdp	-	-	-	-
11.331	L.O. Bullard	59	To	49	-	-	Ca
13.111	V. Sowers	325	Kdp	300	-	-	-
16.442	Mrs. E. Morris	207	Kdp	165.7	5-14-54	4766	-
17.112	Mrs. E. Morris	-	-	20.0	5-14-54	-	-
17.222	Mrs. E. Morris	125	Kdp	66.2	5-14-54	-	4-in. casing
17.332	H. C. Gilliland	22.1	Qal	12.5	5-14-54	-	-
18.131	L. O. Bullard	175	Je	-	-	-	-
18.343	L. O. Bullard	175	Je	75	-	-	Unused
19.444	H. C. Gilliland	160	Je	40	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
21.222	C. Sowers	246	Kdp	218	-	4724	-
22.434	-	72	Kdp	46.1	5-15-54	-	Unused
24.114	A. T. Wisdom	300	Jm(?)	32	-	-	6-in. casing to 298 ft; Ca
24.443	C. Sowers	311	Kdp	226	-	-	-
29.233	E. Garrison	40	Kdp	-	-	-	-
29.444	E. Garrison	60	Kdp	14.7	5-14-54	-	-
31.222	J. Park	100	Jm	33.5	5-20-54	-	-
32.341	E. Garrison	28.1	Qal	20.0	5-18-54	-	4-in. casing
36.422	E. L. Leighton Estate	256	Kdp	-	-	-	6-in. casing to 256 ft ; L
23.35. 3.242	Mrs. M. Bean	300	Kdp	250	-	4543	4-in. casing
4.334	-	290	Kdp	265	-	4582	4-in. casing; Ca
5.311	Mrs. Brane	328	Kdp	-	-	-	-
7.112	V. Sowers	332	Kdp	282	-	-	5-in. casing to 272 ft
7.222	Mrs. W. Blakely	330	Kdp	-	-	-	Ca
9.242	W. Smith	305	Kdp	242	-	4579	Pumping level; Ca
9.322	W. Smith	295	Kdp	220	-	-	6-in. casing
10.232	M. J. Poole	207	To	190	-	4571	6-in. casing to 207 ft ; Ca

10.334	M. J. Poole	260	To	-	-	-	6-in. casing to 260 ft
10.433	W. J. Lewis	256	To	242.2	6-16-53	4563	Pumping level; 6-in. casing; Ca
11.242	W. J. Lewis	187	To	140	-	4561	8-in. casing to 187 ft ; Ca
11.344	W. J. Lewis	262	To	-	-	-	6-in. casing to 262 ft ; Ca
12.344	H. W. Winsor	280	To	-	-	-	-
14.442	W. J. Lewis	265	To	231	-	4509	Pumping level; Ca
15.111	H. A. Winters	278	To	251	-	4551	5-in. casing to 278 ft ; Ca
16.244	H. P. Smith	292	To	250	-	4548	6-in. casing
17.422	V. Sowers	326	Kdp	247	-	4564	4-in. casing
18.241	V. Sowers	343	Kdp	239.2	6-17-53	4587	Cased to 343 ft ; Ca
21.222	H. Mangelsdorf	285	Kdp	250.6	6-17-53	4531	Pumping level; 5-in. casing to 285 ft ; Ca
21.331	R. Galvin	280	To	240	-	4551	Ca
23.133	-	-	-	236.1	7-14-53	4546	4-in. casing
23.222	E. Richards	248	To	216.6	6-16-53	4540	5-in. casing to 235 ft , 4-in. perforated casing from 226 to 248 ft ; gravel-packed
23.244	E. Richards	249	To	237.5	6-20-53	4563	4-in. casing
25.241	E. Richards	250	To	211	-	4500	Pumping level; Ca
26.321	Nunn No. 1 Hopson	969	To	227.4	8-11-53	4516	Oil-test well; L
26.333	J. Hopson	250	To	-	-	-	-
26.422	E. Richards	214	To	200.4	6-20-53	4524	4-in. casing
27.122	A. D. Sowers	296	To	265	-	4507	6-in. casing to 296 ft ; Ca

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
28.111	A. D. Sowers	336	To	-	-	-	Cased to 290 ft ; Ca
29.122	H. A. Winters	200	To	-	-	-	Ca
24.332	L. Sphond	-	-	144.2	-	4446	-
25.311	Newlon	210	To	-	-	-	4-in. casing
26.111	E. O. Norris	198	To	152.5	8-14-53	4451	4-in. casing
26.442	Newlon	165	To	160.5	8-14-53	4419	-
27.244	J. Russell	200	To	158.7	8-14-53	4443	-
28.211	M. Adams	213.0	To	184.8	8-17-53	4484	Unused; 4-in. casing
28.313	J. Kinchloe	98.0	To	-	-	-	Unused
29.311	W. C. Dye	-	-	171.8	-	4497	4-in. casing
30.444	E. Richards	190	To	-	-	-	-
32.144	Blackwell	235.5	To(?)	186.0	-	-	-
32.144a	Blackwell	200	To(?)	-	-	-	Unused
32.424	Blackwell	350	Kdp	198.1	8-10-53	4440	Ca
33.243	J. Kinchloe	125	To	-	-	-	4-in. casing
33.434	J. Kinchloe	225.5	Kdp	169.5	8-17-53	4444	4-in. casing
34.343	E. Bush	230	Kdp	150	-	4450	7-in. casing

34.433	E. Bush	160	To	-	-	-	-
35.133	W. R. Snoeberger	-	-	161	-	4423	4-in. casing
24.28. 5.344	C. Goodyear	250	Kdp	242	-	5701	-
6.433	R. Goodyear	105	To(?)	95	-	5876	-
7.222	R. Goodyear	123	To(?)	108	-	5847	-
7.344	R. Goodyear	86.0	To(?)	73.0	5-11-55	5869	4-in. casing
8.133	R. Goodyear	105	To(?)	95	-	-	-
8.443	H. Bullard	102.3	To	70.9	5-13-55	5851	-
9.111	H. Bullard	94.5	To	74.8	5-13-55	5862	6-in. casing
9.434	H. Bullard	100	To	50	-	5857	Cased to 100 ft
12.241	A. Maness	65	To(?)	50	-	5892	-
15.133	H. Bullard	100	To	50	-	5838	-
15.222	W. Wilkinson	156	To	86	-	-	L
15.434	J. J. Saunders	100	To	-	-	-	-
16.111	D. C. Sachse	107	To	70	-	5855	6-in. casing to 107 ft
16.131	-	97	To	50	-	5848	6-in. casing to 97 ft
30.242	C. Sowers	195	To	180.8	6-17-53	4601	6-in. casing
30.444	C. Sowers	280	Kdp	240	-	4565	-
31.222	C. Sowers	260	Kdp	240	-	4570	-
31.344	C. Sowers	410	Kdp	-	-	-	-
33.133	H. L. Holland	-	-	300.5	5-19-54	4501	4-in. casing
34.242	T. Boulware	250	To	-	-	-	Ca

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
35.444	S. R. Vandiver	224	Kdp	210	-	4430	4-in. casing to 224 ft
23.36. 4.311	G. Burrow	180	To	125	-	4518	4-in. casing
5.133	K. Butt	175	To	125	-	-	6-in. casing to 175 ft
9.333	W. Evans	235	To	196	-	4510	4-in. casing
11.121	T. Wilson	-	-	138.8	8-13-53	-	4-in. casing
11.311	W. Evans	-	-	161.6	8-13-53	4490	Pumping level; 4-in. casing
12.234	T. Wilson	-	-	106.5	8-14-53	4598	4-in. casing
12.422	L. Bleiker	205	To	65	-	4501	Irrigation; located just E. of N. Mex.-Tex. State line; 500 gpm; 16-in. casing; Ca
13.322	F. E. Wilkes	150	To	-	-	-	Ca
13.322a	F. E. Wilkes	190	To	118.7	6-26-54	-	Irrigation; pumping level was 128 ft at 345 gpm on 9-25-52 and 136 ft at 545 gpm on 10-3-53; 12-in. casing
14.434	Mrs. H. Callis	175	To	130.8	8-13-53	4484	-
15.122	Mrs. H. Callis	190	To	160.9	8-13-53	4492	-
16.434	Adams	210	To	185	-	4492	-
17.221	J. H. Eaton	239	To	203	-	-	4-in. casing to 239 ft ; Ca

17.424	F. Henson	237	To	137	-	4552	4-in. casing
18.422	K. Pipkin	250	To	213	-	4499	6-in. casing; Ca
19.222	Douglas	190	To	-	-	-	Ca
21.112	R. Adams	210	To	194	-	4493	5-in. casing
21.434	M. Adams	268	To(?)	182.7	8-17-53	4482	6-in. casing to 268 ft ; L
22.112	O. McKay	200	To	188	-	4480	5-in. casing
22.224	H. J. Shilling	205	To	-	-	-	-
23.211	L. Sphond	170	To	135.5	-	4487	-
23.444	C. Tryon	196	To	166	-	4415	-
17.331	A. Wadlington	80	To	-	-	-	-
18.133	R. Hoffarth	120	To(?)	100	-	-	-
18.441	G. Jamison	103.0	To	61.8	5-11-55	5849	4-in. casing
19.444	D. C. Sachse	120	Kdp	88.8	-	5840	4-in. casing
20.212	M. M. Johnson	100	Kdp	40	-	5859	8-in. casing to 40 ft
20.244	D. C. Sachse	120	Kdp	61.8	5-13-55	5828	6-in. casing; Ca
21.111	R. Bryan	80	To	-	-	-	-
21.242	H. Holman	30	Qal	25	-	5839	Dug
22.124	R. Bryan	86.0	QTb	61.1	5-12-55	5798	6-in. casing to 14 ft
22.221	J. J. Saunders	90	To	-	-	-	-
22.444	R. Bryan	29.0	Qal	23.0	5-12-55	5790	Pumping level
23.221	A. Maness	70	QTb	25	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
23.223	A. Maness	14	Qal	10	-	5791	Dug, unused
25.334	W. Wilkinson	97	QTb	37	-	5768	-
25.334a	Mrs. McClung	84	QTb	30	-	-	-
27.211	R. Bryan	125	QTb	-	-	-	6-in. casing
28.113	G. S. Lashley	90	To	-	-	-	-
29.144	G. S. Lashley	166	Kdp	50	-	5875	-
29.411	G. S. Lashley	91	To	-	-	-	Test well
30.212	C. B. Medford	100	To	40	-	5902	-
30.412	A. Bada	152.9	Kdp	128.2	5-13-55	5829	Unused
34.211	R. Bryan	76.6	To	55.1	5-13-55	5788	6-in. casing
35.222	W. Wilkinson	84	To	30	-	5771	-
35.331	State of N. Mex.	140	To	120	-	-	5-in. casing to 140 ft
24.29. 1.113	R. Largent	24.0	Qal	16.0	4-21-55	5940	Dug; Ca
1.232	R. Sandoval	-	-	13.5	4-21-55	5928	Dug
2.114	R. Largent	12.8	Qal	6.6	4-21-55	5976	Dug
2.134	R. Largent	11.6	Qal	7.4	4-21-55	5950	Dug
6.333	C. Goodyear	40	QTb	-	-	-	-

7.313	C. Goodyear	35	QTb	25	-	5866	-
8.123	R. Largent	-	-	210	-	5714	-
11.242	R. Largent	126.3	Kdp	101.3	4-21-55	5714	6-in. casing
14.333	R. Largent	120	Kdp	95	-	5664	-
14.442	R. Largent	-	-	100	-	5631	-
16.332	R. Largent	190	Kdp	60	-	5763	-
17.414	R. Largent	101	Kdp	60	-	5826	6-in. casing to 78 ft
18.321	Lemon, Miller, and Maness	220	Kdp	155.0	5-12-55	5814	Pumping level; 6-in. casing to 220 ft ; L
19.442	E. Fugua	119	Kdp(?)	100	-	-	-
21.131	R. Largent	70	Kdp	60	-	-	-
21.141	R. Largent	30	Qal	14	-	-	Test well
21.143	R. Largent	30	Qal	14	-	-	Test well
27.422	R. Largent	103.8	Kdp	52.4	4-22-55	5625	-
29.433	E. Fugua	90	To	-	-	-	-
30.444	E. Fugua	100	To	50	-	-	-
32.332	State of N. Mex.	100	To	10	-	-	-
33.132	J. M. Gard	70	To	54	-	-	6-in. casing to 70 ft
34.133	J. M. Gard	166	Kdp	80	-	-	5-in. casing to 80 ft
34.221	J. M. Gard	120	Kdp	100	-	5594	-
35.142	R. Largent	-	-	78.2	4-22-55	5673	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
24.30. 2.231	J. Mondragon	320	Jm(?)	240	-	5815	6-in. casing; L
2.443	Pasamonte Ranch	153	Kdp	-	-	-	5-in. casing to 153 ft
6.123	R. Sandoval	32.5	Qal	26.4	4-21-55	-	Dug
14.444	Blankenship Pet. Co., Herringa 1	2787	-	-	-	-	Oil-test well; L
18.422	Pasamonte Ranch	140	Kdp	-	-	-	4-in. casing to 140 ft
20.324	Pasamonte Ranch	161	Kdp	22.5	1-26-55	5719	-
25.131	-	-	-	-	3-30-55	-	Ca
27.111	Pasamonte Ranch	119	Kdp	-	-	-	5-in. casing to 119 ft
30.134	R. Largent	45.1	To	30.6	4-22-55	5702	5-in. casing
31.141	Pasamonte Ranch	200	Kdp	-	-	-	5-in. casing to 200 ft ; L
24.31. 3.311	N. M. Davis	100	Kdp	80	-	5679	-
4.443	N. M. Davis	118	Kdp	78	-	5698	-
30.442	Farber Ranch	61.0	Kdp	26.4	1-14-55	5689	-
34.322	Farber Ranch	200	Kdp	180	-	-	-
35.313	L. Pagett	204	Kdp	70	-	5566	-
24.32. 4.422	R. Daves	60	Kdp	-	-	-	-
4.432	F. W. Root	98	Kdp	19	-	-	-

6.233	R. Snyder	125	Kdp	-	-	-	-
10.312	R. Daves	143.0	Kdp	120.0	3-28-55	5392	-
12.424	N. McDade	120	Kdp	90	-	-	-
13.222	N. McDade	60	To(?)	48	-	-	-
14.124	W. Daves	183.9	Kdp	156.2	3-29-55	5276	5-in. casing
15.242	R. Daves	162.2	Kdp	148.3	3-28-55	5372	5-in. casing
17.233	F. W. Root	60	Kdp	30	-	5464	-
20.344	Sullivan	25.0	Kdp	21.9	4-21-55	5394	-
21.411	F. Jiron	130	Kdp	-	-	-	-
22.211	W. Daves	116.0	Kdp	70	-	-	-
23.424	J. Swagerty	-	-	124.4	3-28-55	5231	4-in. casing
25.142	J. Swagerty	-	-	84.5	3-28-55	5212	Pumping level
25.343	J. Swagerty	105	Kdp	49.7	3-28-55	5244	6-in. casing
26.141	J. Swagerty	218	Kdp	124.8	3-28-55	5237	4-in. casing
27.134	Mrs. Ladd	128	Kdp	58.0	3-28-55	5347	-
27.312	C. Wright	53.7	Kdp	33.7	3-28-55	5372	-
31.312	D. A. Sanchez	46	Kdp	26	-	-	-
34.432	C. Wright	9.3	Qal	5.0	3-28-55	5339	Dug; Ca
35.113	W. Sartain	95.5	Kdp	56.5	3-28-55	5353	-
35.242	W. Sartain	230	Kdp	130	-	-	-
24.33. 3.234	R. V. Bell	80	Kdp	60	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
4.242	R. V. Bell	150	Kdp	130	-	-	-
7.222	N. McDade	190	Kdp	80	-	-	-
8.143	O. C. Kimble	240	Kdp	225	-	-	-
9.324	O. C. Kimble	100	Kdp	90	-	-	-
10.221	R. V. Bell	136	Kdp	-	-	-	5-in. casing to 136 ft ; L
5.122	C. H. Flippin	-	-	176.9	3-29-55	5651	-
5.333	C. H. Flippin	22	To	19.4	3-29-55	5769	Dug
8.212	C. Carr	90	Kdp	20	-	5760	Ca
9.211	N. M. Davis	100	Kdp	80	-	5682	-
9.433	C. Carr	300	Kdp	220	-	5563	-
10.443	C. Carr	300	Kdp	220	-	5540	-
11.443	Spencer	221	Kdp	206	-	5522	-
12.233	F. W. Root	160	Kdp	-	-	-	-
13.222	F. W. Root	160	Kdp	140	-	5525	Ca
14.211	Spencer	163	Kdp	136	-	-	-
15.133	C. Carr	250	Kdp	230	-	5491	-
15.444	W. H. Flamm	210	Kdp	140	-	5525	-

16.431	W. I. Ogle	165	Kdp	150	-	-	-
17.113	Farber Ranch	28	To	18	-	5747	-
17.341	Farber Ranch	10	Qal	0	3-30-55	5703	Dug; flows 5 gpm; Ca
19.231	Farber Ranch	13.3	Qal	9.2	1-14-55	5723	Dug
20.244	Farber Ranch	8	Qal	0	-	-	Dug; flows
20.311	Farber Ranch	12	Qal	8.5	3-30-55	5690	Dug; Ca
21.222	Clayton School District No. 84	220	Kdp	206.9	1-14-55	5489	6-in. casing
21.243	W. I. Ogle	180	Kdp	-	-	-	-
22.111	W. I. Ogle	240	Kdp	-	-	-	-
22.131	W. I. Ogle	225	Kdp	150	-	5527	-
23.113	G. Crist	90	Kdp	-	-	-	Unused
24.331	G. Crist	145	Kdp	133	-	-	-
27.111	Farber Ranch	200	Kdp	180	-	5470	-
27.343	Farber Ranch	200	Kdp	-	-	-	-
28.213	Farber Ranch	180	Kdp	-	-	-	-
29.411	Farber Ranch	270	Kdp	250	-	5466	Ca; L
30.313	Pasamonte Ranch	-	-	3	1-18-55	5635	Unused; Dug; Ca
11.213	D. A. Jordan and Sons	155	Kdp	-	-	-	5-in. casing to 152 ft
14.233	Bell and Gossett	-	-	83.8	11-17-54	-	Pumping level
14.333	Bell and Gossett	131	Kdp	126.2	11-17-54	-	Pumping level
15.311	R. V. Bell	109	Kdp	94	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
20.122	O. C. Kimble	130	Kdp	120	-	-	-
22.322	C. Gossett	143	Kdp	-	-	-	6-in. casing to 143 ft
25.144	Gossett	150	Kdp	-	-	-	-
25.211	J. W. Reeser	214	Kdp	100	-	-	6-in. casing to 214 ft
25.244	R. Gossett	189.5	Kdp	139.1	10-29-54	-	-
26.130	R. Gossett	455	-	-	-	-	Oil-test well; top of Triassic at 433 ft
27.122	R. Gossett	250	Kdp	-	-	-	-
29.212	O. C. Kimble	14	Kdp	8	-	-	Dug
29.221	O. C. Kimble	13.0	Kdp	11.1	11-17-54	-	Unused
30.324	O. C. Kimble	140	Kdp	130	-	-	-
36.123	G. Daves	40	Kdp	38	-	-	-
24.34. 1.244	Pogue and Edmonson	160	Kdp	-	-	-	-
1.442	Pogue and Edmonson	204	Kdp	119.5	10-26-54	-	-
2.433	Pogue and Edmonson	22.3	Qal	19.1	10-28-54	-	Dug
3.221	Pogue and Edmonson	140	Kdp	83.0	10-28-54	-	Pumping level
3.443	Pogue and Edmonson	84	To	49.3	10-28-54	-	Pumping level

5.122	S. T. Street	241	Kdp	185	-	5015	5-in. casing to 241 ft ; L
7.144	D. A. Jordan	55	To	-	-	-	5-in. casing to 55 ft
11.222	Cherry	60	To	23	-	-	-
13.323	E. C. Winsor	95	To	76.0	7-26-54	-	-
19.343	Davidson	59.5	To	56.9	10-29-54	-	8-in. casing
22.442	R. E. McCarley	90	To	75	-	-	5-in. casing to 90 ft
24.313	R. E. McCarley	123	Kdp(?)	103	-	-	5-in. casing to 123 ft ; L
25.133	R. E. McCarley	257	Kdp	60	-	-	6-in. casing to 96 ft
26.244	A. J. Winchester	209	Kdp	40	-	-	6-in. casing to 120 ft
26.343	A. J. Winchester	300	Kdp	-	-	-	-
28.344	J. Reeser	185	Kdp	60	-	-	-
29.230	W. E. Bebb	245	Kdp	-	-	-	4-in. casing to 245 ft
30.243	R. Gossett	150	Kdp	-	-	-	-
33.242	C. Hines	100	To	75	-	-	-
34.134	C. Hines	75	To	50	-	-	-
34.433	Mrs. Taylor	260	Kdp	183	-	-	5-in. casing to 205 ft
35.244	R. Leighton	259	Kdp	120.0	10-29-54	-	5-in. casing to 214 ft ; perforated from 81-104 ft and 225-259 ft ; Ca
36.313	R. Leighton	82.0	To(?)	62.6	10-29-54	-	-
24.35. 1.332	E. C. Winsor	40	To	20	-	-	-
3.244	E. C. Winsor	67	Kdp	14	-	-	Unused

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
3.244a	E. C. Winsor	75	Kdp	14	-	-	8-in. casing; Ca.
3.244b	E. C. Winsor	96	Kdp	14	-	4801	Irrigation; 6-in. casing
5.334	E. C. Winsor	115.0	To	-	-	-	Unused; 4-in. casing
5.433	E. C. Winsor	165	To	100	-	-	-
6.241	E. C. Winsor	96	To	79.2	7-26-54	4874	6-in. casing
7.144	E. C. Winsor	220	Kdp	73.6	7-26-54	4878	6-in. casing; Ca
7.333	E. C. Winsor	13.4	Qal	11.1	7-26-54	-	Dug; 4-ft diameter; Ca
8.311	Mrs. B. Toney	140	To	-	-	-	-
8.443	Mrs. B. Toney	129.0	To	126.0	7-22-54	4842	Pumping level
9.111	Mrs. B. Toney	90	To	-	-	-	-
10.444	-	50.0	To	49.0	7-22-54	4809	Unused
11.131	U. S. Gov't	165	Kdp	130	-	-	-
12.334	-	152.0	Kdp	112.2	6-26-54	4708	Unused
15.114	W. A. Rardin	90	To	-	-	-	5-in. casing
15.133	C. E. Roush	80	To	78	-	4821	-
15.133a	C. E. Roush	186	Kdp	-	-	-	Ca
15.422	-	138.0	Kdp	132.0	7-22-54	4727	-

17.424	Mrs. B. Toney	100	To	92	-	4804	-
18.443	C. E. Webster	24.2	Qal	22.1	7-26-54	4847	Unused
19.244	C. E. Webster	88	Kdp	55	-	4831	Filled to 28 ft ; unused; 4-in. casing
20.111	C. E. Webster	63	To	50	-	4842	-
20.333	L. Leighton	85	Kdp	48.7	7-26-54	-	4-in. casing
21.122	O. Bates	210	To	130	-	-	5-in. casing
21.311	Mrs. B. Toney	150	To	-	-	-	-
22.211	O. Bates	140	Kdp	120	-	4739	4-in. casing
22.311	O. Bates	100	Kdp	60	-	4711	-
23.111	K. Butt	90	Kdp	40	-	-	4-in. casing; Ca
23.331	K. Butt	130.0	Kdp	97.6	6-26-54	4757	Unused; 4-in. casing
24.332	L. Butt	200	Kdp	160	-	-	4-in. casing
25.334	L. Butt	250	Kdp	200	-	4599	-
26.132	K. Butt	255.0	Kdp	215.0	7-20-53	4633	Unused; 4-in. casing
27.443	U. S. Gov't	230.0	Kdp	223.0	7-24-54	4609	Pumping level
29.443	D. W. Walker	115	Kdp	107	-	4774	-
32.111	D. W. Walker	196.0	Kdp	187.0	4-30-54	4704	-
32.343	A. T. Wisdom	290	Kdp	260	-	4616	-
33.334	A. T. Wisdom	312	Kdp	220	-	-	6-in. casing to 312 ft ; slotted from 290-312 ft; Ca; L
35.221	K. Butt	168.0	To	144.4	6-25-54	4664	Unused; 4-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
35.442	K. Butt	250	Kdp	200	-	-	4-in. casing
36.113	K. Butt	243	To	153	-	-	-
36.444	K. Butt	300	To	204.0	6-25-54	4567	Pumping level; 4-in. casing
24.36. 2.221	U. S. Gov't	102.0	Kdp	71.9	6-29-54	4642	4-in. casing
2.344	-	70.2	To	65.4	6-29-54	4630	-
2.440	Continental No. 1 Federal Land Bank	2171	-	-	-	-	Oil-test well; L
3.112	U. S. Gov't	117.9	Kdp	82.7	6-29-54	4664	Unused
3.333	-	156.5	Kdp	74.5	8-12-53	4651	Unused
4.242	H. Rhoton	135	Kdp	117	-	4643	-
4.333	H. A. Moore	165	Kdp	150	-	4598	-
4.344	J. N. McKay	145	Kdp	100	-	4631	-
5.121	U. S. Gov't	135	Kdp	115	-	4676	4-in. casing
6.131	U. S. Gov't	115.0	Kdp	81.8	6-30-54	4707	Unused
6.211	J. M. Hanson	160	Kdp	140	-	-	-
6.311	U. S. Gov't	124.0	To	77.0	6-30-54	4706	-
7.111	U. S. Gov't	285	Kdp	65	-	4688	-
7.224	U. S. Gov't	99.0	To	87.7	6-29-54	-	Unused; 4-in. casing

7.432	G. Burrow	111.0	To	82.2	6-29-54	4666	Pumping level
8.112	U. S. Gov't	154.0	To	100.5	6-29-54	4664	Unused; 4-in. casing
9.443	M. H. Burrow	150	To	112	-	4586	-
10.133	J. N. McKay	137.5	To	103.0	7- 1-54	-	Pumping level 108.6 ft ; yield 2.5 gpm; Ca
12.244	Mrs. L. Kehoe	360	Kdp	91.5	8-12-53	4539	Irrigation; located 50 ft E. of N. Mex.-Tex. State line; reported yield 1800 gpm; L
12.333	U. S. Gov't	100	To	-	-	-	Ca
13.311	U. S. Gov't	118.5	To	99.1	8-12-53	4530	Unused
14.211	U. S. Gov't	138.5	To	112.3	8-12-53	4541	Unused; 4-in. casing
16.311	G. Burrow	231.0	To	87.8	6-30-54	4591	Irrigation; original depth 296 ft ; 20-in. casing; reported to yield 450 gpm
17.112	G. Burrow	190	To	170	-	-	-
17.421	G. Burrow	109.0	To	95.5	6-30-54	-	Pumping level
20.121	G. Burrow	156.0	To	114.0	6-30-54	-	6-in. casing
22.111	M. H. Burrow	134.0	To	97.5	8-12-53	4560	Pumping level
22.443	E. Claborn	135	To	114	-	4507	-
23.142	U. S. Gov't	150	To	100.1	6-25-54	-	4-in. casing
23.242	U. S. Gov't	108.2	To	91.9	7- 1-54	4523	Unused; 4-in. casing
24.112	Baker	120	To	-	-	-	4-in. casing
26.144	E. Sheets	130	To	100	-	4509	6-in. casing
26.224	E. Sheets	171.4	To	93.8	6-26-54	4501	Unused; 6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Strati-graphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
27.242	E. Claborn	146.0	To	121.3	6-25-54	4496	Unused; 4-in. casing
27.311	U. S. Gov't	140	To	125	-	4534	4-in. casing.
28.242	U. S. Gov't	215.0	To	138.0	6-25-54	4520	Unused; 4-in. casing
29.113	U. S. Gov't	264.0	To	185.6	6-26-54	4568	Pumping level; 6-in. casing
29.434	U. S. Gov't	-	-	180.5	6-25-54	4552	6-in. casing
30.343	Meador	265	To	205	-	4572	-
30.422	G. J. Dallas	259	To	202.7	6-26-54	4554	Pumping level; 5-in. casing; Ca
31.311	L. Butt	255.0	To	208.1	6-25-54	4568	Unused; 4-in. casing
33.122	U. S. Gov't	172.5	To	-	-	-	4-in. casing
34.311	U. S. Gov't	230.0	To	157.0	6-25-54	4514	Unused; 4-in. casing
36.112	T. Wilson	167	To	128	-	4457	6-in. casing
25.28. 3.342	C. Garrett	72	Kdp	28	-	6102	-
12.114	C. Garrett	186	Kdp	90	-	6102	-
14.111	A. Maness	126.1	Kdp	93.6	5-12-55	6046	7-in. casing
15.113	O. C. McDade	210	Kdp	125	-	6004	-
16.420	O. C. McDade	202	Kdp	-	-	-	8-in. casing
18.321	O. C. McDade	122	Kdp	20.3	6- 2-55	-	Test well; 6-in. casing; L

21.222	Thorne	176	Kdp	-	-	-	-
21.431	Thorne	131.0	Kdp(?)	-	-	-	-
25.443	A. Maness	176.4	To	160	-	5906	6-in. casing; Ca; L
27.332	Thorne	162.9	To	121.3	5-13-55	5930	5-in. casing
30.113	O. C. McDade	60	Kdp	40	-	5964	-
31.212	O. C. McDade	80	Kdp	55	-	5918	-
31.224	O. C. McDade	60	Kdp	40	-	5918	-
34.242	A. Maness	160	Kdp	-	-	-	-
25.29. 1.412	A. Maness	110	Kdp	90	-	6052	-
2.132	C. M. Garrett	140	Kdp	80	-	6114	-
3.122	R. H. Sebring	106	Kdp	80	-	6124	-
4.112	-	150.0	Kdp	121.4	8- 1-55	6135	-
4.444	-	195	Kdp	155.9	6- 3-55	6068	-
8.211	G. Belcheff	185	Kdp	140	-	6095	-
10.112	C. M. Garrett	198	Kdp	190	-	6035	-
11.441	A. Maness	260	Kdp	232.5	5-12-55	5953	4-in. casing; Ca
18.311	A. Maness	401	Kdp	360	-	5976	-
21.111	A. Maness	420	Kdp	380	-	5992	388 ft of basalt
25.211	A. Maness	400	Kdp	-	-	-	-
26.222	A. Maness	620	-	-	-	-	-
32.114	A. Maness	180	To	148.2	5-12-55	5916	Pumping level
33.431	R. Largent	105.9	To	94.5	4-25-55	6037	Pumping level; 6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
34.342	R. Largent	331	To	314	-	6239	6-in. casing; L
25.30. 1.343	-	240	Kdp	-	-	-	-
5.344	F. Atchley	165.8	To	126.8	6- 3-55	6024	4-in. casing
8.222	F. Atchley	168.0	To	134.0	6- 3-55	6008	4-in. casing
9.444	E. Atchley	260	To	245	-	5830	Ca
10.444	E. Atchley	240	To	225	-	5828	16-ft of basalt
12.313	J. Atchley	210	Kdp	195	-	5763	10-ft of basalt
20.211	F. Atchley	300	To	-	-	-	-
33.444	E. Mondragon	215	Kdp	190	-	5749	-
34.141	E. Mondragon	117	To(?)	98	-	5873	-
25.31. 4.434	Snyder	285	Jm(?)	275	-	-	6-in. casing
12.141	Snyder	135	Jm	-	-	-	-
14.313	Snyder	120	Jm	-	-	-	-
20.111	Mrs. Crosby	246.9	Kdp	238.1	3-29-55	5683	-
20.222	Mrs. Crosby	210	Kdp	-	-	-	-
29.334	Mrs. Crosby	263	Kdp	-	-	-	5-in. casing to 263 ft
32.411	Mrs. Crosby	38.8	Qal	26.3	3-30-55	5794	Dug

33.433	N. M. Davis	165	Kdp	-	-	-	-
25.32. 1.121	C. Dellinger	60.8	To	39.4	10-18-54	5400	-
1.221	C. Dellinger	48	To	32.4	10-18-54	5391	4-in. casing
2.224	Mrs. C. T. Wiley	165	Kdp	67.1	10-18-54	5425	Pumping level; 4-in. casing; Ca
4.341	Mrs. C. T. Wiley	210	Kdp	-	-	-	5-in. casing to 210 ft; L
5.234	Snyder	120	Kdp	-	-	-	-
7.142	Snyder	140	Kdp	119	-	-	-
7.313	Snyder	80	Kdp	-	-	-	4-in. casing
9.422	Mrs. G. T. Wiley	150	Kdp	120	-	5378	-
12.222	Mrs. G. T. Wiley	114.0	To	89.8	10-19-54	5395	7-in. casing
13.222	A. Swagerty	-	-	156.0	10-20-54	5318	-
14.222	Mrs. G. T. Wiley	280	Kdp	244.1	3-28-55	5345	-
15.144	Mrs. G. T. Wiley	80	Kdp	40	-	-	-
15.343	Mrs. G. T. Wiley	70	Kdp	40	-	5374	-
17.241	Snyder	135	Kdp	-	-	-	-
22.413	C. Davis	20	Qal	17	-	-	-
36.223	E. Mayo	90	Kdp	71.5	11-18-54	-	8-in. casing
25.33. 1.221	E. Heringa	28.4	Qal	20.3	10-19-54	-	Dug; unused
3.122	E. Heringa	76.4	Kdp	45.6	10-18-54	5260	6-in. casing
3.344	E. Heringa	200	Kdp	160	-	5195	-
5.334	E. Heringa	214	Kdp	194	-	-	-
7.424	A. Swagerty	29.9	Qal	29.5	10-20-54	5378	Dug

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
9.121	-	76	Kdp	75	-	-	6-in. casing
9.143	Mrs. J. Swagerty	140	Kdp	122.1	11-16-54	5206	Pumping level; 6-in. casing
9.422	W. Swagerty	31.0	Qal	28.2	10-27-54	-	-
11.133	W. Swagerty	180	Kdp	170	-	-	-
15.434	W. Swagerty	225.4	Kdp	186.1	10-27-54	-	-
16.244	W. Swagerty	80	To(?)	55	-	-	-
17.131	Mrs. J. Swagerty	333	Kdp	-	-	-	8-in. casing to 275 ft
18.432	Mrs. J. Swagerty	380	Kdp	-	-	-	6-in. casing to 380 ft
19.121	Mrs. J. Swagerty	-	-	219.3	10-20-54	-	4-in. casing
20.322	Mrs. J. Swagerty	198	Kdp	164.8	6-10-53	5293	4-in. casing
20.441	Mrs. J. Swagerty	205	Kdp	195	-	5271	6-in. casing to 205 ft; Ca; L
23.442	W. Roberts	220	Kdp	-	-	-	-
24.432	W. Roberts	90	To	29.1	11-16-54	-	Unused
24.434	W. Roberts	200	Kdp	-	-	-	-
27.221	-	161.3	Kdp(?)	144.2	11-17-54	5193	4-in. casing
27.444	R. V. Bell	190	Kdp(?)	155	-	-	-
30.444	E. Mayo	180	Kdp	145.0	11-18-54	-	-

31.222	E. Mayo	40	Kdp	35.8	11-18-54	-	-
31.343	E. Mayo	180	Kdp	118.0	11-18-54	-	4-in. casing
32.233	E. Mayo	170	Kdp	56.0	11-18-54	-	4-in. casing
33.111	W. W. Langham	160	Kdp	55	-	-	-
25.34. 2.331	C. Kilgore	110	Kdp	109.4	10-20-54	-	-
5.434	C. Gilbert	150	Kdp	136	-	-	-
6.424	E. Heringa	160	Kdp	130	-	-	-
7.333	E. Heringa	144	Kdp	100	-	-	-
8.112	-	-	-	148.3	10-18-54	-	-
9.111	C. Gilbert	190	Kdp	120	-	-	-
11.221	-	95.3	Kdp	79.9	10-19-54	-	5-in. casing
14.442	E. B. Miller	181	Kdp	90	-	5012	5-in. casing to 181 ft; L
16.323	W. Perkins	60	To	20	-	-	-
17.344	M. L. Vinson	160	Kdp	120	-	-	-
18.444	M. L. Vinson	126	Kdp	120	-	-	-
19.334	W. Roberts	200	Kdp	159.1	11-16-54	-	-
20.142	L. L. Paris	64.0	To	57.9	10-27-54	-	Unused
20.222	L. L. Paris	61	To	35	-	-	-
21.313	I. V. Crisp	54	To	33	-	5091	10-in. casing
25.121	Pogue and Edmonson	140	Kdp	134	-	-	-
26.232	Miller	80	Kdp	-	-	-	-
27.124	Pogue and Edmonson	20	Qal	15	-	5033	Dug

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
27.124a	Pogue and Edmonson	215	Kdp	60	-	5006	6-in. casing; Ca
27.334	Nevenschwander	15	Qal	10	-	-	Dug
29.313	S. Street	165	Kdp	140	-	-	-
30.131	S. Street	160	Kdp	130	-	-	-
30.242	S. Street	160	Kdp	-	-	-	-
31.242	S. Street	218	Kdp	200.8	4-28-54	-	-
31.343	S. Street	60	Kdp	50	-	-	-
32.210	R. O. Gaines	150	Kdp	-	-	-	6-in. casing to 120 ft
35.222	Pogue and Edmonson	20	Qal	15	-	-	Dug
35.311	Pogue and Edmonson	85.6	Kdp	35.2	5- -54	5014	-
25.35. 1.111	C. Delinger	-	-	80	-	-	6-in. casing
1.332	E. C. Dysart	120	To	-	-	-	-
2.121	G. Coons	150	To	113	9-23-47	-	Irrigation; 6-in. casing; reported yield 10 gpm
2.121a	G. Coons	-	-	-	-	-	Irrigation; Ca
2.123	G. Coons	140	To	-	-	-	Irrigation; reported yield 9 gpm; Ca
2.123a	G. Coons	107	To	-	-	-	Unused

2.211	Mrs. R. Beasley	125	To	-	-	-	-
2.311	O. Johnson	150	To	84	-	4934	5-in. casing to 150 ft
2.412	C. F. Beasley	170	To	110	-	-	Test well
2.412a	C. F. Beasley	165	To	100	-	-	Irrigation
2.424	M. Matthews	120	To	105	-	-	-
2.441	W. J. Winchester	185	To	100	-	4884	Irrigation; pumping level 142.0 ft; reported yield 420 gpm; Ca
4.132	L. W. Gillespie	100	To	60.6	10-27-54	4949	5-in. casing
7.123	W. N. Jackson	162	Kdp	120	-	4895	5-in. casing to 162 ft; slotted from 133 to 161 ft
8.221	E. Sheets	40	To	-	-	-	-
8.221a	E. Sheets	170	Kdp	40	-	-	3-in. casing
9.113	L. W. Gillespie	133	Kdp	60.0	10-27-54	4862	Unused
9.212	L. W. Gillespie	125	Kdp	85.0	10-27-54	4856	Unused
11.431	-	150	Kdp	86	-	4885	-
12.331	-	147	To	77.0	3-24-55	4872	-
13.211	O. Johnson	-	-	56.0	3-24-55	4859	Pumping level; yield 1.5 gpm on 3-24-55
14.334	McDade	-	-	68.1	3-24-55	4791	Pumping level; yield 1 gpm on 3-24-55
15.244	R. Leighton	200	Kdp	120	-	4785	6-in. casing; yield 5 gpm on 10-30-54; Ca
15.421	R. Leighton	160	Kdp	60	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
16.433	-	100	To	76.3	8-12-55	4904	Pumping level; yield 2 gpm on 8-12-55; 5-in. casing
17.244	E. Sheets	131	To	93.3	10-26-54	4936	4-in. casing
17.442	J. B. Callahan	150	To	88	-	4923	6-in. casing
18.244	E. Sheets	127.0	To	111.3	10-26-54	4938	Pumping level; yield 3 gpm on 10-26-54; 4-in. casing
19.424	L. H. Haisten	150	To	-	-	-	-
20.344	D. Wight	100	To	-	-	-	-
22.321	R. Leighton	70	To	38.4	10-28-54	4890	6-in. casing
23.244	McDade	141.3	Kdp	78.2	3-25-55	4775	-
25.341	U.S. Gov't.	74	To	53.8	6-29-54	-	Unused
27.212	Winsor	65	To	-	-	-	-
28.314	McDade	93	To	76.8	10-28-54	-	Pumping level
29.334	J. R. Morgan	60	To	-	-	-	6-in. casing
30.222	J. R. Morgan	-	-	82.7	7-27-54	4919	6-in. casing
32.322	R. Leighton	72	To	-	-	-	6-in. casing
32.442	R. Leighton	50	To	35	-	4863	-
32.443	R. Leighton	-	-	20	-	4866	6-in. casing

33.423	E. J. Leavitt	164	Kdp	-	-	-	6-in. casing to 164 ft; L
34.422	E. C. Winsor	190	Kdp	50	-	4812	-
25.36. 4.311	-	150.0	Kdp	112.5	8-16-54	4761	-
4.444	-	-	-	-	5-15-56	-	Ca
7.111	B. J. Altman	320	-		7- 2-54	4860	Test well; caved; L
7.111a	B. J. Altman	100	To	44.1	7- 2-54	4861	Irrigation; 16-in casing
7.113	B. J. Altman	100	To	82.0	7- 2-54	4802	Irrigation; pumping level; reported yield 250 gpm; Ca
7.133	J. L. McDade	150	To	58.6	7- 2-54	4853	Test well
8.333	J. L. McDade	75	To	43.2	7- 2-54	-	Pumping level; 7-in. casing
10.311	U. S. Gov't	-	-	122.0	8-16-54	4710	Unused
10.433	U. S. Gov't	180	Kdp	170	-	-	-
15.124	T. A. Bolinger	200	Kdp	175	-	-	-
16.313	J. L. McDade	77.0	To	55.4	7- 2-54	4774	Pumping level; 6-in. casing; Ca
18.311	J. L. McDade	-	-	60	-	4843	North well
18.331	J. L. McDade	75	To	60	-	-	South well
19.441	J. L. McDade	59.3	Kdp	34.0	7- 2-54	-	6-in. casing
20.132	J. L. McDade	78.5	To	73.5	7- 2-54	4804	Unused; 4-in. casing
20.324	B. Bates	85	To	-	-	-	-
21.211	J. L. McDade	64.0	To	60.4	7- 1-54	4761	Unused; dug; 2-ft diameter
21.341	B. Bates	86	Kdp	51	-	-	6-in. casing; Ca
22.314	B. Bates	190	Kdp	67	-	-	Test well

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
22.321	B. Bates	140	Kdp	-	-	-	Test well
22.333	B. Bates	103	Kdp	61	-	-	6-in. casing; Ca
23.442	-	129.0	Kdp	121.7	7- 1-54	4608	Unused; 4-in. casing
25.444	-	-	-	-	7- 1-54	-	Ca
27.222	Mrs. H. I. Pool	153	Kdp	69.5	7- 1-54	-	-
29.343	U. S. Gov't	140	Kdp	-	-	-	5-in. casing
29.434	U. S. Gov't	70.0	Kdp	Dry	6-29-54	-	Unused; probably caved
31.422	Hanson	142.6	Kdp	120.2	6-29-54	4684	Unused; 6-in. casing
33.333	U. S. Gov't	110.0	Kdp	92.7	6-29-54	4672	4-in. casing; Ca
35.311	U. S. Gov't	125	Kdp	37.8	6-29-54	4652	6-in. casing
26.28. 1.132	King Inv. Co.	160	Kdp	150	-	6363	6-in. casing
1.242	C. M. Garrett	81.1	Kdp	69.6	10- 4-55	6405	-
3.313	E. Biffle	54	Kdp	6	-	6481	6-in. casing to 8 ft
4.344	E. Biffle	31.0	Kdp	29.1	9-27-55	6517	-
9.433	E. Biffle	106	Kdp	86	-	6351	6-in. casing to 8 ft
10.241	E. Biffle	135	Kdp	75	-	6353	8-in. casing to 8 ft
10.322	E. Biffle	52	Kdp	12	-	6393	5-in. casing to 30 ft
11.142	E. Biffle	89.0	Kdp	85.3	-	6370	Unused; 5-in. casing to 10 ft

11.222	E. Biffle	100	Kdp	72.7	9-27-55	6396	5-in. casing
12.124	E. Biffle	150	Kdp	-	-	-	Unused; 6-in. casing to 8 ft
12.222	E. Biffle	60	Kdp	40	-	6360	6-in. casing
13.213	E. Biffle	18	Kdp	14	-	6311	Dug
17.443	S. Armijo	102.8	Kdp	56.6	6- 2-55	6294	-
19.222	T. Armijo	58	Kdp	-	-	-	-
20.413	S. Armijo	68	Kdp	18	-	6264	-
24.231	C. M. Garrett	117	Kdp	52	-	6236	-
28.431	C. M. Garrett	125.0	Kdp	86	-	6196	6-in. casing to 20 ft; L
29.212	S. Armijo	72	Kdp	24	-	6230	-
29.333	J. I. Armijo	50	Qal	21.5	6- 2-55	6188	6-in. casing to 50 ft
30.441	J. I. Armijo	25.6	Qal	24.1	6- 2-55	6189	Dug
30.433	J. R. Armijo	50	Qal	-	-	-	-
31.131	J. I. Armijo	50	Kdp	43.8	6- 2-55	6132	6-in. casing
33.444	C. M. Garrett	93.3	Kdp	71.3	7-30-55	6101	Unused
34.221	C. M. Garrett	15.2	Qal	10.2	6- 2-55	6157	Dug
36.134	C. M. Garrett	70	Kdp	46.2	6- 2-55	6164	5-in. casing
26.29. 6.413	C. M. Garrett	62.3	Kdp	57.3	10- 4-55	6383	-
7.123	E. Biffle	100	Kdp	40	-	6372	6-in. casing to 8 ft
9.241	Doherty Inv. Co.	90	Kdp	-	-	-	-
12.231	E. A. Jones	241	Kdp	95.0	9-27-53	6141	5-in. casing to 241 ft; L
14.322	C. C. Crist	165	Kdp	143	-	6160	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
14.333	C. C. Crist	70	To(?)	40	-	6285	6-in. casing to 70 ft
15.341	C. M. Garrett	37	To(?)	14.9	8- 1-55	6280	6-in. casing
17.421	C. M. Garrett	138	Kdp	91.6	8- 1-55	6253	6-in. casing to 20 ft
18.112	E. Biffle	150	Kdp	80	-	6331	6-in. casing to 8 ft
18.112a	E. Biffle	154	Kdp	80	-	6331	Ca
20.444	R. Dimitroff	130	Kdp	100	-	6186	5-in. casing to 40 ft
21.433	-	128	Kdp	125	-	6155	-
23.212	Depue	152.1	Kdp	144.9	8- 1-55	6153	-
24.443	Dimitroff	106.2	Kdp	39.6	6- 2-55	6181	-
26.113	-	111.9	Kdp	71.9	6- 2-55	6191	-
26.212	-	148	Kdp	132	-	6118	Pumping level
27.434	Union County Schools	100	Kdp	40	-	6181	-
29.322	-	149.8	Kdp	105.3	8- 1-55	6181	6-in. casing
30.231	C. M. Garrett	135	Kdp	85	-	6199	6-in. casing
31.234	C. M. Garrett	193.0	Kdp	-	-	-	-
32.241	B. Doitchinoff	141	Kdp	-	-	-	L
33.133	-	161.0	Kdp	45.2	8- 1-55	6214	-

34.222	C. M. Garrett	174	Kdp	38	-	6184	-
34.323	R. H. Sebring	80	Kdp	30	-	-	-
35.211	-	-	-	47.3	5-31-55	6166	-
35.333	G. Belcheff	118	Kdp	90	-	6112	Cased to 10 ft
26.30. 1.142	Mrs. Kellers	214.1	Kdp	171.1	7-29-55	5859	Pumping level; 5-in. casing
4.242	Doherty	152.4	Kdp	107.5	-	6098	-
4.443	Doherty	82.2	Kdp	80.4	7-28-55	6040	4-in. casing
5.211	Doherty	-		58.5	7-28-55	6144	Pumping level
7.432	E. Jones	60	Kdp	20	-	6153	-
7.434	E. Jones	60	Kdp	20	-	6157	-
8.311	Doherty Inv. Co.	22.0	Kdp	15.6	9-27-55	6133	-
10.312	Doherty Inv. Co.	134.0	Kdp	114.0	7-29-55	5995	-
18.431	F. Atchley	135	Kdp	70	-	6112	8-in. casing
20.314	Snyder	140	Kdp	-	-	-	-
22.324	Reed and Snyder	285	Kdp	-	-	-	6-in. casing to 285 ft; L
24.441	Snyder	150	Kdp	-	-	-	Ca
30.442	Snyder	52.6	Kdp	23.3	6- 2-55	6088	8-in. casing
31.112	-	75.8	Kdp	74.4	6- 2-55	6100	4-in. casing
31.313	F. Atchley	62.0	Kdp	35.3	6- 3-55	6116	7-in. casing
34.113	Snyder	60	Kdp	30	-	-	-
26.31. 1.432	G. Jones	250	Kdp	200	-	-	-
6.323	Burchfield	202.9	Kdp	180.2	7-29-55	5836	Pumping level

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
8.121	H. Gresham	350	Kdp	310	-	5693	-
9.313	Mrs. Keller	205	Kdp	197.2	4-25-55	5787	-
21.123	Campbell	287.0	Kdp	268.4	4-25-55	5740	-
25.432	Snyder	200	Kdp	-	-	-	-
28.231	Snyder	239	Kdp	-	-	-	-
30.424	Reed and Snyder	234	Kdp	-	-	-	6-in. casing to 234 ft; Ca
32.344	Snyder	310	Kdp	-	-	-	-
26.32. 1.131	Colorado and Southern Ry.	455	Kdp	180	1945	5537	Industrial; 10-in. casing to 207 ft; 8-in. casing 0 to 428 ft; perforated 290 to 398 ft; reported yield 110 gpm, pumping level 220 ft in January 1945; Ca; L
1.132	Colorado and Southern Ry.	720	Je	320	-	-	Industrial; used as stand-by for well 131; Ca
1.344	W. A. Hamilton	160	To	-	-	-	-
2.244	L. R. Scarlott	225	To	-	-	-	-
2.244a	Community of Mt. Dora	235	To	220	-	-	Public supply
3.111	W. A. Hamilton	150	To	-	-	-	-
4.334	G. Jones	200	To	175	-	-	-

5.344	G. Jones	303	Kdp	175	-	5623	L
9.412	G. Jones	170	To	150	-	-	-
11.121	W. A. Hamilton	160	To	-	-	-	-
11.422	W. A. Hamilton	150	To	-	-	-	-
12.313	Shufflefield	164	To	155	-	5528	-
13.111	F. Atchley	135	To	130	-	5519	Ca
13.111a	F. Atchley	220	Kdp	130	-	5518	-
13.242	F. Atchley	122.3	To	117.8	-	5488	4-in. casing
14.134	G. Jones	271	Kdp	-	-	-	-
17.432	G. Jones	269	Kdp	175	-	-	-
19.144	R. Chambers	320	Kdp	250	-	-	-
24.244	F. Atchley	37.5	Qal	33.0	10-18-54	5492	5-in. casing
25.243	C. Dillinger	88.4	To	68.4	10-18-54	-	5-in. casing
27.233	G. Jones	200	Kdp	-	-	-	-
27.240	Hoxsey No. 1 Jones	985	-	-	-	-	Oil-test well; L
28.333	Wiley	38.7	Qal	36.5	11-12-54	-	5-in. casing
29.413	Wiley	30.9	Qal	27.9	11-12-54	-	5-in. casing
30.333	F. Rose	200	Kdp	117	-	-	Ca
31.212	F. Rose	200	Kdp	-	-	-	-
32.221	F. Rose	80	To	65	-	-	-
33.121	Wiley	115.6	Kdp	49.2	11-12-54	-	5-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
33.432	Mrs. G. T. Wiley	220	Kdp	190	-	5497	-
35.222	G. Jones	24.6	Qal	22.2	10-18-54	5440	5-in. casing
36.432	C. Dillinger	58	To	-	-	-	8-in. casing
26.33. 1.222	K. Kline	200	To	180	-	-	-
2.222	K. Kline	200	To	180	-	5253	-
3.332	K. Kline	160	To	138.5	10-15-54	-	4-in. casing
5.311	K. Kline	280	Kdp	-	-	-	-
7.111	-	185.0	To	167.7	11-12-54	5513	-
8.312	W. G. Smith	150	To	-	-	-	-
11.113	K. Kline	120	To	-	-	-	-
12.422	K. Kline	120	To	54.9	10-15-54	-	6-in. casing
14.412	C. Kilgore	235	Kdp	200	-	5287	Ca
16.132	W. A. Hamilton	152	To	-	-	-	-
18.141	W. A. Hamilton	135	To	-	-	-	5-in. casing to 129 ft
19.133	W. G. Smith	33.6	Qal	17.9	10-18-54	5497	4-in. casing
22.211	McDonald	205	Kdp	-	-	-	-
22.433	McDonald	120	To	-	-	-	-

23.111	McDonald	195	Kdp	-	-	-	-
26.224	C. Kilgore	180	Kdp	160	-	5238	-
30.313	W. G. Smith	71.0	To	65.0	10-18-54	5461	4-in. casing
30.444	E. Heringa	69.8	To	54.3	10-18-54	5438	-
31.411	C. Dillinger	54	Kdp	35.6	10-18-54	5333	Pumping level
32.244	E. Heringa	90	Kdp	60	-	5290	-
36.343	E. Heringa	21.6	Qal	18.8	10-19-54	-	-
26.34. 2.344	R. Waters	360	Kdp	-	-	-	-
5.434	J. O. Wood	160	To	140	-	-	-
6.222	K. Kline	-	-	181.7	10-12-56	5215	6-in. casing
8.344	K. Kline	127	To	-	-	-	5-in. casing
9.111	J. O. Wood	200	To	190	-	-	-
18.234	C. Kilgore	225	Kdp	165	-	5219	4-in. casing
19.334	C. Kilgore	80	Kdp	33.1	10-20-54	5175	4-in. casing
19.442	C. Kilgore	140	Kdp	105	-	5164	Ca
20.343	C. Kilgore	-	-	44.8	10-20-54	5166	-
21.224	C. Kilgore	79.4	To	29.7	10-20-54	-	5-in. casing
21.443	C. Kilgore	77.9	To	65.1	10-20-54	5125	4-in. casing
24.313	C. Kilgore	265	Kdp	125	-	-	-
25.243	C. Kilgore	115	Kdp	64.5	10-20-54	5050	5-in. casing to 115 ft; L
25.433	C. Kilgore	77.0	Kdp	44.2	10-20-54	5032	-
28.111	C. Kilgore	180	Kdp	95	-	5125	5-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
35.114	C. Kilgore	20	Qal	14	-	5041	Dug; Ca
26.35. 2.132	J. E. Ranch, Inc.	277	Kdp	-	-	-	Uncased; Ca
6.212	J. E. Ranch, Inc.	332	Kdp	290	-	5107	8-in. casing to 16 ft; Ca
14.424	J. E. Ranch, Inc.	29.6	Qal	28	-	-	Dug
16.431	Steed	24.0	Qal	18.6	10-12-54	4916	Irrigation; dug; centrifugal pump
19.224	O. Giles	132	To	109.7	10-12-54	5050	Unused; 4-in. casing
22.121	-	-	-	-	7-28-54	-	Ca
25.443	Zeigh and Elliot	285	Kdp	-	-	-	-
27.112	C. Wall	-	-	91.7	10-12-54	4991	Test well; 8-in. casing
27.343	Convalescent Home	162	To	93	-	4963	7-in. casing
27.443	Town of Clayton	170	To	97	-	4955	Public supply; well 2; reported yield 40 gpm; 10-in. casing to 131 ft; Ca
28.421	Fort Jordan, Inc.	-	-	57.0	4-21-55	4995	Not completed, 4-21-55
29.114	-	47.8	To(?)	40.4	10-29-54	5012	-
30.444	-	90.2	To	55.1	3-25-55	4991	Unused
34.134	J. Johnson	225	Kdp	165	-	4825	-
34.211	Town of Clayton	125	To	96	-	4956	Public supply; well 1; yield 61 gpm 4-23-54; 6-in. casing to 125 ft; Ca

34.211a	Town of Clayton	125	To	97	-	4954	Unused; test well behind City Hall; Ca
34.212	Town of Clayton	750	Je	-	-	-	Public supply; well 3; leased from Colorado and Southern RY; reported yield 150 gpm; 8-in. casing to 750 ft; Ca
34.243	Town of Clayton	705	Kdp	-	-	-	Public supply; well 4; reported yield 120 gpm; 7-in. casing to 705 ft; perforated 385-477 ft; Ca
34.422	Town of Clayton	800	Je	-	-	-	Public supply; well 5; reported yield 290 gpm; 10-in. casing to 600 ft; 6-in. liner to 799 ft; Ca; L
34.441	B. Sink	270	Kdp	-	-	-	-
35.313	Town of Clayton	497	Kdp	189.0	1953	4845	Public supply; well 7; reported yield 275 gpm; 10-in. casing to 497 ft; Ca
36.143	Town of Clayton	374	Kdp	243	1954	4732	Public supply; well 6; reported yield 135 gpm; 12-in. casing to 374 ft.; perforated 259-374 ft; Ca
36.320	Town of Clayton	389	Kdp	260	-	4740	Public supply; well 8; reported yield 320 gpm; 12-in. casing to 389 ft
26.36. 2.333	Colorado Interstate Gas Co.	214	Kdp	159	-	4603	Industrial; well 2; reported yield 120 gpm; L
2.333a	Colorado Interstate Gas Co.	210	Kdp	145	-	4618	Industrial; well 3
2.334	Colorado Interstate Gas Co.	213	Kdp	152.5	6- -40	4614	Industrial; well 4

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
2.442	-	-	-	183.1	8-17-54	4606	Unused; 4-in. casing
3.434	-	-	-	132.7	8-17-54	4620	Unused; 4-in. casing
5.243	C. Lawrence	66.3	To	56.3	8-17-54	4769	Pumping level; 4-in. casing
5.313	C. Lawrence	58.0	To	43.9	8- 3-54	4800	Unused; 4-in. casing
8.322	Adams	-	-	49.0	8-18-54	4741	-
8.333	D. Paddock	105	To	-	-	-	Irrigation; 18-in. casing; yield 900 gpm
9.214	F. Freeman	300	Kdp	95	-	4683	Irrigation; pumping level 160 ft.; yield 462 gpm 6-26-54
9.421	F. Freeman	100	To	77	-	-	-
10.244	E. Wilson	140	To	100	-	-	-
11.111	Colorado Interstate Gas Co.	204	Kdp	138.6	8-11-54	4620	Unused; well 1
11.434	U. S. Gov't	158.5	To	-	-	-	5-in. casing
13.231	J. Dickens	240	To/Kdp	129	-	4596	Irrigation; pumping level 141.5 ft ; 20-in. casing; yield 500 gpm 7-3-54; Ca
15.412	E. S. Flesher	310	To/Kdp	145	-	4608	Irrigation; pumping level 220 ft ; 18-in. casing; yield 1140 gpm 1-6-54; Ca
15.434	E. S. Flesher	125	To	85	-	-	-

16.343	C. J. Cox	118	To	-	-	-	Old well 20 ft north
17.124	W. A. Raines	105	To	50	-	4727	Irrigation; 24-in. casing; reported yield 1000 gpm
17.334	W. A. Raines	115	Kdp	83	-	4768	5-in. casing
17.434	L. A. McElfresh	160	Kdp	65	-	4766	-
18.223	Zeigh and Elliot	38	To	28	-	4777	Two wells, same depth
21.213	C. J. Cox	138	Kdp	-	-	-	-
22.133	E. S. Flesher	100	To	92.4	7- 6-54	4687	-
25.242	C. D. Ranch	120	To	113.1	7- 5-54	-	Pumping level; Ca
29.333	Zeigh and Elliot	185	Kdp	160	-	-	-
29.434	J. H. Teague	237	Kdp	185	-	-	-
31.212	Zeigh and Elliot	185	Kdp	155	-	-	-
32.244	Blackwell	350	Kdp	198	-	-	Ca
32.433	Kitts	172	Kdp	120.6	8-16-54	-	Pumping level; 4-in. casing
34.413	U. S. Gov't	80	Kdp	62.1	5-29-54	4788	7-in. casing; Ca
35.313	-	62	To	55.9	5-29-54	4782	Unused
26.37. 5.142	F. K. Petro	218	To	190	-	-	-
27.28. 6.444	Cowan	173.0	Kdp	160	-	6676	-
7.141	Cowan	100	Kdp	80	-	6678	-
7.333	Cowan	29.4	Qal	25.3	10- 5-55	6698	Dug
9.334	Cowan	100	Kdp	-	-	-	-
9.422	Cowan	100	Kdp	-	-	-	4-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
13.124	King Inv. Co.	190	Kdp	-	-	-	8-in. casing
14.434	King Inv. Co.	116.9	Kdp	112.0	10- 4-55	6468	6-in. casing to 116 ft
14.434a	King Inv. Co.	127	Kdp	107	-	6481	6-in. casing to 127 ft
15.331	King Inv. Co.	60	Kdp	50	-	6513	Dug
15.332	King Inv. Co.	75	Kdp	65	-	6505	6-in. casing
15.441	Cowan	101.9	Kdp	94.5	10- 4-55	6505	-
18.411	T. Steinberger	21	Qal	16	-	6663	Dug
19.121	Bernal	64.5	Kdp	59.1	10- 5-55	6647	-
19.314	Salyer	130.0	Kdp	116.1	10- 5-55	6648	-
22.114	King Inv. Co.	126	Kdp	-	-	-	-
25.411	King Inv. Co.	200	Kdp	170	-	6435	6-in. casing
28.234	King Inv. Co.	191	Kdp	185	-	6535	4-in. casing
32.433	King Inv. Co.	80	Kdp	60	-	6395	6-in. casing to 77 ft
34.344	E. Biffle	360	Kdp	-	-	-	6-in. casing to 160 ft
27.29.22.143	Doherty Inv. Co.	280	Kdp	250	-	6083	-
25.322	L. Sink	200	Kdp	170	-	6126	-
34.114	Doherty Inv. Co.	-	-	27.9	9-23-55	6281	-

27.30. 9.232	Doherty Inv. Co.	500	Kdp	-	-	-	-
21.412	Doherty Inv. Co.	300	Kdp	-	-	-	-
27.222	C. B. Irwin	235	Kdp	220	-	5965	-
27.431	C. B. Irwin	380	Kdp	-	-	-	-
35.122	Mrs. Kellers	209.9	Kdp	205.3	7-29-55	5914	-
35.244	Mrs. Kellers	215.0	Kdp	170	-	5930	-
27.31. 1.133	F. Weese	255	Kdp	165	-	5696	Ca; L
2.222	C. B. Irwin	170	Kdp	150	-	5705	-
3.433	S. D. Hays	340	Kdp	-	-	-	-
3.433a	S. D. Hays	240	Kdp	230	-	5765	-
3.444	C. B. Irwin	228.3	Kdp	216.5	7-22-55	5742	5-in. casing
5.233	S. D. Hays	310	Kdp	-	-	-	5-in. casing
10.214	Village of Grenville	280	Kdp	270	-	5726	Public supply
10.242	Village of Grenville	270	Kdp	250	-	5720	Public supply; Ca
11.411	M. Sentis	250	Kdp	215	-	-	-
12.311	F. Mahannah	250	Kdp	215	-	-	-
15.222	W. Sink	215	Kdp	200	-	-	Pumping level
16.444	C. B. Irwin	200	Kdp	186	-	5775	-
17.243	Mrs. Frieze	300	Kdp	252.7	7-22-55	5752	-
18.424	C. B. Irwin	420	Kdp	225	-	5831	-
19.122	R. Colyer	200	Kdp	190	-	5923	4-in. casing
21.422	C. B. Irwin	384	Kdp	250	-	5721	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
25.222	G. Jones	200	Kdp	175	-	-	-
26.144	H. Jones	450	Kdp	-	-	-	-
27.442	H. Jones	375	Kdp	-	-	-	-
29.444	R. Colyer	400	Kdp	370	-	5630	-
30.434	R. Abrey	200	Kdp	190	-	5867	-
31.424	Burchfield	200	Kdp	180	-	5848	-
33.122	R. Colyer	209.1	Kdp	201.9	7-29-55	5787	4-in. casing
33.313	L. Colyer	400	Kdp	350	-	5643	-
34.133	R. Colyer	350	Kdp	330	-	5720	-
27.32. 3.133	Wiseman	160	To	140	-	5667	-
3.444	A. C. Oldham	74.6	To	45	-	-	5-in. casing to 74.6 ft
4.312	C. Johnson	94.0	To	85	-	5647	6-in. casing
4.442	Wiseman	167.0	To	144.8	7-28-55	5656	6-in. casing
6.112	C. B. Irwin	150.5	To	132.8	7-22-55	5715	-
6.233	C. B. Irwin	160	To	100	-	5686	-
6.413	C. B. Irwin	153.5	To	131.4	7-22-55	5699	4-in. casing
7.111	J. T. Jones	175	To	155	-	5754	-

8.143	J. T. Jones	275	To	152	-	5683	Irrigation; 20-in. casing to 172 ft ; 16-in. perforated casing to 210 ft ; reported yield 400 gpm
8.211	J. T. Jones	160	To	144	-	5692	-
11.244	A. C. Oldham	25	Qal	10	-	-	5-in. casing
11.244a	A. C. Oldham	37	Qal	8	-	-	6-in. casing
12.141	J. Price	54	To	18	-	-	-
13.111	J. Price	18	Qal	15	-	-	Dug
13.213	J. Price	95	To	65	-	-	-
14.214	J. Price	70	To	45	-	-	-
15.123	N. T. Biffle	60	To	20	-	-	-
17.343	N. T. Biffle	140	To	85	-	-	-
18.322	J. T. Jones	160	To	154	-	5675	-
21.341	N. T. Biffle	160	To	120	-	-	-
23.144	J. Price	45	Qal(?)	20	-	-	-
24.112	J. Price	65	To	50	-	-	Ca
24.112a	J. Price	140	Kdp	70	-	-	Cased to 125 ft ; Ca
24.134	J. Price	110	To	80	-	5564	-
26.334	J. Price	130	To	100	-	-	-
28.344	W. A. Hamilton	114	To	37.6	1953	-	-
32.113	G. Jones	306	Kdp	175	-	5679	-
34.111	W. A. Hamilton	148.2	To	134.0	3-25-55	5596	6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
35.444	J. Price	230	To	217	-	5521	-
36.141	J. B. Kimble	376	Kdp	-	-	-	7-in. casing to 350 ft
27.33. 2.421	R. Kimble	60	Kdp	40	-	5345	-
13.211	R. Kimble	160	To	140	-	-	-
17.133	J. Price	220	Kdp	200	-	-	7-in. casing
26.432	J. B. Kimble	259	To	230	-	5275	L
28.424	J. B. Kimble	375	To(?)	-	-	-	-
35.442	J. B. Kimble	215	To	212.9	10-15-54	-	4-in. casing
27.34. 1.444	S. Price	200	Kdp	100	-	5059	-
2.113	C. J. Harder	110	To	90	-	5159	-
2.434	C. J. Harder	80	To	60	-	5128	-
3.414	A. Price	50	Kdp	40	-	-	-
4.223	S. Price	153	Kdp	37	-	-	-
4.311	Jordan	113.0	Kdp	89.5	6-22-55	5002	5-in. casing
4.424	Harder Bros.	112.2	Kdp	91.5	10-31-54	-	5-in. casing
8.313	R. Kimble	150	Kdp	-	-	-	-
12.224	S. Price	100	Kdp	90	-	-	-

12.424	C. J. Harder	100	Kdp	80	-	5059	-
15.341	B. P. Jordan	193.3	Kdp	155.8	5-16-55	5142	5-in. casing; L
18.122	J. B. Kimble	160	Kdp	-	-	-	-
20.133	J. O. Wood	100	To	70	-	-	-
22.242	W. Waters	155	Kdp	135	-	5154	-
27.422	W. Waters	200	Kdp	170	-	-	-
28.133	J. O. Wood	186	Kdp	166	-	-	-
31.222	J. B. Kimble	230	Kdp(?)	210	-	5190	-
32.233	J. O. Wood	225	To	205	-	-	-
36.133	J. E. Ranch, Inc.	460	Kdp	452	-	-	-
27.35. 3.214	U. S. Gov't	-	-	147.5	8- 3-54	4848	-
5.133	J. E. Ranch, Inc.	84.1	To	76.8	8- 3-54	5057	-
6.111	C. J. Voth	100	To	40	-	5140	-
6.313	W. R. Wiggins	100	To	35	-	5138	Reported good well
7.331	C. J. Harder	93.2	Kdp	79.2	6-22-55	5052	Unused; 8-in. casing
8.142	J. E. Ranch, Inc.	87	Kdp	75.0	8- 3-54	5009	-
12.121	U. S. Gov't	-	-	128.0	8- 3-54	4884	Unused
12.244	U. S. Gov't	144.0	To	94.0	8- 3-54	4890	Ca
13.334	J. E. Ranch, Inc.	40	Qal	26.2	8- 3-54	4844	Dug; Ca
13.424	I. W. Walker	84	Kdp	68	-	-	-
17.223	J. E. Ranch, Inc.	95	Kdp	62.2	8- 3-54	4968	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
22.311	J. E. Ranch, Inc.	300	Kdp	-	-	-	Ca
29.231	J. E. Ranch, Inc.	440	Kdp	-	-	-	6-in. casing to 220 ft ; 4-in. casing to 382 ft ; Ca
27.36. 1.114	C. H. Kennann	214	Kdp	190	-	4633	Reported good well; 6-in. casing
1.141	C. H. Kennann	178	Kdp	160	-	-	-
1.334	-	-	-	179.2	8-18-54	4669	Unused; 4-in. casing
2.242	C. H. Kennann	200	Kdp	170	-	4664	6-in. casing
2.444	D. H. Mock	220	Kdp	205	-	4660	-
3.333	J. A. Barton	160	To	140	-	4740	5-in. casing
3.442	D. H. Mock	200	Kdp	-	-	-	-
4.121	J. A. Barton	80	To	75	-	4830	-
4.414	J. A. Barton	206	Kdp	180	-	4725	5-in. casing
5.442	W. E. Oldham	200	Kdp	100	-	4805	4-in. casing
6.244	I. W. Walker	103	To	-	-	-	-
7.244	W. E. Oldham	175	To	163	-	4732	6-in. casing
7.322	W. E. Oldham	183	To	165	-	4770	Reported yield 30 gpm; 5-in. casing
8.131	W. E. Oldham	173	To	163	-	4733	6-in. casing

8.334	Mrs. Morris	-	-	95.5	8- 4-54	4770	Unused; 4-in. casing
8.434	Mrs. Morris	-	-	82.0	8- 4-54	4769	4-in. casing
10.244	-	-	-	75.0	8-18-54	4745	Unused; 4-in. casing
12.234	C. H. Kennann	156	Kdp	104.8	8-18-54	4693	6-in. casing
13.342	Mrs. B. Mock	130	To	-	-	-	-
13.442	C. H. Kennann	133	To	102.0	8-18-54	-	Pumping level
15.331	C. H. Kennann	120	To	27.1	8-18-54	-	Unused; 6-in. casing
17.212	F. Carter	100	To	60	-	4783	-
17.434	F. Carter	200	To	73.1	7- 7-54	4764	Irrigation; 16-in. casing; slotted 70-130 ft; yield 1000 gpm; Ca
19.214	J. E. Ranch, Inc.	90	To	79.0	8- 3-54	4768	-
20.322	U. S. Gov't	-	-	92.3	8- 3-54	4765	Pumping level
22.111	C. H. Kennann	62	To	35.5	8-18-54	4756	6-in. casing
22.333	C. H. Kennann	-	-	121.9	8-18-54	4729	-
23.122	C. H. Kennann	120	To	90	-	-	4-in. casing
23.422	C. H. Kennann	115	To	85	-	4666	-
25.111	Mrs. B. Mock	233.2	Kdp	126.0	8-17-54	4670	Unused; 8-in. casing
25.111a	Herndon No. 1 Mock	4555	-	-	-	-	Oil-test well; L
25.133	Mrs. B. Mock	220	Kdp	180	-	4625	6-in. casing; Ca
26.444	Mrs. B. Mock	240	Kdp	-	-	-	Unused; 4-in. casing
28.222	-	-	-	120.0	8-17-54	4757	Unused; 3-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
29.411	C. W. Lawrence	220	Kdp	-	-	-	6-in. casing to 220 ft; L
31.411	J. E. Ranch, Inc.	54	To	37.8	7-28-54	4820	-
34.244	Mrs. B. Mock	240	Kdp	220	-	4634	-
35.244	-	240.0	Kdp	228.0	8-17-54	-	-
36.144	Mrs. B. Mock	200	Kdp	-	-	-	4-in. casing
27.37. 5.111	E. Fones	125	To	117	-	4637	4-in. casing
6.331	J. E. Fones	258	To/Kdp	151	-	4660	-
6.331a	J. E. Fones	265	To/Kdp	157	-	4655	Irrigation; 8-in. casing; yield 45 gpm 7-7-54. West irrigation well; Ca
6.442	J. E. Fones	325	To/Kdp	140	-	4649	Irrigation; 16-in. casing to 203 ft; perforated 141 to 203 ft; 12-in. perforated casing from 203 to 265 ft; 8-in. open hole from 265 to 325 ft; reported yield 700 gpm; east irrigation well; Ca; L
6.444	-	-	To/Kdp	-	7- 6-54	-	Ca
7.222	J. E. Fones	152	To	140	-	4655	Reported yield 41 gpm; 4-in. casing
8.244	B. Mock	-	-	100.4	8-18-54	4649	3-in. casing
17.311	B. Mock	120	To	83.6	8-18-54	4661	Pumping level; 6-in. casing

17.443	R. Mock	-	-	24.0	8-18-54	4689	-
18.133	B. Mock	120	To	-	-	-	-
20.122	D. Mock	85	To	74.2	8-18-54	4652	-
30.124	D. Mock	160	Kdp	135	-	4572	-
31.222	D. Mock	185	Kdp	145.7	8-18-54	4614	-
31.343	-	124.0	To	117.9	7-16-54	4681	Unused; 4-in. casing
28.28. 3.211	Clyde House	42	Qal	37	-	6779	-
4.234	Bert L. Bural	30	Qal	25.2	10-13-55	6779	Pumping level
5.113	King Inv. Co.	80	Qal	28	-	6823	6-in. casing
5.312	King Inv. Co.	36.0	Qal	33.1	10-13-55	6798	-
6.211	G. Cowan	90	Qal	80	-	6777	-
7.212	G. Cowan	40	Kdp	11.6	10-13-55	6802	Pumping level
7.422	G. N. Sneed	100	Kdp	29.0	10-13-55	6781	-
9.444	C. Leierer	60	Qal	-	-	-	Dug
9.444a	C. Leierer	70	Qal	47	-	6723	-
10.222	Doherty Inv. Co.	-	-	109.6	9-28-55	6704	Pumping level
16.212	O. D. Click	71.0	Qal	54.6	9-28-55	6724	5-in. casing
17.221	G. N. Sneed	40	Qal	36.5	10-13-55	6758	-
18.212	-	95.0	Kdp(?)	88.0	10-13-55	6774	-
22.333	N. H. Click and Son	225	Kdp	210	-	6596	6-in. casing
22.444	O. D. Click	132	To	125	-	6641	L

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
27.221	O. D. Click	196	Kdp	132	-	6628	-
28.332	Click	180	Kdp	160	-	6641	5-in. casing
30.211	O. R. Johnson	136	Kdp	130	-	6711	-
32.334	King Inv. Co.	214	Kdp	195	-	6642	6-in. casing to 205 ft
33.313	Slayer	270.7	Kdp	245.7	10- 5-55	6622	4-in. casing
33.441	O. D. Click	216.3	Kdp	196	-	6574	7-in. casing to 216.3 ft
34.222	O. D. Click	176	Kdp	169	-	6598	-
35.134	O. D. Click	220	Kdp	-	-	-	-
28.29.13.334	T. Giffin	208	To	198	-	6333	-
13.334a	T. Giffin	226	To	210	-	6331	-
15.333	Doherty Inv. Co.	370	Kdp	-	-	-	-
31.331	N. H. Click & Sons	513	Kdp	475	-	6201	Cased to 509 ft; Ca
32.212	A. Tanifelli	540	Kdp	-	-	-	-
32.344	A. Tanifelli	420	Kdp	390	-	6206	-
36.114	T. Giffin	500	Kdp	460	-	6036	-
28.30. 2.121	A. D. Wetherly	103.5	Kdp	88.7	10-18-55	6075	-
3.211	Green	63.0	To	57.8	10-19-55	6136	-

5.413	L. Martinez	120.0	Kdp	31.3	7-14-55	6211	Pumping level
7.414	Colorado and Southern Ry.	264	Kdp	147	-	6222	Industrial; 12-in. casing to 120 ft; 10-in. casing 0-258 ft; perforated, approximately, from 165-200 ft. and 240-258 ft; tested at 67 gpm after completion in 1927; Ca; L
10.231	A. D. Wetherly	120	Kdp	105	-	6065	-
12.132	A. D. Wetherly	180	Kdp	170	-	5968	-
13.334	A. D. Wetherly	258	Kdp	238	-	5973	-
14.200	-	-	-	-	4- 1-57	-	Ca
15.313	A. D. Wetherly	265	Kdp	245	-	6069	-
16.341	A. D. Wetherly	240	Kdp	230	-	6116	-
18.432	T. Giffin	469	Kdp	409	-	6125	-
22.222	A. D. Wetherly	250	Kdp	230	-	6043	-
28.31. 3.121	D. W. Rankin	130	Kdp(?)	100	-	5841	6-in. casing to 130 ft
6.114	G. Pryor	90	To	40	-	5985	-
6.212	G. Pryor	64	To	44	-	5996	-
13.444	Wagner	60	To	14	-	5791	-
18.334	S. D. Hays	131.5	To(?)	116.6	7-21-55	-	4-in. casing
19.443	S. D. Hays	186.1	Kdp(?)	180.3	7-21-55	5904	Pumping level; 5-in. casing
21.343	W. M. Monk	165	To	-	-	-	5-in. casing; L
23.431	F. A. Rogers	110	To	95	-	5762	-
23.441	F. A. Rogers	110	To	95	-	5760	-
24.222	Wagner	80	To	22	-	5796	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
25.133	Hendricks	100	To	92	-	5754	-
25.324	C. B. Irwin	110	To	95	-	-	-
25.434	C. B. Irwin	135.0	To	100.4	7-22-55	5738	4-in. casing
26.212	Hendricks	135	To	123	-	5736	-
27.313	C. A. Johnson	176.0	To	161.0	10-17-55	5812	-
29.212	S. D. Hays	252	Kdp	198.0	7-21-55	5845	Pumping level
29.312	S. Wawls	180	To	150	-	5930	-
29.414	S. D. Hays	155.0	To	152.2	7-21-55	5887	-
30.242	S. Wawls	240	Kdp	222	-	-	-
32.411	S. D. Hays	300	Kdp	240	-	-	4-in. casing
34.212	-	152.0	To	137.7	7-21-55	5785	-
34.433	S. D. Hays	225.3	Kdp	214.1	7-21-55	5781	-
35.112	C. B. Irwin	125	To	105	-	5774	-
35.131	C. B. Irwin	145	To	-	-	-	-
36.234	C. B. Irwin	131.0	To	120.4	7-22-55	5733	4-in. casing
28.32.10.334	F. A. Rogers	124.5	Kdp	113.2	10-15-55	5600	-
11.321	F. Thomas	100	Kdp	35	-	5460	-

11.321a	F. Thomas	95	Kdp	35	-	5463	-
12.424	D. B. Campbell	189.5	Kdp	155.5	6-30-55	5532	Pumping level; 6-in. casing
12.433	F. Thomas	175	Kdp	124.4	7-15-55	5455	-
13.344	F. Thomas	165	Kdp	150	-	5507	-
13.413	F. Thomas	11.6	Qal	9.0	7-15-55	5590	Dug
18.143	F. A. Rogers	-	-	27.2	10-15-55	5735	Unused
19.434	L. Mahannah	80	To	50	-	5752	-
20.434	F. A. Rogers	12.0	Qal	4.0	10-15-55	5715	Dug
22.343	V. Weese	56.0	To	34.1	7-15-55	5667	-
23.244	F. Thomas	160	Kpd	130	-	5508	-
26.344	Elam	150	Kdp	100	-	5632	-
27.111	L. Jones	60	To	-	-	-	-
27.443	L. Jones	137.7	To	130.1	7-15-55	5663	-
28.121	L. Jones	24	Qal	20	-	5658	-
28.333	Wiseman	160	Kdp	93.1	7-28-55	-	4-in. casing
30.331	C. B. Irwin	175	Kdp	35.9	7-28-55	5730	Irrigation; 16-in. casing to 115 ft ; 14-in. casing to bottom; tested at 300 gpm; pumping level 165 ft on 8-8-55; Ca
30.434	C. B. Irwin	100	To	48.4	7-22-55	5723	-
31.113	C. B. Irwin	139	To	114	-	-	-
31.444	C. B. Irwin	160	To	130	-	5698	-
32.433	M. Sallee	165	To	145	-	5682	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
33.442	F. C. Parck	165	To	110	-	5803	-
35.333	G. J. Campbell	135	To	100	-	5630	-
36.333	State of N. Mex.	160	To	79.8	11-13-54	-	-
28.33. 8.434	A. Behm	200	Kdp	153	-	5413	5-in. casing to 200 ft
9.432	A. Behm	78.0	Kdp	69.2	6-24-55	5512	Pumping level; 4-in. casing
13.221	-	100	Kdp	-	-	-	-
15.111	-	64.0	Kdp	-	-	-	-
15.344	B. P. Moore	168	Kdp	156	-	5390	-
16.244	A. Behm	198	Kdp	168	-	5392	-
17.444	D. Campbell	165	Kdp	135	-	5464	Ca
18.142	D. Campbell	76.1	Kdp	68.6	6-30-55	5487	5-in. casing
18.221	D. Campbell	36.0	Kdp	28.6	6-30-55	5382	Dug; pumping level
19.244	W. L. Scroggs	80	To	60	-	5589	-
20.144	B. P. Moore	101	To	70	-	-	4-in. casing to 101 ft
20.441	W. L. Scroggs	107.0	Kdp	22.7	6-30-55	5548	5-in. casing
21.222	A. Behm	85.7	Kdp	75.8	6-24-55	-	-
21.442	R. Kimble	80	Kdp	40	-	5479	-

22.133	A. Behm	129	Kdp	89	-	5461	-
23.111	L. H. Wood	177.0	Kdp	167.0	6-24-55	5372	Pumping level
23.334	L. H. Wood	228	Kdp	164	-	5312	5-in. casing
23.334a	L. H. Wood	76	Kdp	50	-	5420	-
24.444	L. Tower	90	To(?)	-	-	-	Cased to 90 ft
24.444a	L. Tower	55	To	-	-	-	-
26.122	R. Kimble	109.7	Kdp	83.8	6-24-55	5379	-
28.334	J. D. Price	180	Kdp	150	-	-	-
30.333	J. D. Price	149.4	Kdp	147.4	11-15-54	-	4-in. casing
31.140	J. D. Price	121	Kdp	-	-	-	5-in. casing to 121 ft ; L
31.441	J. D. Price	124	Kdp	95	-	-	Cased to 124 ft
32.444	R. Kimble	140	Kdp	120	-	-	-
33.224	R. Kimble	150	Kdp	-	-	-	-
35.211	R. Kimble	150	Kdp	50	-	5367	-
36.222	R. Kimble	150	Kdp	-	-	-	-
28.34. 1.334	-	129.2	Kdp	114.0	10-11-54	-	4-in. casing
3.323	Dr. C. M. Hurley	20	Kdp	10	-	-	-
5.434	J. C. Geary	117.0	Kdp	75.0	6-23-55	5178	6-in. casing
6.231	Dr. C. M. Hurley	46.2	Kdp	21.2	6-23-54	5222	Pumping level
7.242	J. C. Geary	73.2	Kdp	60.2	6-23-55	5233	Pumping level; 5-in. casing
9.243	Dr. C. M. Hurley	80	Kdp	36.2	10-13-54	-	Pumping level; 6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
10.132	G. L. Devers	90	Kdp	20	-	-	-
10.134	G. L. Devers	50.3	Kdp	11.7	10-13-54	-	6-in. casing
10.433	J. Shields	140	Kdp	120	-	5152	-
11.132	Dr. C. M. Hurley	80	Kdp	-	-	-	-
12.123	-	76.3	Kdp	56.7	10-11-54	-	5-in. casing
13.242	-	145	Kdp	105.6	5-11-55	-	-
15.222	J. Shields	122.2	Kdp	107.4	6-23-55	5166	-
17.222	Dr. C. M. Hurley	12.2	Qal	5.2	6-25-55	5258	Dug
17.242	Dr. C. M. Hurley	220	Kdp	-	-	-	-
17.312	Dr. C. M. Hurley	170	Kdp	-	-	-	6-in. casing
18.411	Dr. C. M. Hurley	168.8	Kdp	142.8	6-25-55	5208	4-in. casing
20.344	C. Holder	22	Qal	18.1	6-24-55	5328	-
20.443	C. Holder	39	Qal	29	-	5295	-
20.443a	C. Holder	18.0	Qal	11.2	6-24-55	5317	Dug
21.222	D. Kornele	165	Kdp	-	-	-	-
22.131	G. J. Campbell	182.8	Kdp	165.0	6-24-55	5177	Pumping level
23.133	G. J. Campbell	125	Kdp	-	-	-	-

24.222	G. J. Campbell	170.0	Kdp	150.7	6-24-55	5112	5-in. casing to 150 ft
26.133	G. J. Campbell	150	Kdp	36.0	6-22-55	5180	Pumping level; 5-in. casing to 120 ft
27.312	J. E. Fones	145	Kdp	122.3	6-22-55	5182	Pumping level
31.311	-	187.3	Kdp	167.7	6-22-55	5246	6-in. casing
34.311	E. Fones	127.7	Kdp	113.7	6-22-55	5181	5-in. casing
28.35. 1.413	W. and O. Harris	175.0	Kdp	-	-	4848	5-in. casing to 214 ft., perforated from 190 to 210 ft, L
3.113	-	65.9	Kdp	45.4	-	5016	-
4.113	P. Miller	100	Jm	19.0	7- 7-54	4989	Irrigation; 14-in. casing; reported yield 150 gpm
5.434	H. Belew	-	-	23.0	8- 4-54	-	Dug
8.211	H. Belew	35	Kdp	-	-	-	-
8.343	H. Belew	87.5	Kdp	85.5	8- 4-54	5065	4-in. casing
9.111	U. S. Gov't	60	Kdp	-	-	-	Weak well; 6-in. casing.
9.224	U. S. Gov't	-	-	44.3	8- 5-54	5045	Unused; weak well; 6-in. casing
9.442	W. Keener	200	Kdp	180	-	4955	6-in. casing
10.333	J. Miller	200	Kdp	180	-	4948	-
11.242	M. Baker	122.0	Kdp	116.0	10-11-54	4969	Pumping level; 4-in. casing
11.313	U. S. Gov't	180	Kdp	150	-	4970	-
12.433	-	-	-	-	7- 7-54	-	Ca
13.111	-	-	-	14.3	-	5006	Dug
15.414	-	33.1	Kdp	29.2	8- 4-54	5015	Unused; 6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
16.444	W. Keener	130	Kdp	115	-	4969	6-in. casing
18.123	C. A. Price	100	Kdp	70.1	9-30-53	-	-
19.121	-	110.4	Kdp	-	9-30-53	-	-
20.431	-	133.5	Kdp	120.0	10-30-53	5004	-
23.342	J. Miller	206	Kdp	146	-	4907	-
24.242	O. Nece	54.3	Kdp	32.8	10-11-54	4980	Unused; 4-in. casing
24.242a	O. Nece	200	Kdp	192	-	4823	4-in. casing
24.443	L. E. Oldham	93	Kdp	77	-	4966	5-in. casing to 93 ft
25.133	L. E. Oldham	92	Kdp	-	-	-	6-in. casing
25.242	O. T. Campbell	62	To	30	-	4952	6-in. casing
26.242	O. T. Campbell	200	Kdp	-	-	-	Unused; 6-in. casing
34.114	U. S. Gov't	165.0	To	-	-	-	-
35.134	U. S. Gov't	-	-	182.0	8- 3-54	4908	Unused
28.36. 2.444	R. Mock	32	Kdp	28	-	4673	-
3.112	J. Harris	175	Kdp	-	-	-	-
4.141	J. Harris	116.0	Kdp	-	8-27-54	-	-
5.111	J. Harris	150	Kdp	-	-	-	4-in. casing

10.212	J. Harris	80	Kdp	-	-	-	-
10.212a	J. Harris	81.0	Kdp	65.2	8-22-54	4694	6-in. casing
11.343	J. Harris	108.0	Kdp	103.1	8-27-54	-	4-in. casing
11.424	C. Kennann	70	To	49.2	8-27-54	-	Pumping level; 6-in. casing
12.323	L. C. Allen	56	To	35	-	4683	-
13.143	J. Kennann	65	To	55	-	4666	5-in. casing; Ca
14.224	J. Kennann	70	To	60	-	-	Ca
14.414	R. Walker	150	Kdp	-	-	-	-
15.141	U. S. Gov't	80	Kdp	65	-	-	-
15.444	W. L. Scroggs	231	Kdp	180	-	4689	-
16.333	R. Rinker	85	Kdp	60.5	8-19-54	4850	Unused
16.411	R. Rinker	140	Kdp	-	-	-	-
19.114	-	21.6	Kdp	19.2	10-11-54	4937	Dug; 4-ft diameter
19.123	-	8.0	Qal	6.2	10-11-54	4936	Dug
19.442	-	48.6	To	39.0	9-30-53	4924	-
20.244	R. Rinker	85	Kdp	65.6	8-19-54	-	Unused; 4-in. casing
20.444	R. Rinker	200	Kdp	-	-	-	-
21.334	J. Freeburg	14.2	Qal	13.1	8-26-54	4863	Dug
21.433	J. Freeburg	37	To	35.8	8-26-54	4840	-
23.222	Baker	128	Kdp	-	-	-	-
23.333	R. Walker	175.0	Kdp	135.7	8-19-54	4681	5-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
24.343	Baker	150	Kdp	-	-	-	-
27.134	R. Rinker	124	Kdp	104.3	8-19-54	4726	-
27.142	U. S. Gov't	161	Kdp	-	-	-	-
28.113	J. Freeburg	12.9	Qal	11.1	9-25-54	4882	Dug; 2-ft diameter
28.341	J. H. Harris	11.3	Qal	5.8	8-25-54	4899	Dug; Ca
29.113	C. A. Twonbly	14.4	Qal	14.0	8-26-54	4928	Dug
29.131	C. A. Twonbly	51	To	46	-	4921	6-in. casing
29.331	G. E. Blackwell	80	To	66	-	4918	5-in. casing
29.444	U. S. Gov't	27.5	To	22.0	8-25-54	4926	Dug
30.224	C. A. Twombly	21	To	19.2	8-26-54	4929	6-in. casing
30.311	G. E. Blackwell	30	To	20	-	4965	Dug; unused
30.444	G. E. Blackwell	70	To	65	-	4923	-
31.122	A. Shellenberg	64.3	To	60.7	10-11-54	4944	5-in. casing
31.134	A. Shellenberg	80	To	20	-	4980	-
31.242	A. Shellenberg	50	To	45	-	4915	Weak well
32.111	School Dist. No. 36	70	To	65	-	4900	-
32.333	C. Williams	96	To	-	-	-	Weak well

32.444	C. A. Twombly	210	Kdp	-	-	-	-
33.314	J. T. Hams	180	Kdp	160	-	-	Ca
33.423	J. Meyers	260	Kdp	180	-	-	-
34.421	C. Kennann	240	Kdp	220	-	4653	-
36.113	C. Kennann	200	Kdp	185	-	-	Reported yield 10 gpm
28.37. 5.343	R. G. Mock	119.9	Kdp	-	8-25-54	-	-
5.444	R. G. Mock	140	Kdp	-	-	-	-
6.242	R. G. Mock	153	Kdp	132.0	8-26-54	4653	6-in. casing to 153 ft; L
6.331	R. G. Mock	83	To	78	-	-	-
7.241	R. G. Mock	50.1	To	33.5	8-25-54	4664	7-in. casing
7.244	R. G. Mock	32.2	To	27.0	8-25-54	4634	4-in. casing
7.332	L. Allen	50	To	33.4	8-26-54	-	-
8.332	Mrs. W. Smith	18	Qal	12	-	4634	Dug
18.121	R. Walker	50	To	40.2	8-26-54	4647	-
18.323	J. Kennann	56	To	35	-	-	6-in. casing
19.121	W. Baker	95	To	-	-	-	-
20.244	W. Baker	53.0	To	44.6	8-26-54	4630	Pumping level; 6-in. casing
20.433	S. Freeburg	130	To	80	-	4635	-
29.432	S. Freeburg	53	To	42	-	-	6-in. casing
30.122	W. Baker	95	To	-	-	-	-
31.331	C. Kennann	140	To	120	-	4658	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
32.112	-	62.0	To	53.5	8-26-54	4646	Unused
32.424	McLain	120	To	-	-	-	-
29.28. 3.111	Cornay Ranch	359	To	324	3-12-58	-	6-in. casing to 351 ft; perforated 315-351 ft; reported yield 35 gpm; Ca; L
5.233	National Park Service	680	QTb/ To(?)	634.4	6-26-62	-	Public supply; Capulin National Monument; 6-in. casing to 680 ft; slotted from 660 to 680 ft; water in volcanic cinders from 662 to 671 ft; and fine sand and clay from 671 to 680 ft; pump tested at 40 gpm with a drawdown of about 0.5 ft; Ca
7.421	John Morrow	130	Qal	107	-	-	Ca
15.241	J. B. Pruett	42	QTb	30	11-11-53	6470	Dug; irrigation; reported yield 150 gpm
17.341	G. N. Sneed and Son	40	QTb	35	-	6810	Dug; irrigation; reported yield 600-700 gpm
17.432	G. N. Sneed and Son	70	QTb(?)	-	-	-	-
18.311	R. A. Pachta	77.5	QTb	9.1	8- 3-55	6788	Test well; 10-in. casing
18.322	R. A. Pachta	57	QTb	19.4	8- 3-55	6784	Test well; 10-in. casing
18.323	R. A. Pachta	48.5	QTb	28	-	6782	Irrigation; 14-in. casing to 48 ft; perforated 22-48 ft; reported yield 1800 gpm; Ca; L

18.333	C. Crist	38	QTb	18.4	8- 3-55	6787	Test well; 10-in. casing
18.343	C. Crist	78.0	QTb	32.5	8- 3-55	6784	Irrigation; 16-in. casing to 47.5 ft; reported yield 1200 gpm; Ca
21.211	G. N. Sneed and Son	98	Qal	-	-	-	6-in. casing to 98 ft
23.234	Doherty Inv. Co.	192.0	Kdp	132.5	-	-	-
26.131	R. S. Pittard	190	Kdp	160	-	-	-
27.313	R. S. Pittard	65.9	Qal	56.9	9-28-55	6776	Pumping level
28.144	G. N. Sneed	65	Qal	55	-	6807	-
28.412	R. S. Pittard	70	Qal	70	-	6761	-
30.222	G. Cowan	147.0	Kdp	133.8	10-13-55	6802	-
31.343	G. Cowan	60	Qal	55	-	-	-
32.333	G. Cowan	80	Qal	60	-	6804	Ca
33.211	G. Cowan	60	Qal	-	-	-	-
33.344	G. Cowan	58	Qal	48.8	10-13-55	6778	-
34.111	-	100	Kdp	60	-	6763	-
29.29. 1.242	R. A. Pachta	204	Kdp	198	-	6332	16-in. casing
3.211	Gruemmer No. 2 Gruemmer	2015	-	-	-	-	Oil-test well; L
7.410	J. M. Lujan	80	Kdp	-	-	-	-
9.410	J. M. Lujan	180	Kdp	150	-	-	-
10.132	Village of Des Moines	-	-	60	-	6590	Public supply; well 1; 6-in. casing; yield about 5 gpm

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
10.133	Village of Des Moines	-	Kdp	60	-	6590	Public supply; well 2; 6-in. casing; yield about 5 gpm; Ca
10.314	Village of Des Moines	240	Kdp	60	-	6590	Public supply; well 3; 6-in. casing to 240 ft; yield about 8 gpm
10.412	Village of Des Moines	180	Kdp	80	-	6570	Public supply; well 4; 6-in. casing to 180 ft; yield 20 gpm
11.234	R. A. Pachta	198	Kdp	158	-	6373	-
13.432	R. A. Pachta	93.0	Kdp(?)	45.4	8- 2-55	-	6-in. casing
14.242	R. A. Pachta	182.4	Kdp	137.1	8- 2-55	-	Pumping level
16.123	C. Archuleta	160	Kdp	40	-	-	6-in. casing
17.100	J. M. Lujan	170	Kdp	25	-	-	-
23.324	Delfino Martinez	130	Kdp	100	7-14-55	6471	-
23.441	Delfino Martinez	101.8	Kdp	92.3	7-14-55	6450	Unused
24.111	-	-	-	-	-	-	Ca
25.113	Delfino Martinez	125.0	Kdp	-	-	-	-
25.321	Dan Martinez	90	Kdp(?)	60	-	-	-
36.121	Dan Martinez	100	Kdp(?)	90	-	6383	-
29.30. 3.231	R. A. Pachta	185.0	Kdp	139.0	8- 5-55	6219	-
4.412	R. A. Pachta	101	Kdp	97	-	6261	-

5.212	Horton	210	Kdp	-	-	-	-
5.432	Van B. and Vane Wilkinson	90	Kdp	55	-	-	-
6.331	R. A. Pachta	164.0	Kdp	103.3	8- 2-55	6404	6-in. casing
7.111	R. A. Pachta	154	Kdp	118.3	8- 2-55	6499	5-in. casing
8.444	R. A. Pachta	125	Kdp	85	-	-	-
9.311	R. A. Pachta	60	Kdp	40	-	-	-
10.413	R. A. Pachta	85	Kdp	54	-	6203	-
12.344	A. D. Weatherly	120	Kdp	100	-	6089	-
17.221	R. A. Pachta	138	Kdp	130	-	-	-
18.122	R. A. Pachta	180	Kdp	140	-	-	-
18.131	R. A. Pachta	85	Kdp	79	-	-	-
24.222	A. D. Wetherly	216.0	Kdp	88.3	10-18-55	6036	-
24.411	A. D. Wetherly	120	Kdp	110	-	5967	-
33.313	L. Ellis	112.0	Kdp	-	-	-	-
36.114	A. D. Wetherly	95.0	Kdp	60	-	6028	-
29.31. 1.112	Van B. Wilkinson	46	Kdp	30	-	5848	-
1.112a	Van B. Wilkinson	60	Kdp	15	-	5854	-
1.121	Van B. Wilkinson	52	Kdp	40	-	5845	-
2.341	Van B. Wilkinson	150	Kdp	115	-	-	-
3.333	Vane Wilkinson	80	Kdp	30	-	-	-
4.333	Vane Wilkinson	110	Kdp	80	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)		Remarks
5.121	Vane Wilkinson	125	Kdp	95	-	-	-	
6.242	Vane Wilkinson	200	Kdp	170	-	-	-	
6.313	Vane Wilkinson	40	Kdp	12	-	-	-	
7.222	Vane Wilkinson	150	Kdp	110	-	5947	-	
7.344	Vane Wilkinson	90	Kdp	45	-	6053	-	
8.222	Vane Wilkinson	156	Kdp	111	-	-	-	
9.343	Vane Wilkinson	48.0	Kdp	27.0	-	-	-	
12.422	Van B. Wilkinson	156	Kdp	140	-	5763	-	
18.212	Vane Wilkinson	160	Kdp	120	-	5961	-	
21.412	B. Jones	100	Kdp	50	-	5882	-	
22.111	F. Smith	45.8	To	42.1	10-18-55	5910	-	
23.244	B. Jones	180	Kdp	160	-	5753	-	
24.343	B. Jones	75	To(?)	67	-	5826	-	
25.211	B. Jones	186	Kdp	176	-	5687	-	
25.333	B. Jones	160	Kdp	130	-	5666	-	
29.343	D. W. Rankin	87.4	Kdp(?)	72.4	10-19-55	5941	6-in. casing to 13 ft	
30.223	A. D. Wetherly	60	Kdp	40	-	5933	-	

30.333	S. Pryor	68	Kdp	35	-	5974	-
31.343	S. Pryor	120	Kdp	90	-	5968	-
32.413	Worly	70	To(?)	40	-	5941	-
33.233	D. W. Rankin	15	Qal	7.5	-	5911	-
34.224	J. Edmanson	40	Kdp(?)	20	-	5827	6-in. casing to 40 ft , perforated 20-40 ft
29.32. 1.233	M. Marquez	30	Qal	25	-	5404	-
2.424	Corrumpa School	30	Qal	25.9	10-14-55	5422	Dug
11.144	C. Arguello	20	Qal	15	-	5486	Dug
18.234	F. Smith	60	Kdp	30	-	5699	Ca
18.234a	F. Smith	120	Kdp	90	-	5639	Ca
18.412	F. Smith	14	Qal	10	-	5704	Dug
22.111	Freeman No. 1 Smith	2965	-	-	-	-	Oil-test well; L
27.432	F. Smith	112.0	Kdp	52.3	-	5620	-
28.141	F. Thomas	121.5	Kdp	90.2	7-13-55	5642	-
29.131	B. Jones	19.0	Qal	17.7	10-18-55	5784	-
30.111	B. Jones	260	Kdp	127.3	10-18-55	5749	-
30.222	B. Jones	140	Kdp	130	-	5666	-
30.441	B. Jones	189	Kdp	169	-	5638	-
34.244	F. Thomas	165	Kdp	-	-	-	-
29.33. 4.131	G. Larkin	100	Kdp	16.5	10-14-55	5510	-
9.344	G. Larkin	240	Je(?)	36.2	10-14-55	5376	4-in. casing to 240 ft ; L

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
16.422	G. Larkin	90	Je(?)	29.8	10-14-55	5284	6-in. casing to 67 ft
21.422	G. Larkin	118.0	Je(?)	55.0	10-14-55	5249	-
28.123	-	89.0	Je(?)	30.5	10-14-55	5309	-
29.312	F. Smith	-	-	23.9	10-14-55	5368	-
29.34. 1.222	-	76.4	To	52.4	6-29-55	5200	-
2.333	L. M. Long	79.5	To	59.1	6-27-55	5266	Dug
4.424	L. M. Long	61.0	To	-	-	-	5-in. casing
7.421	Chilcote	100	To	86.5	6-28-55	5321	Pumping level
9.132	Chilcote	98.0	To	90.9	6-28-55	5302	-
10.131	L. M. Long	-	-	86.0	6-28-55	5296	Pumping level
12.312	Mrs. B. McLaughlin	68	To	53	-	5203	7-in. casing to 65 ft
12.331	Mrs. B. McLaughlin	60.5	To	58.9	6-27-55	5217	Dug
14.221	Mrs. B. McLaughlin	160	Kdp	60	-	5202	-
14.422	J. Weiland	122.5	To(?)	108.1	6-27-55	5179	Pumping level
15.311	Mrs. B. McLaughlin	114	To	80	-	5247	-
15.311a	Mrs. B. McLaughlin	120	To	85	-	5247	-
18.244	P. Long	-	-	52.5	6-28-55	5210	-

22.343	Mrs. B. McLaughlin	202	Kdp	34.9	6-25-55	5190	Test well; L
25.312	B. R. Miller	7.0	Qal	6.5	6-25-55	5135	Dug; pumping level
25.424	B. R. Miller	160	Kdp	88.2	6-25-55	5088	5-in. casing
26.222	B. R. Miller	20	Qal	17.1	6-25-55	5167	Dug
26.322	F. Peet	12.0	Qal	6.8	6-25-55	-	Pumping level
27.321	F. Peet	106	Kdp	95	-	5109	4-in. casing
34.113	F. Peet	87.3	Kdp	75.2	6-25-55	5129	4-in. casing
34.424	F. Peet	31.0	Kdp	23.5	6-25-55	5106	-
36.221	B. R. Miller	115	Kdp	108	-	5066	-
29.35. 3.122	L. Bray	200	Kdp	165	-	-	-
7.434	L. Bray	170	Kdp	150	-	5116	-
8.424	L. Bray	190	Kdp	65	-	5140	6-in. casing to 190 ft
9.111	Mrs. Morris	49.6	Kdp	37.4	-	5148	-
13.424	A. Witt	190	Jm(?)	-	-	-	-
15.332	A. Witt	265	Jm	125	-	4951	8-in. casing; reported yield 1 to 2 gpm; no water below 180 ft ; L
18.424	J. Weiland	180	Kdp	-	-	-	5-in. casing to 180 ft
19.212	W. Behm	-	-	50.5	8- 5-54	5147	Unused; 4-in. diameter
20.133	W. Behm	190	Kdp	175	-	5064	-
20.211	-	-	-	18.4	6-27-55	5148	-
21.314	T. Irons	130	Kdp	105	-	5026	Hot water at 113 feet reported

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
22.332	A. Witt	50	Kdp	34.2	10- 9-54	4974	9-in. casing
23.234	A. Witt	150	Kdp	-	-	-	-
28.131	H. Belew	116.0	Kdp	101.9	8- 5-54	5001	4-in. casing
28.431	H. Belew	61.4	Kdp	42.7	8- 5-54	4982	Unused; 4-in. casing
29.311	W. Behm	116	Kdp	95	-	5052	-
30.233	M. Belew	284	Kdp(?)	119.8	8- 5-54	5070	6-in. casing
31.443	M. Belew	18	Qal	16.5	-	5043	Dug
32.443	M. Belew	77.0	Kdp	27.0	8- 5-54	4990	Unused
34.111	J. Beasly	51.0	Kdp	-	-	-	-
29.36. 1.122	R. Huff	291	Je(?)	-	-	-	6-in. casing to 274 ft
8.111	W. Harris	35	Qal	28.3	10- 8-54	-	4-in. casing
9.141	Fernandez	27	Qal	23.6	8-27-54	-	6-in. casing
10.124	Crane	30	Qal	15	-	-	-
14.342	Mrs. I. Martinez	140	Kdp	131	8-27-54	-	4-in. casing
15.122	J. T. Harris	162	Kdp	158	8-27-54	-	4-in. casing
19.143	E. A. Lester	50	Kdp	-	-	-	-
21.243	J. T. Harris	180	Kdp	-	-	-	8-in. casing

22.424	J. T. Harris	179	Kdp	174.0	8-27-54	4690	-
24.314	J. T. Harris	180	Kdp	-	-	-	-
33.314	J. T. Harris	180	Kdp	-	-	-	4-in. casing; Ca
35.122	D. H. Mock	125	Kdp	115	-	4695	-
35.211	Mrs. I. Martinez	170	kdp	150	-	4683	-
35.413	D. H. Mock	180	Kdp	120	-	-	3-in. casing
29.37.17.234	Mrs. W. Smith	60	Kdp	46.4	8-26-54	-	4-in. casing; two wells at this site
19.431	D. H. Mock	100	Kdp(?)	-	-	-	-
20.133	-	200	Kdp	156.5	8-26-54	4694	-
20.334	J. T. Harris	180	Kdp	127.2	8-26-54	4745	-
30.424	R. Mock	200	Kdp	85.4	8-26-54	4766	-
31.232	R. Mock	176.9	Kdp	130.5	8-25-54	4677	6-in. casing
30.28. 3.133	W. J. Largent and Son	271	Kdp	-	-	-	6-in. casing to 171 ft; L
4.132	W. J. Largent and Son	80	Kdp	55	-	6504	-
5.322	T. Cornay	303	Kdp	-	-	-	Water 250-270 ft
6.124	-	21.5	Qal	9.5	11- 5-55	6601	6-in. casing
10.134	P. Drew	50	Kdp	25	-	6446	-
11.314	Johnson Cattle Co.	39.4	Kdp	32.6	11- 8-55	6396	5-in. casing
14.111	Johnson Cattle Co.	432	Jm	110	-	6339	Ca; L
14.114	Johnson Cattle Co.	100	Kdp	-	-	-	Ca
14.221	W. E. Inlow	25	QTb	12	-	6438	8-in. casing to 25 ft; Ca

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
20.312	T. Cornay	165	Kdp	115	-	6730	-
20.321	T. Cornay	15	Qal	7	-	6823	-
30.28.25.113	Doherty Inv. Co.	95.5	Jm	-	-	-	-
25.444	Doherty Inv. Co.	45	Qal	14	-	6486	Test well; 16-in. casing gravel-packed in 24-in. hole; reported yield 475 gpm; pumping level 40 ft
26.312	Doherty Inv. Co.	128.5	Kdp	-	-	-	-
27.314	T. Cornay	185	Kdp	155	-	6583	-
31.231	T. Cornay	180	Kdp	145	-	6964	-
30.29. 9.241	-	179	Kdp	-	-	-	6-in. casing to 30 ft
22.323	J. E. Alexander	181	Kdp	-	-	-	6-in. casing to 40 ft
24.421	-	-	-	191.5	8- 2-55	6264	-
25.333	-	111	Kdp	77.5	8- 2-55	6508	-
35.422	-	31	Qal	28.7	8- 5-55	6525	Dug
30.30. 7.144	R. A. Pachta	80	Je(?)	54.0	8- 2-55	-	-
18.422	R. A. Pachta	285	Je(?)	284	-	-	6-in. casing to 21 ft
28.440	T. J. Brown	236	Kdp	210	-	-	-

31.311	Van B. and Vane Wilkinson	150	Kdp	120	-	-	-
31.424	Van B. and Vane Wilkinson	150	Kdp	105	-	-	-
32.433	-	250	Kdp	210	-	6271	-
34.433	T. J. Brown	240	Kdp	210	-	6149	6-in. casing
35.333	-	50	Kdp	21.3	8- 5-55	6299	-
30.31. 4.411	W. Buchard	125	Kdp	115	-	-	6-in. casing to 125 ft
11.242	Y Bar C Ranch	131	Kdp	-	-	-	-
13.230	L. B. Larkin	200	Kdp	-	-	-	6-in. casing to 18 ft
13.444	Vane Wilkinson	47	Kdp	32	-	5850	-
20.444	Vane Wilkinson	200	Kdp	100	-	5889	-
22.132	T. J. Brown	137	Kdp	33	-	-	6-in. casing
23.214	Vane Wilkinson	80	Kdp	50	-	5901	-
24.213	Vane Wilkinson	55	Kdp	35	-	-	-
26.432	Littrell	145	Kdp	125	-	5831	-
27.233	Vane Wilkinson	200	Kdp	175	-	5844	-
27.334	Littrell	100	Kpd	70	-	5912	-
29.341	Vane Wilkinson	225	Kdp	180	-	5888	-
33.422	Vane Wilkinson	120	Kdp	105	-	5880	-
30.32. 5.232	Y Bar C Ranch	300	Jm(?)	-	-	-	-
5.331	Y Bar C Ranch	41	Qal	25	-	-	-
8.423	Van B. and Vane Wilkinson	45	Kdp	17	-	5770	-
10.232	J. H. Deatherage	127	Je(?)	87	-	5685	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
11.343	W. A. Hamilton	66	Kdp	56.1	12- 2-55	5752	Unused
11.414	A. F. Willett	80	Kdp	45	-	5719	-
12.223	B. J. Brannon	60	Je(?)	-	-	-	-
13.443	A. F. Willett	68.0	Je(?)	30.3	12- 2-55	5587	-
14.341	A. F. Willett	80	Kdp	40	-	5695	-
15.344	Van B. and Vane Wilkinson	210	Kdp	170	-	5630	-
16.113	Van B. and Vane Wilkinson	60	Kdp	30	-	5794	-
17.444	Van B. and Vane Wilkinson	200	Kdp(?)	-	-	-	-
21.222	Van B. and Vane Wilkinson	200	Kdp(?)	170	-	5667	-
21.231	Van B. and Vane Wilkinson	40	Kdp	20	-	5809	-
34.143	Van B. and Vane Wilkinson	51.8	Kdp(?)	39.5	11-10-55	5492	5-in. casing
34.322	Van B. and Vane Wilkinson	33.5	Kdp(?)	29.8	11-10-55	5494	6-in. casing
30.33. 3.233	L. Meeks	100	Kdp	-	-	-	-
5.312	B. J. Brannon	40	Kdp(?)	20	-	5334	-
5.332	B. J. Brannon	150	Je(?)	120	-	5249	-
5.332a	B. J. Brannon	98	Jm(?)	-	-	-	-

5.332b	B. J. Brannon	365	Trd	-	-	-	Unused
6.142	W. A. Hamilton	141	Je(?)	-	-	-	5-in. casing to 101 ft
10.134	L. Carmine	125	Kdp	35	-	5412	-
13.124	E. L. Bland	225	Kdp(?)	95	-	5286	-
13.442	E. L. Bland	125	Kdp	70	-	5288	-
14.334	E. L. Bland	70.5	Kdp	64.6	-	5364	-
14.341	E. L. Bland	180	Kdp	135	-	5282	-
15.433	L. Carmine	93.5	Kdp	51.4	11-14-55	5404	-
16.131	L. Carmine	125	Kdp	28.0	11-14-55	5426	-
17.213	A. F. Willett	100	Kdp	21.4	-	5452	Unused
17.333	A. F. Willett	80	Kdp	40	-	5500	-
20.111	A. F. Willett	100	Kdp	40	-	5502	-
21.413	G. Larkin	300	Kdp(?)	280	-	5188	-
22.121	A. F. Willett	80	Kdp	40	-	5432	-
27.231	G. Larkin	200	Kdp	180	-	5244	6-in. casing; Ca
28.111	G. Larkin	30	Kdp(?)	20	-	5475	-
29.142	G. Larkin	130	Je(?)	112	-	-	-
31.212	G. Larkin	47	Kdp(?)	37.5	-	-	-
35.113	G. Larkin	57.0	Kdp	24.4	2-12-55	5428	-
30.34. 1.212	J. E. Ranch, Inc.	430	Je(?)	-	-	-	-
3.414	J. E. Ranch, Inc.	586	Je(?)	300	-	4959	5-in. casing to 586 ft

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
5.341	J. E. Ranch, Inc.	73.9	Kdp	43.9	6-29-55	5326	-
8.441	J. E. Ranch, Inc.	475	Je(?)	225	-	5102	4-in. casing to 475 ft; two wells this location
14.122	J. E. Ranch, Inc.	465	Je(?)	-	-	-	Cased to 465 ft
26.144	J. E. Ranch, Inc.	200	Kdp	160	6-29-55	5060	6-in. casing
27.333	J. E. Ranch, Inc.	150	To	101.5	6-29-55	5272	Pumping level
31.224	G. Everett	85	To	82	-	5343	-
32.331	G. Everett	128.0	To	57.4	6-27-55	5382	Pumping level; 4-in. casing
33.313	J. E. Ranch, Inc.	79.8	To	51.0	6-28-55	5374	6-in. casing
34.333	G. Everett	90	To	70	-	5297	6-in. casing to 90 ft; L
30.35. 5.213	J. E. Ranch, Inc.	397	Je(?)	345	-	4742	-
9.313	J. E. Ranch, Inc.	122.0	Kdp	73.2	6-29-55	5009	-
10.211	W. Harris	52.5	Kdp(?)	36.5	8-30-54	-	6-in. casing
14.131	W. Harris	47	Kdp	34.0	8-30-54	-	-
27.313	L. Bray	225	-	-	-	-	Test well; L
29.133	J. E. Ranch, Inc.	80.9	Kdp	70.6	6-29-55	5039	Pumping level
35.443	Mrs. Morrison	165	Kdp	131	10- 8-54	-	-

36.324	Mrs. Morrison	150	Kdp	126.0	10- 8-54	-	Pumping level; 6-in. casing
30.36. 1.124	L. B. Sayre	55.0	Td	36.0	8-30-54	-	-
1.322	C. H. Potter	75	Je(?)	44.7	8-30-54	-	-
2.134	W. Harris	63.0	Td	46.9	8-30-54	-	6-in. casing
3.244	W. Harris	40.0	Td	20.4	8-30-54	-	6-in. casing
7.113	W. Harris	36	Je(?)	32.1	8-30-54	-	6-in. casing
8.411	W. Harris	38	Td	-	-	-	4-in. casing
14.333	R. Huff	-	-	32.4	8-28-54	-	5-in. casing
23.230	R. Huff	298	Je(?)	-	-	-	6-in. casing to 298 ft
25.314	R. Huff	34.6	Kdp(?)	32.0	8-28-54	-	6-in. casing
26.122	R. Huff	342	Je(?)	-	-	-	6-in. casing to 342 ft
27.211	R. Huff	48	Kdp	29.8	-	-	7-in. casing
27.422	R. Huff	65	Kdp	18	-	-	5-in. casing to 65 ft
30.37. 5.142	C. H. Potter	38	Kdp(?)	19	-	-	-
17.124	R. Huff	80	Kdp	-	-	-	6-in. casing to 80 ft
19.242	R. Huff	227.0	Je(?)	36.5	8-28-54	-	Unused; not cased
20.133	R. Huff	117.0	Kdp	107.0	8-28-54	-	Unused; not cased
20.323	R. Huff	99	Kdp	75	-	-	5-in. casing to 99 ft
29.423	R. Huff	260	Je(?)	-	-	-	6-in. casing to 260 ft
30.123	R. Huff	152	Kdp	90	-	-	6-in. casing to 152 ft
31.28.17.342	R. Morrow	46.0	Qal(?)	36.0	11- 5-55	6807	6-in. casing

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
17.431	R. Morrow	42.0	Qal(?)	23.8	11- 5-55	6818	6-in. casing
28.121	H. Mallinson	25	Qal(?)	5.0	-	6729	Dug
28.321	H. Mallinson	25	Qal(?)	7	-	6683	Dug
34.144	W. J. Largent and Son	741	Kdp	-	-	-	Cased to 724 ft; L
31.29. 3.211	W. J. Doherty	51	Kdp	12	-	6094	-
6.133	W. J. Doherty	260	Kdp	-	-	-	-
11.241	L. H. Sumpter	291	Kdp(?)	271	-	5984	5-in. casing
14.323	R. Gleason	80	Kdp	65	-	5814	-
15.343	R. Gleason	185	Jm	140	-	5798	-
15.421	R. Gleason	124	Jm	115	-	5803	-
15.432	R. Gleason	100	Jm	90	-	5844	-
15.432a	R. Gleason	110	Jm	90	-	5858	-
21.222	State of N. Mex.	110	Jm	77.9	-	5875	Unused; Port of Entry
24.134	L. H. Sumpter	89	Je	55	-	5735	-
24.444	L. H. Sumpter	40	Je	20	-	-	-
27.121	O. Bray	140	Jm	47.0	11- 4-55	5905	-
27.121a	O. Bray	146	Jm	47.3	11- 4-55	5866	-

29.323	O. Bray	104.1	Kdp(?)	81.3	11- 4-55	6042	-
32.142	O. Bray	18	QTb(?)	12	-	6087	-
31.30.18.220	L. H. Sumpter	145	Je(?)	105	-	-	6-in. casing
19.134	L. H. Sumpter	60	Je(?)	55	-	-	-
19.343	L. H. Sumpter	40	Qal(?)	20	-	-	-
20.231	L. H. Sumpter	27	Qal	-	-	-	Dug
20.233	L. H. Sumpter	22	Qal	-	-	-	Dug
20.233a	L. H. Sumpter	31	Qal	-	-	-	Dug
21.232	C. J. Gleason	65	Qal(?)	45	-	5589	-
29.311	L. H. Sumpter	80	Je(?)	60	-	-	-
31.31. 3.331	Y Bar C Ranch	98	Tkd	60	-	-	-
15.144	Y Bar C Ranch	100	Tkd	70	-	5202	-
15.243	Y Bar C Ranch	80	Tkd	55	-	5216	-
15.322	Y Bar C Ranch	60	Tkd	30	-	5250	-
21.333	Y Bar C Ranch	80	Tkd	7	-	5253	Test well; red beds at 37 ft ; hole filled
23.224	Y Bar C Ranch	85	Tkd	65	-	5209	-
35.124	Y Bar C Ranch	136	Je(?)	96	-	-	6-in. casing to 136 ft
31.32. 3.441	Wittenburg	32	Qal	27	-	5033	-
9.311	Y Bar C Ranch	31.8	Qal	18	-	5070	-
13.224	Wittenburg	61.7	Tkd	18.7	11-15-55	5103	-
16.144	Y Bar C Ranch	66	Kdp	55	-	-	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
25.432	Colorado Interstate Gas Co.	135	Tkd	27	-	-	Industrial
27.424	Y Bar C Ranch	82	Je(?)	60	-	5261	-
28.224	Y Bar C Ranch	175	Je(?)	140	-	5607	-
30.323	Y Bar C Ranch	187	Kdp	127	-	5776	-
30.323a	Y Bar C Ranch	170	K	127	-	5776	-
31.33. 4.111	A. W. Layton	48.0	Tkd	-	-	-	6-in. casing to 48 ft
10.432	A. W. Layton	685	-	-	-	-	Unused
12.431	Farr	107.0	Tkd	75.0	11-14-55	4815	-
24.212	Farr	150	Tkd	-	-	-	-
25.143	J. Bechtel	100	Tkd	-	-	-	4-in. casing
26.244	J. Bechtel	142	Tkd	-	-	-	-
30.221	W. A. Hamilton	30	Qal(?)	27	-	5105	Dug
30.221a	W. A. Hamilton	40	Qal(?)	27	-	5105	-
31.444	A. F. Willett	75	Je(?)	16.6	11-15-55	5370	-
33.423	L. Meek	77	Kdp	55	-	5387	6-in. casing to 77 ft
33.424	L. Meek	100	Kdp	75	-	5367	-

34.313	L. Meek	25	Kdp	15	-	5420	Dug
31.34. 3.214	L. G. Howard	121.0	Ted	25.3	-	4676	-
8.323	L. G. Howard	104	Ted	35	-	4742	5-in. casing to 104 ft; L
11.121	Heyen	100	Ted	72	-	4681	-
27.122	J. E. Ranch, Inc.	460	Je(?)	275.0	6- 9-55	5020	5-in. casing to 180 ft; 4-in. casing from 180 to 460 ft
33.313	J. E. Ranch, Inc.	600	Je(?)	300	-	-	-
31.35.10.324	R. Sumpter	140	Ted	-	-	-	-
12.134	R. Sumpter	50	Ted	-	-	-	-
12.311	R. Sumpter	190	Ted	-	-	-	-
12.314	E. Like	60	Ted	-	-	-	-
13.430	W. C. Hanners	93	Ted	65.8	9- 1-54	-	6-in. casing to 40 ft; L
14.242	E. Giles	57	Ted	-	-	-	-
14.312	E. Giles	50	Ted	45	-	-	-
14.324	E. Giles	100	Ted	85	-	-	-
15.133	J. E. Ranch, Inc.	32	Qal(?)	-	-	-	-
18.324	L. B. Sayre	60.0	Ted	36.6	9- 2-54	-	Pumping level
20.121	L. B. Sayre	40	Qal(?)	30.4	9- -54	-	Dug
21.343	J. E. Ranch, Inc.	40.0	Je(?)	6.9	9- 2-54	-	6-in. casing
22.232	J. E. Ranch, Inc.	22	Qal(?)	12.5	9- 2-54	-	Dug
23.412	Goodson Estate	84.2	Ted	54.5	-	-	-
28.332	L. B. Sayre	143	Je	-	-	-	6-in. casing to 25 ft

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
30.132	L. B. Sayre	50	Je	-	-	-	-
35.124	J. E. Ranch, Inc.	455	Kdp	65	-	4975	5-in. casing to 385 ft; Ca
31.36. 3.242	G. Wiggins	585	Je	-	-	-	Ca
5.234	H. Quimby	100	Je	-	-	-	-
6.311	R. Shaffer	15	Qal	12.0	9- 1-54	-	Dug; pumping level
7.132	R. Sumpter	50	Tkd	-	-	-	-
7.141	R. Sumpter	90	Tkd	20	-	-	-
9.141	D. N. Rutledge	60	Qal(?)	35	-	-	-
13.223	-	-	-	-	8-30-54	-	Ca
14.321	H. Quimby	60	Tkd	-	-	-	-
14.321a	H. Quimby	84	Tkd	-	-	-	-
15.322	H. Quimby	60	Tkd	-	-	-	-
17.131	R. Sumpter	65	Tkd	-	-	-	6-in casing
19.111	Goodson Estate	50	Tkd	30	-	-	-
23.112	Mrs. C. H. Potter	87.0	Tkd	54.5	8-31-54	-	6-in. casing
23.331	Mrs. C. H. Potter	107	Tkd	-	-	-	-
23.421	H. Quimby	110	Tkd	-	-	-	-
31.323	W. Harris	105.0	Je	82.7	8-30-54	-	-

32.434	W. Harris	54.0	Trd	20.2	8-30-54	-	Pumping level; 5-in. casing; Ca
31.37.17.124	G. Wiggins	120	Trd	-	-	-	Unused
17.331	G. Wiggins	60	Trd	23	-	-	-
17.411	G. Wiggins	175	Trd	-	-	-	Test well; reported yield 55 gpm from red sandstone between 20 and 30 ft
17.421	G. Wiggins	65	Trd	64.5	-	-	Test well; reported yield 60 gpm
18.113	G. Wiggins	90	Trd	70	-	-	Ca
18.123	G. Wiggins	60	Trd	30	-	-	-
18.232	G. Wiggins	102	Trd	90	-	-	Ca
18-344	-	-	-	-	8-30-54	-	Ca
18.424	G. Wiggins	56	Qal	23	-	-	Test well; reported yield 110 gpm
31.334	-	22.0	Qal	21.0	8-30-54	-	Dug
32.28.25.442	W. J. Doherty	51	-	12	-	6501	Water reported to occur in black shale (Carlile Shale?) from 14-28 ft
35.232	W. J. Doherty	133	Kdp(?)	75	-	6643	Finished in white sandstone
36.444	W. J. Doherty	98.8	Kdp	97.8	11- 9-55	6310	-
32.29.23.324	W. J. Doherty	101	Kdp	31	-	6142	-
26.314	L. H. Sumpter	94	Kdp	70	-	6121	-
27.422	R. Gleason	150	Kdp	125	-	6128	-
31.111	W. J. Doherty	12	Qal	12	-	6463	-
31.111a	W. J. Doherty	415	Kdp	-	-	-	Test well; reported yield 6 gpm; L
31.344	W. J. Doherty	77	Kdp	35	-	6328	-

TABLE 3. RECORDS OF WELLS IN UNION COUNTY, N. MEX. (cont)

Location number	Owner or name	Depth of well (feet)	Stratigraphic unit	Water level: Depth below land surface (feet)	Water level: Date measured	Water level: Altitude above mean sea level (feet)	Remarks
32.31.24.314	W. Burchard	150	Kdp	-	-	-	Unused; 5-in. casing
24.314a	W. Burchard	152	Kdp	149.0	11-16-55	5716	Unused; 5-in. casing
26.314	W. Burchard	241	Jm	230.0	11-16-55	5653	6-in. casing to 241 ft ; L
27.212	E. C. Hopkinson	85	Kdp	-	-	-	-
30.324	Y Bar C Ranch	550	Tkd	178.0	11-16-55	5270	-
34.111	E. C. Hopkinson	55	Tkd	-	-	-	-
34.112	E. C. Hopkinson	302	Tkd	101.0	12- 5-55	5191	Test well; Ca
34.114	E. C. Hopkinson	54	Tkd	30	-	5263	Ca
34.122	E. C. Hopkinson	140	Tkd	-	11-10-55	-	-
34.133	E. C. Hopkinson	50	Tkd	25.0	12- 5-55	5263	Test well; original depth 187 ft ; Ca
35.221	Y Bar C Ranch	80	Kdp	-	-	-	-
32.32.26.422	Wittenburg	60	Tkd	-	-	-	-
30.324	W. Burchard	220	Je(?)	130	-	5318	6-in. casing to 220 ft
31.143	Y Bar C Ranch	172.0	Je(?)	170.0	11- 6-55	5682	Reported drilled to 900 ft
32.211	Y Bar C Ranch	200	Je(?)	-	-	-	-
36.311	Wittenburg	40	Tkd	20	-	4987	-
32.33.19.443	Wittenburg	50	Qal(?)	30	-	4915	-
26.343	J. Like	50	Qal	23	-	4816	Irrigation

34.221	A. W. Layton	58.0	Td	-	-	-	-
32.34.23.223	C. Like	100	Td	50	-	4710	-
31.434	Farr	100	Td	40	-	4724	-
31.443	Farr	100	Td	45	-	-	-
32.213	R. Sumpter	110	Td	-	-	-	6-in. casing
32.434	R. Sumpter	200	Td	8	-	4752	Test well; reported yield 70 gpm
33.222	L. G. Howard	48	Td	38	-	4672	-
32.35.21.433	J. M. Rutledge	40	Qal	-	-	-	-
26.143	R. Sumpter	37.0	Qal	28.6	9- 1-54	-	-
27.232	D. K. Davis	150	Td	80	-	-	-
27.241	D. K. Davis	50	Qal	-	-	-	Irrigation
35.222	R. Sumpter	34	Qal	25.1	9- 1-54	-	8-in. casing
32.36.24.424	F. Francis	95	Je	60	-	4495	-
25.124	G. Wiggins	114	Je	-	-	-	-
25.231	G. Wiggins	95	Je	24.2	8-31-54	4516	-
27.311	G. Wiggins	218.8	Je	182.2	8-31-54	-	8-in. casing
31.344	H. Quimby	60	Je	40	-	-	-
35.114	G. Wiggins	185	Je(?)	90	-	-	6-in. casing
32.37.19.214	F. F. Francis	120	Je	-	-	-	6-in. casing to 120 ft
19.322	F. F. Francis	85	Je	65	-	-	-
20.322	F. F. Francis	60	Je	30	-	-	6-in. casing; Ca
30.221	F. F. Francis	80	Je	50	-	-	-
32.144	J. Wiggins	80	Je	41.0	8-31-54	-	5-in. casing

TABLE 4. RECORDS OF SPRINGS IN UNION COUNTY, N. MEX.

Location Number: See explanation of well-numbering system
Owner or name: The owner of, or name used for, spring at time of visit.
Altitude: Refers to land surface at spring as determined by aneroid.
Stratigraphic unit: Qal, alluvium; QTb, extrusive rocks; To, Ogallala Formation; Kdp, Dakota Sandstone and Purgatoire Formation, undifferentiated; Je, Entrada Sandstone.
Use of water: D, domestic; I, irrigation; PS, public supply; S, stock.
Remarks: Ca, chemical analysis in Table 5.

Location Number	Owner or Name	Yield (gpm)	Date of observation	Topography	Altitude (feet)	Stratigraphic Unit	Use of water	Remarks
22.33.24.221	J. Park	400-500	5-19-56	Creek bottom	-	Kdp	-	Ca.
36.112	C. Howe	150	5-19-56	Creek bottom	4,734	Kdp	S	Series of springs along ½ mile reach; Ca.
23.29.25.123	J.L.and Deming Doak	1	5-14-55	Slope to canyon	-	Kdp	-	Series of seep areas; Ca.
23.32.16.121	M. E. Gonzales	-	-	Bottom of canyon	-	Kdp	-	Improved.
23.33.25.323	Browder Bros.	5-10	6- 3-54	Hillslope	-	Kdp	-	Series of seeps; improved; Ca.
24.29. 4.344	R. Largent	1	4-29-55	Base of basalt cliff	6,031	QTb	-	Stone-walled.
10.141	R. Largent	-	-	Landslide hillslope	5,958	QTb	S	Walled area 25x25 ft.
10.231	R. Largent	-	-	Landslide hillslope	5,957	QTb	S	Walled area 75x20 ft.
24.31.30.434	Farber Ranch	-	3-30-55	Upland draw	-	-	-	Source may be Graneros Shale; Ca
30.441	Farber Ranch	3-4	3-30-55	Upland draw	5,645	-	-	Source may be Graneros Shale; Ca
24.32.20.213	Sullivan	1	4-21-55	Hillslope	5,518	Kdp	-	Walled.
31.432	S. E. Sanchez	5	5-17-55	Canyon	5,359	Kdp	-	-
25.35. 5.442	L. W. Gillespie	10-15	10-27-54	N. slope of Perico Creek	4,934	To	S	Improved; hydraulic ram and electric pump.
26.33.30.223	W. G. Smith	15	10-18-54	Creek valley	-	Kdp	-	Ca.

26.35.23.411	J. E. Ranch, Inc.	3	7-28-54	Base of basalt mesa in Apache Canyon	-	QTb	S	"Apache Spring"; Ca.
28.32. 8.443	F. A. Rogers	-	10-15-55	Slope to broad draw	5,717	QTb	-	Stone-walled.
28.33. 9.223	F. Garcia	1	6-24-55	Canyon wall	5,493	Kdp	D	Series of springs.
18.141	D. Campbell	-	-	Canyon wall	-	Kdp	-	Stone-walled.
29.28.12.110	M. Bennett	450	7-11-51	-	-	QTb	D,S	Source in lava talus; Ca.
29.30.34.111	Green	105	10-10-55	Deep draw	6,162	Kdp	-	Flows into pond.
29.32.12.121	M. Marquez	1	10-14-55	Steep slope	5,497	Kdp	D	Walled; overflow pipe to pond.
27.211	F. Smith	-	7-13-55	Canyon slope	5,578	Kdp	-	Seep area.
29.35. 5.231	L. Bray	2	6-27-55	Upland draw	5,155	Kdp	-	"Water hole".
29.36. 8.242	Fernandez	3/4	8-27-54	Canyon slope	-	Kdp	-	House over spring; Ca.
29.37. 8.431	Mrs. W. Smith	-	-	Draw	-	Qal	-	-
30.28. 5.322	W. J. Largent and Son	-	-	Wide canyon	6,575	QTb	D,S,I	Walled; reported to fill 3-in. pipe of water.
30.31. 3.331	Y Bar C Ranch	15	12- 3-55	Canyon	5,950	Kdp	-	-
30.32. 4.221	Y Bar C Ranch	-	-	Canyon	-	Je(?)	-	-
31.31.26.233	Y Bar C Ranch	-	-	Canyon	-	Je(?)	-	Wet-weather spring; on fault.
31.32.16.142	Y Bar C Ranch	-	-	Head of canyon	-	Kdp	-	-
32.313	Y Bar C Ranch	-	-	Head of canyon	5,821	Kdp	-	-
31.34.30.321	L. G. Howard	-	-	Canyon wall	-	Je	-	-
32.28.23.134	Community of Branson, Colo.	50	-	Below basalt mesa	-	QTb	PS	5 springs; gravity flow to community of Branson, 3 miles to the northeast; Ca.
32.32.30.231	Y Bar C Ranch	-	-	Head of Canyon	-	Kdp	-	-

Quality of Water

The 236 chemical analyses (table 5) made by the U.S. Geological Survey indicate the chemical quality of ground water in Union County; Table 6 gives the significance and effect of each of the most common dissolved mineral constituents and properties of the water. The analyses show only the chemical characteristics of the water and do not indicate sanitary conditions.

The quality of water yielded by aquifers of Triassic to Quaternary age in Union County is generally satisfactory for stock use. The only known exceptions are two developed springs, 24.31.30.434 and 34.31. 30.441, reported as "poison-water holes." The source of this water is not definitely known; it may come from the Graneros Shale. The water from both of these sites is extraordinarily high in dissolved solids; nitrate content is 13,900 and 10,500 ppm (parts per million), respectively. The reason for this isolated occurrence of highly mineralized water has not been established.

The Dakota Sandstone, the Morrison Formation, and sandstone beds of Triassic age locally yield water undesirable for domestic use, yet it serves all domestic purposes without harmful effects where no other water is available.

The concentration and composition of dissolved constituents in water determine its usefulness for irrigation. The quantity of soluble salts and the proportion of sodium probably are most important in irrigation water.

The dissolved-solids content of water commonly is expressed as electrical conductivity in terms of specific conductance (micromhos at 25°C), the relative proportion of sodium to calcium and magnesium as the sodium-adsorption ratio (SAR). The U.S. Salinity Laboratory, Department of Agriculture (1954), developed a diagram for the classification of irrigation water, based on the electrical conductivity and the sodium-adsorption ratio.

Because the Ogallala Formation and the Dakota Sandstone and Purgatoire Formation, undifferentiated, provide the principal sources of irrigation water in Union County, only water from these stratigraphic units was classified according to the sodium-salinity hazard. The specific conductance of 25 samples of water from the Ogallala and 51 samples from the Dakota and Purgatoire was plotted against the per cent of sodium (fig. 3). The plotted points for the analyses of water from both the Ogallala and the Dakota and Purgatoire, undifferentiated, in Union County fall almost entirely in the range from medium-to high-salinity hazard and low-sodium hazard.

According to the U.S. Salinity Laboratory, medium-salinity water can be used if a moderate amount of leaching occurs, and plants with moderate salt tolerance can be grown in most instances without special

practices for salinity control. High-salinity water cannot be used on soils with restricted drainage. Even soils with adequate drainage may require special management for salinity control and selection of plants with good salt tolerance. Low-sodium water can be used for irrigation on almost all soils with little danger of developing harmful levels of exchangeable sodium.

These data suggest that the quality of water yielded by the Ogallala Formation and the Dakota Sandstone and Purgatoire Formation, undifferentiated, in Union County generally meets irrigation requirements.

TABLE 5. CHEMICAL ANALYSES OF WATER FROM WELLS AND SPRINGS IN UNION COUNTY, N. MEX.

(Analyses by U.S. Geological Survey. Chemical constituents are in parts per million.)

Location number: See explanation of well numbering system in text. Asterisk following number indicates spring.

Stratigraphic unit: Qal, alluvium; QTb, extrusive rocks; To, Ogallala Formation; Kdp, Dakota Sandstone and Purgatoire Formation, undifferentiated; Jm, Morrison Formation; Je, Entrada Sandstone; Trd, Dockum Group.

Location number	Date collected	Stratigraphic unit	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (calculated from determined constituents)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH
18.34.12.241*	9- 8-56	Je	-	14	-	-		86[a]	352	0	34	51	6.8	1.6	-	229	0	2.5	786	7.7
15.422	9-18-53	Kdp	-	38	34	28	56		236	0	61	35	3.2	9.1	-	200	6	1.7	613	-
18.134	9- 7-56	To	-	15	-	-	148		248	0	137	38	1.4	.3	-	80	0	7.2	800	7.8
18.36. 8.443	7-21-53	To	61.5	24	-	-	25		222	0	18	10	1.4	8.5	-	171	0	.8	412	-
27.121	9- 6-56	To	-	28	-	-	5.5		223	0	7.8	9.0	.4	35	-	220	38	.2	452	7.3
18.37.18.122	6-18-53	To	64.5	26	-	-	33		206	0	46	10	1.4	7.9	-	169	0	1.1	398	-
19.34.19.213	9-10-56	To	61	23	-	-	142		326	0	103	47	4.0	5.3	-	147	0	5.1	855	7.7
19.36. 3.113	8-13-59	To	-	54	-	-	79	9.5	274	0	92	36	3.0	6.5	-	203	0	2.4	718	7.8
12.331	8-13-59	To	-	62	-	-	81	8	268	0	122	56	3.0	10	-	254	-	2.2	835	8.1
19.422	7-20-53	To	61.5	37	-	-	30		306	0	31	15	1.4	32	-	268	18	.8	612	-
20.36. 3.344	8-12-59	Qal	60	41	-	-	30	3.7	262	0	47	18	.7	35	-	248	34	.8	595	7.5
13.411	6-10-53	Qal(?)	57	21	-	-	40		237	0	112	19	.4	4.5	-	256	62	1.1	642	-
17.111	8-11-59	Jm(?)	61	36	-	-	183	7.7	343	0	220	93	3.8	4.6	-	254	0	5.0	1,230	7.7
19.424	8-11-59	Je	-	43	-	-	37		251	0	79	75	2.5	9	-	328	122	.9	779	7.7
22.244	8-12-59	Je	61	29	-	-	21		224	0	48	13	1.5	7.2	-	217	34	.6	480	7.6
31.112	8-14-59	Je(?)	-	49	-	-	75	9	327	0	68	25	2.9	2.6	-	209	0	2.2	698	7.9
31.323	11-13-53	Trd	-	11	16	19	999		1,810	0	615	116	1.5	.1	2,670	118	0	40	3,930	-
20.37.18.333	6-10-53	To	60	25	-	-	30		230	0	58	23	.2	43	-	252	64	-	592	-
21.34.10.134	6- 2-54	Qal	61.5	37	-	-	73		345	0	109	21	2.8	1.6	-	275	0	1.9	783	-
11.113	6- 2-54	Kdp	62	11	-	-	710		577	0	1,100	28	1.6	1.4	-	120	0	28	3,040	-
23.114	6- 2-54	Qal	59	34	-	-	59		296	0	47	40	2.8	5.9	-	232	0	1.7	680	-
25.132	10- 5-53	Jm	62	15	-	-	397		257	0	687	91	.9	2.0	-	196	0	12	2,030	-
27.200	10- 5-53	Kdp	62.5	33	-	-	42		227	0	133	79	2.4	12	-	360	174	1.0	862	-

33.222a	6- 2-54	Kdp	-	33	-	-	93	260	0	140	59	2.6	2.2	-	248	35	2.6	890	-
21.35. 6.413	10- 2-53	Jm	-	12	-	-	369	544	16	274	56	2.4	.7	-	42	0	25	1,580	-
6.423	6-24-54	Qal	61	13	-	-	330	580	0	319	62	2.4	.5	-	185	0	11	1,660	-
33.134	10- 3-53	Kdp	61	30	-	-	98	241	0	123	100	2.8	9.6	-	268	76	2.6	928	-
34.122	5-17-56	Kdp(?)	-	26	-	-	105	345	0	166	62	3.0	17	-	336	54	2.5	1,040	7.9
21.36. 1.414	8-17-53	To	67	33	-	-	11	218	0	80	50	.8	11	-	320	142	.3	706	-
2.131	5-17-56	To	61.2	30	-	-	19	242	0	33	21	1.0	5.2	-	228	30	.5	504	7.8
20.114	5-17-56	To	-	24	-	-	37	204	0	110	21	1.0	12	-	242	75	1.0	619	7.6
25.434	4-26-54	To	-	34	-	-	31	228	0	76	20	.6	9.0	-	236	49	.9	581	-
22.30. 5.232	5-14-55	Kdp	59	14	-	-	68	335	0	713	31	2.3	1.2	-	920	646	1.0	1,710	7.1
10.132	5-21-56	Kdp	-	16	-	-	49	304	0	140	16	1.8	.1	-	316	67	1.2	762	7.1
35.343a	5- -56	Kdp	-	23	-	-	30	241	0	58	24	1.0	.1	-	230	32	.9	551	7.5
22.31.27.142	5-21-56	-	-	27	-	-	100	408	0	185	14	.6	.4	-	332	0	2.4	978	7.6
22.32.14.313	5-27-55	Je	66	62	-	-	310	507	0	295	22	1.4	8.0	-	89	0	14	1,410	8.2
25.413	5-27-54	Je	-	23	-	-	159	312	0	98	5.0	.8	6.9	-	26	0	14	680	-
26.434	5-31-54	Qal	-	18	-	-	161	376	0	178	41	2.0	17	-	220	0	4.7	1,040	-
34.143	5-28-54	Jm	60.3	38	-	-	130	290	0	480	43	.3	29	-	540	302	2.4	1,460	-
34.312	5-28-54	Je(?)	-	28	-	-	201	396	0	553	42	.3	2.9	-	525	200	3.8	1,700	-
22.33. 1.244	5-19-54	Jm	-	7.7	-	-	205	246	17	312	83	1.8	.2	-	230	0	5.9	1,270	-
1.422	5-19-54	Jm	66	16	-	-	403	336	0	866	79	1.6	4.7	-	420	144	8.6	2,330	-
6.324	5-31-54	-	60.2	27	-	-	83	239	0	180	52	2.4	9.4	-	290	94	2.1	891	-
16.241	5-19-54	Kdp	61	13	-	-	76	261	0	71	31	1.8	.0	-	170	0	2.5	611	-
23.144	5-27-54	Kdp	62	18	-	-	71	245	0	97	31	1.8	.1	-	196	0	2.2	656	-
24.221*	5-19-54	Kdp	-	30	-	-	83	435	0	80	75	2.2	.2	-	372	16	1.9	901	-
29.422	5-27-54	Jm	60.5	23	-	-	370	490	0	742	161	4.7	38	-	640	238	6.4	2,520	-
29.434	5-27-54	Je	61	15	-	-	289	522	33	129	10	.6	2.7	-	7	0	47	1,160	-
30.132	5-27-54	Jm	61	21	-	-	180	284	0	508	80	1.3	3.0	-	490	258	3.5	1,570	-
30.322	5-27-54	Je	-	20	-	-	196	361	21	86	7.0	1.4	7.2	-	13	0	24	812	-
35.131a	5-20-54	Je	61	11	-	-	430	442	21	488	37	.5	.1	-	24	0	38	1,860	-
36.112*	5-19-56	Kdp	-	18	-	-	34	236	0	49	17	1.2	1.6	-	200	6	1.0	503	7.9
22.34.32.243	6- 2-54	Kdp	62	14	-	-	331	508	12	268	34	1.4	.3	-	48	0	21	1,440	-

TABLE 5. CHEMICAL ANALYSIS OF WATER FROM WELLS AND SPRINGS IN UNION COUNTY, N. MEX. (cont)

Location number	Date collected	Stratigraphic unit	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (calculated from determined constituents)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH
32.424	8-10-53	Kdp	-	-	-	-	12		181	0	14	4.0	1.0	12	-	154	0	.7	574	-
24.28.20.244	5-21-56	Kdp	-	27	-	-	25		202	0	39	54	.8	5.0	-	234	68	.7	574	7.9
24.29. 1.113	4-21-55	Qal	57.5	33	-	-	7.6		202	0	6.2	5.0	1.3	-	-	164	0	.3	371	7.4
24.30.25.131	3-30-55	-	56.5	28	38	22	16	2.6	209	0	33	6.0	1.0	4.6	254	186	14	.5	411	7.4
24.31. 8.212	3-29-55	Kdp(?)	56	31	-	-	16		274	0	95	105	1.6	10	-	448	224	3.3	922	7.6
13.222	5-23-56	Kdp	-	26	-	-	12		213	0	30	14	.6	6.8	-	206	32	.4	438	7.3
17.341	3-30-55	Qal	46.5	34	-	-	35		320	0	82	32	1.2	.1	-	320	58	8.4	723	7.6
20.311	3-30-55	Qal	47.6	13	115	82	60	2.2	338	0	429	14	2.7	9.2	893	624	347	1.0	1,260	7.7
29.411	3-30-55	Kdp	58.2	10	86	80	134	12	380	0	387	28	1.3	3.0	908	461	150	2.7	1,340	7.4
30.313	3-30-55	-	59.0	3.2	133	330	200	24	71	10	1,720	56	.9	239	2,750	1,690	1,610	2.1	3,190	8.5
30.434*	3-30-55	-	49.0	2.2	1,220	3,580	1,370	94	248	0	7,770	822	1.2	13,900	28,900	17,800	17,600	3.2	26,300	7.8
30.441*	3-30-55	-	47.5	3.9	945	2,740	972	52	671	0	5,510	565	.8	10,500	21,600	13,100	13,600	3.6	20,400	-
24.32.34.432	5-23-56	Qal	-	17	-	-		.2	190	0	14	3.0	.4	17	-	188	32	-	355	8.2
24.34.35.244	5-17-56	Kdp	60.0	46	-	-	20		216	0	40	34	2.0	18	-	243	66	.6	567	7.7
24.35. 3.244a	7-27-54	Kdp	-	21	-	-	22		238	0	31	10	.6	4.9	-	199	4	.7	459	-
7.144	7-27-54	Kdp	-	19	-	-	21		206	0	21	7.5	.6	1.2	-	159	0	.7	367	-
7.333	7-26-54	Qal	68	19	-	-	58		312	0	129	47	.8	1.7	-	334	78	1.4	839	-
15.133a	7-22-54	Kdp	64	38	-	-	40		216	0	46	60	.8	15	-	236	59	1.1	574	-
23.111	6-26-54	Kdp	60.5	33	-	-	30		221	0	37	10	1.2	4.9	-	176	0	1.0	434	-
33.334	7-26-54	Kdp	-	17	-	-	44		224	0	34	25	.8	1.0	-	161	0	1.5	482	-
24.36.10.133	7- 1-54	To	61	21	-	-	30		244	0	45	24	1.6	7.7	-	226	26	.9	535	-
12.333	8-12-53	To	61	17	-	-	29		260	0	38	8	1.0	1.0	-	204	0	.9	492	-
30.422	6-26-54	To	61	35	-	-	17		212	0	35	16	.6	11	-	206	32	.5	459	-
25.28.25.443	5-21-56	To	-	31	-	-	13		200	0	14	6.0	.4	7.6	-	165	1	.5	362	7.8
25.29.11.441	5-21-56	Kdp	-	17	-	-	22		282	0	43	6.2	1.0	.5	-	240	9	.6	528	7.2
25.30. 9.444	5-21-56	To	-	20	-	-	40		287	0	33	6.5	1.0	1.1	-	194	0	1.3	517	7.4
25.32. 2.224	5-18-56	Kdp	-	15	-	-	31		278	0	31	8.8	1.0	1.9	-	209	0	.9	491	7.6

25.33.20.441	5-23-56	Kdp	-	30	-	-	16	204	0	40	20	1.2	6.9	-	211	44	.5	467	7.2
25.34.27.124a	10-29-54	Kdp	-	16	-	-	47	318	0	345	18	1.1	.1	-	545	284	.9	1,100	-
25.35. 2.121a	8-24-54	To	59.2	-	-	-	-	-	216	0	-	-	-	-	-	266	89	-	586	-
2.123	8-24-54	To	59	33	-	-	50	220	0	67	32	2.2	29	-	280	100	.3	597	-
2.441	5-16-56	To	59.5	36	-	-	12	242	0	29	14	1.0	8.4	-	232	34	.3	483	7.6
15.244	10-30-54	Kdp	59.4	12	-	-	37	304	0	183	19	1.2	.0	-	390	141	.8	830	-
25.36. 4.444	5-15-56	-	60.0	13	-	-	16	260	0	39	10	1.0	2.7	-	237	24	.5	503	-
7.113	7- 2-54	To	59.0	36	-	-	14	226	0	36	18	2.0	9.7	-	232	47	.4	474	-
16.313	7- 2-54	To	61.0	35	-	-	30	243	0	40	27	2.0	7.9	-	226	27	.9	547	-
21.341	7- 1-54	Kdp	60.5	31	-	-	26	233	0	30	19	1.2	9.1	-	204	13	.8	482	-
22.333	7- 1-54	Kdp	60.5	32	-	-	48	281	0	78	25	1.2	4.9	-	250	20	1.3	652	-
25.444	7- 1-54	-	60.0	-	-	-	-	-	233	0	-	12	-	-	-	-	-	-	505	-
33.333	6-29-54	Kdp	63	33	-	-	26	260	0	42	11	1.4	2.6	-	222	9	.7	509	-
26.29.18.112a	9-27-55	Kdp	-	18	45	17	20	233	0	16	7.5	.8	7.2	246	182	0	.6	420	7.1
26.30.24.441	5-23-56	Kdp	-	31	-	-	7.8	196	0	11	6.0	.8	12	-	175	14	.3	357	7.4
26.31.30.424	5-23-56	Kdp	-	27	-	-	3.0	172	0	8.4	5.2	.4	6.8	-	157	16	.1	313	7.1
26.32. 1.131	3-29-55	Kdp	-	34	-	-	8	190	0	14	7.0	.6	7.5	-	170	14	2.7	350	7.5
1.132	3-29-55	Je	-	-	-	-	-	-	191	0	-	6.0	-	-	-	-	-	-	-	7.7
13.111	5-18-56	To	-	29	-	-	13	189	0	36	26	.4	33	-	228	73	.4	494	7.4
30.333	11-12-54	Kdp	60.2	10	-	-	40	277	0	28	6.0	1.4	.2	-	180	0	1.3	482	7.4
26.33.14.412	5-18-56	Kdp	-	30	-	-	14	197	0	20	9.5	.2	7.9	-	172	10	.5	386	8.0
30.223*	10-18-54	Kdp	59	28	-	-	23	208	0	25	10	.6	13	-	172	2	.8	395	-
26.34.19.442	5-21-56	Kdp	-	28	-	-	17	206	0	21	10	.8	7.8	-	177	8	.5	400	7.7
35.114	5-18-56	Qal	-	26	-	-	60	425	0	66	57	2.0	7.9	-	380	32	1.3	915	7.7
26.35. 2.132	7-28-54	Kdp	-	26	-	-	23	198	0	16	7.0	.6	3.9	-	143	0	.8	350	-
6.212	7-28-54	Kdp	64	21	-	-	21	232	0	16	4.0	.4	1.6	-	168	0	.7	388	-
22.121	7-28-54	-	61	27	-	-	31	294	0	107	31	.4	6.0	-	334	93	.7	728	-
23.411*	7-28-54	QTb	-	-	-	-	25	219	0	41	17	1.2	1.6	-	196	-	.8	452	-
27.443	11-29-56	To	59	38	56	34	17	215	0	49	46	1.6	24	372	280	104	.4	628	7.4
34.211	7- 8-54	To	-	37	-	-	25	248	0	45	64	1.4	60	-	338	135	.6	768	-
34.211	3-30-55	To	61.0	37	-	-	11	242	0	65	88	1.4	89	-	442	244	.2	934	7.5

TABLE 5. CHEMICAL ANALYSIS OF WATER FROM WELLS AND SPRINGS IN UNION COUNTY, N. MEX. (cont)

Location number	Date collected	Stratigraphic unit	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (calculated from determined constituents)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH
34.212	7- 8-54	Je	63	28	-	-	15		242	0	23	8.0	.6	4.1	-	206	8	-	445	-
34.243	7- 8-54	Kdp	63	-	-	-	-	-	238	0	-	8.0	-	-	-	-	-	-	-	-
34.243	5-23-56	Kdp	-	23	-	-	27		252	0	34	12	1.0	3.8	-	206	0	.8	490	7.3
34.422	7- 8-54	Je	64	19	-	-	54		285	0	29	7.0	1.0	2.0	-	160	0	1.9	499	-
34.422	5-23-56	Je	-	19	-	-	44		269	0	28	8.0	1.0	2.4	-	169	0	1.5	491	7.3
35.313	1953	Kdp	61.7	20	-	-	30		246	0	42	12	1.0	3.0	-	201	0	.9	492	-
35.313	5-17-56	Kdp	-	13	-	-	35		275	0	35	12	1.0	.4	-	205	0	1.1	506	7.4
36.143	5-22-56	Kdp	-	28	-	-	17		226	0	18	9.0	.8	5.1	-	184	0	.6	414	7.4
36.143	11- 7-62	Kdp	62	24	42	18	16	3.9	223	0	18	7.4	.7	5.5	-	179	0	.5	402	7.4
26.36.13.231	7- 3-54	To,Kdp	61.5	29	-	-	14		240	0	16	6.5	.8	6.0	-	198	2	.4	408	-
15.412	7- 6-54	To,Kdp	60.5	26	-	-	23		201	9	47	34	.8	7.4	-	234	54	.7	530	-
25.242	7- 5-54	To	60.5	50	-	-	14		241	0	21	13	2.4	11	-	224	26	.4	476	-
32.244	8-10-53	Kdp	65	27	-	-	12		181	0	14	4.0	1.0	12	-	154	6	.4	336	-
27.31. 1.133	11-15-55	Kdp	-	10	-	-	70		487	0	32	10	1.4	.2	-	298	0	1.8	788	7.0
10.242	7-29-55	Kdp	59.5	38	28	15	12		162	0	10	7.0	.4	4.9	195	132	0	.5	299	7.3
27.32.24.112	11-13-54	To	56.0	12	-	-	3.0		235	0	67	40	.2	14	-	324	132	.1	629	7.4
24.112a	11-13-54	Kdp	56.3	12	-	-	72		249	0	40	48	1.2	.5	-	160	0	2.5	631	6.8
27.35.12.244	8- 3-54	To	62.0	30	-	-	17		226	0	18	9.0	.8	1.2	-	181	0	.6	436	-
13.334	8- 3-54	Qal	58.5	32	-	-	39		298	0	51	12	.4	12	-	240	0	1.1	544	-
22.311	7-28-54	Kdp	62.0	-	-	-	-	-	185	0	-	8.0	-	-	-	-	-	-	345	-
29.231	7-28-54	Kdp	-	33	-	-	16		190	0	17	8.0	.4	3.7	-	154	0	.6	348	-
27.36.17.434	7- 7-54	To	66	23	-	-	3.9		194	0	26	8.0	.2	23	-	208	49	.1	416	-
25.133	8-17-54	Kdp	60.8	21	-	-	23		248	0	27	9.0	.8	4.1	-	200	0	.7	451	-
27.37. 6.331a	7- 6-54	To,Kdp	62	29	-	-	17		178	0	33	14	.8	4.9	-	170	24	.6	379	-
6.444	7- 6-54	To,Kdp	70	41	-	-	15		236	0	34	14	1.0	5.4	-	222	28	.5	471	-
28.29.31.331	10- 4-55	Kdp	-	11	56	36	115		549	0	57	18	.8	1.8	566	288	0	2.9	935	7.4
28.30. 7.414	5-23-56	Kdp	-	39	-	-	15		154	0	14	4.5	.6	1.9	-	117	0	.6	278	7.4

14.200	4- 1-57	-	-	-	128	48	72	320	0	364	17	1.2	7.0	-	517	-	1.4	1,140	-
28.32.30.331	7-22-55	Kdp	57.0	38	48	22	6.9	203	0	18	16	.4	21	270	210	44	.2	442	7.5
28.33.17.444	7-15-55	Kdp	-	16	45	26	36	274	0	58	6.0	1.4	.1	324	220	0	1.0	546	7.1
28.35.12.433	7- 7-54	-	62	50	-	-	45	230	0	95	46	2.0	13	-	270	82	1.2	696	-
28.36.13.143	8-28-54	To	-	38	-	-	38	184	0	209	210	.6	76	-	645	494	.6	1,410	-
14.224	8-28-54	To	61	32	-	-	17	220	0	12	3.0	.2	9.3	-	168	0	.6	377	-
28.341	8-25-54	Qal	65	-	-	-	-	-	264	0	-	-	-	5.6	-	310	94	-	672	-
33.314	8-27-54	Kdp	60.8	-	-	-	79	340	0	153	28	1.4	7.7	-	315	36	1.9	866	-
29.28. 3.111	6-18-58	To	59	25	33	18	29	7	225	0	29	10	.8	.2	263	156	0	1.0	430	7.1
5.233	7-15-62	QTb, To(?)	61	27	26	12	21	168	0	9.8	5.8	.5	2.4	188	114	0	.8	280	7.8
5.233	4-10-64	QTb, To(?)	61	23	24	12	20	4.9	170	0	9.4	3.9	.5	2.3	185	109	0	.8	294	7.9
7.421	6-18-58	Qal	80	33	32	18	36	5.1	217	0	35	13	.6	9.7	289	154	0	1.3	453	8.2
12.110a	7-11-51	QTb	54	28	36	20	27	209	0	27	10	.6	74	265	172	0	.9	426	-
18.323	7-10-51	QTb	51	28	50	42	77	313	0	155	29	.6	4.6	540	298	41	1.9	847	-
18.323	8- 4-51	QTb	51	-	-	-	-	-	320	0	-	-	-	-	-	-	-	822	-
18.323	8- 3-55	QTb	52.0	34	46	41	74	323	0	135	25	.6	3.7	518	284	9	1.9	808	7.4
32.333	10-13-55	Qal	-	15	13	12	129	308	0	68	22	2.0	4.1	416	82	0	6.2	680	7.6
29.29.10.133	11-15-62	Kdp	55	22	64	22	39	264	0	58	29	1.1	19	-	252	36	1.1	632	7.3
24.111	5-23-56	-	-	39	-	-	15	181	0	18	12	1.0	6.7	-	160	12	.5	368	7.2
29.32.18.234	10-14-55	Kdp	-	26	59	19	26	247	0	43	21	.6	4.4	320	225	22	.8	535	7.5
18.234a	10-14-55	Kdp	-	11	21	12	115	338	0	55	8.0	1.6	1.0	391	102	0	4.9	634	7.5
29.36. 8.242a	8-27-54	Kdp	59	29	-	-	21	194	0	27	8.0	1.0	4.1	-	158	0	.7	374	-
33.314	8-27-54	Kdp	-	-	-	-	79	340	0	153	28	1.4	7.7	-	315	-	1.9	866	-
30.28.14.111	11- 8-55	Je	-	18	31	19	30	213	0	33	6.0	.6	2.7	245	156	0	1.1	409	7.3
14.114	11- 8-55	Kdp	-	19	33	19	30	213	0	37	6.0	.4	2.8	252	160	0	1.0	415	7.3
14.221	11- 7-62	QTb	-	29	99	31	57	367	0	168	12	.4	4.8	581	374	73	1.3	874	7.3
30.33.27.231	12- 3-55	Kdp	-	24	-	-	18	248	0	135	20	.5	6.4	-	338	135	.4	686	6.9
31.35.35.124	6-27-55	Kdp	-	18	50	87	246	856	0	294	7.0	-	.4	1,120	482	0	4.9	1,680	7.6
31.36. 3.242	8-31-54	Je	65	12	-	-	133	458	0	148	23	1.6	5.2	-	280	0	3.5	997	-
13.223	8-30-54	-	59	26	-	-	180	456	0	675	50	1.1	14	-	770	396	2.8	1,920	-
32.434	8-30-54	Td	61.5	28	-	-	89	354	0	123	20	1.0	30	-	280	0	2.3	834	-

TABLE 5. CHEMICAL ANALYSIS OF WATER FROM WELLS AND SPRINGS IN UNION COUNTY, N. MEX. (cont)

Location number	Date collected	Stratigraphic unit	Temperature (°F)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids (calculated from determined constituents)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH
31.37.18.113	8-30-54	Ed	-	21	-	-	118		364	0	361	38	1.1	13	-	485	186	2.3	1,280	-
18.232	8-30-54	Ed	-	-	-	-	-	-	340	0	-	-	-	-	-	-	-	-	-	-
18.344	8-30-54	Cimarron River	85	23	-	-	142		270	0	463	33	.5	2.6	-	445	224	2.9	1,330	-
32.28.23.134*	11- 9-55	QTb	-	39	55	17	11		265	0	7.8	3.0	.2	1.8	265	207	0	.3	416	7.8
32.31.34.112	12- 5-55	Ed	-	-	-	-	545		-	-	957	17	.8	.5	-	27	0	46	2,670	10.7
34.114	11-10-55	Ed	-	30	107	68	138		317	0	492	20	.7	56	1,070	546	286	2.6	1,470	7.6
34.133	12- 5-55	Ed	-	33	-	-	72		353	0	413	23	.5	30	-	620	330	1.3	1,280	7.5
32.37.20.322	8-31-54	Je	62	23	-	-	42		288	0	168	31	.8	13	-	375	139	1.0	826	-

a/ Numbers centered between Sodium (NA) column and Potassium (K) column are calculated combined sodium plus potassium.

TABLE 6. COMMON CHEMICAL CONSTITUENTS AND CHARACTERISTICS OF WATER AND SUMMARY OF ANALYSIS OF WATER IN UNION COUNTY, N. MEX.

[Derivation, significance, and recommended limits are mostly those set forth by the California State Water Pollution Control Board (1963), and from "Drinking Water Standards, 1962," U.S. Department of Health, Education, and Welfare, Public Health Service. Constituent. has no harmful physiological effect, unless specified. Chemical constituents are in parts per million.]

Constituent or property	Derivation	Significance	Recommended limits for selected uses	Range in concentration for samples analyzed	Number of determinations	Number of determinations more than (>) recommended limits
Silica (SiO_2)	Siliceous materials present in virtually all rocks.	Forms hard scale in boilers and pipes. Inhibits deterioration of zeolite-type water softeners. May prevent corrosion in pipes by forming a protective coating.	1 ppm for high-pressure-boiler feed. 10 to 50 ppm for other industrial processes.	2.2 to 62 ppm	208	208>1 ppm 3>50 ppm
Calcium (Ca)	Limestone, dolomite, gypsum, or gypsiferous shale, sewage, and industrial waste.	With magnesium causes most of the hardness and scale-forming properties of water. Beneficial in irrigation water where unfavorable sodium ratio exists in soil.	5 ppm for boiler feed.	13 to 1,220 ppm	37	37>5 ppm
Magnesium (Mg)	Dolomite and most igneous rocks.	Similar to calcium in flocculating soil colloids, imparting the property of hardness, and forming scale. Salts of magnesium act as cathartics.	125 ppm for drinking and culinary waters.	12 to 3,580 ppm	37	4>125 ppm
Sodium (Na) plus potassium (K), or sodium and potassium analyzed separately	Feldspars, salt beds, and other common minerals and sewage and industrial wastes.	Causes foaming in boilers when concentration of sodium exceeds 50 ppm. High concentrations are toxic to plants, harmful to soil, and will act as cathartic. High ratio of sodium to calcium plus magnesium is harmful to soil structure.	50 ppm of sodium plus potassium for boiler water. 115 ppm sodium maximum for domestic use.	0.2 to 1,464 ppm	215	74>50 ppm 38>115 ppm
Bicarbonate (HCO_3) and carbonate (CO_3)	Carbonate rocks and calcareous materials.	In combination with calcium and magnesium forms scale and releases corrosive carbon dioxide gas. A high ratio of carbonate and bicarbonate to alkaline earths may cause the water to be unsuitable for irrigation.	100 ppm for boiler use.	81 to 1,810 ppm	224	223>100 ppm
Sulfate (SO_4)	Gypsum, anhydrite, pyrite, and oxidized organic matter in the sulfur cycle.	In combination with calcium and magnesium forms hard scale. As magnesium or sodium sulfate acts as a cathartic. High concentrations may be toxic to plants.	250 ppm for domestic use. 250 ppm in carbonated beverages.	6.2 to 7,770 ppm	215	33>250 ppm
Chloride (Cl)	Most rocks and soils, sewage, and industrial effluents.	High concentrations of chloride salts impart salty taste. May be toxic to plants. May accelerate corrosion in pipes.	250 ppm for domestic use.	3 to 822 ppm	220	3>250 ppm

TABLE 6. COMMON CHEMICAL CONSTITUENTS AND CHARACTERISTICS OF WATER AND SUMMARY OF ANALYSES OF WELLS IN UNION COUNTY, N. MEX. (cont)

Constituent or property	Derivation	Significance	Recommended limits for selected uses	Range in concentration for samples analyzed	Number of determinations	Number of determinations more than (>) recommended limits
Fluoride (F)	Fluorite, apatite, and hydrothermal solutions.	Reduces incidence of tooth decay in children when concentration is 0.5 to 1.5 ppm; more than about 1.5 ppm causes mottling of tooth enamel in children. Concentrations of more than 5 ppm may cause fluorosis.	Maximum recommended upper concentration for annual average of maximum air temperatures for a minimum of 5 years – 1.2 ppm 63.9-70.6°F	0.2 to 6.8 ppm	214	Maximum annual average temperature for the years 1953-57 was 67.4 74>1.2 ppm
Nitrate (NO_3)	Decayed organic matter, sewage, nitrate fertilizers, and nitrates in the soil.	Values higher than 5 to 10 ppm may suggest pollution. More than about 44 ppm may cause methemoglobanemia (infant cyanosis). Generally nitrate in water used for irrigation is desirable for its fertilizing value.	45 ppm for domestic use.	0.0 to 13,900 ppm	216	9>45 ppm
Dissolved solids	Rocks, soils, industrial and sewage effluents.	High concentrations are harmful to plant and animal life and can cause foaming in boilers.	1,000 ppm for domestic use, although more saline waters are used by some communities without harmful effects. 1,000 ppm for most industrial uses.	185 to 28,900 ppm	33	7>1,000 ppm
Hardness (as $CaCO_3$)	Mainly calcium and magnesium in solution; certain other cations cause hardness but are ordinarily present in small amounts.	Hard water causes excessive soap consumption, scale in boilers and pipes, toughening of cooked vegetables. Tends to prevent corrosion of metals. Produces finer-grained structure in baking. Very hard water retards fermentation.	Water having a hardness of more than 120 ppm generally considered to be hard.	7 to 17,800 ppm	230	214>120 ppm
Sodium-adsorption ratio (SAR)	Relative proportion of sodium to calcium and magnesium in water.	Index of sodium hazard in irrigation water. An increase in value indicates a decrease in suitability of water for irrigation.	Less than 3 generally satisfactory on all soils. More than 26 generally unsatisfactory.	0.1 to 47	212	30>3
Specific conductance (micromhos at 25°C)	Ion concentration in water.	An increase in value indicates an increase in dissolved solids.	More than 1,500 generally exceeds standards for domestic water. More than 3,000 unsuitable for irrigation under most conditions.	278 to 26,300	234	22>1,500 6>3,000
pH (hydrogen ion concentration expressed as pH)	Hydrogen-ion concentration.	Values from 1 to 7 indicate decreasing acidity; of more than 7 indicate increasing alkalinity. Affects taste, corrosivity, and treatment processes such as coagulation. Low value desirable where irrigation water applied to alkaline soils.	7.5 for food canning and freezing. More than 9.0 unsuitable for irrigation use.	6.8 to 10.7	87	41>7.5 1>9.6

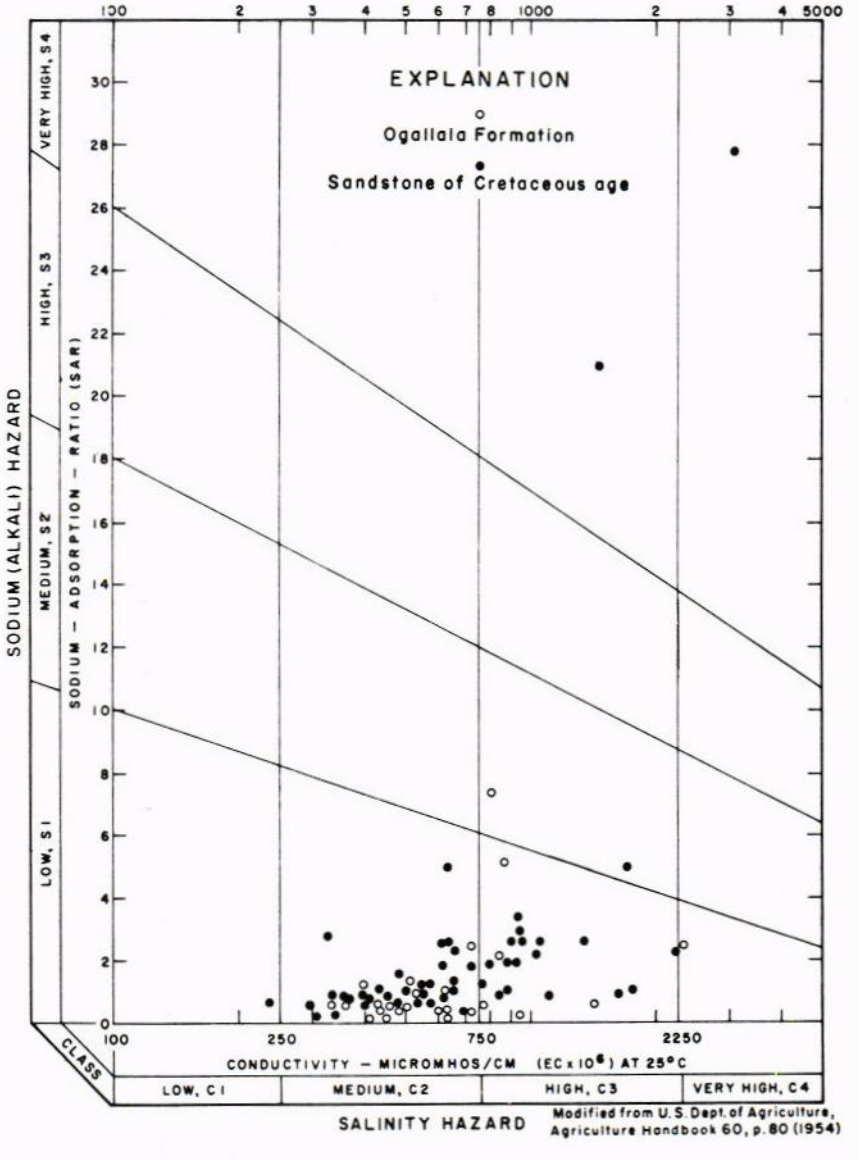

Figure 3

CLASSIFICATION OF IRRIGATION WATER FROM THE OGALLALA FORMATION AND THE DAKOTA SANDSTONE AND PURGATOIRE FORMATION, UNDIFFERENTIATED

Summary

Ground water for stock and domestic use occurs in adequate quantities throughout Union County. Irrigation supplies are available generally only along the eastern side of the county, southward from near Seneca. Locally, in the vicinity of Capulin, Grenville, and Stead and in the Cimarron River valley, wells yield sufficient water for minor irrigation.

The Dakota Sandstone and Purgatoire Formation, undifferentiated, and the Ogallala Formation constitute the principal aquifers in the county and in places contain sufficient water for irrigation. Along the eastern side of the county, all the wells used for irrigation finish in one or both of these formations.

Sandstone of Triassic age, the Entrada Sandstone, the Morrison Formation, extrusive rocks, and alluvium yield water to stock and domestic wells but yield water sufficient for irrigation in only a few localities.

The principal utilization of ground water in Union County is for domestic and stock supplies. Seven wells supply industrial needs, while 16 wells and 1 spring provide for public uses. At the time of the field investigation, 47 irrigation wells were located.

The chemical quality of water yielded by the aquifers in Union County suffices for most ordinary uses, although the Dakota Sandstone, Morrison Formation, and sandstone of Triassic age locally yield water undesirable for domestic use. Water from the Dakota and Purgatoire, undifferentiated, and from the Ogallala Formation generally is suitable for irrigation.

Many irrigation wells, not listed in this report, have been drilled along the eastern side of Union County since about 1959. Investigation of the present status of irrigation development in Union County was beyond the scope of this report. However, in December 1965, a program of periodic water-level measurement in the county was begun with 8 observation wells. Water-level fluctuations observed over a period of several years in these wells will aid in evaluation of the effects of pumping for irrigation on the aquifer system.

Evaluation of the present and future effects of the withdrawal of large quantities of ground water for irrigation upon the resources and the economy of Union County necessitates the collection of additional data on irrigation development. Information needed includes the locations of irrigation wells, depths of wells and aquifers tapped, yields of wells, uses of water (types of crops, acres irrigated, and amounts of water used to grow the crops successfully), and water-level measurements to establish the configuration of the water surface. Monitoring water-level changes in the future requires additional observation wells also.

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