Water Resources of De Baca County

Frontispiece:
Alamogordo Reservoir, northern De Baca County, N. Mex.
Outcrops along shore are Triassic Santa Rosa Sandstone.
(Courtesy New Mexico State Tourist Bureau)

GROUND-WATER REPORT 10

Reconnaissance of Water Resources of De Baca County, New Mexico

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U. S. Geological Survey

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Abstract

Ground water is used for all domestic and for some stock and irrigation supplies in De Baca County. Surface water is used for some stock and for most irrigation supplies. Water of the Pecos River has been used for irrigation in the Fort Sumner area for 100 years. A water right assures the Fort Sumner Irrigation District of continued diversion of water from the Pecos River for irrigation of about 6,500 acres.

Water levels have remained fairly stable in the aquifers supplying ground water to the several hundred wells in all parts of the county. West of the Pecos River, in T. 2 N., where ground water is used for irrigation, water levels decline a few feet during the pumping season but recover to previous levels during the non pumping season. In the irrigated area south of Taiban and in the newly developed irrigated area north of Fort Sumner, water levels are not known to have declined.

Geologic formations in De Baca County that yield water to wells range in age from Permian to Holocene. The Santa Rosa Sandstone of Triassic age and alluvial deposits of Quaternary age yield large amounts of water to wells for irrigation and municipal use. The Santa Rosa Sandstone yields as much as 1,000 gallons per minute (gpm) and the alluvial deposits as much as 1,500 gpm. The potential yield of water from the Permian rocks has not been determined because the water is of poor chemical quality and is too deep in many places to be of economic use. The Glorieta Sandstone reportedly yields about 10 gpm; the San Andres Limestone is tapped only by stock wells yielding a few gallons per minute; the Artesia Formation is known to yield 10 gpm, but it may be capable of yielding larger quantities of water locally where saturated beds of permeable gypsum are present. The Chinle.Formation of Triassic age and the Ogallala Formation of Tertiary age are known to yield only a few gallons per minute to wells in De Baca County; these may be capable of higher yields locally where thick, saturated, permeable beds are present.

The chemical quality of the ground water is variable. The sulfate concentration in 99 water samples ranged from 46 to 4,260 milligrams per liter (mg/1). Two-thirds of the water samples analyzed contained more than 250 mg/1 sulfate, the recommended upper limit for domestic supplies; however, the water is generally satisfactory for irrigation and stock use. Fluoride in excess of 1.5 mg/1 was found in 31 of 83 samples analyzed. Highly saline water is present in the Glorieta Sandstone in some locations, such as in well 3S.21.27.144, which yields water containing 2,280 mg/1 chloride and 2,860 mg/1 sulfate.

The Fort Sumner municipal water system, which provides domestic

supplies to Fort Sumner and most of the Fort Sumner Irrigation District, obtains ground water from the Santa Rosa Sandstone.

Ground-water yields in the county can be expected to remain stable at current consumption levels for years to come. The Santa Rosa Sandstone aquifer north of Fort Sumner should be monitored by an automatic water-level recorder to detect water-level declines that might endanger the supply for the municipal system.

Introduction

The water resources and geology of De Baca County (fig. 1) were studied by the U. S. Geological Survey in cooperation with the State Engineer of New Mexico and the New Mexico State Bureau of Mines and Mineral Resources (fig. 2). The study is part of a statewide program to investigate the present use of water and to suggest areas where additional water supplies may be obtained or where intensive study is needed. The field investigation was made between July 1965 and May 1967.

During the investigation, wells and springs were inventoried and water-level and quality-of-water data were collected. Well logs, of both water wells and oil tests, were collected, and cross sections were constructed to aid in understanding of geologic structure and of water movement. A reconnaissance geologic map was prepared and the geologic section studied so that the water-bearing formation for each well could be determined. Hydrologic records, including rainfall, streamflow, and water-level measurements, were assembled and analyzed.

De Baca County is in east-central New Mexico (fig. 1). Fort Sumner, the county seat and only incorporated community, is in the northeastern part of the county, about 130 miles southeast of Santa Fe.

The county has an area of about 2,360 square miles, and in 1960 had a population of 2,991 (U. S. Bureau of the Census, 1960), 1,809 of which lived in Fort Sumner.

The economy of the county depends on the raising of cattle and sheep and on irrigation farming, largely of feed crops. The county has little or no dry farming, mining, manufacturing, lumbering, or petroleum production.

About 99 percent of the area of the county is sparse grassland. The remaining area includes about 11 square miles occupied by irrigated farms, about 7 square miles occupied by Alamogordo Reservoir, and about 3.5 square miles occupied by the Fort Sumner community and its airport.

In most of De Baca County water supplies are meager and generally of poor quality. Recent drought conditions have aggravated the chronic shortage of water. The county lies within the Pecos River drainage basin. An understanding of the geohydrology of the county is essential for management of the waters of the Pecos River, which are used for irrigation on lands adjacent to the river from central De Baca County southward to the state line. One of the aims of this report is to aid the State Engineer in administering water rights in the Fort Sumner Underground Water Basin. The outline of this administrative basin is shown on Plate 3.

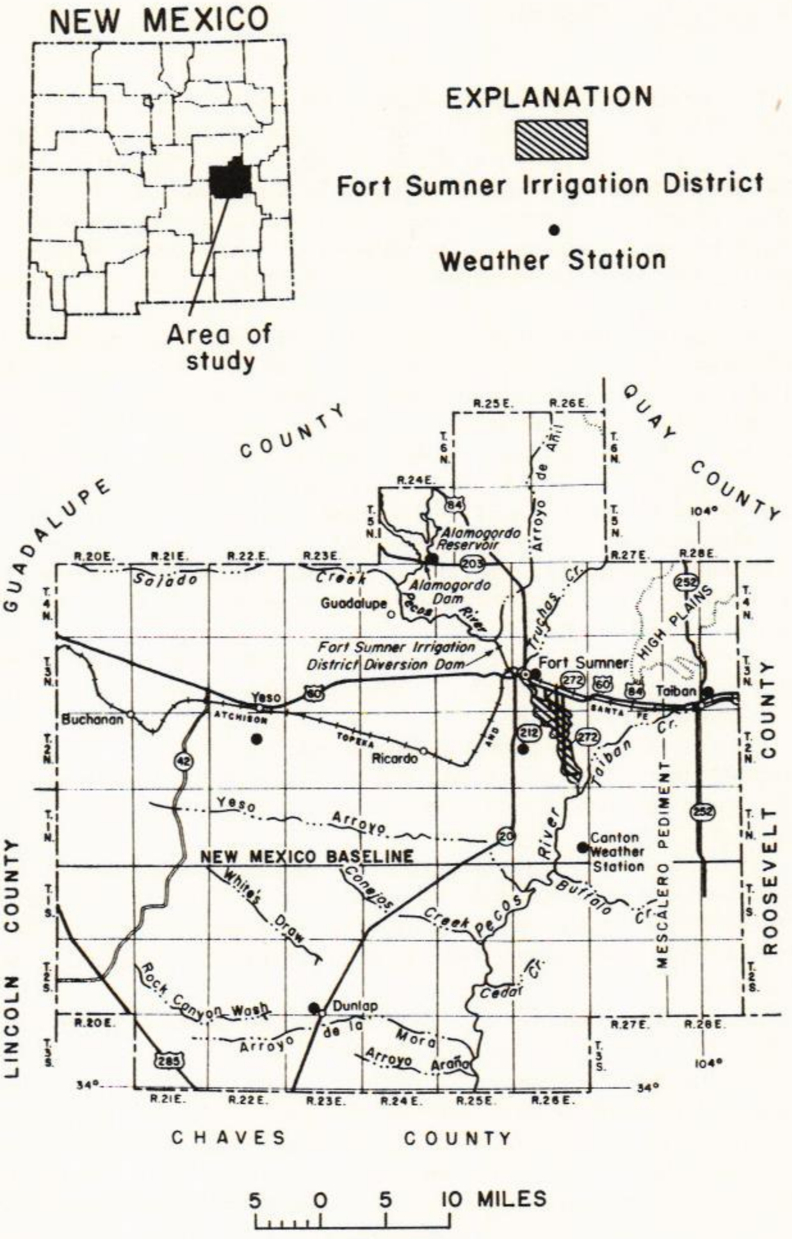
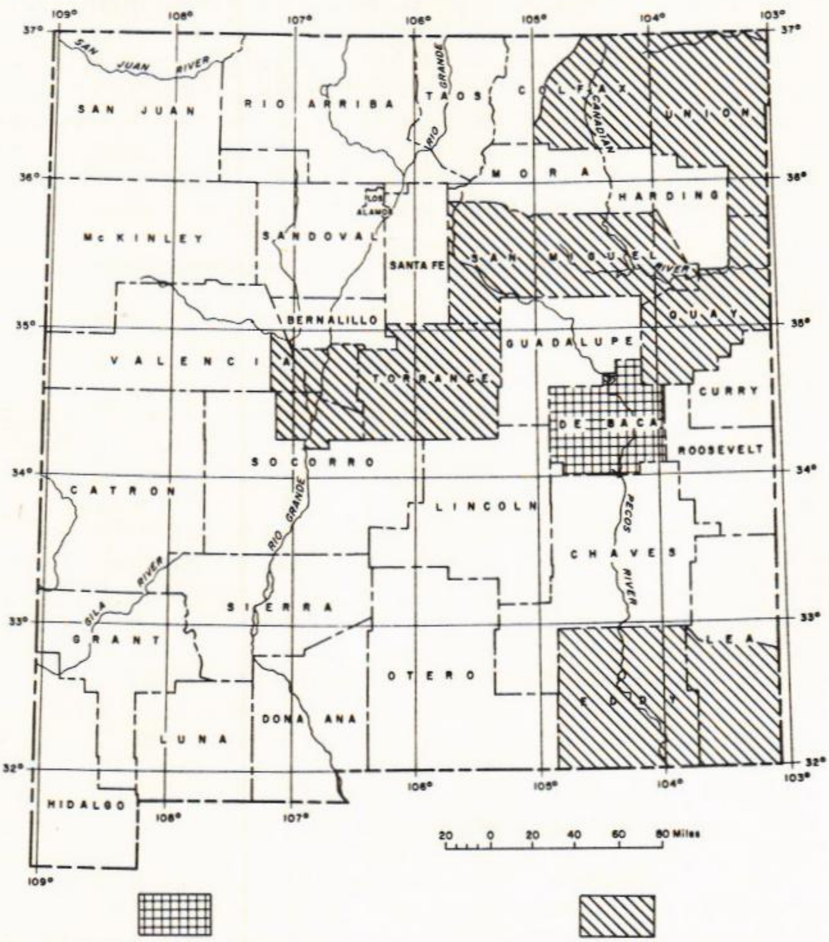


Figure 1

Index map of De Baca County, N. Mex.

PREVIOUS INVESTIGATIONS

An early report on ground water in De Baca County was that of Bryan (1926), which was limited to a short summary of geologic observations. Akin, Murray, and Theis (1962) prepared a series of five reports on geology and ground water at the former U. S. Army airfield



Area described by this report Areas described in previous reports

Figure 2

MAP SHOWING AREAS IN NEW MEXICO DESCRIBED IN PREVIOUS GROUND-WATER REPORTS

Reports on the areas shown are publications of the New Mexico State Bureau of Mines and Mineral Resources, prepared in cooperation with the U. S. Geological Survey and the New Mexico State Engineer.

near Fort Sumner. Geologic and hydrologic studies made in parts of De Baca County by Geological Survey personnel were published as part of the Pecos River Joint Investigation (Theis and Sayre, 1942).

W. L. Emerick of the Geological Survey made a study of ground-water resources of the northern extension of the Roswell basin in 1950, which included the area of De Baca County west of the Pecos River. Data that he collected in De Baca County have been used in this report.

In 1955, Alfred Clebsch, Jr., of the Geological Survey inventoried a number of wells in the western part of the county and collected water-level data. S. E. Galloway and E. A. Chavez of the New Mexico State Engineer Office made ground-water investigations in parts of the county, particularly where irrigation supplies were available. Data collected by these workers have been used in the preparation of this report.

The Fort Sumner municipal water system has been described briefly by Dinwiddie (1963, p. 46-48).

HISTORICAL NOTE

The first European visitors to De Baca County were probably Francisco Vasquez de Coronado in 1541 and Antonio de Espejo in 1583, who passed through with their expeditions. In 1851, Bosque Redondo, a wooded tract on the east bank of the Pecos River about 5 miles south of the present community of Fort Sumner, became the site of a trading post, and in 1862 the U. S. Army built the original Fort Sumner there (Beck, 1962). The fort was established as a reservation to guard Navajo Indians captured and moved from their homeland in northwestern New Mexico by Colonel "Kit" Carson.

The Navajos, along with a group of Mescalero Apaches, were to have adequate rangeland for livestock and 3,000 acres of fertile, irrigated land for farming. By 1864, some 8,000 Indians had been placed on the reservation. However, droughts, pests, hail, and floods diminished crop yields, and epidemics swept the Indian colony. The project failed, and in 1868 the Indians were permitted to return to their former homes.

The fort was sold by the Army to Lucien B. Maxwell, who renovated it and lived in it until his death in 1875.

The Pecos Valley from Fort Sumner southward to the Texas border was the range of John Chisum, perhaps the greatest of early New Mexico cattlemen, and his famous drives to Colorado and Wyoming moved up the Pecos River past Fort Sumner.

In 1908, the "Belen cutoff" of the Atchison, Topeka and Santa Fe Railway was completed across what was to become De Baca County.

Numerous homesteaders moved in, and the present community of Fort Sumner was established where the railroad crossed the Pecos; Guadalupe, Dunlap, and several other farm communities sprang up. It soon became obvious that dry farming was not practical, and by 1918 most of the homesteaders had sold their claims to cattlemen and moved on.

De Baca County was organized in 1917 from parts of Chaves, Guadalupe, and Roosevelt Counties, and Fort Sumner became the county seat. The county was named for the second State Governor of New Mexico, Ezequiel C. de Baca.

WELL-NUMBERING SYSTEM

Wells and springs referred to in this report are identified by the location-number system used in New Mexico by the U. S. Geological Survey and the New Mexico State Engineer (fig. 3). The system is based on the common subdivision of lands into townships, ranges, and sections.

The location number is divided by periods into four segments. The first indicates the township north or south of the New Mexico base line, and the second denotes the range east of the New Mexico principal meridian. The third segment is the number of the section within the township, and the fourth segment indicates the 10-acre tract within which the well or spring is situated.

To determine the fourth segment of the location number, the section is divided into four quarters numbered 1, 2, 3, and 4, in reading order. The number of the quarter section containing the well is the first digit of the fourth segment. The quarter-section is divided into four 40-acre tracts numbered in the same manner, and the number of the 40-acre tract containing the well is the second digit. The 40-acre tract is then divided into four 10-acre tracts, and the third digit denotes the 10-acre tract. Thus, a well numbered 2N.25.12.324 would be in SE ¼ NE ¼ SW ¼ sec. 12, T. 2 N., R. 25 E. (fig. 3). In a few cases the "quartering" process is carried further, so as to locate a well within a $21/_2$-acre tract. Such a location number would be 3N.26.9.3113, SW ¼ NW ¼ NW ¼ SW ¼ sec. 9, T. 3 N., R. 26 E.

The letter *"N"* added to the first segment of the location number indicates that the township is north of the New Mexico base line, and "S" indicates a township south of the base line (fig. 1). If a well cannot be located accurately to a 10-acre tract, a zero is used as the third digit of the fourth segment, and if it cannot be located accurately to a 40-acre tract, zeros are used for both the second and third digits. The letters A, B, C, etc., are added to the last segment to designate the second, third, fourth and succeeding wells in the same 10-acre tract when a more precise subdivision is not practical.

In this report the system of numbering wells in irregular sections

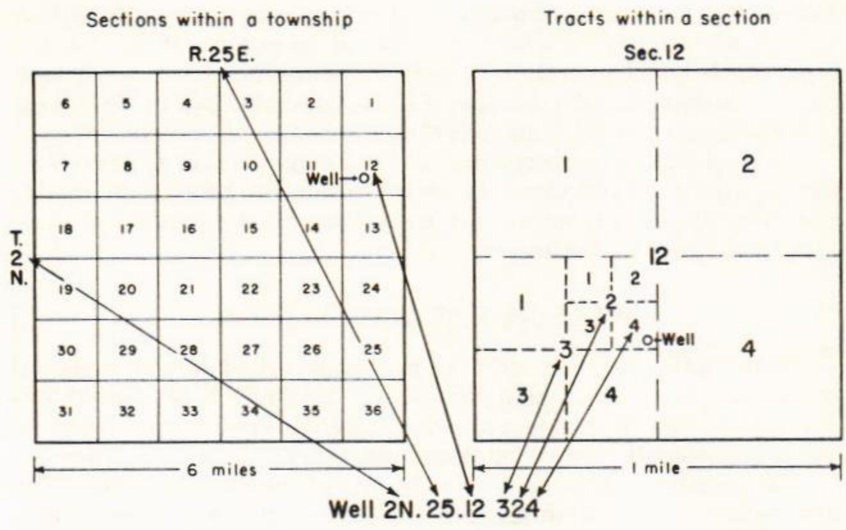


Figure 3
DIAGRAM SHOWING SYSTEM OF NUMBERING WELLS AND SPRINGS

that are greater than or less than 1 mile square is as follows: seven or fewer measurements of 1/8 mile each are made from the southeast corner of the section parallel to the south line and parallel to the east line. The tracts are numbered in the same manner as those in the 1-mile-square section. The tracts in the irregular sections may not have the same acreage as corresponding tracts in regular sections (fig. 4).

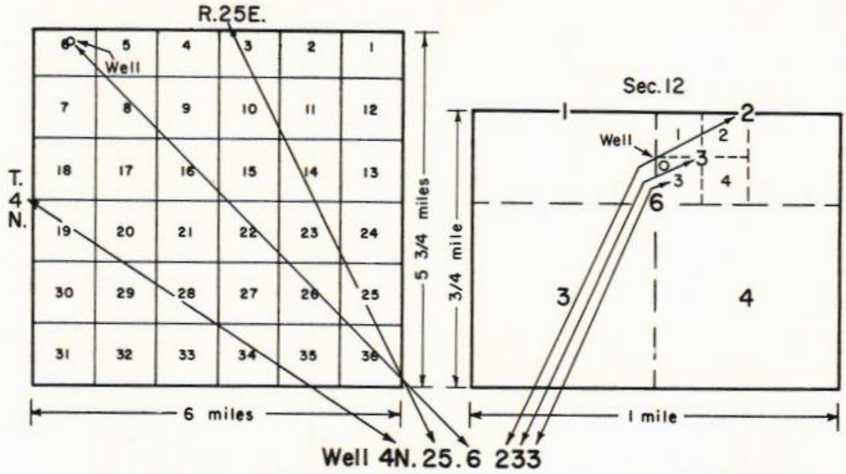
GEOGRAPHY

PHYSIOGRAPHY

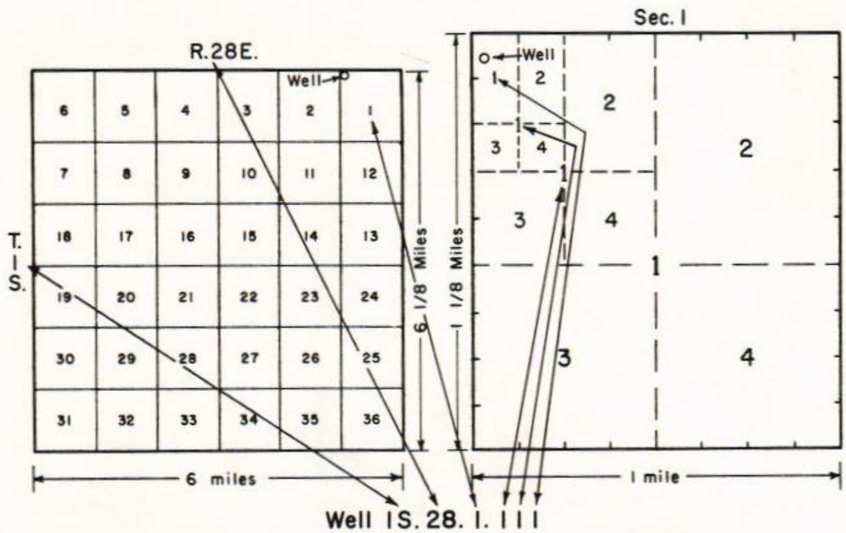
Most of De Baca County lies within the Pecos Valley section of the Great Plains physiographic province (Fenneman, 1931), which is characterized by "late mature to old plain" terrain. A small part of the county is within the High Plains section, which is described as "broad intervalley remnants of smooth fluviatile plains."

The High Plains escarpment lies approximately along the east edge of De Baca County. Between the escarpment and the Pecos River is the Mescalero Pediment (Theis and Sayre, 1942), a westward-sloping surface carved from poorly resistant Triassic rocks and mostly covered by loose sand and gravel deposits.

West of the Pecos River, a uniform caliche- and gravel-covered surface slopes eastward toward the river at 10 to 50 feet per mile. The



Sections smaller than a mile square



Sections larger than a mile square

Figure 4

DIAGRAM SHOWING WELL- AND SPRING-NUMBERING SYSTEM IN IRREGULAR SECTIONS

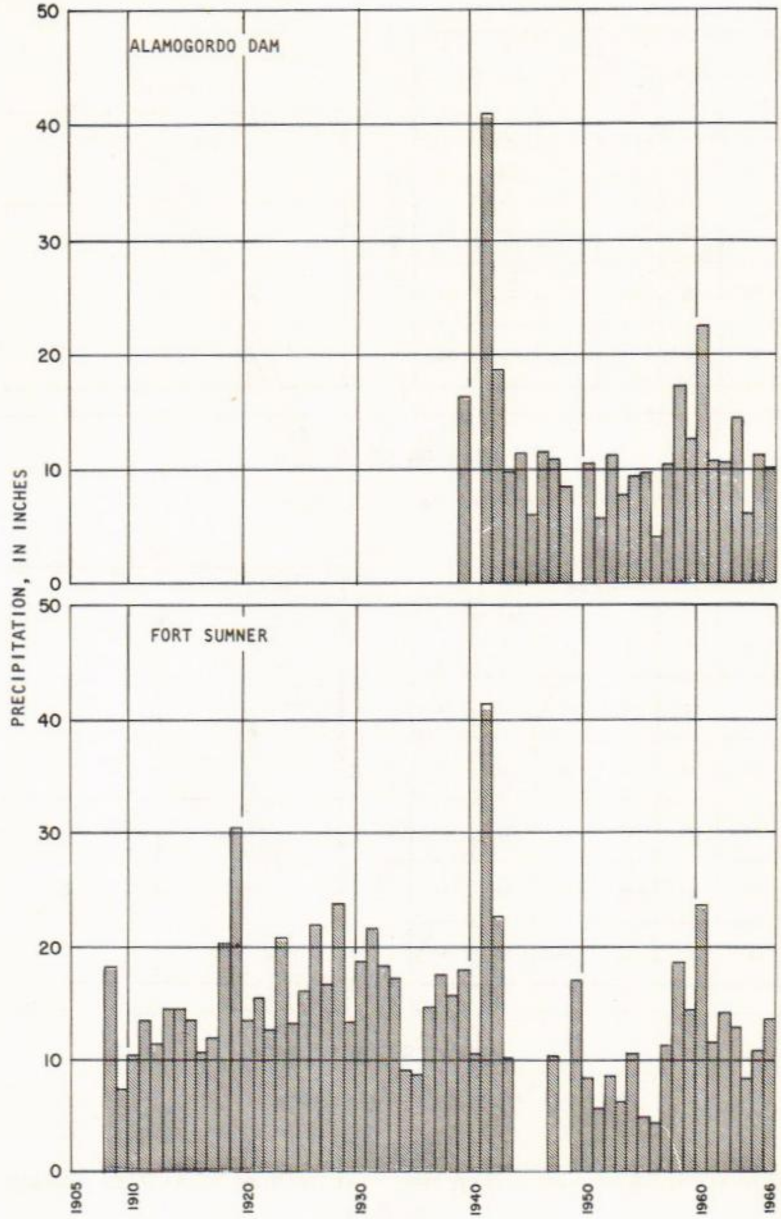


Figure 5
GRAPHS SHOWING PRECIPITATION AT ALAMOGORDO DAM AND FORT SUMNER, 1908-1966

surface is unbroken along about 25 miles of the west edge of the county; elsewhere, eastward- and southeastward-trending arroyos have cut broad valleys through it. In the southern part of the county, the graveled surface has been entirely removed by erosion, and underlying rocks are exposed over a large area.

North of Fort Sumner, the Pecos River flows in a narrow valley cut into Permian and Triassic sedimentary rocks. South of Fort Sumner, to the mouth of Yeso Arroyo, the valley is broader and contains alluvial terraces at several levels. Between the mouth of Yeso Arroyo and the Chaves County line, the valley is narrower and the terraces are less conspicuous or absent.

The highest areas in the county are along its west edge; the highest point is the top of a butte (alt. 5,505 ft) 2.5 miles southwest of Buchanan. The point at which the Pecos River leaves the county is the lowest, at an altitude of about 3,730 feet.

The only perennial stream in the county is the Pecos River. West of the Pecos River, straight, deep arroyos provide rapid surface drainage. East of the Pecos River and north of Fort Sumner, most drainage is along arroyos also, but south of Fort Sumner, tributary arroyos to the east have cut only a short distance into the edge of the Mescalero Pediment, and nearly all drainage is channeled directly into the numerous sinkholes or absorbed into the loose sand cover.

CLIMATE

The climate of De Baca County is semiarid; mean annual precipitation at the Fort Sumner station for the period 1944-1965 was 11.38 inches, and the mean temperature was 58.6°F (Von Eschen, 1961). The annual precipitation for Fort Sumner (1908-1966) and Alamogordo Dam (1939-1966) is shown on Figure 5. Summers are characterized by daytime temperatures above 90°F, nighttime temperatures between 60° and 70°F, and occasional, brief, afternoon and evening thundershowers. Normally, about 80 percent of the year's moisture falls between the beginning of May and the end of October. Winters are dry and clear; daytime temperatures generally exceed 50°F, and night readings are normally below 32°F but rarely below 0°F.

The annual average humidity is about 55 percent, with late winter and spring the driest period. This same period is characteristically windy, and winds of 25 to 35 miles per hour may persist for several hours. Sunshine averages about 75 percent of the daylight hours during the year. The growing season averages slightly more than 6 months.

A summary of precipitation at seven stations in De Baca County (fig. 1) for the years 1944 through 1965 is given in the following tabulation:

Summary of Precipitation at Seven Stations in De Baca County, N. Mex., 1944-1965
(from U. S. Weather Bureau records)

STATION AND LOCATION	ALTITUDE ABOVE SEA LEVEL (feet)	AVERAGE ANNUAL PRECIPITATION (inches)	YEARS OF RECORD
Alamogordo Dam Sec. 1, T. 4 N., R. 24 E.	4,306	10.63	1944-48, 1950-65
Canton Sec. 25, T. 1 N., R. 26 E.	4,056	12.96	1949-65
Dunlap Sec. 33, T. 2 S., R. 23 E.	4,050	10.01	1948-49, 1953-59
Fort Sumner Sec. 20, T. 3 N., R. 26 E.	4,030	11.38	1949-65
Fort Sumner 5S Sec. 18, T. 2 N., R. 26 E.	4,050	11.65	1948, 1950-65
Taiban Sec. 33, T. 3 N., R. 28 E.	4,150	12.68	1952-65
Yeso 2S Sec. 15, T. 2 N., R. 22 E.	4,850	11.17	1948-65

Water Resources and Geology

Water moves from the Earth to the atmosphere and then by precipitation back to the Earth again in a cyclic pattern called the hydrologic, or water, cycle. Part of the precipitation goes underground to become ground water, which may then be available to be pumped from wells. The base flow in the Pecos River, the perennial flow in a few reaches of some arroyos, and the flow of springs are sustained by ground water. Water becomes mineralized as it dissolves some of the material with which it comes into contact; it may thus become too mineralized for some uses.

Ground water is the water beneath the land surface in the zone of saturation, where openings in the rocks are filled with water. Unconsolidated sand and gravel is usually a good aquifer, whereas shale is a poor aquifer. The rocks in De Baca County in the zone of saturation range from very permeable gravels that yield more than 1,000 gpm (gallons per minute) for irrigation use, to shales that do not yield sufficient water for a stock well.

The aquifers utilized and other information about wells and springs in De Baca County are listed in Tables 1 and 2. The chemical quality of the ground and surface water is listed in Tables 3, 4, and 5. The material penetrated by selected wells is listed in Table 6.

GROUND WATER

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

The rocks that crop out in De Baca County range in age from Permian to Holocene. Their distribution is shown on the geologic map (pl. 1), and the regional dip of the formations is shown on the geologic sections (pl. 2).

Permian System

Glorieta Sandstone.—The Glorieta Sandstone of Permian age does not crop out in De Baca County. It is the deepest water-bearing formation now tapped by water wells in the county. It is a white, yellow-white, or light-gray quartz sandstone, generally fine- or medium-grained, and compactly cemented. The grains are generally rounded. Within the county, the Glorieta ranges in thickness from 60 feet to 170 feet.

The Glorieta is nearest the surface in the southwestern corner of the county (T. 2 S., Rs. 20, 21 E.; T. 3 S., R. 21 E.). Well 3S.21.27.144 is reported to be 845 feet deep and to tap the Glorieta (depth to water reported as 820 ft). A water sample from this well had a specific conductance of 10,800 micromhos.

The maximum potential yield of the Glorieta in the county has not been determined, but it seems unlikely that the yield would be more than 20 gpm. A yield of 10 gpm was reported for well 3S.21.27.144, and 15 gpm has been reported for a well nearby in Chaves County.

Water in the Glorieta seems to be unconfined (that is, under no artesian pressure) where tapped by wells in western De Baca County.

San Andres Limestone.—Overlying the Glorieta Sandstone is the San Andres Limestone, also of Permian age (Leonardian and Guadalupian). The San Andres crops out in T. 2 S., Rs. 20, 21 E., and T. 3 S., R. 21 E., and along Rock Canyon Wash and Arroyo de la Mora as far east as secs. 2, 11, T. 3 S., R. 22 E., and sea. 5, 6, T. 4 N., R. 20 E.

In the southwest corner of the county, only the upper part of the San Andres crops out. At least 605 feet of the formation is present in this area, as indicated by the log of well 3S.22.6.134. In oil test wells in T. 4 N., R. 22 E., and T. 1 N., R. 22 E., thicknesses of 536 feet and 640 feet were logged (table 6). The formation thickens eastward, reaching a maximum drilled thickness of about 1,250 feet near the east edge of the county.

Near the western side of the county, the San Andres is composed of an upper sequence of alternating thin (less than 1 foot thick) beds of white gypsum (or gray anhydrite) and gray dolomite, and a lower sequence of thicker beds of anhydrite, dolomite, and limestone. In the Transcontinental 1 McWhorter well (3S.22.6.134), the lower sequence is about 250 feet thick and contains some shale. The thickness of the upper sequence cannot be determined, because it has been partly removed by erosion. In the Hawkins 1 Myrick well (2N.25.17.340) near the center of the county, the lower sequence is primarily dolomite, with minor amounts of anhydrite, and about 20 feet of limestone, and is about 110 feet thick. The upper sequence in this well is largely anhydrite but contains numerous beds of red shale, red sandstone, and dolomite, and is about 625 feet thick.

East of a line near, and parallel with, the Pecos River, the San Andres contains beds of salt. The salt generally occurs in the upper part.

West of the Pecos River salt is generally absent, or nearly so, in the San Andres, and solution by moving ground water has created extensive, interconnected openings within the limestone, dolomite, anhydrite, and gypsum beds, so that the porosity and permeability of the formation are high. Highly saline water in the San Andres west of the Pecos River, reported in oil-test drilling, probably indicates that salt beds originally existed in the formation in that area.

Where tapped by water wells, the water in the San Andres is unconfined. At the west edge of the county, the water table lies near the base of the San Andres and wells draw water from the lower part of the San Andres and from the underlying Glorieta. The San Andres dips to the east, but the water table, which also slopes eastward though less steeply, rises higher and higher within the San Andres until the base of the less permeable Artesia Formation is reached. Eastward of the intersection of the water table with the base of the Artesia Formation, water in the San Andres is confined under artesian pressure.

The potential yield of the San Andres has not been determined in De Baca County because the water is of poor quality, and in most of the county the formation is too deep to be of economic use. Only stock wells yielding a few gallons per minute have been completed in the San Andres Limestone in De Baca County.

Artesia Formation.—The Artesia Formation (Guadalupian), as used in this report, refers to Permian rocks above the San Andres Limestone. The Artesia unconformably overlies the San Andres. It includes rocks equivalent to those assigned in other reports to the Artesia Group, the Whitehorse Group, the Bernal Formation, or the Chalk Bluff Formation.

The Artesia is made up of alternating beds of red or salmon-colored shale, red shaly sandstone, gray limestone, gypsum, salt, and anhydrite. The proportion of red sandstone to shale and anhydrite increases with depth. Where measurable, the beds are generally less than 5 feet thick, and the formation has a maximum thickness of about 935 feet. The greater thicknesses are found in wells in the eastern part of the county. Individual beds are generally discontinuous and may change in character from place to place. This series of beds is here considered a single formation because no mappable units were recognized within it during field mapping or during investigation of subsurface data.

Shale and gypsum beds in the Artesia form the bluffs along the east side of the Pecos River south of the mouth of Cedar Creek, and the bluffs along the north side of Yeso Arroyo in Ts. 1, 2 N., Rs. 20, 21 E. The salmon-colored shale and gypsum at the surface over much of the Salado Creek drainage and in and south of the Yeso Arroyo drainage are a part of the Artesia, as are similar beds in the Pecos "canyon" above the old village of Guadalupe. Characteristic "Pecos Valley diamonds" (quartz crystals) are found nearly everywhere that the Artesia crops out. These small, double-terminated quartz crystals are resistant to weathering and sparkle in the slanting rays of the sun, giving the impression that the land surface is covered with diamonds. In some locations dolomite and aragonite crystals are associated with the quartz crystals.

Yields from wells tapping the Artesia Formation are generally less than 10 gpm. The water is of poor quality; specific conductance range between 1,310 and 18,950 micromhos for those waters sampled. The high mineral content is due to the soluble gypsum and salt in the Artesia Formation and may be partially derived from highly mineralized water moving into the Artesia Formation from the underlying San Andres Limestone. Water in the Artesia is generally unconfined. However, in a few areas, notably in the Conejos Creek drainage and along the west bank of the Pecos River, wells tap water under enough artesian pressure to cause flow at the surface.

Triassic System

Santa Rosa Sandstone.—The Santa Rosa Sandstone is the lower of two formations of Late Triassic age recognized in De Baca County. It conformably overlies the Artesia Formation and typically consists of tan, gray, brown, and red quartzose sandstone in beds a few inches to 2 or 3 feet thick, and interbedded variegated shale and lenses of conglomerate; it is locally cross bedded. The sandstones are fine to medium grained and cemented in varying degrees with calcium carbonate. A brown-weathering stain is common on outcrops, and pseudo morphs of limonite after pyrite and dark-brown fragments of petrified wood are common. Generally, a light red-brown sandstone is the lowest unit in the formation, followed in ascending order by a darker, nearly maroon, sandstone unit, a sequence of red shale with thin sandstone and conglomerate lenses, and a tan or gray sandstone unit. The formation forms steep bluffs along drainages in the northern half of the county; the average eastward dip is about 25 feet per mile.

In surface sections in T. 1 N., R. 24 E., the Santa Rosa is about 200 feet thick; well logs (table 6) indicate a range in thickness from 110 to 240 feet for complete sections of the formation within the county.

Yield from the Santa Rosa, although generally less than 15 gpm, is as much as 1,000 gpm in the area between Truchas Creek and Arroyo de Anil in T. 4 N., R. 26 E. Some of the old municipal wells in Fort Sumner and at the former U. S. Army airfield near Fort Sumner obtained yields of 75 gpm from the Santa Rosa. Yields of several hundred gallons per minute are reported for four wells just south of the community of Yeso, but part of the water may be from gravel of Tertiary or Quaternary age that overlies the Santa Rosa in that area.

The quality of the water in the Santa Rosa is generally satisfactory for domestic use except where it has passed through soluble rocks of other formations. Water in the Santa Rosa has a specific conductance ranging from 260 micromhos to 3,800 micromhos. Specific conductance of less than 1,000 micromhos probably signifies local recharge directly into the sandstones.

Irrigation and municipal-supply waters pumped from the Santa Rosa in T. 4 *N.*, R. 26 E., range in specific conductance from 1,220 to 1,260 micromhos and in total dissolved solids from 763 to 791 mg/1 (milligrams per liter). Salinity hazard is correspondingly high (fig. 6) and sodium (alkali) hazard is 9.3 to 9.9.

Chinle Formation.—The Chinle Formation, of Late Triassic age, overlies the Santa Rosa Sandstone conformably and is the youngest and highest "bedrock" formation that crops out in De Baca County. The Chinle is a sequence of red, maroon, and gray shales as much as 850 feet thick that contains thin beds of fine- to medium-grained quartzose sandstone, and some thin, discontinuous beds of gypsum and limestone.

The Chinle crops out in the valleys of all the major drainages in the county except those south of Yeso Arroyo. In the entire area south of Yeso Arroyo and west of the Pecos River, rocks of Triassic age have been stripped away by erosion. On the higher ground between drainages, the Chinle is covered by the Ogallala Formation of Tertiary age, or by younger Tertiary or Quaternary surficial deposits. The upper contact of the Chinle is an erosional surface throughout the county.

The Chinle Formation yields only a few gallons per minute to wells. The water commonly has high mineral content because of the soluble materials in the shale and gypsum beds. Sandstone strata in the Chinle, and in particular those that crop out north and south of the community of Taiban, may have permeabilities comparable to those of the sandstones in the Santa Rosa.

The yield of a well completed in the upper part of the Chinle probably can be increased by drilling it deeper, because permeable saturated sandstone beds may be tapped near the base of the Chinle or in the Santa Rosa. The water in the permeable sandstones is generally less mineralized than that in the shale beds. The yield may also be increased by selectively perforating the casing opposite sandstone beds (as determined from a carefully kept log) and by intensively developing the well through extended pumping, bailing, or swabbing, or agitation with compressed air.

Cretaceous or Tertiary Rocks

Igneous Sill.—The only igneous rock recognized during mapping in De Baca County was a sill, probably of Cretaceous or Tertiary age, that crops out along the De Baca-Chaves county line south of Dunlap. The sill, about 18 feet thick, consists of weathered trachyte(?) and intrudes shale of the Artesia Formation. Because the sill is topographically high, and lies above the water table, it is not likely to be a source of water.

Tertiary System

Ogallala Formation.—The Ogallala Formation of Pliocene age unconformably overlies the Chinle Formation. It consists of poorly sorted, stratified gravel, sand, silt, and clay, some of which may be weakly cemented by calcium carbonate and generally covered by caliche. The Ogallala forms the "cap rock" in T. 6 *N.*, R. 26 E., and atop Taiban Mesa, and extends northeastward in De Baca County as the gently eastward-sloping High Plains surface. The base of the Ogallala slopes generally southeastward. Irregularity of the bottom contact and lack of well-log information preclude a reliable estimate of the thickness of the Ogallala, but probably it is nowhere more than about 100 feet thick.

The Ogallala is the most important aquifer in eastern New Mexico and northwestern Texas and provides water for virtually all irrigation on the High Plains. However, only the extreme western edge of the Ogallala extends into De Baca County. Yields sufficient for stock and domestic use are obtained, but irrigation supplies are probably not obtainable.

The quality of Ogallala water is good. Specific conductance of the water sampled ranged from 340 to 1,500 micromhos; dissolved solids are primarily bicarbonate and sulfate.

Tertiary and Quaternary Systems

Pediment Deposits.—The broad, gently eastward-sloping plain between Yeso Arroyo and Salado Creek, the upland surfaces along much of the western boundary of the county, and several isolated mesas are capped by pediment deposits of latest Tertiary or Quaternary age. These deposits consist of weakly cemented sandstone, siltstone, and gravel, and a well-developed caliche layer at the surface. The pediment deposits are similar to and were once called the Ogallala; field relations, however, indicate that they are younger.

In the eastward-facing bluff in T. 1 N., R. 20 E., the pediment deposits overlie a weakly cemented unit that consists of rounded, cobble-and pebble-size gravels with interbedded red, buff, and salmon-colored claystone, siltstone, and sandstone. This unit occupies a channel cut into the Santa Rosa Sandstone; it is about 200 feet thick at its thickest exposure and thins rapidly northward and southward. It may be part of, or equivalent to, the Gatuna Formation of Quaternary age of Robinson and Lang (1938), but because it is probably of very nearly the same age as the pediment deposits and is in hydrologic continuity with them, it is included with them in this report.

The pediment deposits unconformably overlie the Chinle Formation east of the village of Yeso and the Santa Rosa Sandstone to the west of Yeso. Thicknesses ranging from 20 feet to 90 feet have been logged in wells drilled on the plain between Yeso Arroyo and Salado Creek, and it can be assumed that the deposits are nowhere thicker than about 100 feet except where deposits of the Gatuna Formation type are included with them.

The pediment deposits are believed to be above the water table in most areas in the county and are not known to yield water to wells. They are permeable enough to facilitate recharge to the underlying formations. High bicarbonate content in waters from the Santa Rosa Sandstone or from the Chinle Formation may be attributed to passage of water through and solution of the highly calcareous pediment materials as it moves down into the underlying Triassic rocks.

Quaternary System

Older Alluvium, Terrace Deposits, and Caliche.—On the geologic map (pl. 1) the symbol Qab identifies older alluvium, terrace deposits, and surficial caliche layers. The older alluvium includes weakly cemented gravel, sand, silt, and caliche of Quaternary age that are younger and topographically lower than, and probably in part derived from, latest Tertiary or Quaternary pediment deposits. Terrace deposits of older alluvial material are associated with earlier levels of the Pecos River. Caliche layers thick enough and continuous enough to cover completely the underlying bedrock are present in several areas on both sides of the Pecos River. Minor thicknesses of these deposits are not shown on the geologic map (pl. I).

Older alluvium, with caliche developed in its upper portion, covers the Chinle Formation in a belt 3 to 6 miles wide along the west side of the Pecos River between a line 2 to 3 miles north of U. S. Highway 60 and a line about 3 miles northeast of Conejos Creek. In that portion of the belt in T. 1 N. and T. 2 N. and east of State Highway 20, the older alluvium is as much as 200 feet thick and furnishes up to 1,300 gpm to properly constructed irrigation wells. Logs of wells show the older alluvium to consist of 40 to 70 feet of sand near the surface, 5 to 50 feet of red clay, and 60 to 100 feet of sand and gravel. The water table ordinarily lies a few feet below the top of the sand and gravel stratum.

Elsewhere west of the Pecos River the older alluvium and caliche are thin and lie above the water table.

Within the irrigation area in Ts. 1, 2 N., R. 26 E., waters sampled ranged from 1,770 micromhos to 2,200 micromhos in specific conductance and from 1,390 to 1,820 mg/1 of dissolved solids. Salinity hazard is high (fig. 6), but sodium (alkali) hazard is low, owing to the dominance of calcium and magnesium ions over sodium.

A veneer of older alluvium and caliche covers the Chinle Formation over much of De Baca County east of the Pecos River. The veneer, however, generally does not have a zone of saturation and is insignificant as an aquifer. It does have an effect on the quality of water derived from underlying rocks because water moving downward through it dissolves calcium carbonate and transports it downward.

Dune Sand.—Several areas of De Baca County are covered by loose, fine dune sand (p1. 1) of Holocene age. Some of the sand dunes are stabilized by vegetation, others are migrating. Most of the sand grains are quartz, but some are composed of calcium carbonate derived from nearby caliche.

Because the thickness of the dune sand is highly irregular, it is difficult to determine whether the water table at a particular well lies within the sand or below it. The dune sand permits rapid percolation of water into underlying formations.

Younger Alluvium.—Alluvium of Quaternary age fills the inner valley of the Pecos River throughout its reach in De Baca County and the Taiban Creek drainage near the Roosevelt County line. Insignificant thicknesses of alluvium not shown on the geologic map (pl. 1) occupy the floors of most of the drainages in the county. The material consists of unsorted and uncemented gravel, sand, silt, and clay in discontinuous and lenticular layers, and honeycombed caliche. The thickness of the alluvial material is reported to be as much as 100 feet in the Taiban area.

The younger alluvium provides domestic and stock water in the area of the Fort Sumner Irrigation District and irrigation water in a small area southeast of Taiban and in a small area at the mouth of Arroyo Araria. Alluvium in tributary drainages may supply part of the water tapped by stock wells drilled near arroyos. The irrigation wells near Taiban reportedly yield as much as 1,500 gpm.

The quality of the water in the younger alluvium is satisfactory for irrigation use, but the water generally is too highly mineralized for domestic use.

SOURCES AND MOVEMENT OF GROUND WATER

Nearly all wells in the county tap a continuous zone of unconfined or semi confined saturation in the Artesia Formation or younger rocks. In some areas of southwestern De Baca County the water table lies at great depth, near the base of the San Andres Limestone because water readily leaks downward into zones of saturation in the San Andres Limestone or Glorieta Sandstone. However, perched zones of saturation may occur locally. In the remainder of the county, downward movement of ground water is at least partly intercepted by younger rocks, which carry most of the water laterally to local discharge areas. Few water wells in the county are drilled deeper than the Artesia Formation because of the poor quality of the water in the San Andres Limestone and the excessive depth for economic development.

Near-Surface Water Table

Water is added to the unconfined aquifers when water from rain and snow which fall on the land surface percolates downward through permeable soil, the bottoms of gullies and arroyos, and sinkholes. Water moves laterally through the saturated strata in a slow but constant movement toward discharge areas at lower elevation. Therefore, water constantly moves into the county from higher areas to the west and across the county toward the Pecos River.

Some of the water falling on the High Plains surface in northeastern De Baca County is retarded from percolating below the Ogallala Formation by the much less permeable Triassic shales; although the contact of the Ogallala and the Triassic slopes southeastward, ground water in the Ogallala moves generally southwestward (pl. 3) in De Baca County. West of the escarpment, on the Mescalero Pediment the Ogallala Formation has been removed by erosion and a westward-sloping bedrock surface of Triassic and younger rocks has been formed. Precipitation enters surficial deposits lying on Triassic rocks or recharges Triassic rocks directly. A water table sloping generally westward is thus formed toward the Pecos River.

Water in Deeper Aquifers

Where the San Andres Limestone crops out, water moves downward to the unconfined zone of saturation, except where layers within the formation support perched water. Water in the aquifer moves eastward along the water-table gradient, and becomes semi confined by the Artesia Formation in about the middle of the county. From that point eastward, the water in the San Andres is under artesian pressure. At the "salt line" (the western limit of salt beds in the San Andres), near the Pecos River, the permeability of the San Andres decreases markedly because of the clay residue left when the salt dissolved and because of the plastic nature of the salt itself, which seals openings made in it. Though some water undoubtedly continues to move eastward, most of it is forced to move southward, paralleling the course of the Pecos, or to move upward through the Artesia Formation and appear in salt springs and artesian wells. Collapse and solution in the Artesia Formation (caused by collapse in the San Andres due to solution of salt) may have increased the permeability near the "salt line" and promoted upward leakage.

It is probable that the San Andres and Glorieta aquifer systems are hydraulically connected east of a line between the San Andres outcrop and the "salt line" and that to the east of this line water is semi-confined in the Glorieta by the overlying San Andres.

Discharge and Water-Table Fluctuations

Discharge from the water-table aquifer on both sides of the Pecos River is at springs, which are ordinarily along drainages where the water table intersects the land surface. A great deal of water moves down-gradient to the Pecos River where it joins the underflow in the alluvium and moves southward out of the county. Pumping from wells also discharges water from the water-table aquifer. Small-yield stock wells generally have only small local effects, but pumping from irrigation wells can lower the water table significantly. Water levels decline a few feet during the pumping season in the area west of the Pecos River in T. 2 N., R. 26 E., where ground water is used for irrigation but recover to previous levels during the non pumping season (table 1). When withdrawals from the saturated river alluvium are heavy, the surface flow of the Pecos River decreases as surface water is induced to refill the normally saturated material beneath the channel. No trend of permanent water-level decline has been noted in the irrigated areas south of Taiban or north of Fort Sumner.

North of Fort Sumner, the Santa Rosa Sandstone aquifer supplies ground water for the municipal water system and for irrigation. No data on water-level declines are available. An automatic water-level recorder should be installed on an unused well finished in this aquifer to record the fluctuations of water level and to provide a record of any trend of lowering of water level which might predict ensuing depletion of the aquifer.

Where the water table is very near the land surface, such as along the Pecos River, some water is discharged through transpiration by plants and through direct evaporation. These areas can be recognized by the growth of phreatophytes (plants whose roots draw water directly from the water table), such as salt cedar, salt grass, and sacaton grass.

Perched-Water Bodies

Perched-water bodies exist in the Permian and Triassic formations in the county. They are discovered only when, by chance, wells are drilled into them, and even then they are difficult to recognize without accurate information concerning the depth to the general water table. Well 2N.25.28.122 probably taps a perched-water body in the Santa Rosa Sandstone and well 5N.24.24.413 taps perched water in the

Chinle Formation. Other wells tapping perched water are indicated in Plate 3.

Some of the high mesa areas in the county are capped with permeable rocks, such as gypsum, which are underlain by relatively impermeable rocks, such as siltstone. Such areas are likely to have a "gyp spring area" on a slope where the perched water in the permeable material is discharged at the contact with the less permeable rock. Such a "gyp spring" (2S.21.29.332) is only a seep now but it may have discharged several gallons per minute years ago.

DEPTH TO WATER

In general, depth to water from land surface is least in the inner valley of the Pecos and in the floors of the major drainages, and greatest on high ground west of the Pecos River. Depth to water in wells is shown on Plate 3 and in Table 1. Approximate depth to the regional water table at any point within the area covered by water-table contours can be determined by subtracting the altitude of the water table (found by interpolating between contour lines) from the altitude of the land surface at the well.

Water levels have remained fairly stable in De Baca County and should continue to do so except in areas of pumpage for irrigation or municipal use. No wells are known to have been abandoned or deepened because of lowering of water levels. Spring areas identified on aerial photos taken in 1939 are still active, indicating little change in ground-water conditions in these areas. The water in these springs is ground water being discharged at the land surface.

QUALITY OF GROUND WATER

Ground water usually has in solution some of the material with which it has been in contact. Some rocks, such as gypsum, are more soluble than others, such as sandstone, and ground water that has been in contact with gypsum is likely to be high in sulfate and have a "gyppy" taste. Chemical analyses of well and spring waters in De Baca County are shown in Table 3. Specific conductance values, which are approximately proportional to total mineral concentrations, are shown on Plate 4 and in Tables 1 and 3; these values were obtained by use of a portable meter or by laboratory analysis, and represent either water sampled during pumping, water taken from storage at the well, or collected at the spring.

The chemical suitability of water can be evaluated only on the basis of its intended use.

Table 5 lists the chemical constituents and properties of the ground-water samples and summarizes their sources and possible effects. Recommended limits of concentration for selected uses, range of concentration, number of determinations, and number of determinations more than and less than selected concentrations are shown for each constituent.

In Figure 6 conductivity (specific conductance) is plotted against the sodium-adsorption ratio for all irrigation waters sampled and irrigation waters are classified in terms of salinity hazard and sodium (alkali) hazard.

UTILIZATION OF GROUND WATER

Domestic and Stock Wells

Several hundred domestic and stock wells (table 1) were visited during the course of this study. Many of them were drilled by cable-tool methods to a diameter of 8 or 9 inches, and cased with 6-inch steel "waterwell" casing. Generally, wells are left uncased below the water level. Where caving necessitated casing to the bottom of the well, the casing was perforated with torch-cut slots or simply left open at or near the bottom. Well screens are seldom used. Most stock wells are pumped with windmill-powered piston pumps. These pumps generally consist of an open-top cylinder attached to a 2- or 3-inch pipe and placed in the well below the pumping water level. Wooden "sucker rods" within the pipe operate the piston in the cylinder.

Many new domestic and stock wells are being equipped with 1/2-horsepower to 11/2-horsepower electric submersible pumps.

Yields of the windmill wells range from less than 1 gpm to about 15 gpm, depending on the permeability of the water-bearing formation, well construction, condition of the pump, and wind. A well that will provide 3 to 5 gpm is usually considered a satisfactory domestic or stock well.

Irrigation Wells

Most of the irrigation wells in De Baca County are located north and south of Fort Sumner or south of Taiban. Many of these were drilled by rotary methods and are lined with 16-inch steel casing that has been slotted with a torch. A few are finished with screens. Some wells are gravel packed, a technique of placing gravel in the space between the wall of the hole and the casing. Nearly all are equipped with turbine pumps powered by butane-fueled internal-combustion engines. Reported capacities of the wells range from 600 gpm to 1,500 gpm. These wells are used to irrigate about 2,000 acres south of Fort Sumner, west of the Pecos River, in T. 2 N., R. 26 E.; about 500 acres 5 miles north of Fort Sumner, in T. 4 N., R. 26 E.; and about 500 acres 2 miles southeast of Taiban.

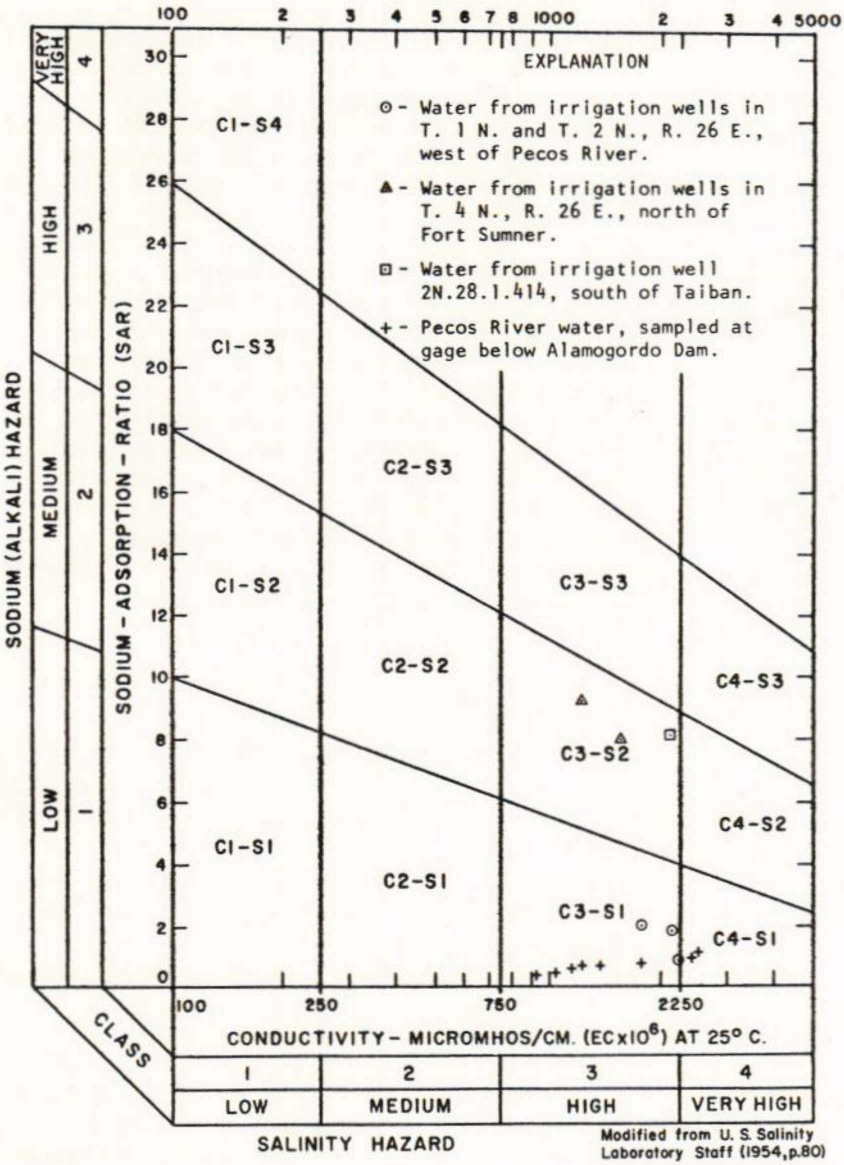


Figure 6

CLASSIFICATION OF IRRIGATION WATER ACCORDING TO SODIUM (ALKALI) AND SALINITY HAZARD

Municipal Wells

Until middle 1964, Fort Sumner obtained water from a group of low-yield wells (table 1) and an infiltration gallery about 3 miles from the center of town. By 1960, the most productive of these wells was able to provide only about 135 gpm. In 1963, an irrigation test well (4N.26.21.441) was drilled about 6 miles north of Fort Sumner, and in April 1964 well 4N.26.27.111 was drilled and later purchased by Fort Sumner for municipal supply; it now supplies all the water for the municipal system. This well is 216 feet deep, and is capable of yielding about 1,000 gpm; it contains 12-inch-diameter casing to a depth of 130 feet (torch-perforated from 20 to 130 feet) and is uncased below that depth. The municipal system supplies water to about 550 customers (May 1967) in the village and to about 100 customers of the Valley Water Users Association, Inc., in the valley south and east of Fort Sumner. (See Figure 7 for amount of water used by these customers.) Some residents in these areas use ground water from private wells for domestic and/or stock supplies.

The Fort Sumner Municipal School well, drilled in 1955, is 96 feet deep and is lined with 12-inch-diameter, torch-perforated casing. It is "gravel packed" and was reportedly tested at 1,150 gpm. The water from this well is used only for sanitary facilities and for stock.

FUTURE DEVELOPMENT OF GROUND WATER

Ground-water supplies for domestic and stock uses generally can be obtained in all sections of the county. The quality of the water may be unsatisfactory in some locations, and the quantity that can be obtained at any specific location depends on the permeability of the aquifer or aquifers underlying that location. The geologic map (pl. 1) and the diagrammatic sections (pl. 2) indicate the aquifers that may be encountered at a specific location.

Yields sufficient for irrigation probably cannot be obtained from wells located within the outcrop area of either the San Andres Limestone or the Artesia Formation. A possibility exists that yields of a few hundred gpm can be obtained in small, isolated areas from wells finished in the Santa Rosa Sandstone, the Chinle Formation, or the alluvium. Several areas shown on Plate 4 appear favorable for obtaining water of good quality (less than 1,000 micromhos specific conductance). The only foreseeable development of irrigation supplies is the expansion of the existing irrigation areas, subject to regulation by the New Mexico State Engineer, where applicable.

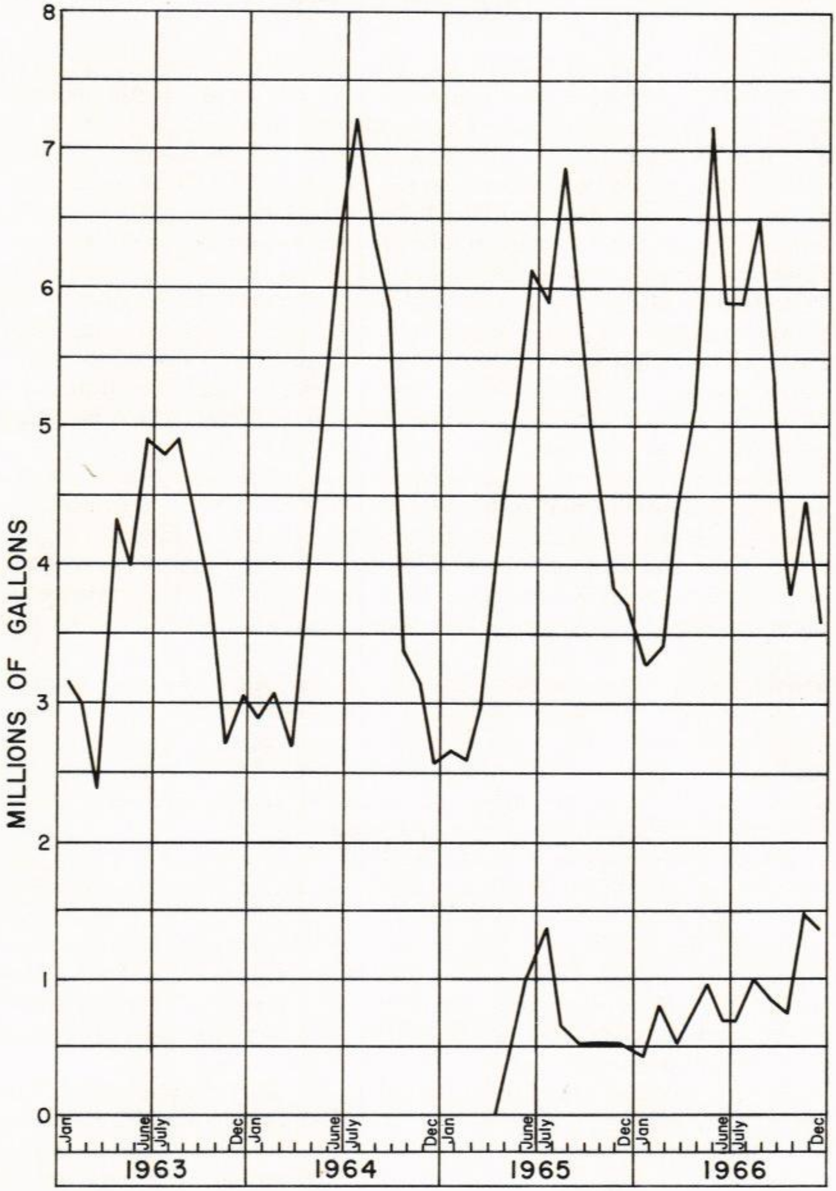


Figure 7

GRAPH SHOWING WATER SALES, 1963-1966

Upper graph, water sold by Fort Sumner municipal system. Lower graph, water bought from the system by the Valley Water Users Association, Inc.

SURFACE WATER

PECOS RIVER

The Pecos River enters the county at the head of Alamogordo Reservoir and leaves it at the Chaves County line in T. 3 S., R. 25 E. The flow of the Pecos River is recorded continuously by gages located below Alamogordo Dam, above the mouth of Taiban Creek, and above the mouth of Yeso Arroyo. Plate 3 shows the locations of these gaging stations. Figure 8 is a hydrograph of the monthly discharge of the Pecos River at the gage below Alamogordo Dam.

Between Alamogordo Dam and the diversion dam of the Fort Sumner Irrigation District in sec. 5, T. 3 N., R. 25 E. (fig. 1), the Pecos River is a gaining stream; the water table on both sides of the river slopes toward the river, demonstrating flow in that direction, and perennial springs (table 2) several feet above river level discharge ground water to the river.

In order that the gains from ground-water inflow or losses to bank storage or ground-water recharge and evaporation and transpiration losses can be evaluated more readily, the measurements shown in Figure 9 have had the surface inflow from tributary streams or drains deducted from the flow measured at stations below the confluence of these streams and the Pecos River. This deduction results in a net discharge below zero in the lower part of the reach for May 22, 1962, when the entire flow was diverted to the Fort Sumner irrigation project.

The measurements at 176.6 river miles (near Taiban Creek) show two measurements for some of the seepage investigations. One was made in the morning by an engineer working downstream from that point and the other measurement was made in the afternoon by an engineer working downstream to that point.

Below the mouth of Taiban Creek to the Chaves County line, the interrelationship of surface flow, underflow bank storage, ground-water inflow, and evaporation and transpiration losses is poorly understood. Although the water table appears to slope riverward, losses of flow often occur through some reaches (fig. 9). Evaporation from the water surface and from wet sand, transpiration by salt cedars and other plants, and reservoir effect of the valley alluvium strongly influenced the surface flow in this reach.

In the reach of the river adjacent to the Fort Sumner Irrigation District (from Fort Sumner to the mouth of Taiban Creek), the river flow generally increases (fig. 9). Twelve measurements, four of which are shown on Figure 9, made during various seasons, indicate an average gain in rate of flow of 16.9 cfs (cubic feet per second). A large part of this gain probably is ground-water inflow derived from water applied to the land during the irrigation season.

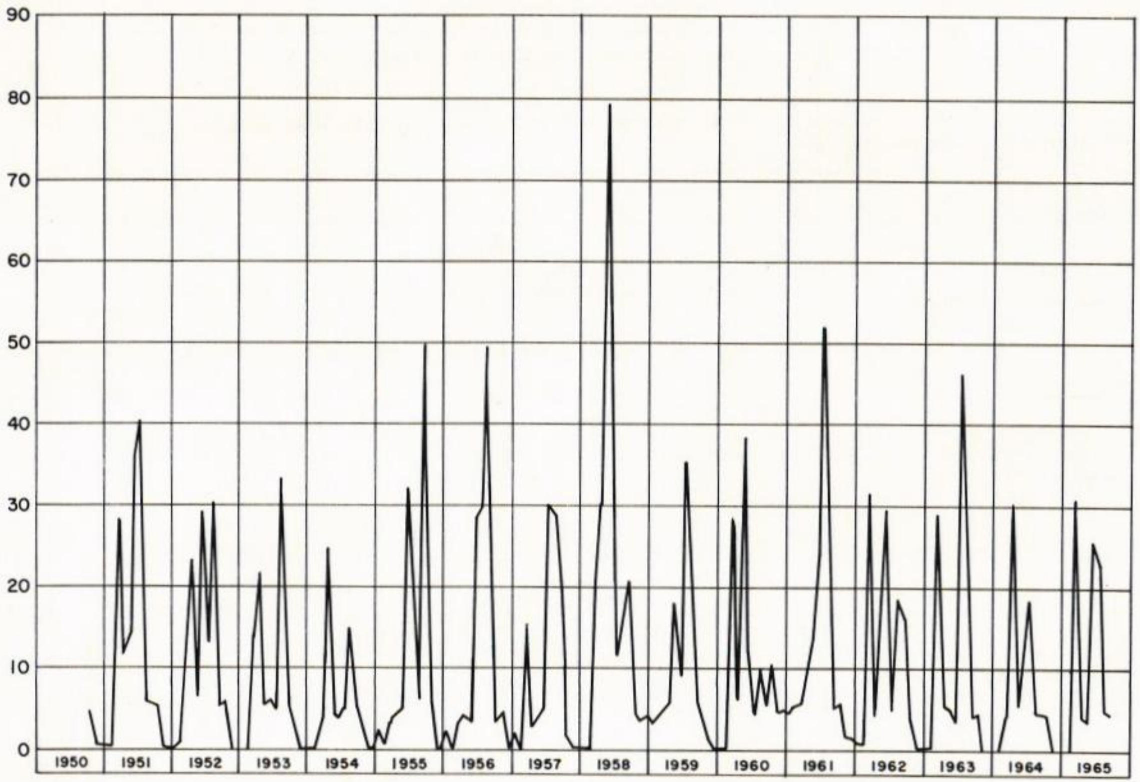


Figure 8

MONTHLY DISCHARGE OF PECOS RIVER, 1950-1965

Hydrograph compiled from records of gage below Alamogordo Dam.

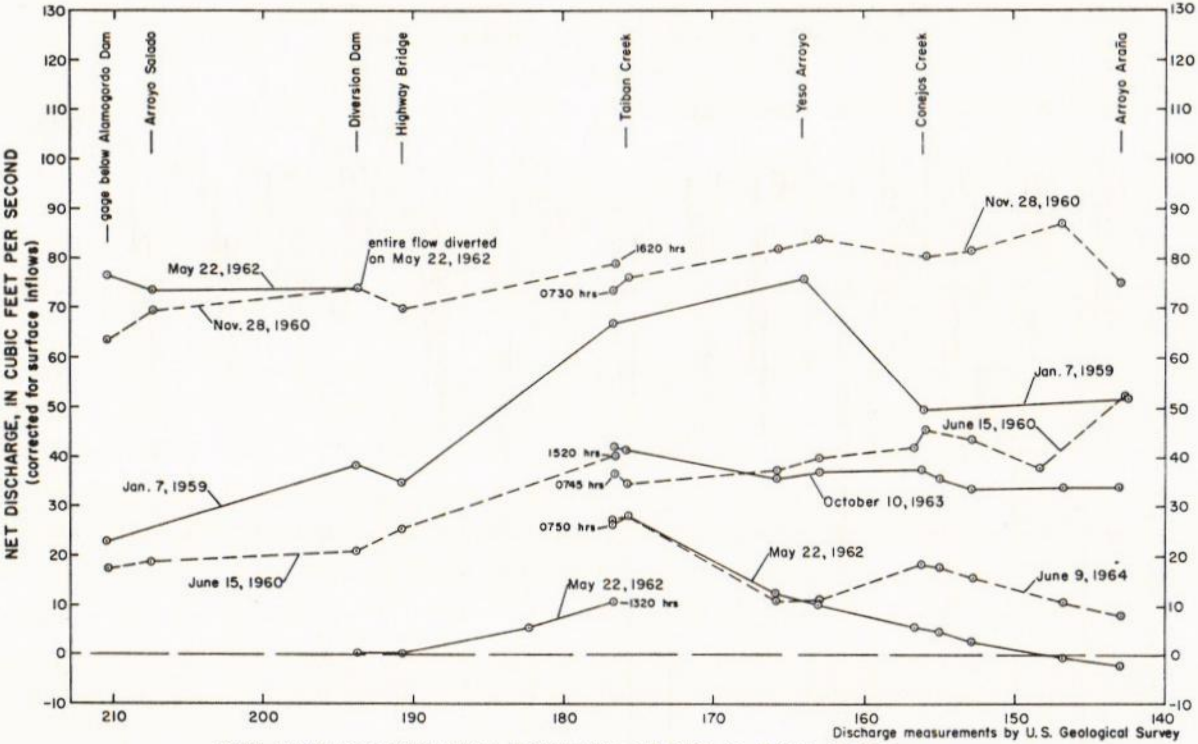


Figure 9

GAINS AND LOSSES OF PECOS RIVER FLOW, 1959-1964

Measurements made during seepage investigations, with surface inflow deducted.

ALAMOGORDO RESERVOIR

Alamogordo Reservoir, in T. 5 N., R. 24 E., was created by construction of an earth-fill dam on the Pecos River between the mouths of Alamogordo Creek and Salado Creek. The dam was completed in 1937 as a project of the U. S. Bureau of Reclamation. The original area of the full reservoir was 4,570 acres, and the original capacity was 157,000 acre-feet. By October 1964, silting had reduced the capacity to 110,700 acre-feet (U. S. Bureau of Reclamation, 1965). The reservoir's purpose is to impound water, to be released as needed, for the Carlsbad Irrigation District; thus the flow of the Pecos in De Baca and Chaves Counties is largely controlled by release of water from the reservoir.

Contours of the ground-water table near the reservoir (pl. 3) indicate that the original direction of ground-water movement has been reversed in an area 3 miles due east of the reservoir because of the outflow of some of the impounded water. The reversal results in a trough in the water table that is about 3 miles wide. In the immediate vicinity of the reservoir, ground-water levels have risen sufficiently to shift the 4,200-foot water-level contour about 2 miles south of its probable position prior to construction of the reservoir.

MAJOR ARROYOS

All of the Pecos River tributaries (fig. 1) maintain a very small base flow (generally less than 1 cfs) in reaches that intersect the water table. Ranchers in these areas report that the flow increases during periods of above-normal precipitation and that the arroyos will be entirely dry in some locations during prolonged drought periods. Surface drainage from a single storm may fill the arroyos abruptly and, for a short time, they may carry rushing torrents. On October 7, 1954, Yeso Arroyo carried 14,800 cfs at the old Highway 20 crossing south of Fort Sumner (Hale, Reiland, and Beverage, 1965, table 5). It generally has a flow of less than 1 cfs at the crossing.

QUALITY OF SURFACE WATERS

Table 4 lists representative chemical analyses of samples of surface water from De Baca County. The locations of sampling sites are shown on Plate 4. During flood flows, and in the Pecos River during releases from Alamogordo Reservoir, the chemical quality of the water generally is better than during periods of low or base flow.

The quality of the water in the Pecos River deteriorates downstream because mineralized water enters the river from irrigation return, from tributary arroyos that drain areas of soluble materials, and from saline water rising under artesian pressure from the San Andres Limestone. Furthermore, evaporation and transpiration concentrate salts in the river water and along the river banks.

FORT SUMNER IRRIGATION DISTRICT

Irrigation in the valley of the Pews River near old Fort Sumner (about 5 miles south of the present community) was first undertaken in 1863 by Navajo Indians being held in captivity by the U. S. Army. Inadequate crop yields, disease among the Indians, and pest infestation led to abandonment of the 3,000-acre project in 1868.

Beginning in 1907, private organizations constructed an irrigation system in the same part of the valley. In 1919 the system was sold to the Fort Sumner Irrigation District (an organization of local farmers). Flood damage to the diversion structures and serious seepage from some of the irrigated acreage, together with deteriorating works and mounting debt, led the district to ask the U. S. Bureau of Reclamation to rehabilitate the project. Reconstruction was started in 1950 and was essentially completed in 1951.

The project now serves 6,500 acres. Water is diverted from the Pecos River by a concrete weir about 2 miles upriver from Fort Sumner, and is carried to project laterals by a main canal 16 miles long.

The district holds a water right for 100 cfs of water from natural flows of the Pecos River from March through October and for two additional periods of not more than eight days each from November through February. Water is released to the district from Alamogordo Reservoir in amounts equal to inflow to the reservoir (as measured at Puerto de Luna, in Guadalupe County) but not more than 100 cfs. Water diverted from the Pecos at the Fort Sumner Irrigation District diversion weir is recorded at a station near the head of the main canal.

Tables 1-4, 6

(Table 5 in pocket)

TABLE 1. RECORDS OF SELECTED WELLS IN DE BACA AND ADJOINING COUNTIES, N. MEX.

Location number—See text for explanation of numbering system. All wells in De Baca County are east of New Mexico Principal Meridian.

Depth of well—Depths are in feet below land surface.

Diameter—Diameter of casing, or mean diameter of well if uncased, to nearest inch.

Principal aquifer—QAL, alluvium. QAB, QTP, surficial sand, gravel, and caliche. TO, Ogallala Formation. TRC, Chinle Formation. TRS, Santa Rosa Sandstone. PAT, Artesia Formation. PSA, San Andres Limestone. PG, Glorieta Sandstone.

Altitude—Altitude of land surface at well. Altitudes determined by differential leveling to nearest foot, or by interpolation from topographic maps or by aneroid to nearest 5 feet.

Water level—Depth to water in feet below land surface. Reported water levels indicated by R; all others were measured. Water levels above land surface (flowing wells) indicated by +.

Pump—C, centrifugal. J, jet. P, piston. S, submersible. T, turbine. N, none.

Power—E, electricity. I, internal combustion. W, wind.

Use of water—H, domestic. I, irrigation. P, public supply. S, stock. U, unused.

Specific conductance of water—Conductance measured with portable meter in most cases, and reported in micromhos at 25°C. See table 5 for further information.

Remarks—CA, chemical analysis in table 3. LOG, log of well appears in table 6. (LOG), log available in files of U. S. Geological Survey, Albuquerque. All wells drilled unless otherwise noted.

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA: DEPTH	WATER LEVEL DATA: DATE OF MEAS.	WATER LEVEL DATA: ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
1N.20. 1.232	W E OVERTON	-	-	5	PAT	-	52	10-65	-	P	W	S	-	
1N.20. 2.440	OIL TEST	1963	-	-	-	4945	-	-	-	N		U	-	(LOG). PETERS 1 STATE X. ORIGINAL DEPTH 4597
1N.20. 9.143	CLYDE REYNOLDS	-	70	6	PAT	-	57	10-65	-	P	W	S	-	
1N.20.15.133	CLYDE REYNOLDS	-	138	-	PAT	-	90	10-65	-	P	W	S	-	
1N.20.22.411	CLYDE REYNOLDS	-	125	-	TRS	-	104	10-65	-	P	W	S	-	
1N.20.30.324	CLYDE REYNOLDS	-	190	-	TRS	-	120R	-	-	P	W	S	-	
1N.20.35.433	W E OVERTON	-	217	-	TRS	-	196	10-65	-	P	W	S	-	
1N.21. 6.431	W E OVERTON	-	116	6	PAT	-	47	7-55	-	P	W	S	-	
							48	10-65	-					
1N.21. 8.121	W E OVERTON	-	-	4	PAT	-	-	-	-	P	W	S	2900	
1N.21. 9.143	W E OVERTON	-	80	-	PAT	4788	-	-	-	P	W	S	-	
1N.21.11.311	W E OVERTON	-	-	-	PAT	4728	-	-	-	P	W	S	-	
1N.21.12.442	W E OVERTON	-	60	4	PAT	4682	30	10-65	4652	P	W	S	-	
1N.21.12.443	W E OVERTON	-	-	3	PAT	4718	83	10-65	4635	P	W	S	3000	
1N.21.27.413	W E OVERTON	-	32	15	PAT	4676	23	10-65	4653	N		S	-	
1N.21.28.212	W E OVERTON	-	89	5	PAT	-	42	10-65	-	P	W	S	3400	
1N.21.30.133	W E OVERTON	-	53	7	PAT	4744	35	10-65	4709	P	W	S	1770	CA
1N.21.35.142	LEE JASPER	1916	42	40	PAT	4590	36	10-65	4554	P	W	H	4000	WELL DRILLED THEN DUG OUT. LEE JASPER, DRILLER

1N.22. 1.324	PAUL HORNEY	1946	200	6	TRS	-	132	11-65	-	P	W	S	1190	JOHN MADDOX, DRILLER
1N.22. 2.214	0 7 RANCH	-	-	6	TRS	4756	143	12-65	4613	P	W	S	-	
1N.22. 3.233	0 7 RANCH	-	95	6	TRS	4777	57	12-65	4720	P	W	S	562	CA
1N.22. 4.112	0 7 RANCH	-	400	5	PAT	4868	-	-	-	P	W	S	-	
1N.22. 8.313	0 7 RANCH	-	70	6	PAT	4653	37	12-65	4616	P	W	S	2740	CA
1N.22.13.330	OIL TEST	-	-	-	-	4587	-	-	-			U	-	LOG. KATZ AND KATZ 1 FIELD. ORIGINAL DEPTH 5581.
1N.22.20.211	0 7 RANCH	-	-	6	PAT	4774	217	12-65	4557	P	W	S	3900	
1N.22.23.323	0 7 RANCH	-	-	5	PAT	4752	-	-	-	P	W	S	-	
1N.22.25.422	G FIELDS	-	400	6	PAT	4691	197	1-66	4494	P	W	S	-	
1N.22.27.144	0 7 RANCH	1961	-	6	PAT	4716	175	12-65	4541	P	W	S	2040	CA. POOR WATER LEVEL MEASUREMENT
1N.22.28.121	0 7 RANCH	-	34	6	PAT	4623	27	12-65	4596	N		U	-	
1N.23. 1.121	FRANK MILLER	-	-	6	TRS	4439	94	1-66	4345	P	W	S	-	
1N.23. 2.234	FRANK MILLER	-	-	5	TRS	4460	77	1-66	4383	P	W	S	1700	
1N.23. 5.243	PAUL HORNEY	-	150	5	TRS	-	110	11-65	-	P	W	S	-	
1N.23.10.113	PAUL HORNEY	1957	160	6	TRS	4573	126	11-65	4447	P	W	S	-	PUMPING MEASUREMENT. LEE PENNINGTON, DRILLER
1N.23.12.223	FRANK MILLER	1951	-	6	TRS	4472	142	1-66	4330	P	W	S	1230	
1N.23.13.431	FRANK MILLER	-	-	7	PAT	4355	43	8-55	4312	P	W	S	1030	
							37	1-66	4318					
1N.23.16.143	PAUL HORNEY	1964	60	4	PAT	4460	55	11-65	4405	P	W	S	3300	NIP DRILLING CO., DRILLER
1N.23.23.340	DICK IRWIN	1964	-	6	PAT	4421	75	1-66	4346	P	W	S	2600	NIP DRILLING CO., DRILLER
1N.23.28.133	G FIELDS	-	186	6	TRS	4618	97	1-66	4521	P	W	S	2100	
1N.23.35.141	DICK IRWIN	1960	200	6	TRS	4492	102	1-66	4390	P	W	S	-	LOG. LEE PENNINGTON, DRILLER
1N.24. 2.244	ALAMO RANCH INC	-	-	-	TRS	4376	176	7-65	4200	P	W	S	-	
1N.24. 3.340	ALAMO RANCH INC	-	-	-	PAT	4280	-	-	-	P	W	S	2020	
1N.24. 8.134	ALAMO RANCH INC	-	-	6	PAT	4427	159	7-65	4268	P	W	S	-	
1N.24.12.444	ALAMO RANCH INC	-	-	4	PAT	4281	-	-	-	P	W	S	-	
1N.24.15.232	ALAMO RANCH INC	-	-	6	PAT	4351	139	7-65	4212	P	W	S	2200	
1N.24.16.333	ALAMO RANCH INC	-	-	-	PAT	4348	-	-	-	P	W	S	-	
1N.24.17.311	ALAMO RANCH INC	-	-	-	PAT	4408	-	-	-	P	W	S	-	
1N.24.29.144	ALAMO RANCH INC	-	-	-	PAT	4368	111	7-65	4257	P	W	S	-	
1N.24.34.111	REED BURTON	1963	160	6	PAT	4315	104	1-66	4211	P	W	S	-	LOG. LEE PENNINGTON, DRILLER
1N.24.35.142	REED BURTON	-	150	6	PAT	4253	129	1-66	4124	P	W	S	-	
1N.25. 1.330	ALAMO RANCH INC	-	160	6	TRS	4136	144	8-50	3992	P	W	S	-	
1N.25. 8.343	ALAMO RANCH INC	-	-	4	TRS	4198	101	7-65	4097	P	W	S	-	
1N.25. 9.120	ALAMO RANCH INC	-	-	6	PAT	4271	191	7-65	4080	P	W	S	1510	CA
1N.25.14.214	ALAMO RANCH INC	-	-	6	PAT	4152	146	7-65	4006	P	W	S	-	
1N.25.22.114	ALAMO RANCH INC	-	-	-	TRS	4105	-	-	-	P	W	S	1500	
1N.25.24.214	ALAMO RANCH INC	1962	250	8	TRS	4070	172	7-65	3898	P	W	S	1550	GEORGE SHAW, DRILLER
1N.25.32.314	L A HOWARD	-	-	6	TRS	4210	124	1-66	4086	P	W	S	-	
1N.25.36.243	BILLY WILTON	1963	268	5	TRS	4035	157	7-64	3878	P	W	S	1750	LOG. W L WATSON, DRILLER
							164	4-66	3871					
1N.26. 4.233	T DUNCAN	-	158	-	QAB	-	76	11-60	-	P	W	S	-	
							76	1-61	-					
							75	3-61	-					
							76	6-61	-					
							94	6-64	-					
							81	2-65	-					
							105	7-65	-					
1N.26. 4.4214	J L DUNCAN	1953	197	16	QAB	3994	80	2-58	3914	T	I	I	2160	CA. LOG. MYLES AND HAMLIN, DRILLERS. ORIGINAL YIELD 1300 GPM
							86	11-60	3908					
							80	1-61	3914					
							80	1-62	3914					

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
1N.26. 5.433	T DUNCAN	-	165	7	QAB	4062	139	6-64	3923	P	W	S	-	
							139	7-65	3923					
1N.26.11.3342	LOGAN BARNHART	1967	16	2	QAL	-	3	2-67	-	N		U	4000	JETTED. USGS OBSERVATION WELL
1N.26.11.3344	LOGAN BARNHART	1967	18	2	QAL	-	6	2-67	-	N		U	4000	JETTED. USGS OBSERVATION WELL
1N.26.11.3431	LOGAN BARNHART	1967	10	4	QAL	-	7	2-67	-	N		U	8200	CA. JETTED. USGS OBSERVATION WELL
1N.26.12.314	LOGAN BARNHART	1961	50	-	QAL	3925	29	2-66	3896	P	W	S	-	LOG. COND EXCEEDS 6000. W L WATSON, DRILLER. ORIG DEPTH 396
1N.26.12.323	LOGAN BARNHART	-	35	8	QAL	3925	29	2-66	3896	N		U	-	
1N.26.16.1241	A W SKARDA	1961	188	16	QAB	3988	89	12-63	3899	T	I	I	-	LOG. GREEN MACHINE CO., DRILLER. INITIAL YIELD 1000 GPM
1N.26.16.2111	CECIL MOTL	1956	197	16	QAB	3988	88	11-60	3900	T	I	I	-	SMITH AND SON, DRILLER
							87	1-61	3901					
							87	1-62	3901					
							88	1-63	3900					
							88	12-63	3900					
							89	1-64	3899					
							89	1-66	3899					
1N.26.16.3111	A W SKARDA	1962	166	16	QAB	4000	112	12-63	3888	T	I	I	-	(LOG). GREEN MACHINE CO., DRILLER. REPORTED YIELD 800 GPM
1N.26.16.3424	A W SKARDA	1956	-	6	QAB	3978	84	2-58	3894	N		U	-	
1N.26.17.133	-	-	-	-	QAB	4036	-	-	-	P	W	S	1310	
1N.26.19.243	BILLY WILTON	-	-	6	-	4027	104	6-64	3923	P	W	S	2000	
							108	4-66	3919					
1N.26.21.4111	A W SKARDA	1962	190	6	QAB	3970	83	12-63	3887	P	W	S	-	LOG. JIMMY ROMAN, DRILLER
1N.26.24.344	R E MCKINSEY	-	157	6	TRC	-	103	3-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1N.26.25.434	R E MCKINSEY	-	250	6	TRC	-	206	3-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1N.26.28.1111	A W SKARDA	1956	197	16	QAB	3969	80	12-58	3889	T	I	I	-	SMITH AND SON, DRILLER. YIELD 346 GPM (7-1-64)
							82	12-63	3887					
1N.26.28.2111	A W SKARDA	1962	176	16	QAB	3962	76	12-63	3886	T	I	I	-	LOG. GREEN MACHINE CO., DRILLER. YIELD 570 GPM (7-1-64)
1N.26.32.124	BILLY WILTON	-	-	-	TRC	-	-	-	-	P	W	S	3400	
1N.27. 4.130	TRIANGLE CATTLE	1959	190	7	TRC	-	-	-	-	P	W	S	-	(LOG). LEE PENNINGTON, DRILLER
1N.27. 6.113	TRIANGLE CATTLE	-	50	6	TRC	3972	35	7-64	3937	P	W	S	1650	
1N.27. 7.334	CORTESE BROS	1960	158	-	TRC	-	144	2-66	-	P	W	S	1900	CA. (LOG). LEE PENNINGTON, DRILLER
1N.27.15.212	BEN HALL	-	180	6	TRC	-	152	2-66	-	P	W	S	1350	CA
1N.27.17.224	CORTESE BROS	-	160	5	TRC	-	-	-	-	P	W	S	3800	
1N.27.19.344	R E MCKINSEY	-	157	6	TRC	-	144	3-66	-	P	W	S	2600	
1N.27.20.342	CORTESE BROS	1965	121	6	TRC	-	83	2-66	-	P	W	S	980	NIP DRILLING CO., DRILLER
1N.27.24.110	OIL TEST	1963	-	-	-	-	-	-	-			U	-	(LOG). J F MCADAMS 1 FEDERAL. ORIGINAL DEPTH 2325
1N.27.32.124	CORTESE BROS	-	140	6	TRC	-	107	2-66	-	N		U	-	
1N.27.32.142	CORTESE BROS	-	140	-	TRC	-	-	-	-	P	W	H	650	

1N.28. 1.142	BILL CRENSHAW	-	80	6	TRC	-	74	3-66	-	P	W	S	1950	
1N.28. 3.431	BILL CRENSHAW	1963	100	6	TRC	-	81	3-66	-	P	W	S	2100	LOG. DOYLE USREY, DRILLER
1N.28. 4.424	BEN HALL	-	70	6	TRC	-	59	3-66	-	P	W	S	1750	CA
1N.28.12.112	BILL CRENSHAW	-	120	6	TRC	-	101	3-66	-	J	E	H	1050	
1N.28.12.121	BILL CRENSHAW	-	120	6	TRC	-	103	3-66	-	P	W	S	1080	
1N.28.15.441	BEN HALL	-	156	6	TRC	-	140R	-	-	P	W	H	1150	
1N.28.21.332	BEN HALL	-	95	6	TRC	-	-	-	-	S	E	S	3400	
1N.28.21.334	BEN HALL	-	95	5	TRC	-	80R	-	-	P	W	S	3700	
1N.28.21.433	BEN HALL	-	88	5	TRC	-	64	3-66	-	N		U	-	
1N.28.23.214	E O WILLINGHAM	-	-	6	TRC	-	130	4-66	-	P	W	H	720	
1N.28.23.223	E O WILLINGHAM	-	248	14	TRC	-	133	4-66	-	N		U	-	(LOG)
1N.28.24.242	H H DAVIS	-	113	8	TRC	-	64	4-66	-	N		U	-	(LOG)
1N.28.24.244	H H DAVIS	-	110	6	TRC	-	66	4-66	-	P	W	S	2400	
1N.28.25.222	EARL SPENCER	1961	78	6	TRC	-	51	3-66	-	N		U	-	(LOG). LOUIS CARTER, DRILLER
1N.28.26.113	SID CARAWAY	-	180	5	TRC	-	174	4-66	-	P	W	S	900	
1N.28.26.442	EARL SPENCER	-	135	5	TRC	-	100	3-66	-	P	W	H	800	
1N.28.27.211	BEN HALL	-	202	6	TRC	-	186	3-66	-	P	W	S	1000	
1N.28.28.441	BEN HALL	-	95	6	TRC	-	-	-	-	P	W	S	5000	
1N.28.30.231	BEN HALL	-	30	6	TRC	-	11	3-66	-	P	W	S	2400	
1N.28.32.221	BEN HALL	-	58	6	TRC	-	48	3-66	-	P	W	S	2900	
1N.28.32.334	BEN HALL	-	120	6	TRC	-	91	3-66	-	P	W	S	2100	
2N.20. 4.310	OIL TEST	1926	-	-	-	-	-	-	-	N		U	-	LOG. HINKLE 1 BUCHANAN. ORIGINAL DEPTH 840
2N.20.10.214	R PEREZ RANCH	-	753	6	-	-	-	-	-	N		U	-	(LOG). DRY. ORIGINAL DEPTH 1060, WATER LEVEL 980
2N.20.20.142	R PEREZ RANCH	-	58	6	-	-	-	-	-	N		U	-	DRY
2N.20.32.333	CLYDE REYNOLDS	-	140	5	TRS	-	110	10-65	-	P	W	S	-	
2N.20.33.212	R PEREZ RANCH	-	-	-	PAT	-	225	11-66	-	P	W	S	2200	PUMPING MEASUREMENT
2N.20.34.324	W E OVERTON	-	75	6	PAT	-	59	10-65	-	P	W	S	-	
2N.20.35.411	OIL TEST	1921	-	-	PAT	-	43	7-55	-	N		U	-	LOG. NATIONAL EXP. CO. 1 BUCHANAN. ORIGINAL DEPTH 3200
2N.21. 1.114	A D SMITH	1946	101	6	TRS	-	94	1-66	-	S	E	S	-	ORIGINAL YIELD 600 GPM
2N.21. 1.114A	A D SMITH	-	100	6	TRS	-	95	1-66	-	P	W	S	-	
2N.21. 8.343	R PEREZ RANCH	-	200	5	PAT	-	-	-	-	P	W	S	2400	
2N.21.13.121	W E OVERTON	-	185	6	PAT	4937	110	10-65	4827	P	W	S	-	
2N.21.15.123	A D SMITH	1930	175	-	PAT	4998	108	1-66	4890	P	W	S	-	SMITH, DRILLER
2N.21.28.243	W E OVERTON	-	105	8	PAT	5045	64	10-65	4981	P	W	S	2300	
2N.21.30.412	W E OVERTON	-	135	5	PAT	-	84	10-65	-	P	W	S	-	LEE JASPER, DRILLER
2N.21.36.232	W E OVERTON	-	350	5	PAT	4937	-	-	-	P	W	S	-	
2N.22. 1.230	PAUL HORNEY	1954	92	11	TRS	4700	+1	11-65	4701	N		S	-	ORIGINALLY FLOWED 40 GPM
2N.22. 1.314	M + J ACHEN	-	60	6	TRS	4715	26	1-66	4689	P	W	S	2650	
2N.22. 2.211	M + J ACHEN	1956	65	5	TRS	4735	-	-	-	P	W	S	2400	JOHN MADDOX, DRILLER
2N.22. 4.414	A D SMITH	-	160	-	TRS	4793	100R	-	4693	P	W	S	-	
2N.22. 7.414	A D SMITH	-	150	6	TRS	4879	110	1-66	4769	P	W	S	3800	LEE PENNINGTON, DRILLER
2N.22. 9.243	GLEN HISEL	1936	112	7	TRS	4798	96	1-66	4702	P	W	S	-	SMITH, DRILLER
2N.22.10.124	GLEN HISEL	1960	117	7	TRS	4785	68	1-66	4717	T	E	U	2450	CA. LEE PENNINGTON, DRILLER. REPORTED YIELD 150 GPM
2N.22.14.222	M + J ACHEN	1956	132	5	TRS	4740	52	1-66	4688	P	W	S	3100	JOHN MADDOX, DRILLER

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
2N.22.15.223	GLEN HISEL	1933	100	-	TRS	-	80R	-	-	S	E	S	2800	ADRIAN TURNER, DRILLER
2N.22.17.422	A D SMITH	-	180	-	-	4858	-	-	-	P	W	S	-	
2N.22.20.120	OIL TEST	1959	-	-	-	4881	-	-	-	N		U	-	(LOG). PAIR OIL 1 OVERTON-FEDERAL. ORIGINAL DEPTH 5427
2N.22.20.411	W E OVERTON	-	355	6	PAT	4874	287	10-65	4587	P	W	S	3360	CA. POOR WATER LEVEL MEASUREMENT
2N.22.22.311	GLEN HISEL	1935	135	-	PAT	4821	102	1-66	4719	P	W	S	3500	ADRIAN TURNER, DRILLER
2N.22.23.220	M + J ACHEN	-	215	6	PAT	4752	-	-	-	P	W	S	3000	
2N.22.25.343	0 7 RANCH	-	145	-	TRS	-	127	12-65	-	P	W	S	1460	
2N.22.28.443	GLEN HISEL	1950	190	6	PAT	4828	165R	-	4663	P	W	S	3200	LEE PENNINGTON, DRILLER
2N.22.32.442	0 7 RANCH	-	310	4	PAT	4844	231	12-65	4613	N		U	-	
2N.22.35.111	GLEN HISEL	1932	190	5	PAT	4793	121	8-55	4672	P	W	S	3300	LEDBETTER, DRILLER
2N.23. 2.222	HENRY LONG	1916	185	6	TRS	4583	151	12-65	4432	P	W	S	1350	JOHNSON, DRILLER
2N.23. 3.243	HENRY LONG	1949	120	6	TRS	4575	66	12-65	4509	P	W	S	1600	LEE PENNINGTON, DRILLER
2N.23. 3.324	HENRY LONG	1940	100	5	TRS	4585	71	12-65	4514	P	W	S	1830	LEE PENNINGTON, DRILLER
2N.23. 6.433	PAUL HORNEY	-	80	-	TRS	4673	61	11-65	4612	P	W	S	-	
2N.23. 8.123	PAUL HORNEY	1945	60	5	TRS	4632	50	11-65	4582	P	W	S	-	POOR WATER LEVEL MEASUREMENT
2N.23. 9.223	PAUL HORNEY	-	60	-	TRS	4578	-	-	-	P	W	S	-	
2N.23.15.123	PAUL HORNEY	-	70	6	TRS	4578	60	11-65	4518	P	W	S	1600	
2N.23.17.332	PAUL HORNEY	-	147	-	TRS	4674	130	11-65	4544	P	W	S	-	
2N.23.22.211	PAUL HORNEY	1948	100	6	TRS	4597	92	11-65	4505	P	W	S	-	
2N.23.24.134	FRANK MILLER	-	130	6	TRS	4467	69	1-66	4398	P	W	S	1730	LEE PENNINGTON, DRILLER
2N.23.26.434	FRANK MILLER	-	-	6	TRS	4497	101	1-66	4396	P	W	S	-	
2N.23.27.332	PAUL HORNEY	-	120	6	TRS	4587	104	11-65	4483	P	W	S	-	
2N.23.29.431	PAUL HORNEY	-	-	-	TRS	4655	179	11-65	4476	P	W	S	-	
2N.23.31.410	PAUL HORNEY	1946	210	6	TRS	4689	152	11-65	4537	P	W	S	1350	HOWARD, DRILLER
2N.23.33.332	PAUL HORNEY	-	130	5	TRS	4581	-	-	-	P	W	S	884	CA
2N.24. 1.411	F T MCCOLLUM	-	-	6	TRS	4466	206	4-66	4260	P	W	S	1180	
2N.24. 3.243	ALAMO RANCH INC	-	220	5	TRS	4491	195R	-	4296	P	W	S	-	
2N.24. 5.213	ALAMO RANCH INC	-	185	-	TRS	4467	160R	-	4307	P	W	S	-	
2N.24. 7.121	ALAMO RANCH INC	-	260	6	TRS	4541	230R	-	4311	P	W	S	-	
2N.24. 9.314	ALAMO RANCH INC	1951	230	6	TRS	4493	191R	-	4302	P	W	S	-	LEE PENNINGTON, DRILLER
2N.24.14.322	F T MCCOLLUM	-	200	5	TRS	4430	150	4-66	4280	P	W	S	1270	
2N.24.14.444	C AND J WEST	-	-	6	TRS	4429	142	4-66	4287	P	W	S	-	
2N.24.16.342	ALAMO RANCH INC	-	255	4	TRS	4472	173	7-65	4299	P	W	S	-	
2N.24.18.130	FRANK MILLER	1960	275	6	TRS	4524	-	-	-	P	W	S	1550	LOG. LEE PENNINGTON, DRILLER
2N.24.23.243	ALAMO RANCH INC	-	-	6	TRS	4408	175	7-65	4233	P	W	S	1130	
2N.24.24.331	F T MCCOLLUM	-	-	6	TRS	4383	65	7-65	4318	N		U	-	
2N.24.25.423	F T MCCOLLUM	-	235	-	TRS	4398	-	-	-	P	W	S	1370	
2N.24.27.240	ALAMO RANCH INC	1962	173	5	TRS	4412	60R	-	4352	P	W	S	1300	(LOG). ROBERT EDWARDS, DRILLER
2N.24.28.241	ALAMO RANCH INC	-	-	-	TRS	4388	117	7-65	4271	P	W	S	1350	
2N.24.30.420	FRANK MILLER	-	-	5	TRS	4450	-	-	-	P	W	S	1670	LEE PENNINGTON, DRILLER
2N.24.31.320	FRANK MILLER	1962	173	6	TRS	4457	140	1-66	4317	P	W	S	2100	LOG. LEE PENNINGTON, DRILLER

2N.24.32.323	ALAMO RANCH INC	-	-	-	TRS	4390	123	7-65	4267	P	W	S	-	
2N.24.33.322	ALAMO RANCH INC	-	-	4	TRS	4315	42	7-65	4273	P	W	S	-	
2N.24.34.132	ALAMO RANCH INC	-	103	-	-	4363	-	-	-	N		U	-	DRY
2N.25. 1.122	G + N VAUGHAN	-	68	6	-	4138	-	-	-	N		U	-	DRY
2N.25. 8.412	F T MCCOLLUM	1965	270	6	TRS	4401	220	4-66	4181	P	W	S	1100	NIP DRILLING CO., DRILLER. YIELD 10-15 GPM
2N.25.12.221	G + N VAUGHAN	1947	85	6	QAB	4116	68	5-67	4048	P	W	S	370	(LOG). VAUGHN AND ORR, DRILLER
2N.25.13.311	G + N VAUGHAN	1938	246	6	TRS	4162	180	12-63	3982	P	W	S	310	(LOG). BICKLE, DRILLER
							198	5-67	3964					
2N.25.17.133	F T MCCOLLUM	-	265	10	TRS	4403	215	4-66	4188	N		U	-	
2N.25.17.340	OIL TEST	1949	-	-	-	4413	-	-	-	N		U	-	LOG. HAWKINS 1 MYRICK. ORIGINAL DEPTH 6174
2N.25.18.232	OIL TEST	-	-	-	-	4407	-	-	-	N		U	-	(LOG). JOHNSON AND STEVENS 1 MYRICK. ORIGINAL DEPTH 1542
2N.25.18.234	OIL TEST	1957	-	-	-	4405	-	-	-	N		U	-	(LOG). 20TH CENTURY 1 MYRICK. ORIGINAL DEPTH 1541.
2N.25.18.343	F T MCCOLLUM	-	85	6	TRS	4397	76	4-66	4321	J	E	S	-	
2N.25.18.343A	F T MCCOLLUM	-	90	6	TRS	4397	76	4-66	4321	P	W	S	2300	LEE PENNINGTON, DRILLER
2N.25.20.122	F T MCCOLLUM	-	260	6	TRS	-	220	4-66	-	P	E	S	1240	
2N.25.24.324	ALAMO RANCH INC	-	160	6	TRS	4084	120R	9-55	3964	P	W	S	1100	GEORGE SHAW, DRILLER
2N.25.27.114	ALAMO RANCH INC	1962	140	5	TRS	4203	104	7-65	4099	P	W	S	720	GEORGE SHAW, DRILLER
2N.25.28.122	F T MCCOLLUM	-	70	5	TRS	4310	58	4-66	4252	P	W	S	-	
2N.25.30.434	F T MCCOLLUM	-	215	6	TRS	4385	207	4-66	4178	N		U	-	
2N.25.31.332	ALAMO RANCH INC	-	-	6	TRS	4387	211	7-65	4176	P	W	S	-	
2N.25.33.131	F T MCCOLLUM	1964	180	6	TRS	4373	135	4-66	4238	P	W	S	1270	CA. LEE PENNINGTON, DRILLER
2N.25.35.333	ALAMO RANCH INC	-	-	5	TRS	4253	243	7-65	4010	P	W	S	-	
2N.26. 1.111	FRANK GARCIA	-	-	7	TRC	-	93	7-64	-	P	W	S	-	
							89	5-67	-					
2N.26. 2.343	CORTESE BROS	-	40	5	QAL	3987	14	6-64	3973	T	E	S	2700	
							16	5-67	3971					
2N.26. 3.3414	A HINDI	-	-	8	QAL	3965	7	6-64	3958	P	W	S	3000	
							6	5-67	3959					
2N.26. 4.213	S R WEST	1963	197	14	QAB	3975	7	12-63	3968	T	I	U	-	ALLEN HICKMAN, DRILLER
2N.26. 9.133	EARL POWELL	-	-	6	QAB	4020	50	7-65	3970	P	W	S	-	
2N.26.10.431	W A MULLINS	1950	125	6	QAL	3962	10	6-64	3952	J	E	S	3000	JOHN MADDOX, DRILLER
							9	5-67	3953					
2N.26.12.222	FLOYD C DOYLE	-	74	8	TRC	-	70	4-66	-	N		U	-	
2N.26.12.222A	FLOYD C DOYLE	-	145	6	TRC	-	69	4-66	-	P	W	S	1300	
2N.26.13.312	CORTESE BROS	1958	90	6	TRC	-	78	2-66	-	P	W	S	1500	LEE PENNINGTON, DRILLER
2N.26.14.3443	JAMES JOINER	-	-	8	QAL	3970	13	6-64	3957	J	E	S	-	
							15	5-67	3955					
2N.26.16.3141	J C HEAD	1961	200	16	QAB	4031	84	12-63	3947	T	I	I	2200	CA. LOG. O R MUSSELWHITE, DRILLER
2N.26.17.440	RALPH LUND	1966	100	7	QAB	4032	89R	12-66	3943				-	(LOG). NIP DRILLING CO., DRILLER
2N.26.18.441	G + N VAUGHAN	1943	195	7	-	-	-	-	-	P	W	S	-	LEE PENNINGTON, DRILLER
2N.26.18.441A	G + N VAUGHAN	1948	195	6	QAB	4042	102	12-63	3940	S	E	S	-	JOHN MADDOX, DRILLER
2N.26.19.222	G + N VAUGHAN	1915	105	6	QAB	4030	85	12-63	3945	P	W	S	-	DICK BOREN, DRILLER
2N.26.24.433	CORTESE BROS	1958	170	6	TRC	4030	87	2-66	3943	P	W	S	6920	CA. JOHN MADDOX, DRILLER
2N.26.26.1131	A HINDI	-	-	-	QAL	3945	8	6-64	3937	P	W	S	2600	
							8	5-67	3937					

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
2N.26.28.1111	N VAUGHAN	1953	191	16	QAB	4018	79	2-58	3939	T	I	I	-	JOE MORRISON, DRILLER
							80	11-60	3938					
							79	1-61	3939					
							79	12-63	3939					
2N.26.28.1123	N VAUGHAN	1962	-	16	QAB	4018	80	12-63	3938	T		I	-	GREEN MACHINE CO., DRILLER
2N.26.28.2222	V F IRWIN	1958	183	16	QAB	4014	79	11-60	3935	T	I	I	-	HOWARD AND SONS, DRILLER
							78	1-61	3936					
							78	1-62	3936					
							79	1-63	3935					
							81	12-63	3933					
							79	1-64	3935					
							79	2-65	3935					
							90	7-65	3924					
							81	1-66	3933					
2N.26.28.2331	V F IRWIN	1958	222	16	QAB	4016	84	12-63	3932	T	I	I	-	HOWARD AND SONS, DRILLER
							90	7-65	3926					
2N.26.28.3121	WILEY GRIZZLE	1962	203	16	QAB	4016	81	12-63	3935	T	I	I	-	GREEN MACHINE CO., DRILLER
2N.26.28.3131	WILEY GRIZZLE	1953	219	16	QAB	4017	80	2-58	3937	T	I	I	-	JOE MORRISON, DRILLER
							83	12-63	3934					
							88	7-65	3929					
2N.26.29.2142	G + N VAUGHAN	1959	-	15	QAB	4021	82	12-63	3939	N		U	-	
2N.26.29.2211	G + N VAUGHAN	-	192	16	QAB	4020	80	2-58	3940	N		U	1770	CA
							81	12-63	3939					
2N.26.29.2213	G + N VAUGHAN	1959	-	16	QAB	4020	82	12-63	3938	T	I	I	-	
2N.26.29.312	G + N VAUGHAN	-	-	5	QAB	-	-	-	-	P	W	S	-	
2N.26.29.4121	H E SUTTER	-	-	16	QAB	-	-	-	-	T		I	-	
2N.26.29.4212	H E SUTTER	1958	202	16	QAB	4017	81	11-60	3936	T	I	I	-	LOG. HOWARD AND SONS, DRILLER. INITIAL
							83	12-63	3934					YIELD 1000 GPM
2N.26.29.422	H E SUTTER	1964	210	16	QAB	-	88	7-65	-	T	I	I	-	(LOG). INGRAM BROS., DRILLER
2N.26.29.4333	H E SUTTER	-	150	5	QAB	-	126	7-65	-	S	E	H	-	
2N.26.32.241	J L DUNCAN	1963	210	6	QAB	4071	145	12-63	3926	P	W	S	-	LEE PENNINGTON, DRILLER
2N.26.33.212	MCLAUGHLIN	1954	205	16	QAB	3944	75	2-58	3869	N		U	-	MYLES AND HAMLIN, DRILLER
2N.26.34.344	CORTESE BROS	1958	80	6	QAB	-	74	6-64	-	P	W	S	-	JOHN MADDOX, DRILLER
2N.26.35.242	CORTESE BROS	-	60	6	QAL	3942	13	7-64	3929	J	E	U	-	
							13	2-66	3929					
2N.27. 1.234	C W GRISSOM	-	50	6	TRC	-	39	1-66	-	P	W	S	4100	
2N.27. 1.344	C W GRISSOM	-	90	4	TRC	-	-	-	-	P	W	S	2100	
2N.27. 4.131	FLOYD C DOYLE	-	130	6	TRC	-	93	4-66	-	P	W	S	800	
2N.27. 9.422	C W GRISSOM	-	60	6	TRC	-	33	1-66	-	P	W	S	1340	
2N.27.11.113	C W GRISSOM	1958	108	6	TRC	-	49	1-66	-	P	W	S	2500	LEE PENNINGTON, DRILLER
2N.27.12.422	TRIANGLE CATTLE	-	90	5	TRC	-	-	-	-	P	W	S	4000	
2N.27.17.224	FLOYD C DOYLE	-	110	6	TRC	-	50	4-66	-	P	W	S	3200	

2N.27.18.411	FLOYD C DOYLE	-	140	5	TRC	4010	63	4-66	3947	P	W	S	3200	
2N.27.24.413	TRIANGLE CATTLE	1958	120	6	TRC	-	-	-	-	P	W	S	-	
2N.27.27.112	TRIANGLE CATTLE	-	90	-	TRC	-	-	-	-	P	W	S	-	
2N.27.28.344	TRIANGLE CATTLE	-	190	6	TRC	-	-	-	-	P	W	S	-	
2N.27.31.221	CORTESE BROS	1956	140	6	TRC	4010	76	2-66	3934	P	W	S	1300	LEE PENNINGTON, DRILLER
2N.27.33.122	TRIANGLE CATTLE	-	190	-	TRC	-	-	-	-	P	W	S	-	
2N.28. 1.243	J L COOPER	-	-	-	QAL	-	22	11-66	-	S	E	H	-	REPORTED YIELD 1000 GPM
2N.28. 1.324	J L COOPER	-	100	16	QAL	-	33	12-63	-	T	I	I	1850	
2N.28. 1.414	J L COOPER	-	110	16	QAL	-	34	11-66	-	T	I	I	2110	CA. JOHN MADDOX, DRILLER. REPORTED YIELD 1500 GPM
2N.28. 2.222	W D RUTH	-	-	6	TRC	-	36	11-66	-	S	E	H	1400	
2N.28. 2.234	BENSON + DANIEL	-	-	16	QAL	-	48	11-66	-	T	I	I	-	
2N.28. 2.441	BENSON + DANIEL	-	-	6	TRC	-	51	11-66	-	P	E	H	-	
2N.28. 2.443	BENSON + DANIEL	-	133	16	TRC	-	55	11-66	-	N		U	-	
2N.28.11.221	BILL CRENSHAW	-	80	6	TRC	-	70	11-66	-	P	W	S	1000	
2N.28.14.111	TRIANGLE CATTLE	-	100	-	TRC	-	91	9-66	-	P	W	S	700	
2N.28.14.241	W L CRENSHAW	-	90	5	TRC	-	-	-	-	P	W	S	1490	CA
2N.28.14.320	OIL TEST	1958	-	-	-	-	-	-	-			U	-	(LOG). ELLIOT + CLUTTS 1 HASCHKE. ORIGINAL DEPTH 2535
2N.28.18.140	TRIANGLE CATTLE	1959	120	7	TRC	-	-	-	-	P	W	S	-	(LOG). LEE PENNINGTON, DRILLER
2N.28.19.424	TRIANGLE CATTLE	-	110	6	TRC	-	98	9-66	-	P	W	S	675	CA
2N.28.21.224	TRIANGLE CATTLE	1956	100	6	TRC	-	83	9-66	-	P	W	S	580	
2N.28.22.444	TRIANGLE CATTLE	-	70	6	TRC	-	53	9-66	-	P	W	S	560	
2N.28.25.412	W L CRENSHAW	-	60	5	TRC	-	45	3-66	-	P	W	S	830	
2N.28.32.243	TRIANGLE CATTLE	-	65	6	TRC	-	50	9-66	-	P	W	S	920	
2N.28.34.112	W L CRENSHAW	-	70	6	TRC	-	45	3-66	-	P	W	S	920	
3N.19.24.233	R PEREZ RANCH	-	-	-	TRS	5420	-	-	-	S	E	S	260	
3N.19.24.233A	R PEREZ RANCH	-	-	6	TRS	5420	68	11-66	5352	P	W	S	-	
3N.19.24.233B	R PEREZ RANCH	-	200	-	TRS	5420	-	-	-	S	E	S	-	
3N.20.11.443	R PEREZ RANCH	-	700	-	PAT	5185	650R	-	4535	P	W	S	-	
3N.20.36.323	R PEREZ RANCH	-	169	-	PAT	-	109	9-65	-	P	W	S	-	
3N.21. 3.210	T E OVERTON	-	-	6	PAT	4956	103	9-65	4853	P	W	S	2900	
3N.21. 5.344	T E OVERTON	-	103	5	PAT	-	71	9-65	-	P	W	S	2900	
3N.21. 6.440	R PEREZ RANCH	-	-	-	PAT	-	-	-	-	P	W	S	3100	
3N.21.14.111	T E OVERTON	-	300	5	PAT	4958	287	9-65	4671	P	W	S	3100	
3N.21.24.332	MCCABE BROTHERS	-	208	6	PAT	-	143	11-65	-	P	W	S	-	
3N.21.33.313	R PEREZ RANCH	-	450	5	PAT	-	430	9-65	-	P	E	S	-	WATER LEVEL ESTIMATED
3N.21.34.133	T E OVERTON	-	250	6	TRS	4960	135	9-55	4825	P	W	S	736	CA. LEE JASPER DRILLER
							138	9-65	4822					
3N.21.34.434	A D SMITH	-	185	6	TRS	4929	140	1-66	4789	P	W	S	-	
3N.22. 3.113	L COOPER	-	-	6	TRS	-	82	8-65	-	P	W	S	-	
3N.22. 6.434	MCCABE BROTHERS	-	-	6	TRS	4876	127	11-65	4749	P	W	S	-	
3N.22. 8.444	MCCABE BROTHERS	-	-	5	TRS	4824	-	-	-	P	W	S	-	
3N.22. 9.434	MCCABE BROTHERS	-	-	8	TRS	4800	105	11-65	4695	P	W	S	-	
3N.22.10.224	L COOPER	-	74	6	TRS	4745	51	8-65	4694	P	W	S	2600	CA
3N.22.11.314	MCCABE BROTHERS	-	62	6	TRS	4755	39	11-65	4716	P	W	S	-	
3N.22.14.214	MCCABE BROTHERS	-	48	6	TRS	4731	36	11-65	4695	P	W	S	-	
3N.22.16.444	MCCABE BROTHERS	-	-	6	TRS	4774	-	-	-	P	W	S	-	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA: DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
N.22.19.434	T E OVERTON	-	-	8	TRS	4868	106	9-65	4762	P	W	S	2000	
N.22.25.114	MCCABE BROTHERS	-	-	6	TRS	4741	-	-	-	P	W	S	-	
N.22.25.424	HENRY LONG	1915	110	6	TRS	4723	-	-	-	P	W	S	2700	MCDANIEL, DRILLER
N.22.27.342	MCCABE BROTHERS	-	94	5	TRS	4783	77	11-65	4706	P	W	S	-	
N.22.28.111	MCCABE BROTHERS	1939	-	5	TRS	4827	97	11-65	4730	P	W	S	-	A SMITH, DRILLER
N.22.30.111	MCCABE BROTHERS	1949	124	6	TRS	4869	63	11-65	4806	P	W	S	-	ROOD AND WHITE, DRILLER
N.22.31.111	T E OVERTON	1930	-	5	TRS	4890	130	8-55	4760	P	W	S	2100	
N.22.32.111	MCCABE BROTHERS	-	121	5	TRS	4864	99	11-65	4765	P	W	S	2100	CA
N.22.32.333	A D SMITH	-	95	7	TRS	4824	80	1-66	4744	P	W	S	2100	
N.22.34.440	A D SMITH	1961	110	6	TRS	4767	70R	-	4697	S	E	H	-	LOG. LEE PENNINGTON, DRILLER
N.22.35.3114	ADELA BACA	-	-	6	TRS	4768	75R	-	4693	P	W	U	-	
N.22.35.3121	F ZAMORA	1940	60	7	-	4765	-	-	-	N		U	-	DRY
N.22.35.3312	T E OVERTON	-	90	-	TRS	4770	50R	-	4720	J	E	H	2000	
N.23. 1.133	M WERTHEIM	-	100	6	TRS	4507	87	8-65	4420	P	W	S	-	
N.23. 4.444	F TUCKER	-	-	-	TRS	4585	63	9-66	4522	P	W	S	900	
N.23. 6.332	F TUCKER	-	-	6	TRS	4691	59	9-66	4632	P	W	S	1900	PUMPING MEASUREMENT
N.23.12.323	WALTER MCMEANS	-	130	-	TRS	4516	110R	-	4406	P	W	S	1200	
N.23.15.132	F TUCKER	-	-	-	TRS	4605	82	9-66	4523	P	W	U	-	
N.23.17.341	F TUCKER	-	-	6	TRS	4685	-	-	-	P	W	S	1700	
N.23.21.323	F TUCKER	-	-	-	TRS	4610	74	9-66	4536	P	W	S	950	
N.23.22.231	F TUCKER	1951	130	-	TRS	4598	100R	-	4498	J	E	S	-	JOHN MADDOX, DRILLER
N.23.23.221	WALTER MCMEANS	1951	128	5	TRS	4536	80	9-66	4456	P	W	S	1200	JOHN MADDOX, DRILLER
N.23.25.210	OIL TEST	-	-	-	-	4587	-	-	-			U	-	(LOG) GENERAL CRUDE 1 FEDERAL B. ORIGINAL DEPTH 1550
N.23.29.234	HENRY LONG	1943	130	5	TRS	4642	76	8-55	4566	P	W	S	1200	LEE PENNINGTON, DRILLER
							88	1-66	4554					
N.23.31.322	HENRY LONG	1941	185	5	TRS	4707	76	1-66	4631	P	W	S	2200	LEE PENNINGTON, DRILLER
N.23.32.334	HENRY LONG	1927	150	6	TRS	4698	-	-	-	P	W	S	1950	JACK CONLEY, DRILLER
N.23.33.123	HENRY LONG	1938	165	5	TRS	4634	89	1-66	4545	P	W	S	1900	LEE PENNINGTON, DRILLER
N.23.34.243	HENRY LONG	1912	-	6	TRS	4580	85	2-65	4495	P	W	S	-	
N.23.35.230	HENRY LONG	1917	130	5	TRS	4550	95	12-65	4455	P	W	S	1450	
N.23.36.140	HENRY LONG	1943	185	6	TRS	4567	140	12-65	4427	P	W	S	-	LEE PENNINGTON, DRILLER
N.24. 1.410	STEELE RANCH	-	-	-	TRS	4316	-	-	-	P	W	S	-	
N.24. 5.141	M WERTHEIM	-	101	-	TRS	4450	93	8-65	4357	P	W	S	910	
N.24. 5.423	M WERTHEIM	1963	210	6	TRS	4498	157	8-65	4341	P	W	S	910	LOG. NIP DRILLING CO., DRILLER
N.24. 6.320	OIL TEST	1959	-	-	-	4582	-	-	-			U	-	(LOG). GENERAL CRUDE 1 FEDERAL A. ORIGINAL DEPTH 1536
N.24.11.434	STEELE RANCH	1940	80	6	TRS	4457	74	7-65	4383	P	W	S	-	
N.24.15.222	STEELE RANCH	-	-	6	TRS	4540	130	7-65	4410	P	W	S	560	LEE PENNINGTON, DRILLER
N.24.17.321	M WERTHEIM	-	-	6	TRS	4544	-	-	-	P	W	S	-	
N.24.20.330	OIL TEST	1959	-	-	-	4538	-	-	-			U	-	(LOG). GENERAL CRUDE 1 OLIVE HENRY. ORIGINAL DEPTH 1585

3N.24.22.411	HENRY LONG	-	-	6	TRS	4519	227	12-65	4292	P	W	S	1080	
3N.24.24.123	HUNT	1950	270	6	TRS	4502	249	8-50	4253	P	W	S	-	JOHN MADDOX, DRILLER
3N.24.26.443	HENRY LONG	-	240	6	TRS	4494	240R	12-65	4254	P	W	S	1220	
3N.24.29.134	M WERTHEIM	1963	231	5	TRS	4528	144	8-65	4384	P	W	S	-	LOG. NIP DRILLING CO., DRILLER
3N.25. 1.144	STEELE RANCH	-	30	-	TRS	4095	29	7-65	4066	P	W	S	700	LEE PENNINGTON, DRILLER
3N.25.10.234	STEELE RANCH	-	-	6	QAB	4132	36	7-65	4096	P	W	S	863	CA
3N.25.15.421	STEELE RANCH	-	90	6	TRS	4172	-	-	-	P	W	S	940	
3N.25.16.432	STEELE RANCH	-	107	-	TRS	4267	92R	-	4175	P	E	S	1050	CA
3N.25.16.433	STEELE RANCH	1943	169	6	-	4279	-	-	-	P	W	S	-	LEE PENNINGTON, DRILLER
3N.25.18.222	STEELE RANCH	1962	150	6	TRS	4329	127	7-65	4202	P	W	S	820	LEE PENNINGTON, DRILLER
3N.25.19.320	STEELE RANCH	1965	271	4	TRS	4491	238	7-65	4253	P	W	S	1000	LOGS AVAILABLE FOR NEARBY WELL
3N.25.23.314	STEELE RANCH	-	125	6	TRS	4203	81	7-65	4122	P	W	S	-	LEE PENNINGTON, DRILLER
3N.25.28.112	STEELE RANCH	1958	300	6	-	4356	-	-	-	P	W	S	1100	LEE PENNINGTON, DRILLER
3N.25.31.141	STEELE RANCH	-	300	-	TRS	4472	-	-	-	P	W	S	1190	
3N.25.33.312	STEELE RANCH	-	280	-	TRS	4413	238	11-65	4175	P	W	S	1040	
3N.25.34.221	STEELE RANCH	-	140	-	-	4243	-	-	-	P	W	S	-	
3N.25.36.141	G + N VAUGH*N	-	50	6	TRS	4135	41	5-67	4094	P	W	S	320	
3N.26. 2.441	JEFF GOOD	1955	85	6	TRC	-	78	11-65	-	P	W	S	1350	LEE PENNINGTON, DRILLER
3N.26. 2.442	JEFF GOOD	1955	85	6	TRC	-	80	11-65	-	P	W	S	1210	LEE PENNINGTON, DRILLER
3N.26. 4.144	JEFF GOOD	-	47	8	TRC	-	33	11-65	-	P	W	S	1900	
3N.26. 4.144A	JEFF GOOD	-	40	6	TRC	-	-	-	-	J	E	H	1780	
3N.26. 4.144B	JEFF GOOD	-	68	-	TRC	-	35	9-66	-	N		U	-	(LOG). NIP DRILLING CO, DRILLER
3N.26. 4.144C	JEFF GOOD	-	100	12	TRS	-	-	-	-	S	E	I	1710	CA. NIP DRILLING CO, DRILLER
3N.26. 6.222	MOUNTED PATROL	-	140	6	TRS	4225	116	7-66	4109	P		S	920	
3N.26. 6.444	HUBERT MARSHALL	1957	-	8	TRS	4185	65	9-65	4120	S	E	H	1200	RAY MCCULLOUGH, DRILLER
3N.26. 7.122	CORTESE BROS	-	-	-	TRS	-	-	-	-	P	W	S	-	
3N.26. 7.144	OIL TEST	-	-	-	-	4135	-	-	-			U	-	LOG. STANFIELD + FRANCISCO 1 BROWN. ORIGINAL DEPTH 1682
3N.26. 7.222	HOWARD MARSHALL	1963	147	6	TRS	4185	-	-	-	P	W	S	-	(LOG). RAY MCCULLOUGH, DRILLER
3N.26. 7.233	OIL TEST	-	-	-	-	4160	-	-	-			U	-	(LOG). ORIGINAL DEPTH 605. FRANCISCO 1 MARSHALL
3N.26. 7.334	CORTESE BROS	-	-	-	TRS	-	-	-	-	P	W	S	-	
3N.26. 7.411	FORT SUMNER	1964	-	-	TRS	4140	70R	-	4070	N		U	-	LOG. NIP DRILLING CO, DRILLER. ORIGINAL DEPTH 470
3N.26. 7.444	R J COOK	1966	100	7	TRS	4125	73	7-66	4052	P	W	S	1300	(LOG). NIP DRILLING CO. DRILLER
3N.26. 8.4412	R J COOK	-	210	6	TRS	-	115	5-64	-	N		U	-	(LOG). E B BURKE, DRILLER
3N.26. 9.144	JEFF GOOD	1959	100	6	TRC	-	70	11-65	-	P	W	S	1820	
3N.26. 9.2333	JEFF GOOD	1961	125	7	TRC	-	69	5-64	-	P	W	S	-	J W MATTHEWS, DRILLER
3N.26. 9.3113	MRS C C HENRY	1943	205	9	TRC	4137	-	-	-	N		U	-	(LOG). E B BURKE, DRILLER
3N.26. 9.3311	FORT SUMNER	1942	222	-	TRC	-	90R	-	-	T	E	U	-	(LOG)
3N.26. 9.3312	FORT SUMNER	-	205	-	TRC	4146	62R	-	4084	T	E	U	-	(LOG)
3N.26. 9.3313	FORT SUMNER	1960	200	9	TRC	4140	136R	-	4004	T	E	U	1550	CA. (LOG). J W MATTHEWS, DRILLER
3N.26. 9.3313A	FORT SUMNER	1960	210	6	TRC	-	-	-	-	N		U	-	(LOG). J W MATTHEWS, DRILLER
3N.26. 9.3321	FORT SUMNER	-	192	10	TRC	4145	61	5-64	4084	N		U	-	(LOG)
3N.26. 9.3321A	FORT SUMNER	1942	172	8	TRC	4144	105R	-	4039	N		U	-	(LOG). S BUTLER, DRILLER
3N.26. 9.3322	FORT SUMNER	-	215	8	TRC	-	125R	-	-	N		U	-	(LOG)
3N.26. 9.3341	FORT SUMNER	1942	350	-	TRC	4143	55R	-	4088	N		U	-	(LOG)
3N.26.13.133	DAN CRENSHAW	-	160	6	TRC	-	89	4-66	-	P	W	S	1100	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
3N.26.14.331	LOGAN BARNHART	-	126	5	TRC	-	109	3-67	-	P	W	S	3000	
3N.26.15.422	L R MORRIS	-	135	4	TRC	-	114	3-67	-	N		U	-	
3N.26.16.1111	FORT SUMNER	1960	206	7	TRC	4137	53R	-	4084	N		U	-	(LOG). J W MATTHEWS, DRILLER
3N.26.16.3311	FORT SUMNER	1960	225	6	TRC	-	120R	-	-	N		U	-	(LOG). J W MATTHEWS, DRILLER
3N.26.17.3342	L PENNINGTON	-	-	-	TRC	-	-	-	-	S	E	H	-	
3N.26.17.3433	FORT SUMNER	-	-	8	TRC	4100	60R	-	4040	T	E	U	-	
3N.26.18.220	CORTESE BROS	1964	130	6	TRS	-	80R	-	-			S	-	(LOG). NIP DRILLING CO, DRILLER
3N.26.18.441	FORT SUMNER	-	-	8	-	4040	-	-	-	T	E	P	-	
3N.26.18.441A	FORT SUMNER	-	-	-	QAL	4040	-	-	-	T	E	P	692	CA. HORIZONTAL GALLERY
3N.26.18.441B	FORT SUMNER	1954	200	-	TRS	4040	-	-	-	T	E	P	708	CA
3N.26.19.214	ALLEN HICKMAN	1965	90	6	TRS	4032	-	-	-	N		U	1620	CA. ALLEN HICKMAN, DRILLER
3N.26.19.341	ERNEST PICKEL	-	-	-	QAB	4060	51	7-64	4009	T	E	H	-	
3N.26.20.144	FORT SUMNER	-	-	-	TRS	-	128	5-64	-	S	E	P	-	PUMPING MEASUREMENT
3N.26.20.3244	FORT SUMNER	1955	96	12	QAL	4020	23	12-63	3997	T	E	H	2470	CA. (LOG). LEE PENNINGTON, DRILLER
3N.26.23.131	L R MORRIS	1950	150	6	TRC	-	99	3-67	-	P	W	H	2200	
3N.26.26.321	JACK KINSEY	-	160	-	TRC	-	124	3-67	-	P	W	H	1200	
3N.26.27.122	FOLEYS MOTEL	1952	172	6	TRC	4070	81	4-66	3989	S	E	H	1900	JOHN MADDOX, DRILLER
3N.26.27.124	FOLEYS MOTEL	1952	160	6	TRC	4065	75	4-66	3990	S	E	H	1900	JOHN MADDOX, DRILLER
3N.26.27.231	EARL E WEST	-	-	4	QAB	-	-	-	-	T	E	H	-	
3N.26.28.144	J A HAMMONS	1948	157	7	QAL	4015	24	6-64	3991	S	E	H	2300	LEE PENNINGTON, DRILLER
3N.26.29.222	RAY WHIPPLE	-	45	6	QAL	4025	27	5-67	3998	P	W	S	2600	
3N.26.33.133	J E LOBLEY	1957	130	5	QAL	3995	10	5-67	3985	J	E	H	2000	LEE PENNINGTON, DRILLER
3N.26.33.324	PAUL MCREE	1963	107	6	QAL	3985	8	6-64	3977	S	E	U	-	(LOG). NIP DRILLING CO, DRILLER
3N.26.34.4111	L C RATLIFF	1954	180	8	QAL	4000	19	6-64	3981	T	E	H	2300	
							20	5-67	3980					
3N.26.35.312	WALTER WRIGHT	1928	34	6	QAL	4015	24	5-67	3991	J	E	S	2800	LEE PENNINGTON, DRILLER
3N.26.36.313	FLOYD C DOYLE	-	120	6	TRC	4070	70	4-66	4000	P	W	S	3200	
3N.27. 1.222	LEE REED	1920	80	6	TO	4600	35	1-66	4565	P	W	S	650	FOWLER + CLEGG, DRILLER
3N.27. 7.223	JEFF GOOD	-	80	6	TRC	4290	73	11-65	4217	P	W	S	1500	
3N.27. 7.242	JEFF GOOD	-	80	-	TRC	-	74	11-65	-	P	W	S	1500	
3N.27.12.213	M M CATTLE CO	1963	100	6	TO	-	28	12-65	-	N		U	-	NIP DRILLING CO, DRILLER
3N.27.12.333	M M CATTLE CO	1950	450	6	TRC	-	56	12-65	-	P	I	S	-	
3N.27.24.114	M M CATTLE CO	1962	70	6	TRC	-	66	12-65	-	P	W	S	3800	
3N.27.26.132	C W GRISSOM	-	100	6	TRC	-	-	-	-	P	W	S	2800	
3N.27.29.322	DAN CRENSHAW	-	160	-	TRC	-	143	4-66	-	P	W	S	900	
3N.27.29.344	W A DRAKE	-	142	6	TRC	-	135	4-66	-	N		U	-	
3N.27.29.433	W A DRAKE	-	150	4	TRC	-	145	4-66	-	P	W	H	760	
3N.27.30.113	DAN CRENSHAW	-	175	6	TRC	-	168	4-66	-	P	W	S	1500	
3N.27.30.442	DAN CRENSHAW	1950	145	6	TRC	-	-	-	-	P	W	H	1280	
3N.27.31.213	FLOYD C DOYLE	1966	166	6	TRC	-	120	3-67	-	P	W	S	1400	(LOG). NIP DRILLING CO, DRILLER
3N.27.31.433	FLOYD C DOYLE	-	120	6	TRC	-	99	4-66	-	P	W	S	950	
3N.27.32.113	FLOYD C DOYLE	1949	140	8	TRC	-	127	4-66	-	P	W	S	-	

3N.27.32.312	HAZEL MCELROY	-	150	5	TRC	-	132	4-66	-	P	W	H	930	
3N.27.32.322	FLOYD C DOYLE	-	138	6	TRC	-	132	4-66	-	P	W	S	-	
3N.27.33.312	FLOYD C DOYLE	-	153	5	TRC	-	122	4-66	-	P	W	H	660	
3N.27.34.112	M M CATTLE CO	-	150	6	TRC	-	105	12-65	-	P	W	S	2200	
3N.27.34.432	FLOYD C DOYLE	-	110	6	TRC	-	69	4-66	-	P	W	S	2200	
3N.27.36.224	M M CATTLE CO	-	150	6	TRC	-	67	12-65	-	P	W	S	1480	CA
3N.28. 1.122	SCOTT R BROWN	1930	50	6	TRC	-	33	12-65	-	P	W	S	1350	
3N.28. 7.112	M M CATTLE CO	-	44	8	-	-	-	-	-	N		U	-	DRY
3N.28. 7.242	M M CATTLE CO	-	85	6	TO	-	-	-	-	P	E	H	750	
3N.28.11.211	M M CATTLE CO	-	150	6	TRC	-	148	12-65	-	P	W	S	2000	
3N.28.12.123	H A WOOLLUMS	1935	95	5	TRC	-	93	12-65	-	P	W	S	2200	
3N.28.13.123	R L BAKER	1930	120	6	TRC	-	75	12-65	-	P	W	S	1500	
3N.28.15.222	M M CATTLE CO	1959	150	6	TRC	-	105	12-65	-	P	W	S	1750	LEE PENNINGTON, DRILLER
3N.28.22.134	M M CATTLE CO	1962	150	6	TRC	-	57	12-65	-	P	W	S	1400	
3N.28.22.413	M M CATTLE CO	-	150	6	TRC	-	83	12-65	-	P	W	S	1360	CA. LEE PENNINGTON, DRILLER
3N.28.23.442	H A WOOLLUMS	-	80	6	TRC	-	70	12-65	-	P	W	S	900	
3N.28.25.323	BOWLINS CURIOS	-	85	8	TRC	-	42	6-65	-	J	E	H	-	
3N.28.26.222	H A WOOLLUMS	-	55	6	TRC	-	-	-	-	P	W	U	-	
3N.28.26.414	M M CATTLE CO	-	80	10	TRC	-	25	12-65	-	P	W	S	1200	
3N.28.31.210	OIL TEST	-	-	-	-	4115	-	-	-			U	-	LOG PURE 1 PURE FED. ORIGINAL DEPTH 6468
3N.28.33.4113	J H MARSHALL	1930	80	4	TRC	-	44	7-66	-	P	W	H	1200	
3N.28.34.211	M M CATTLE CO	-	60	6	TRC	-	-	-	-	P	W	S	760	
3N.28.34.222	PAUL WILLIAMS	-	-	6	TRC	-	25	1-66	-	J	E	H	1080	
4N.20. 5.240	OIL TEST	1942	-	-	-	5075	-	-	-			U	-	(LOG). SOUTH BASIN 1 GOOD. ORIGINAL DEPTH 4779
4N.20. 5.243	BEN GOOD	1963	31	-	PAT	-	20	8-65	-	P	W	S	-	LEE PENNINGTON, DRILLER
4N.20. 5.243A	BEN GOOD	-	-	-	PAT	-	-	-	-	P	W	S	3190	CA
4N.20. 6.332	OIL TEST	1932	-	-	-	5357	-	-	-			U	-	LOG. MATADOR OIL 1 WOODS. ORIGINAL DEPTH 4662
4N.20.14.230	BEN GOOD	1955	96	5	PAT	-	84	8-65	-	P	W	S	2900	LEE PENNINGTON, DRILLER
4N.20.17.321	MARTINEZ RANCH	-	-	6	PAT	-	141	1-67	-	P	W	S	3200	
4N.20.24.433	BEN GOOD	1942	-	5	PAT	-	63	8-65	-	P	W	S	2350	CA. LEE PENNINGTON, DRILLER
4N.20.27.344	R PEREZ RANCH	-	-	6	TRS	-	139	1-67	-	P	W	S	2300	
4N.21. 1.410	BEN GOOD	-	45	4	PAT	4650	19	8-65	4631	P	W	S	-	CONDUCTANCE EXCEEDS 6000
4N.21. 5.333	BEN GOOD	-	-	5	PAT	-	-	-	-	P	W	S	5000	
4N.21. 9.223	BEN GOOD	-	-	4	PAT	4739	105	9-65	4634	P	W	S	3440	CA
4N.21.10.434	BEN GOOD	-	-	4	PAT	4780	104	9-65	4676	P	W	S	-	
4N.21.14.113	BEN GOOD	-	182	6	PAT	4826	119	9-65	4707	S	E	S	-	
4N.21.20.410	BEN GOOD	1959	-	6	PAT	-	76	8-65	-	P	W	S	4200	LEE PENNINGTON, DRILLER
4N.21.25.212	T E OVERTON	-	-	5	PAT	4885	95	9-65	4790	P	W	S	1750	
4N.21.26.441	T E OVERTON	-	-	5	PAT	4934	145	9-65	4789	S	E	S	3120	CA
4N.21.36.111	T E OVERTON	1955	-	-	PAT	4911	-	-	-	P	W	S	2900	LEE PENNINGTON, DRILLER
4N.22. 4.410	L COOPER	-	56	4	PAT	-	15	8-65	-	P	W	S	2980	CA
4N.22. 4.334	L COOPER	1966	-	6	PAT	4600	33	7-66	4567	P	W	S	4000	
4N.22. 7.144	BEN GOOD	-	-	4	PAT	4682	97	8-65	4585	P	W	S	3200	
4N.22.12.430	L COOPER	-	67	6	TRS	4641	55	8-65	4586	P	W	S	-	
4N.22.15.414	L COOPER	1963	-	5	PAT	4776	224	8-65	4552	P	W	S	3100	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
4N.22.16.243	L COOPER	1941	200	-	PAT	4783	179	8-55	4604	P	W	S	3000	
							194	6-65	4589					
4N.22.21.314	L COOPER	-	-	6	PAT	4843	142	8-65	4701	P	W	S	2580	
4N.22.24.230	L COOPER	-	180	6	TRS	4771	143	8-65	4628	P	W	S	-	
4N.22.26.143	L COOPER	1949	-	5	PAT	4816	284	8-65	4532	P	W	S	2650	
4N.22.27.242	OIL TEST	1944	-	-	-	4760	-	-	-			U	-	LOG. STANDIFORTH 1 STATE. ORIGINAL DEPTH 1785
4N.22.34.123	L COOPER	-	-	-	PAT	4769	105	8-65	4664	P	W	S	-	
4N.22.36.310	L COOPER	1953	-	4	TRS	4760	80	8-65	4680	N		U	-	
4N.23.10.420	J F KOONTZ	-	76	5	TRS	4426	66	8-65	4360	P	W	S	690	
4N.23.19.410	J F KOONTZ	1934	-	6	TRS	4721	118	8-65	4603	P	W	S	872	CA
4N.23.20.222	J F KOONTZ	-	140	5	TRS	4632	104	8-65	4528	P	W	S	1090	
4N.23.24.133	J F KOONTZ	-	71	6	TRS	4475	55	8-65	4420	P	W	S	890	
4N.23.25.244	J F KOONTZ	1965	238	5	TRS	4554	174	8-65	4380	S	E	H	650	CA. NIP DRILLING CO., DRILLER
4N.23.25.410	J F KOONTZ	-	90	4	TRS	4510	82	8-65	4428	P	W	S	-	
4N.23.27.311	J F KOONTZ	-	-	7	TRS	4600	81	8-65	4519	P	W	S	-	
4N.23.33.330	J F KOONTZ	-	109	7	TRS	4633	70	8-65	4563	P	W	S	1030	
4N.23.36.323	J F KOONTZ	-	-	6	TRS	4502	89	8-65	4413	P	W	S	980	
4N.24. 1.142	U S B R	1936	229	4	TRS	4306	97	7-65	4209	P	E	H	693	CA
4N.24. 1.234	U S B R	1940	-	5	TRS	4324	128	7-65	4196	S	E	H	1070	
4N.24. 8.133	M WERTHEIM	1964	52	6	TRS	4293	39	8-65	4254	P	W	S	1780	
4N.24.13.122	H C YORK	1935	300	-	TRS	4407	-	-	-	P	W	S	-	
4N.24.17.232	M WERTHEIM	-	-	6	TRS	4259	108	8-65	4151	P	W	S	1250	
4N.24.26.222	OIL TEST	1944	-	-	-	4243	-	-	-			U	-	(LOG). GRIGGS 1 STEELE RANCH. ORIGINAL DEPTH 5553
4N.24.28.141	M WERTHEIM	-	64	6	TRS	4239	28	8-55	4211	P	W	S	1100	
4N.24.32.422	TRUJILLO	1905	75	-	TRS	4320	60R	-	4260	P	W	S	-	
4N.24.35.333	STEELE RANCH	1964	150	6	TRS	4309	96	7-65	4213	P	W	S	960	LEE PENNINGTON, DRILLER
4N.25. 1.414	WALTON RANCH	-	-	6	TRS	4360	219	7-65	4141	P	W	S	930	LEE PENNINGTON, DRILLER
4N.25. 2.333	WALTON RANCH	1915	210	-	TRS	4333	197R	-	4136	S	E	S	1090	CA
4N.25. 2.333A	WALTON RANCH	1963	220	-	TRS	-	180R	-	-	S	E	H	-	NIP DRILLING CO., DRILLER
4N.25. 3.142	WALTON RANCH	-	-	6	TRS	4352	182	7-65	4170	P	W	S	-	
4N.25. 6.233	E A GREENE	1961	200	6	TRS	4384	172	7-65	4212	S	E	H	620	PUMPING MEASUREMENT
4N.25. 6.240	H C YORK	1945	200	-	TRS	-	-	-	-	P	E	H	-	LEE PENNINGTON, DRILLER
4N.25. 7.440	STEELE RANCH	-	200	-	TRS	4318	185	7-65	4133	P	W	S	1170	PUMPING MEASUREMENT. LEE PENNINGTON, DRILLER
4N.25.11.133	WALTON RANCH	-	142	-	TRS	4304	149	7-65	4155	P	W	S	-	
4N.25.11.344	WALTON RANCH	-	-	-	TRS	4278	139	7-65	4139	P	W	S	-	
4N.25.12.144	WALTON RANCH	-	184	4	TRS	4320	173	7-65	4147	P	W	S	-	
4N.25.13.344	WALTON RANCH	1964	80	6	TRS	4216	66	7-65	4150	P	W	S	-	NIP DRILLING CO., DRILLER
4N.25.14.413	WALTON RANCH	1945	101	6	TRS	4253	97	7-65	4156	P	W	S	-	
4N.25.16.432	STEELE RANCH	-	200	-	TRS	4290	151	7-65	4139	P	W	S	1040	CA

4N.25.23.300	WALTON RANCH	1965	140	6	TRS	4246	120	7-65	4126	P	W	S	1080	NIP DRILLING CO., DRILLER
4N.25.24.221	WALTON RANCH	-	115	6	TRS	4253	108	7-65	4145	N		U	-	
4N.25.24.344	WALTON RANCH	-	150	-	TRS	4225	85	7-65	4140	P	W	S	1500	PUMPING MEASUREMENT
4N.25.30.121	STEELE RANCH	-	88	6	TRS	4145	69	7-65	4076	P	W	S	880	CA. LEE PENNINGTON, DRILLER
4N.25.30.432	STEELE RANCH	1960	40	6	TRS	4138	-	-	-	P	W	S	1140	
4N.25.31.113	STEELE RANCH	-	100	6	TRS	4197	37	7-65	4160	P	W	S	-	
4N.25.36.114	MOODY BRASSELL	-	150	6	TRS	4105	20	2-66	4085	J	E	H	-	
4N.26. 1.141	DEAN WRIGHT	1945	240	6	TRS	-	219R	-	-	P	W	H	1880	CA. LEE PENNINGTON, DRILLER
4N.26. 1.231	DEAN WRIGHT	-	33	6	TRC	-	27	11-65	-	P	W	H	-	
4N.26. 4.322	WILEY GRIZZLE	1962	97	6	TRC	-	70	1-66	-	P	W	S	700	
4N.26. 4.322A	WILEY GRIZZLE	1965	0	-	-	-	-	-	-			U	-	(LOG). ORIGINAL DEPTH 315. DESTROYED
4N.26. 5.412	MOODY BRASSELL	-	125	6	TRC	-	31	2-66	-	P	W	S	560	
4N.26. 8.414	MOODY BRASSELL	-	125	6	TRC	-	30	-	-	P	W	S	900	
4N.26.11.224	OIL TEST	1948	12	6	-	-	-	-	-	N		U	-	LOG. GRIGGS-DARDEN 1 STATE. ORIGINAL DEPTH 5580
4N.26.11.411	WILEY GRIZZLE	-	200	6	TRC	-	149	1-66	-	P	W	S	1650	
4N.26.12.412	DEAN WRIGHT	1953	25	6	TRC	-	20	11-65	-	P	W	S	750	LEE PENNINGTON, DRILLER
4N.26.14.414	JOE POWELL	-	45	5	TRC	-	33	1-66	-	P	W	S	1800	
4N.26.14.421	JOE POWELL	-	-	-	TRC	-	-	-	-	J	E	H	1800	
4N.26.15.241	WILEY GRIZZLE	1965	275	10	TRS	-	137	1-66	-	T	I	I	-	LOG. NIP DRILLING CO. DRILLER. REPORTED YIELD 1000 GPM
4N.26.16.222	WILEY GRIZZLE	1950	226	6	TRS	-	195	1-66	-	P	W	S	-	(LOG). LEE PENNINGTON, DRILLER
							203	9-66	-					
							199	10-66	-					
							199	5-67	-					
4N.26.16.222A	WILEY GRIZZLE	1965	278	10	TRS	-	200R	-	-	T	I	I	-	(LOG). NIP DRILLING CO. DRILLER. REPORTED YIELD 1000 GPM
4N.26.16.344	WILEY GRIZZLE	1962	110	6	TRC	-	59	1-66	-	P	W	S	750	
4N.26.18.413	MOODY BRASSELL	-	125	6	TRC	4260	79	2-66	4181	P	W	S	440	
4N.26.20.144	MOODY BRASSELL	1967	170	6	TRC	-	146	2-67	-	P	W	S	950	LOG. NIP DRILLING CO. DRILLER
4N.26.21.112	WILEY GRIZZLE	-	170	-	TRC	-	52	1-66	-	N		U	-	(LOG)
4N.26.21.421	WILEY GRIZZLE	1967	226	12	TRC	-	31	5-67	-	N		U	-	
4N.26.21.441	WILEY GRIZZLE	1963	-	-	-	-	-	-	-			U	-	(LOG). NIP DRILLING CO. DRILLER. ORIGINAL DEPTH 241
4N.26.21.441A	WILEY GRIZZLE	1964	208	10	TRS	-	98	1-67	-	T	I	I	1220	CA. REPORTED YIELD 1000 GPM
4N.26.22.221	JOE POWELL	-	20	6	TRC	-	13	1-66	-	P	W	S	925	
4N.26.24.332	JEFF GOOD	-	340	6	TRC	-	249	11-65	-	P	W	S	1420	CA
4N.26.27.111	FORT SUMNER	1964	216	12	TRS	-	78	2-66	-	T	E	P	1260	CA. LOG. LEE PENNINGTON, DRILLER. REPORTED YIELD 1000 GPM
4N.26.28.242	WILEY GRIZZLE	-	27	5	TRC	-	17R	-	-	P	W	H	1400	
4N.26.29.334	MOODY BRASSELL	-	125	6	TRC	4245	98	2-66	4147	P	W	S	938	CA
4N.26.30.234	MOODY BRASSELL	-	150	6	TRC	4246	98	2-66	4148	P	W	S	950	
4N.26.33.414	JEFF GOOD	-	60	-	TRC	-	-	-	-	P	W	H	1300	
4N.26.34.121	JEFF GOOD	-	80	6	TRC	-	35	11-65	-	P	W	S	3150	CA
4N.26.34.212	JEFF GOOD	1966	222	11	TRS	-	81	3-67	-	P	W	S	1400	LOG. NIP DRILLING CO. DRILLER
4N.27. 3.143	J M KNIGHTEN	1954	180	5	TRC	-	32R	-	-	P	W	H	2200	
4N.27. 3.311	J M KNIGHTEN	1960	50	6	TRC	-	37	11-65	-	P	W	S	2200	(LOG). LEE PENNINGTON, DRILLER
4N.27. 4.422	NEAL KOLL	1962	80	6	TRC	-	34	1-66	-	P	W	S	-	(LOG). LEE PENNINGTON, DRILLER

Table 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
4N.27. 5.142	NEAL KOLL	1951	57	6	TRC	-	37	1-66	-	J	E	H	600	
4N.27. 7.314	JOE POWELL	-	47	6	TRC	-	34	1-66	-	P	W	S	1470	
4N.27. 8.112	JOE POWELL	-	40	6	TRC	-	34	1-66	-	P	W	S	1100	
		* 1935	100	6		-	79	11-65	-	P	W			
4N.27.10.433	JEFF GOOD	1935	100	6	TRC	-	79	11-65	-	P	W	S	1270	CA
4N.27.18.112	JOE POWELL	-	48	5	TRC	-	46	1-66	-	N		U	-	
4N.28. 3.323	E F MULLER	1915	100	6	TO	4830	75	12-65	4755	P	W	S	1150	CLAIG AND FOWLER, DRILLER
4N.28. 3.444	E F MULLER	-	100	-	TO	-	-	-	-	P	W	S	600	
4N.28. 4.424	J WITHERSPOON	-	110	6	TO	-	103	1-66	-	P	W	S	1450	
4N.28. 8.233	LLOYD HARVEY	-	85	-	TO	-	-	-	-	P	W	S	1500	
4N.28. 8.322	J WITHERSPOON	1949	90	-	TO	-	-	-	-	P	W	S	1430	CA
4N.28.10.423	G C MULLER	1964	110	6	TO	4800	77	12-65	4723	P	W	S	1200	(LOG). NIP DRILLING CO, DRILLER
4N.28.11.224	O C MCCULLOUGH	-	80	-	TO	-	68R	-	-	P	W	S	860	
4N.28.11.344	DAN SAVAGE	-	90	10	TO	-	76	1-66	-	P	W	U	-	
4N.28.13.231	G C MULLER	1939	115	6	TO	4760	64	12-65	4696	P	W	H	800	BILL DWIGHT, DRILLER
4N.28.15.441	JOE MAY	-	86	6	TO	-	40	12-65	-	N		U	-	
4N.28.17.244	BILLY PARKER	-	80	6	TO	4780	61	1-66	4719	P	W	S	700	
4N.28.19.243	W E HUDDLESTON	-	70	6	TO	4725	44	1-66	4681	P	W	U	-	
4N.28.20.421	LEE REED	-	26	-	-	-	-	-	-	N		U	-	DRY
4N.28.20.423	LEE REED	1907	21	6	TO	-	-	-	-	P	W	S	500	JOHN LUPINE, DRILLER
4N.28.20.424	LEE REED	1942	30	-	TO	-	23	12-65	-	N		U	-	BROWN CONSTRUCTION CO, DRILLER
4N.28.21.114	BILLY PARKER	-	80	6	TO	-	61	1-66	-	P	W	S	760	
4N.28.22.113	JOE MAY	1908	75	6	TO	-	-	-	-	P	W	H	1500	JOHN LUPINE, DRILLER
4N.28.22.131	JOE MAY	1954	80	6	TO	-	61	12-65	-	J	E	H	850	
4N.28.28.244	W E HUDDLESTON	1906	45	48	TO	-	42	12-65	-	P	E	H	750	
4N.28.28.412	W E HUDDLESTON	1930	47	16	TO	4675	41	12-65	4634	J	E	S	600	JOE PHILLIPS, DRILLER
4N.28.29.222	LEE REED	1951	52	12	TO	-	-	-	-	P	W	S	-	
4N.28.29.224	LEE REED	1942	52	6	TO	-	-	-	-	P	W	H	700	BILL DWIGHT, DRILLER
4N.28.31.442	W E HUDDLESTON	-	25	8	-	-	-	-	-	N		U	-	DRY
5N.24. 1.114	WALTON RANCH	1965	63	6	QAL	4355	28	7-65	4327	P	W	S	-	NIP DRILLING CO., DRILLER
5N.24. 1.123	WALTON RANCH	1917	-	42	QAL	4355	14	7-65	4341	N		U	-	DUG WELL
5N.24. 1.144	PAUL MCREE	1962	67	6	TRC	4373	27	4-66	4346	P	W	S	959	CA. (LOG). NIP DRILLING CO., DRILLER
5N.24. 2.133	WALTON RANCH	1958	28	6	QAL	4340	15	7-65	4325	P	W	S	-	(LOG). LEE PENNINGTON, DRILLER
5N.24. 5.342	J P GIBBINS	-	150	4	TRC	4455	-	-	-	P	W	S	460	
5N.24. 6.413	J P GIBBINS	-	50	6	TRC	4330	-	-	-	P	W	H	580	
5N.24.10.132	J P GIBBINS	-	50	6	TRC	4299	24	1-66	4275	P	W	S	800	
5N.24.11.444	PAUL MCREE	-	200	6	TRC	4344	99	4-66	4245	P	W	S	1150	
5N.24.17.232	J P GIBBINS	-	150	6	TRC	4386	135	1-66	4251	P	W	S	1570	CA
5N.24.22.112	J P GIBBINS	-	180	6	TRS	4368	117	1-66	4251	P	W	S	1400	
5N.24.24.413	H C YORK	-	220	6	TRC	4382	87	7-65	4295	P	W	S	1670	
5N.24.28.433	E H FIXLEY	1957	160	5	TRS	4325	102	7-65	4223	J	E	H	700	ADOLF LOPEZ, DRILLER
5N.24.28.434	POWHATAN CARTER	-	-	7	TRS	4308	-	-	-	J	E	H	-	

5N.24.28.443	A P PENLAND	-	90	6	TRS	4290	59	7-65	4231	P	W	H	-	
5N.24.32.133	WHITTAKER RANCH	-	190	-	TRS	4420	173	10-50	4247	P	W	S	949	CA. PUMPING MEASUREMENT 7-65
							186	7-65	4234					
5N.24.33.211	D CARMICHAEL	1959	182	5	TRS	4360	127	7-65	4233	S	E	H	-	ADOLF LOPEZ, DRILLER
5N.24.33.324	WHITTAKER RANCH	-	-	-	TRS	4366	158	7-65	4208	J	E	S	520	
5N.24.35.314	LAGO LAND CO	1963	180	6	TRS	4315	80	7-65	4235	S	E	H	-	LEE PENNINGTON, DRILLER
5N.25. 1.212	IRA DRUM	1910	100	6	TRC	-	50	11-65	-	P	W	H	543	CA
5N.25. 4.324	A + O KILLOUGH	1955	52	6	TRC	4514	30	11-65	4484	P	W	S	490	
5N.25. 4.431	A + O KILLOUGH	-	90	6	TRC	4515	70R	-	4445	P	W	S	1450	
5N.25. 7.131	PAUL MCREE	-	200	6	TRC	4423	189	4-66	4234	P	W	S	1500	
5N.25. 9.222	A + O KILLOUGH	-	60	-	TRC	4485	-	-	-	P	W	U	-	
5N.25. 9.442	A + O KILLOUGH	-	70	6	TRC	4465	30R	-	4435	P	W	S	2200	
5N.25.11.224	IRA DRUM	1910	100	-	TRC	4533	70R	-	4463	P	W	S	770	
5N.25.12.233	C D JONES	-	90	6	TRC	-	62	12-65	-	P	W	S	925	
5N.25.12.424	C D JONES	-	90	6	TRC	-	38	12-65	-	P	W	S	500	
5N.25.13.333	WALTON RANCH	-	-	6	TRC	4463	101	7-65	4362	P	W	S	700	LEE PENNINGTON, DRILLER
5N.25.14.344	IRA DRUM	1943	150	6	TRC	4466	136	11-65	4330	P	W	S	833	CA
5N.25.17.234	PAUL MCREE	1961	300	6	TRC	4475	279	1-66	4196	P	W	S	1450	
5N.25.19.232	PAUL MCREE	1961	230	6	TRS	4395	172	4-66	4223	P	W	S	1500	LOG. NIP DRILLING CO., DRILLER
5N.25.20.211	PAUL MCREE	-	300	-	TRC	4455	-	-	-	P	W	H	997	CA
5N.25.23.124	IRA DRUM	1950	125	6	TRC	4465	118	11-65	4347	P	W	S	770	JOHN MADDOX, DRILLER
5N.25.23.344	RAY HEAD	-	100	-	TRC	4439	-	-	-	P	W	S	1000	
5N.25.23.444	IRA DRUM	1900	100	-	TRC	4442	75R	-	4367	P	W	S	580	
5N.25.24.434	WALTON RANCH	1960	120	5	TRC	-	98	7-65	-	P	W	S	-	LOG. LEE PENNINGTON, DRILLER
5N.25.26.122	PAUL MCREE	-	100	6	TRC	4433	89	4-66	4344	P	W	S	780	
5N.25.27.121	RAY HEAD	-	150	6	TRC	4425	-	-	-	P	W	H	1400	
5N.25.27.324	RAY HEAD	1941	150	6	TRC	4404	-	-	-	P	W	S	1300	
5N.25.28.112	RAY HEAD	-	280	-	TRC	4424	-	-	-	P	W	S	1000	
5N.25.31.242	WALTON RANCH	-	-	6	TRS	4436	251	7-65	4185	P	W	S	1040	LEE PENNINGTON, DRILLER
5N.25.33.432	WALTON RANCH	-	-	-	-	4337	-	-	-	P	W	S	-	
5N.25.34.124	WALTON RANCH	-	-	6	TRC	4402	97	7-65	4305	P	W	S	833	CA
5N.25.36.423	WALTON RANCH	-	-	6	-	-	-	-	-	P	W	S	-	
5N.26. 2.333	V STALLARD	-	98	6	TRC	4630	85	11-65	4545	P	W	S	1400	
5N.26. 3.212	MRS FRANK MOTL	1955	125	6	TRC	-	-	-	-	P	W	S	650	LEE PENNINGTON,DRILLER
5N.26. 4.444	IRA DRUM	1910	87	4	TRC	4610	69	11-65	4541	N		U	-	
5N.26. 6.133	IRA DRUM	1910	100	-	TRC	-	50R	-	-	P	W	S	390	
5N.26. 6.314	C D JONES	-	80	6	TRC	-	46	12-65	-	P	W	S	560	
5N.26. 9.242	IRA DRUM	1964	90	6	TRC	-	68R	-	-	P	W	S	520	
5N.26.10.114	MRS FRANK MOTL	-	74	6	TRC	-	67	11-65	-	N		U	-	
5N.26.13.112	LEE PENNINGTON	-	190	6	TRC	4610	186	11-65	4424	P	W	S	1300	LEE PENNINGTON, DRILLER
5N.26.13.414	LEE PENNINGTON	1963	250	6	TRC	-	180	11-65	-	P	W	S	1475	LOG. LEE PENNINGTON, DRILLER
5N.26.14.114	V STALLARD	-	90	6	TRC	-	-	-	-	P	W	S	900	
5N.26.16.222	C D JONES	-	100	6	TRC	4560	82	12-65	4478	P	W	S	950	
5N.26.18.241	C D JONES	-	100	6	TRC	4510	79	12-65	4431	P	W	S	800	
5N.26.18.443	C D JONES	-	125	6	TRC	4490	105	11-65	4385	P	W	H	650	
5N.26.20.113	C D JONES	1949	125	6	TRC	4480	103	12-65	4377	P	W	S	700	JOHN MADDOX, DRILLER
5N.26.22.111	OLA KILLOUGH	1962	100	6	TRC	4530	71	11-65	4459	P	W	S	680	(LOG). LEE PENNINGTON, DRILLER
5N.26.22.313	MRS E L NAPPIER	-	60	-	TRC	-	-	-	-	P	W	S	-	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA: DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
5N.26.22.320	OIL TEST	1949	-	-	-	4518	-	-	-			U	-	LOG. ABERCROMBIE AND HAWKINS 1 NAPPIER. ORIGINAL DEPTH 7149
5N.26.24.134	LEE PENNINGTON	-	150	6	TRC	-	-	-	-	P	W	S	1400	
5N.26.26.133	DEAN WRIGHT	1948	48	6	TRC	4495	36	11-65	4459	P	W	S	1900	
5N.26.28.224	WALTON RANCH	-	-	4	TRC	4475	26	7-65	4449	P	W	S	900	
5N.26.28.422	WALTON RANCH	-	-	-	-	-	-	-	-			U	-	
5N.26.29.240	WALTON RANCH	-	-	6	TRC	4455	85	7-65	4370	P	W	S	1000	
5N.26.29.311	WALTON RANCH	-	-	6	TRC	4430	71	7-65	4359	N		U	-	
5N.26.30.122	WALTON RANCH	-	-	-	TRC	4445	82	7-65	4363	P	W	S	-	
5N.26.30.240	WALTON RANCH	-	89	6	TRC	-	75	7-65	-	P	W	S	-	
5N.26.33.131	WALTON RANCH	-	66	54	TRC	-	60	7-65	-	N		U	-	DUG WELL
5N.26.33.221	WALTON RANCH	-	83	6	TRC	-	73	7-65	-	N		U	-	
5N.26.33.321	WILEY GRIZZLE	-	50	6	TRC	4425	47	1-66	4378	P	W	S	800	
6N.25. 2.144	OIL TEST	1923	-	-	-	4605	-	-	-			U	-	LOG. SPAULDING DOME 1 LAYNE. ORIGINAL DEPTH 3820
6N.25. 2.323	A + O KILLOUGH	-	30	36	TRC	4590	30	11-65	4560	P	W	H	692	CA. DUG WELL
6N.25. 3.424	R M DEOLIVIERIA	1940	60	6	TRC	4568	29	10-65	4539	P	W	S	2020	CA. LEE PENNINGTON, DRILLER
6N.25. 8.332	R M DEOLIVIERIA	-	7	36	TRC	4480	6	10-65	4474	P	W	U	540	DUG WELL
6N.25. 8.334	R M DEOLIVIERIA	-	90	6	TRC	4500	55	3-67	4445	N		U	2790	CA
6N.25. 9.440	OIL TEST	1964	-	-	-	4634	-	-	-			U	-	(LOG). ARMOR OIL CO. 1 FED. ORIGINAL DEPTH 7070
6N.25.11.412	OIL TEST	1960	-	-	-	4730	-	-	-			U	-	(LOG). PETERS 1 FEDERAL. ORIGINAL DEPTH 3575
6N.25.20.433	A + O KILLOUGH	-	-	6	TRC	4578	78	10-65	4500	N		U	-	
6N.25.24.414	IRA DRUM	1910	40	-	TRC	-	35	11-65	-	P	W	S	1900	
6N.25.24.422	FRED C WEAVER	1910	40	48	TRC	4640	24	11-65	4616	P	W	S	1100	DUG WELL. F C WEAVER, DRILLER
6N.25.24.432	IRA DRUM	1910	60	-	TRC	-	32	11-65	-	J	E	H	-	
6N.25.25.122	IRA DRUM	1910	40	4	TRC	-	-	-	-	P	W	U	-	
6N.25.29.131	A + O KILLOUGH	1950	65	6	TRC	4550	52	10-65	4498	P	W	S	954	CA. JOHN MADDOX, DRILLER
6N.25.30.112	R M DEOLIVIERIA	-	7	60	TRC	4456	6	10-65	4450	P	W	S	580	DUG WELL
6N.25.30.441	R M DEOLIVIERIA	-	21	48	TRC	4479	20	10-65	4459	P	W	S	520	DUG WELL
6N.25.34.242	IRA DRUM	-	84	3	TRC	4570	78	11-65	4492	N		U	-	(LOG)
6N.25.35.133	IRA DRUM	1900	210	-	TRC	4561	105R	-	4456	P	W	S	6880	CA.
6N.25.35.424	IRA DRUM	1900	100	-	TRC	4565	50R	-	4515	P	W	S	800	
6N.26. 1.342	POWHATAN CARTER	1960	100	6	TO	5175	99	11-65	5076	P	W	S	340	LEE PENNINGTON, DRILLER
6N.26. 4.322	POWHATAN CARTER	1958	30	-	TRC	-	21	11-65	-	P	W	S	1280	LEE PENNINGTON, DRILLER
6N.26. 9.142	POWHATAN CARTER	1952	28	-	TRC	-	12	11-65	-	P	W	S	1300	
6N.26.12.323	POWHATAN CARTER	1939	90	6	TRC	4950	61	11-65	4889	P	W	S	725	
6N.26.13.312	POWHATAN CARTER	1910	40	48	TRC	4880	31	11-65	4849	P	W	S	1300	DUG WELL
6N.26.14.424	POWHATAN CARTER	1943	27	6	TRC	-	22	11-65	-	P	W	S	850	
6N.26.16.131	FRED C WEAVER	1964	40	6	TRC	-	15	11-65	-	P	W	S	1890	CA. LEE PENNINGTON, DRILLER
6N.26.18.421	FRED C WEAVER	1910	40	-	TRC	-	-	-	-	P	W	S	2500	

6N.26.18.433	FRED C WEAVER	1910	40	48	TRC	4660	16	11-65	4644	P	W	H	1500	DUG WELL. F C WEAVER, DRILLER
6N.26.20.133	FRED C WEAVER	1910	40	48	TRC	4660	17	11-65	4643	P	W	S	1200	DUG WELL. F C WEAVER, DRILLER
6N.26.20.213	FRED C WEAVER	1910	40	48	TRC	-	16	11-65	-	P	W	S	2000	DUG WELL. F C WEAVER, DRILLER
6N.26.23.413	POWHATAN CARTER	1938	40	6	TRC	-	-	-	-	P	W	S	1120	
6N.26.23.431	POWHATAN CARTER	1950	40	6	TRC	-	-	-	-	J	E	H	1175	JOHN MADDOX, DRILLER
6N.26.26.142	JOHN EDD BAILEY	1950	17	6	TRC	-	13	11-65	-	N		S	-	LEE PENNINGTON, DRILLER
6N.26.26.143A	JOHN EDD BAILEY	1955	15	6	TRC	4730	14	11-65	4716	N		U	-	LEE PENNINGTON, DRILLER
6N.26.26.144	JOHN EDD BAILEY	1955	30	6	TRC	-	20R	-	-	P	W	H	1300	LEE PENNINGTON, DRILLER
6N.26.26.231	POWHATAN CARTER	1912	14	6	TRC	-	-	-	-	P	W	S	1200	
6N.26.26.312	JOHN EDD BAILEY	1945	24	6	TRC	-	-	-	-	P	W	S	1200	LEE PENNINGTON, DRILLER
6N.26.26.322	JOHN EDD BAILEY	1888	11	48	TRC	-	10	11-65	-	P	W	S	-	
1S.20. 2.211	CLYDE REYNOLDS	-	-	-	TRS	-	-	-	-	P	W	S	-	
1S.20.11.212	LOYD WRIGHT	-	155	5	TRS	5199	142	9-65	5057	P	W	S	-	
1S.20.12.223	LOYD WRIGHT	-	-	-	TRS	-	-	-	-	P	W	S	-	
1S.20.28.141	LOYD WRIGHT	-	112	6	TRS	4952	80	9-65	4872	S	E	S	566	CA
1S.21. 1.242	O 7 RANCH	-	-	6	PAT	4506	34	12-65	4472	P	W	S	-	
1S.21. 2.322	LEE JASPER	1908	90	-	PAT	4590	80R	-	4510	P	W	S	-	
1S.21. 8.422	LEE JASPER	-	150	6	PAT	4662	94	11-65	4568	N		U	-	(LOG). LEE JASPER, DRILLER
1S.21.12.413	O 7 RANCH	-	175	-	PAT	4503	165R	-	4338	P	W	S	-	
1S.21.19.143	LOYD WRIGHT	-	-	6	TRS	-	20	9-65	-	P	W	S	2700	
1S.21.26.332	LOYD WRIGHT	-	18	6	PAT	4470	15	9-65	4455	N		U	-	
1S.21.29.431	OIL TEST	1926	-	-	-	4560	-	-	-			U	-	(LOG). SPARROW AND DRAKE 1 INGHAM. ORIGINAL DEPTH 665
1S.22. 2.333	GRAYUM STEELE	1951	285	6	PAT	4528	215	4-66	4313	P	W	S	4000	PUMPING MEASUREMENT. GRAYUM STEELE, DRILLER
1S.22. 4.123	O 7 RANCH	-	53	6	PAT	4477	33	12-65	4444	P	W	S	-	
1S.22. 8.444	O 7 RANCH	-	74	5	PAT	4385	20	12-65	4365	P	W	S	-	
1S.22.11.400	GRAYUM STEELE	1966	337	6	PAT	4506	222R	-	4284	P	W	S	-	LOG
1S.22.13.230	GRAYUM STEELE	-	95	6	PAT	-	65	4-66	-	N		U	-	
1S.22.13.311	GRAYUM STEELE	-	178	6	PAT	-	114	4-66	-	N		U	-	
1S.22.15.343	GRAYUM STEELE	-	-	5	PAT	-	31	4-66	-	N		U	-	
1S.22.18.424	O 7 RANCH	-	83	6	PAT	4402	33	12-65	4369	P	W	S	2800	
1S.22.22.124	GRAYUM STEELE	-	30	6	PAT	-	18	4-66	-	P	W	S	4600	
1S.22.22.432	GRAYUM STEELE	1960	30	6	PAT	4288	22	4-66	4266	P	W	S	6000	NIP DRILLING CO., DRILLER
1S.22.23.244	GRAYUM STEELE	1948	130	6	PAT	4285	56	4-66	4229	P	W	S	4400	GRAYUM STEELE, DRILLER
1S.22.25.314	GRAYUM STEELE	-	60	5	PAT	-	45	4-66	-	P	W	S	-	
1S.22.27.422	GRAYUM STEELE	-	-	5	PAT	4268	29	4-66	4239	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1S.22.33.112	LOYD WRIGHT	-	180	-	PAT	-	36	9-65	-	P	W	S	-	
1S.23. 4.134	G B HISEL	-	-	8	TRS	4483	26	1-66	4457	P	W	S	1710	
1S.23. 6.231	G FIELDS	-	-	6	TRS	4500	-	-	-	P	W	S	3500	
1S.23. 7.342	GRAYUM STEELE	-	60	5	PAT	4388	-	-	-	P	W	S	3700	
1S.23.16.113	GRAYUM STEELE	-	265	5	PAT	4432	252R	-	4180	P	W	S	4100	
1S.23.19.212	GRAYUM STEELE	-	180	-	PAT	-	85	4-66	-	P	W	S	4000	
1S.23.26.123	JOHN TRIGG	-	-	-	PAT	4216	4	1-66	4212	P	W	S	3070	CA. JOHN MADDOX, DRILLER
1S.23.26.344	JOHN TRIGG	-	-	6	PAT	4198	23	1-66	4175	P	W	S	-	JOHN MADDOX, DRILLER
1S.23.29.342	GRAYUM STEELE	-	90	6	PAT	-	71	4-66	-	P	W	S	4400	
1S.23.35.422	JOHN TRIGG	-	-	6	PAT	4171	10	1-66	4161	P	W	H	-	JOHN MADDOX, DRILLER
1S.24.10.222	L A HOWARD	-	49	6	PAT	4137	41	1-66	4096	P	W	S	-	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
1S.24.10.222A	L A HOWARD	-	60	5	PAT	-	52	1-66	-	N		U	-	A DRAGER, DRILLER
1S.24.12.320	L A HOWARD	1963	432	6	PAT	4239	146	1-66	4093	P	W	S	-	LOG. STEINBERGER DRILLING CO., DRILLER
1S.24.12.441	L A HOWARD	1947	285	5	PAT	4171	118	1-66	4053	P	W	S	-	JOHN MADDOX, DRILLER
1S.24.16.121	L A HOWARD	1952	60	-	PAT	4134	14	1-66	4120	P	W	S	3800	CA. JOHN MADDOX, DRILLER
1S.24.20.133	JOHN TRIGG	-	-	-	PAT	-	7	1-66	-	P	W	S	-	JOHN MADDOX, DRILLER
1S.24.25.413	L A HOWARD	1956	125	6	PAT	-	+1	1-66	-	P	W	S	6620	CA. LEE PENNINGTON, DRILLER
1S.24.27.122	JOHN TRIGG	-	-	6	PAT	4042	10	1-66	4032	P	W	S	-	
1S.24.34.312	JOHN TRIGG	-	-	-	PAT	4092	20R	-	4072	P	W	S	-	
1S.24.36.113	JOHN TRIGG	-	-	6	PAT	4022	+1	1-66	4023	P	W	S	-	
1S.25. 1.433	BILLY WILTON	1937	150	6	PAT	-	54	8-50	-	P	W	S	4300	BICKLE, DRILLER
1S.25. 7.310	L A HOWARD	1963	160	-	PAT	-	-	-	-	N		U	-	LEE PENNINGTON, DRILLER
1S.25.10.222	BILLY WILTON	1950	-	6	PAT	-	171	4-66	-	P	W	S	3500	
1S.25.12.311	BILLY WILTON	1950	-	6	PAT	3960	121	4-66	3839	P	W	S	3000	LEE PENNINGTON, DRILLER
1S.25.15.324	BILLY WILTON	1940	184	5	PAT	-	43	4-66	-	N		U	-	
1S.25.16.230	BILLY WILTON	-	-	6	PAT	3989	50	4-66	3939	P	W	S	4000	
1S.25.18.211	L A HOWARD	1947	137	5	PAT	-	-	-	-	P	W	S	-	JOHN MADDOX, DRILLER
1S.25.22.234	F GUTIERREZ	-	100	-	PAT	-	-	-	-	P	W	S	-	
1S.25.28.130	OIL TEST	* 1960	-	-	PSA	3990	0	-	3990	N		U	-	(LOG). NEARBURG AND INGRAM 1 WILTON. ORIGINAL DEPTH 5584
1S.26. 5.210	BILLY WILTON	-	110	6	PAT	-	75	4-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1S.26.11.231	R E MCKINSEY	-	180	5	TRC	3917	32	3-66	3885	P	W	S	1850	
1S.26.21.334	R E MCKINSEY	-	200	5	TRC	3964	169	3-66	3795	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1S.26.23.214	R E MCKINSEY	-	400	6	TRC	4015	144	3-66	3871	P	W	S	5500	
1S.26.26.310	OIL TEST	1943	-	-	-	4047	-	-	-			U	-	LOG. DANCIGER 1 STATE. ORIGINAL DEPTH 2035
1S.26.26.313	SEA CATTLE CO	-	190	10	PAT	4047	171	3-66	3876	P	W	S	1550	CA
1S.26.27.323	R E MCKINSEY	1964	205	6	TRC	4041	85	3-66	3956	P	W	S	-	CONDUCTANCE EXCEEDS 6000
1S.26.36.221	SEA CATTLE CO	-	140	6	TRC	4011	114	3-66	3897	P	W	S	2100	
1S.27. 3.443	CORTESE BROS	-	20	5	TRC	4139	17	2-66	4122	P	W	S	3010	CA
1S.27. 7.321	R E MCKINSEY	-	150	6	TRC	3957	56	3-66	3901	P	W	S	950	
1S.27.12.132	BEN HALL	-	178	6	TRC	4214	34	3-66	4180	N		U	-	(LOG)
1S.27.12.220	OIL TEST	-	-	-	-	4279	-	-	-			U	-	(LOG). CITIES PROD. CO 1 HOBSON. ORIGINAL DEPTH 6742
1S.27.15.244	BEN HALL	-	223	5	TRC	4133	206	3-66	3927	N		U	-	(LOG)
1S.27.16.233	OIL TEST	-	-	-	-	4310	-	-	-			U	-	(LOG). LANDOWNERS 1 MCADOO. ORIGINAL DEPTH 5860
1S.27.25.344	BEN HALL	-	178	-	TRC	-	-	-	-	P	W	U	-	
1S.28. 1.111	EARL SPENCER	-	50	48	TRC	-	44	3-66	-	N		U	-	DUG WELL
1S.28. 1.111A	EARL SPENCER	-	60	6	TRC	-	42	3-66	-	P	W	S	1300	
1S.28. 1.444	EARL CROSS	-	60	-	TRC	-	-	-	-	P	W	S	540	
1S.28. 4.230	OIL TEST	1956	-	-	-	-	-	-	-			U	-	(LOG). MCADAMS 1 WHITE. ORIGINAL DEPTH 2803

1S.28. 6.331	BEN HALL	-	29	6	TRC	4256	-	-	-	P	W	S	1490	CA
1S.28. 6.441	BEN HALL	-	90	6	TRC	4323	74	3-66	4249	P	W	S	2300	
1S.28. 9.433	BEN HALL	-	70	5	TRC	4445	39	3-66	4406	P	W	S	4000	
1S.28.10.332	BEN HALL	-	125	6	TRC	-	113	3-66	-	P	W	S	3600	
1S.28.13.231	EARL SPENCER	-	50	48	TRC	-	44	3-66	-	P	W	S	2600	DUG WELL
1S.28.14.442	W T PITCOCK	-	75	6	TRC	-	50	3-66	-	P	W	S	-	
1S.28.17.131	FRED T RILEY	-	35	6	TRC	4288	32	3-66	4256			H	1600	
1S.28.18.231	BEN HALL	-	30	6	QAB	4238	9	3-66	4229	N		U	-	
1S.28.20.122	V D RILEY	1956	90	5	TRC	4355	47	3-66	4308	P	W	S	6000	LEE PENNINGTON, DRILLER
1S.28.20.212	V D RILEY	1956	50	6	TRC	4355	44	3-66	4311	P	W	H	3500	LEE PENNINGTON, DRILLER
1S.28.22.344	FRED T RILEY	1941	50	5	TRC	-	37	3-66	-	P	W	S	1600	
1S.28.22.423	W T PITCOCK	-	50	6	TRC	-	36	3-66	-	P	W	S	1120	
1S.28.27.321	EARL CROSS	-	40	6	TRC	-	31	3-66	-	P	W	S	1500	
1S.28.29.114	V D RILEY	-	95	5	TRC	4300	87	3-66	4213	P	W	S	-	CONDUCTANCE EXCEEDS 6000. LEE PENNINGTON, DRILLER
1S.28.34.123	ABE RIBBLE	-	27	48	TRC	-	27	3-66	-	P	W	S	-	DUG WELL
1S.28.34.124	ABE RIBBLE	-	50	6	TRC	-	25	3-66	-	S	E	S	-	CONDUCTANCE EXCEEDS 6000
1S.28.34.312	ABE RIBBLE	-	30	48	TRC	4293	25	3-66	4268	P	W	S	4000	DUG WELL
1S.28.35.241	ABE RIBBLE	-	70	6	TRC	-	40	3-66	-	S	E	H	2800	
2S.20.13.220	LOYD WRIGHT	-	601	8	-	-	-	-	-	N		U	-	LOG. DRY
2S.21. 1.444	LOYD WRIGHT	-	24	7	PAT	4529	2	9-65	4527	P	W	S	2040	CA
2S.21.26.120	MELVIN R KEY	-	630	-	-	4498	580R	-	3918	P	W	S	-	
2S.22. 1.331	GRAYUM STEELE	-	-	12	PAT	4235	21	4-66	4214	P	W	S	3400	PUMPING MEASUREMENT
2S.22. 1.331A	GRAYUM STEELE	1958	40	-	PAT	4235	-	-	-	P	W	S	-	GRAYUM STEELE, DRILLER
2S.22. 1.331B	GRAYUM STEELE	-	-	6	PAT	4235	19	4-66	4216	P	W	S	-	NEARBY WELLS PUMPING. GRAYUM STEELE, DRILLER
2S.22. 4.112	LOYD WRIGHT	-	-	-	PAT	4404	35R	-	4369	P	W	S	-	
2S.22. 4.224	GRAYUM STEELE	1963	50	7	PAT	4372	-	-	-	P	W	S	4000	(LOG). JOE STEELE, DRILLER
2S.22. 4.224A	GRAYUM STEELE	1948	50	6	PAT	4372	22	4-66	4350	P	E	S	-	GRAYUM STEELE, DRILLER
2S.22.12.212	GRAYUM STEELE	-	17	-	PAT	-	14R	-	-	P	W	S	-	
2S.22.13.133	W M KEY JR	-	50	-	PAT	-	35	10-65	-	J	E	H	-	
2S.22.13.333	W M KEY JR	-	-	-	PAT	4226	10	10-65	4216	P	W	S	-	
2S.22.18.413	LOYD WRIGHT	-	65	5	PAT	-	11	9-65	-	N		U	-	RUDD, DRLR. CAVED. ORIGINAL DEPTH 800. WATER LEVEL 716
2S.22.20.420	OIL TEST	1958	-	-	-	4426	-	-	-				-	(LOG). TALBERT 1 ANDREE, ORIGINAL DEPTH 5354
2S.22.21.121	W M KEY JR	-	100	6	PAT	-	93	10-65	-	P	W	S	-	ADOLF LOPEZ, DRILLER
2S.22.26.134	W M KEY JR	-	106	-	PAT	4296	82	10-65	4214	P	W	S	-	
2S.23. 1.334	JOHN TRIGG	-	-	6	PAT	4124	8	1-66	4116	P	W	S	-	
2S.23. 3.430	J W DANIELS	-	125	6	PAT	4172	94	4-66	4078	P	W	S	3500	
2S.23. 4.333	J W DANIELS	-	60	6	PAT	4137	37	4-66	4100	P	W	S	3700	
2S.23. 5.142	GRAYUM STEELE	1907	60	6	PAT	4163	37	4-66	4126	P	W	S	5000	
2S.23. 9.411	J W DANIELS	-	90	8	PAT	-	38	4-66	-	N		U	-	
2S.23.12.323	JOHN TRIGG	-	50	5	PAT	-	13	1-66	-	J	E	H	-	
2S.23.13.432	J W DANIELS	1938	325	5	PAT	-	39	4-66	-	P	W	S	5200	
2S.23.15.112	J W DANIELS	-	-	-	PAT	4095	40	4-66	4055	P	W	S	-	
2S.23.16.414	J W DANIELS	-	79	-	PAT	-	59	4-66	-	N		U	-	
2S.23.17.214	J W DANIELS	-	100	5	PAT	-	57	4-66	-	P	W	S	5800	

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	DATE OF MEAS.	ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
2S.23.22.233	J W DANIELS	-	125	6	PAT	-	80	4-66	-	P	W	S	4000	
2S.23.23.434	GRACE B COONS	-	100	6	PAT	4041	56	4-66	3985	P	W	S	4500	
2S.23.24.310	GRACE B COONS	1963	160	9	PAT	-	42	4-66	-	S	E	S	4030	CA. LOG. K G MILLER, DRILLER
2S.23.24.342	GRACE B COONS	-	-	5	PAT	-	22	4-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
2S.23.29.342	GRACE B COONS	1951	-	8	PAT	4097	156	4-66	3941	P	W	S	4000	
2S.23.34.122	TRUMAN ONEILL	1958	117	6	PAT	4045	105	4-66	3940	P	W	U	-	
2S.23.36.421	GRACE B COONS	1959	49	6	PAT	-	38	4-66	-	N		U	-	(LOG). LEE PENNINGTON, DRILLER
2S.24.11.420	TOM DECK	1955	60	6	PAT	4083	26	4-66	4057	P	W	S	3800	
2S.24.21.122	TOM DECK	1944	60	-	PAT	4114	19	4-66	4095	N		U	2850	CA
2S.24.31.433	GRACE B COONS	-	-	-	PAT	3970	-	-	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
2S.24.32.433	TOM DECK	1965	-	6	PAT	-	28	4-66	-	N		U	-	
2S.25. 4.444	JOHN TRIGG	-	-	-	PAT	-	-	-	-	P	W	S	-	
2S.25. 6.444	JOHN TRIGG	1934	75	-	PAT	-	25	1-66	-	P	W	S	-	
2S.25.22.422	SEA CATTLE CO	-	30	-	PAT	3803	18	3-66	3785	P	W	U	1310	CA
2S.26. 3.422	SEA CATTLE CO	-	175	6	TRC	4001	117	3-66	3884	P	W	S	4000	
2S.26. 6.334	ROY COGGINS	-	250	6	TRC	-	242	3-66	-	P	W	S	2100	
2S.26. 8.240	OIL TEST	1943	-	-	-	4073	-	-	-			U	-	LOG. DANCIGER 1 STATE A. ORIGINAL DEPTH 1890
2S.26.11.244	SEA CATTLE CO	-	120	6	TRC	3967	76	3-66	3891	P	W	S	5000	
2S.26.13.442	SEA CATTLE CO	-	180	6	TRC	4010	123	3-66	3887	P	W	S	1900	
2S.26.16.412	SEA CATTLE CO	-	175	5	TRC	4034	-	-	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
2S.26.32.222	SEA CATTLE CO	-	130	6	TRC	3995	123	3-66	3872	S	E	H	3700	
2S.26.35.111	CLAUDE MCDOWELL	1930	240	5	TRC	4044	-	-	-	S	E	H	3140	CA. CLAUDE MCDOWELL, DRILLER
2S.27. 3.444	CLAUDE MCDOWELL	-	70	6	TRC	4187	49	3-66	4138	P	W	S	2800	
2S.27.10.214	V D RILEY	-	117	6	TRC	4182	42	3-66	4140	P	W	U	-	LEE PENNINGTON, DRILLER
2S.27.10.224	V D RILEY	-	73	5	TRC	-	40	3-66	-	N		U	-	(LOG)
2S.27.11.332	SEA CATTLE CO	-	30	8	TRC	4131	23	3-66	4108	P	W	S	4500	
2S.27.22.124	CLAUDE MCDOWELL	-	28	6	TRC	4096	22	3-66	4074	P	W	S	-	CONDUCTANCE EXCEEDS 6000
2S.27.23.243	W L GAMMILL	-	48	5	TRC	4087	45	4-66	4042	P	W	S	1950	
2S.27.23.322	CLAUDE MCDOWELL	-	48	5	TRC	4080	38	3-66	4042	P	W	S	3000	
2S.27.24.132	TOP BLEVINS	-	60	5	TRC	4090	53	4-66	4037	P	W	S	-	
2S.27.25.343	TOP BLEVINS	-	40	6	TRC	4106	36	4-66	4070	P	W	S	5000	
2S.27.33.131	BEN GOOD	-	210	5	TRC	4002	177	3-66	3825	P	W	S	5000	
2S.28. 4.314	ABE RIBBLE	-	50	16	TRC	4191	35	3-66	4156	P	W	S	1900	
2S.28. 4.411	R J COLTER	-	35	5	TRC	4212	20	3-66	4192	P	W	S	2700	
2S.28. 5.342	R J COLTER	-	35	6	TRC	4170	-	-	-	P	W	H	2300	
2S.28. 5.344	R J COLTER	-	35	6	TRC	-	25	3-66	-	P	W	S	-	
2S.28. 5.431	R J COLTER	-	35	6	TRC	-	24	3-66	-	P	W	S	-	
2S.28. 8.121	R J COLTER	-	35	-	TRC	4163	20	3-66	4143	P	W	S	-	
2S.28. 8.211	R J COLTER	-	35	6	TRC	-	24	3-66	-	P	W	H	-	
2S.28. 9.244	R J COLTER	-	37	6	TRC	4218	34	3-66	4184	P	W	S	2400	
2S.28.10.423	C E MCCLAIN	-	38	5	TRC	-	33	4-66	-	P	W	S	3000	

2S.28.11.333	V D RILEY	-	40	8	TRC	-	34	3-66	-	P	W	S	3800	
2S.28.11.412	V D RILEY	-	45	5	TRC	-	39	3-66	-	P	W	S	-	
2S.28.12.211	F T RILEY	-	50	5	TRC	-	36	3-66	-	P	W	S	2600	
2S.28.15.144	C E MCCLAIN	-	48	-	TRC	-	42	4-66	-	P	W	S	3700	
2S.28.15.434	C E MCCLAIN	-	48	5	TRC	-	46	4-66	-	P	W	H	2300	
2S.28.16.434	CHESTER RIPPEE	1966	60	6	TRC	4189	43	3-66	4146	P	W	S	2050	
2S.28.17.334	W L GAMMILL	-	48	6	TRC	4159	45	4-66	4114	P	W	S	3200	
2S.28.20.422	CHESTER RIPPEE	-	45	5	TRC	4170	37	3-66	4133	P	W	S	3300	
2S.28.23.214	J L POWELL	-	-	6	TRC	-	40	4-66	-	P	W	S	2300	
2S.28.23.223	J L POWELL	-	-	6	TRC	-	39	4-66	-	P	W	S	-	
2S.28.25.124	C E SANDERS	-	50	5	TRC	-	30	4-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
2S.28.25.124A	C E SANDERS	-	50	5	TRC	-	30	4-66	-	P	W	S	-	
2S.28.25.213	E W SANDERS	-	50	6	TRC	-	31	4-66	-	P	W	S	5200	
2S.28.27.222	C E MCCLAIN	-	62	5	TRC	-	58	4-66	-	P	W	S	5000	
2S.28.29.232	CHESTER RIPPEE	-	58	5	TRC	4145	40	3-66	4105	P	W	S	3200	
2S.28.30.144	CHESTER RIPPEE	-	60	5	TRC	4126	46	3-66	4080	P	W	S	5000	CA
2S.28.31.312	A J HOWELL	-	70	6	TRC	4123	44	4-66	4079	P	W	S	3600	
2S.28.34.234	CHESTER RIPPEE	-	40	5	TRC	-	25	4-66	-	P	W	S	6000	
2S.28.35.141	CHESTER RIPPEE	1965	60	6	TRC	-	34	4-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000. NIP DRILLING CO, DRILLER
2S.28.36.122	TOP BLEVINS	-	-	-	TRC	-	13	4-66	-	P	W	S	3500	
3S.20. 1.320	MELVIN R KEY	1947	741	6	PSA	4712	-	-	-	S	E	S	-	
3S.21. 1.220	OIL TEST	1929	-	-	-	-	-	-	-			U	-	(LOG). TRANSCONTINENTAL 1 DUNLAP. ORIGINAL DEPTH 502
3S.21.24.443	STINSON MARTIN	-	-	6	PAT	4489	93	4-66	4396	P	W	S	3500	BOWEN, DRILLER
3S.21.27.144	RED PARSONS	1963	845	8	PG	-	820R	-	-	P	W	S	10800	CA. GALLOWAY, DRILLER
3S.21.30.424	STINSON MARTIN	-	300	-	PSA	4613	269	4-66	4344	P	W	S	3000	HATFIELD, DRILLER
3S.22. 1.131	W M KEY SR	-	53	5	PAT	4207	39	9-65	4168	P	W	S	2700	
3S.22. 6.134	OIL TEST	1929	600	-	PSA	4431	545R	-	3886	P	W	S	4000	LOG. TRANSCONTINENTAL 1 MCWHORTER. ORIGINAL DEPTH 4770
3S.22.12.240	W M KEY SR	-	-	-	PAT	-	-	-	-	P	W	S	-	
3S.22.18.112	W M KEY SR	-	520	7	PSA	4412	500R	-	3912	P	W	S	4500	CA
3S.22.22.334	STINSON MARTIN	-	100	6	PAT	4342	46	4-66	4296	P	W	S	5300	LEE PENNINGTON, DRILLER
3S.22.25.442	STINSON MARTIN	1946	-	6	PAT	-	27	4-66	-	P	W	S	4500	
3S.22.29.342	STINSON MARTIN	1937	135	6	PAT	4403	75	4-66	4328	P	W	S	3500	A DRAGER, DRILLER
3S.22.36.222	STINSON MARTIN	1940	-	6	PAT	4213	31	4-66	4182	P	W	S	-	PUMPING MEASUREMENT, DONALD MARTIN, DRILLER
3S.22.36.232	STINSON MARTIN	1914	45	-	PAT	-	11	4-66	-	P	W	S	3500	
3S.23. 1.222	J D SHIRLEY	1955	40	6	PAT	3976	29	4-66	3947	P	I	S	4100	JOHN MADDOX, DRILLER
3S.23. 2.122	J D SHIRLEY	-	60	6	PAT	-	50	4-66	-	P	W	S	3400	JIM SIMONS, DRILLER. PUMPING MEASUREMENT
3S.23. 5.243	TRUMAN ONEILL	-	-	12	PAT	-	21	4-66	-	T	E	U	-	
3S.23. 5.243A	TRUMAN ONEILL	-	-	12	PAT	-	-	-	-	T	E	U	-	
3S.23. 5.243B	TRUMAN ONEILL	-	-	5	PAT	-	20	4-66	-	P	W	U	3060	CA
3S.23. 9.321	STINSON MARTIN	-	57	6	PAT	4068	34	4-66	4034	P	W	S	3400	LEE PENNINGTON, DRILLER
3S.23.24.241	J D SHIRLEY	1946	40	6	PAT	-	35	4-66	-	P	W	S	3900	JOHN MADDOX, DRILLER
3S.23.27.334	STINSON MARTIN	1966	190	6	PAT	4080	147	4-66	3933	P	W	S	3500	LOG. NIP DRILLING CO., DRILLER
3S.23.30.221	STINSON MARTIN	-	85	-	PAT	-	25	4-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000. LEE PENNINGTON, DRILLER

TABLE 1 (cont.)

LOCATION NO.	OWNER OR NAME	YEAR	DEPTH OF WELL	DIAM.	PRINCIPAL AQUIFER	ALTITUDE	WATER LEVEL DATA DEPTH	WATER LEVEL DATA DATE OF MEAS.	WATER LEVEL DATA ALTITUDE	PUMP	POWER	USE	SPECIF. COND. OF WATER	REMARKS
3S.23.35.144	SACRA RANCH	1941	110	6	PAT	4053	63	4-66	3990	P	W	S	2800	CONRAD KEYS, DRILLER
3S.24. 4.310	TOM DECK	1960	54	6	PAT	3944	31	4-66	3913	P	W	S	3700	(LOG). M G PETERS, DRILLER
3S.24. 6.114	J D SHIRLEY	1916	38	-	PAT	-	18R	-	-	P	W	S	3490	CA
3S.24. 8.134	TOM DECK	1963	271	5	PAT	4258	195R	-	4063	N		U	-	(LOG). STEINBERGER DRILLING CO., DRILLER
3S.24.11.321	J P GIBBINS	1942	80	5	PAT	3898	25	4-66	3873	P	W	S	6000	LEE PENNINGTON, DRILLER
3S.24.13.430	J P GIBBINS	1963	240	6	PAT	4000	142	4-66	3858	S	E	S	-	LOG. STEINBERGER DRILLING CO, DRILLER. CONDUCTANCE EXC 6000
3S.24.19.322	SACRA RANCH	1938	33	6	PAT	4198	28	4-66	4170	P	W	S	3700	A DRAGER, DRILLER
3S.24.20.223	TOM DECK	1963	416	5	PAT	4192	269R	-	3923	P	W	S	5100	LOG. STEINBERGER DRILLING CO., DRILLER
3S.24.23.112	J P GIBBINS	1963	300	6	PAT	4052	169	4-66	3883	S	E	S	4500	(LOG). STEINBERGER DRILLING CO., DRILLER
3S.24.23.120	OIL TEST	1960	-	-	-	4054	-	-	-			U	-	LOG. NEARBURG AND INGRAM 1 MURRAY. ORIGINAL DEPTH 5372
3S.24.29.121	SACRA RANCH	-	-	5	PAT	-	35	4-66	-	N		U	-	
3S.24.29.123	SACRA RANCH	-	-	6	PAT	4129	-	-	-	P	W	S	3300	
3S.24.31.432	WALTER BOX	1933	80	5	PAT	-	44	4-66	-	P	W	S	2560	CA. A DRAGER, DRILLER
3S.24.36.110	MACK WINN	-	15	6	PAT	-	11	10-66	-	N		U	-	
3S.25. 3.1333	FRED VAN EATON	1967	17	2	QAL	3771	6	2-67	3765	N		U	3600	JETTED. USGS OBSERVATION WELL
3S.25. 3.141	FRED VAN EATON	-	28	6	QAL	3785	20	3-66	3765	P	W	S	3270	CA
3S.25. 3.3111	FRED VAN EATON	1967	14	2	QAL	3772	8	2-67	3764	N		U	6000	JETTED. USGS OBSERVATION WELL
3S.25. 3.3112	FRED VAN EATON	1967	19	4	QAL	3773	9	2-67	3764	N		U	4400	CA. JETTED. USGS OBSERVATION WELL
3S.25.14.122	FRED VAN EATON	-	140	5	PAT	3867	77	3-66	3790	P	W	S	-	
3S.25.16.142	J P GIBBINS	-	400	6	PAT	3760	-	-	-	N		U	17000	CA. LOG. FLOWING WELL, HEAD UNKNOWN.
3S.25.16.222	J P GIBBINS	1963	-	5	PAT	-	+1	4-66	-	N		U	13900	CA. STEINBERGER DRILLING CO., DRILLER
3S.25.16.323	J P GIBBINS	1963	40	8	QAL	-	8	4-66	-	N		U	-	CA. (LOG). STEINBERGER DRILLING CO., DRILLER
3S.25.16.323A	J P GIBBINS	1963	40	10	QAL	-	7	4-66	-	N		U	3700	CA. (LOG). STEINBERGER DRILLING CO., DRILLER
3S.25.23.432	MACK WINN	-	175	6	TRS	-	151	10-66	-	P	W	U	-	
3S.25.28.233	MACK WINN	-	27	16	QAL	-	13	10-66	-	N		U	-	
3S.25.28.233A	MACK WINN	-	23	14	QAL	-	13	10-66	-	N		U	-	
3S.25.28.322	MACK WINN	-	250	18	PAT	-	7	10-66	-	T	I	I	-	
3S.25.28.344	MACK WINN	-	-	6	PAT	-	-	10-66	-	N		U	3500	FLOWING WELL, HEAD UNKNOWN
3S.25.28.413	MACK WINN	-	205	16	PAT	-	2	10-66	-	N		U	4500	
3S.25.31.211	MACK WINN	1961	98	6	PAT	-	44	10-66	-	N		U	-	(LOG). DEE GRANT, DRILLER
3S.26. 3.111	CLAUDE MCDOWELL	1925	140	6	TRC	3991	112	3-66	3879	P	W	S	3600	
3S.26. 4.221	SEA CATTLE CO	-	140	6	TRC	3986	106	3-66	3880	P	W	S	3300	
3S.26. 6.442	SEA CATTLE CO	-	191	6	TRC	4013	139	3-66	3874	N		U	-	(LOG)
3S.26. 6.442A	SEA CATTLE CO	-	160	6	TRC	4013	139	3-66	3874	P	W	S	5200	
3S.26. 8.222	SEA CATTLE CO	-	150	10	TRC	3943	69	3-66	3874	P	W	S	5000	
3S.26. 8.222A	OIL TEST	-	-	-	-	-	-	-	-			U	-	LOG, ENGLE 1 STATE -X-. ORIGINAL DEPTH 1831
3S.26.16.332	SEA CATTLE CO	-	130	6	TRC	3905	123	3-66	3782	P	W	S	5100	
3S.26.19.334	SEA CATTLE CO	-	170	6	TRC	-	149	10-66	-	P	W	S	-	CONDUCTANCE EXCEEDS 6000
3S.26.23.213	CHARLES GOOD	-	65	6	TRC	3842	66	3-66	3776	P	W	S	2920	CA
3S.26.23.231	CHARLES GOOD	-	85	5	TRC	3842	65	3-66	3777	P	W	S	2400	
3S.26.32.212	SEA CATTLE CO	-	130	6	TRC	3866	104	3-66	3762	P	W	S	6440	CA

Table 2. Records of Springs in De Baca County, N. Mex.

Location number—See explanation in text.
Altitude—Altitude of land surface (in feet) at spring, interpolated from topographic map.
Aquifer—QAB, QTP, surficial sand, gravel, and caliche. TO, Ogallala Formation. TRC, Chinle Formation. TRS, Santa Rosa Sandstone. PAT, Artesia Formation.
Yield—Estimated flow in gallons per minute.
Use of water—H, domestic. S, stock. U, unused.
Temp.—Temperature in degrees Celsius (centigrade).
Specific conductance of water—Conductance measured with portable meter in most cases and reported in micromhos at 25°C. See table 5.
Remarks—CA, chemical analysis in table 3.

LOCATION NO.	OWNER	TOPOGRAPHIC SITUATION	ALTITUDE	AQUIFER	YIELD	DATE	USE	TEMP.	SPECIF. COND.	REMARKS
1N.23.15.423	G FIELDS	HILLSIDE	4428	TRS	-	-	U	-	-	LA CONCUCION. NO FLOW
3N.28.32.444	TRIANGLE CATTLE	UNDULATING	4100	TRC	3	9-66	S	19	1500	
4N.20. 1.340	BEN GOOD	STREAM CHANNEL	4829	PAT	-	-	S	-	-	IN SALADO CREEK
4N.24.28.443	TRUJILLO	STREAM CHANNEL	4205	TRS	-	-	U	-	-	TIGER SPRING
4N.24.36.211	STEELE RANCH	HILLSIDE	4180	TRS	10	7-65	S	18	703	CA. SAND SPRING OR OJO MANUEL.
4N.25.23.421	WALTON RANCH	STREAM CHANNEL	4180	TRS	-	-	U	-	-	INDIAN SPRING
4N.25.25.334	MOODY BRASSELL	STREAM CHANNEL	4110	TRS	2	2-66	S	-	1300	
4N.25.36.123	MOODY BRASSELL	HILLSIDE	4120	TRS	2	2-66	H	16	941	CA
4N.25.36.232	MOODY BRASSELL	HILLSIDE	4150	QAB	1	2-66	S	9	642	CA
4N.26.22.142	WILEY GRIZZLE	STREAM CHANNEL	4233	TRC	5	3-67	S	-	1400	
4N.28.23.441	SCOTT R BROWN	HILLSIDE	4611	TRC	10	12-65	H	14	826	CA
4N.28.26.134	SCOTT R BROWN	HILLSIDE	4619	TO	20	12-65	S	16	600	
1S.24.20.442	JOHN TRIGG	STREAM CHANNEL	4090	PAT	-	-	U	-	3220	CA. MUM SPRING
1S.27.14.121	BEN HALL	UNDULATING	4132	TRC	-	-	S	-	-	CONDUCTANCE EXCEEDS 6000. BLACK SPRING
1S.27.22.333	BEN HALL	HILLSIDE	4088	TRC	1	3-66	S	-	640	CA. CIBOLA SPRING
2S.21.29.332	MELVIN R KEY	HILLSIDE	4600	QAB	-	-	U	16	2300	BURRO SPRING
2S.24.28.133	TOM DECK	STREAM CHANNEL	4055	PAT	-	-	S	-	2950	CA. LOVELADY SPRING
2S.25. 4.411	JOHN TRIGG	HILLSIDE	3875	PAT	15	-	S	-	3110	CA. SHAW SPRING
2S.25.33.111	SEA CATTLE CO	HILLSIDE	3775	PAT	-	-	U	-	18950	CA. SALT SPRING
3S.22.14.211	W M KEY SR	STREAM CHANNEL	4200	PAT	-	-	U	-	2720	CA. LA MORA SPRING

TABLE 3. CHEMICAL ANALYSES OF WATER FROM WELLS AND SPRINGS IN DE BACA COUNTY, N. MEX.

(Analyses by U. S. Geological Survey. Chemical constituents are in milligrams per liter)

Location number—See explanation in text. (S) preceding number denotes spring in this table only.
Aquifer—QAL, alluvium. QAB, surficial sand, gravel and caliche. TO, Ogallala Formation. TRC, Chinle Formation. TRS, Santa Rosa Sandstone. PAT, Artesia Formation. PSA, San Andres Limestone. PG, Glorieta Sandstone.
Temp. (C)—Temperature in degrees Celsius (centigrade).
Total dissolved solids—* indicates residue on evaporation. All other values calculated.
SAR—Sodium adsorption ratio. See table 5.
Specific conductance—Reported in micromhos at 25°C.

LOCATION NO.	OWNER OR NAME	AQUIFER	DATE	TEMP. (C)	SILICA	IRON IN SOLUTION	CALCIUM	MAGNESIUM	SODIUM	POTASSIUM	BICARBONATE	CARBONATE	SULFATE	CHLORIDE	FLUORIDE	NITRATE	TOTAL DISSOLVED SOLIDS	HARDNESS CALCIUM MAGNESIUM	HARDNESS NONCARBONATE	SAR	SPECIFIC CONDUCTANCE	PH
1N.21.30.133	W E OVERTON	PAT	10-65	18	43	-	278.0	77.0	38.0		204	0	790	64.0	1.2	11.0	1400	1010	843	0.5	1770	7.7
1N.22. 3.233	O 7 RANCH	TRS	12-65	-	33	-	73.0	20.0	14.0		232	0	57	20.0	0.6	19.0	351	264	74	0.4	562	7.7
1N.22. 8.313	O 7 RANCH	PAT	12-65	-	23	-	590.0	94.0	22.0		200	0	1620	24.0	0.8	2.9	2470	1860	1700	0.2	2740	7.6
1N.22.27.144	O 7 RANCH	PAT	12-65	-	31	-	297.0	107.0	52.0		122	0	1030	80.0	2.3	3.4	1660	1180	1080	0.7	2040	8.2
1N.25. 9.120	ALAMO RANCH INC	PAT	7-65	19	26	-	198.0	78.0	26.0		154	0	578	98.0	0.7	3.0	1080	814	688	0.4	1510	7.2
1N.26. 4.4214	J L DUNCAN	QAB	2-58	-	27	-	292.0	70.0	133.0		144	0	881	190.0	0.4	2.0	1700*	1020	898	1.8	2160	7.9
1N.26.11.3431	LOGAN BARNHART	QAL	2-67	13	-	-	-	-	-		-	-	2080	1560.0	-	-	-	-	-	-	8200	-
1N.27. 7.334	CORTESE BROS	TRC	2-66	16	33	0.03	50.0	16.0	355.0		214	12	418	232.0	1.0	2.1	1220	190	0	11.0	1900	8.6
1N.27.15.212	BEN HALL	TRC	2-66	17	40	-	128.0	20.0	152.0		212	0	331	126.0	2.6	36.0	940	400	226	3.3	1350	8.1
1N.28. 4.424	BEN HALL	TRC	9-66	17	47	-	123.0	68.0	178.0		84	20	496	240.0	1.5	12.0	1230	585	482	3.2	1750	9.0
2N.22.18.124	GLEN HISEL	TRS	1-66	17	61	-	452.0	100.0	22.0		106	0	1270	121.0	1.4	6.5	2090	1540	1450	0.2	2450	7.9
2N.22.20.411	W E OVERTON	PAT	10-65	19	19	-	532.0	207.0	124.0		100	0	2240	23.0	0.8	0.1	3190	2180	2100	1.2	3360	7.8
2N.23.33.332	PAUL HORNEY	TRS	11-65	-	32	-	102.0	36.0	25.0		214	0	151	79.0	0.8	15.0	546	404	228	0.5	884	7.9
2N.25.33.131	F T MCCOLLUM	TRS	7-65	19	31	-	120.0	71.0	26.0		150	0	281	162.0	1.2	2.3	768	592	469	0.5	1270	7.2
2N.26.16.3141	J C HEAD	QAB	7-65	-	16	-	408.0	54.0	76.0		134	0	1090	111.0	0.4	3.1	1820	1240	1130	0.9	2200	7.2
2N.26.24.433	CORTESE BROS	TRC	7-65	-	47	-	150.0	96.0	1330.0		402	0	1050	1580.0	1.4	0.3	4450	770	440	21.0	6920	7.5
			2-66	17	43	-	146.0	96.0	1310.0		408	0	1400	1560.0	1.4	1.1	4760	760	426	21.0	6900	8.1
2N.26.29.2211	G + N VAUGHAN	QAB	2-58	-	18	-	236.0	44.0	127.0		126	0	742	118.0	0.5	3.7	1390*	770	666	2.0	1770	7.8
2N.28. 1.414	J L COOPER	QAL	11-66	-	58	-	73.0	41.0	347.0		306	0	536	200.0	2.4	7.4	1410	350	99	8.1	2110	7.8
2N.28.14.241	W L CRENSHAW	TRC	3-66	-	57	-	156.0	78.0	35.0		184	0	349	162.0	1.7	49.0	978	710	559	0.6	1490	-
2N.28.19.424	TRIANGLE CATTLE	TRC	9-66	-	33	-	17.0	9.1	139.0		284	24	66	20.0	3.5	5.0	457	80	0	6.8	675	8.9
3N.21.34.133	T E OVERTON	TRS	9-65	18	23	-	44.0	54.0	30.0		279	0	100	24.0	0.6	34.0	447	330	102	0.7	736	7.6
3N.22.10.224	L COOPER	TRS	8-65	17	33	-	544.0	98.0	18.0		116	0	1580	33.0	2.9	6.6	2370	1760	1660	0.2	2600	7.5
3N.22.32.111	MCCABE BROTHERS	TRS	7-40	-	-	-	345.0	109.0	21.0		122	0	1085	88.0	-	1.0	1944*	-	-	-	2100	-
3N.25.10.234	STEELE RANCH	QAB	7-65	21	31	-	102.0	36.0	24.0		169	0	220	61.0	0.3	3.3	561	404	266	0.5	863	7.4
3N.25.16.432	STEELE RANCH	TRS	7-40	-	-	-	158.0	27.0	25.0		146	0	301	77.0	-	22.0	782*	-	-	-	1050	-
3N.26. 4.144C	JEFF GOOD	TRS	9-66	18	32	-	51.0	41.0	279.0		384	0	354	148.0	3.7	0.7	1100	295	0	7.1	1710	7.9
3N.26. 9.3313	FORT SUMNER	TRC	3-62	18	23	0.01	54.0	29.0	258.0		308	0	328	148.0	2.9	3.3	997	252	0	7.1	1550	7.6
3N.26.18.441A	FORT SUMNER	QAL	3-62	15	18	0.01	57.0	15.0	75.0		218	0	127	30.0	1.4	15.0	434*	205	26	2.3	692	7.8
3N.26.18.441B	FORT SUMNER	TRS	3-62	17	17	0.02	51.0	14.0	86.0		222	0	123	37.0	1.4	8.9	447	186	4	2.7	708	7.9
3N.26.19.214	ALLEN HICKMAN	TRS	8-65	-	19	-	178.0	47.0	117.0		416	0	310	160.0	0.8	0.3	1040	636	295	2.0	1620	7.1
3N.26.20.3244	FORT SUMNER	QAL	9-66	-	22	-	330.0	82.0	151.0		194	0	1010	185.0	0.6	18.0	1890	1160	1000	1.9	2470	7.7
3N.27.36.224	H M CATTLE CO	TRC	12-65	16	17	-	43.0	16.0	270.0		332	0	126	245.0	2.6	8.1	891	175	0	8.9	1480	8.1
3N.28.22.413	H M CATTLE CO	TRC	12-65	16	22	-	99.0	29.0	181.0		300	0	322	111.0	1.3	21.0	934	365	119	4.1	1360	8.0
4N.20. 5.243A	BEN GOOD	PAT	8-65	18	25	-	620.0	117.0	80.0		246	0	1740	104.0	1.1	52.0	2860	2030	1830	0.8	3190	7.2
4N.20.24.433	BEN GOOD	PAT	8-65	19	30	-	516.0	61.0	16.0		399	0	1150	24.0	0.4	19.0	2010	1540	1210	0.2	2350	7.3
4N.21. 9.223	BEN GOOD	PAT	9-65	20	20	-	572.0	217.0	76.0		157	0	2140	88.0	2.2	0.0	3190	2320	2190	0.7	3440	7.6
4N.21.26.441	T E OVERTON	PAT	9-65	-	42	-	528.0	154.0	74.0		227	0	1620	163.0	0.6	8.1	2700	1950	1760	0.7	3120	7.4
4N.22. 4.410	L COOPER	PAT	8-65	19	25	-	588.0	139.0	40.0		126	0	1870	53.0	1.0	0.0	2780	2040	1940	0.4	2980	7.6

4N.23.19.410	J F KOONTZ	TRS	8-65	18	25	-	108.0	23.0	40.0	168	0	221	56.0	0.3	7.1	563	366	228	0.9	872	7.4
4N.23.25.244	J F KOONTZ	TRS	8-65	18	21	-	72.0	20.0	34.0	177	0	127	38.0	0.5	3.1	403	260	115	0.9	650	7.6
4N.24. 1.142	U S B R	TRS	1-40	-	-	-	-	-	-	-	-	-	51.0	-	-	-	-	-	-	693	-
S4N.24.36.211	STEELE RANCH	TRS	2-40	-	-	-	86.0	31.0	23.0	192	0	180	34.0	-	-	500*	-	-	-	703	-
			7-65	18	29	-	90.0	25.0	20.0	176	0	168	33.0	1.2	3.7	457	328	184	0.5	703	7.5
4N.25. 2.333	WALTON RANCH	TRS	7-65	18	23	-	91.0	30.0	119.0	450	0	174	39.0	1.3	0.0	698	350	0	2.8	1090	7.2
4N.25.16.432	STEELE RANCH	TRS	7-65	18	19	-	106.0	52.0	51.0	240	0	330	34.0	0.5	0.0	710	478	282	1.0	1040	7.9
4N.25.30.121	STEELE RANCH	TRS	7-65	-	19	-	39.0	17.0	129.0	178	0	230	41.0	0.5	3.4	567	168	22	4.3	880	7.8
S4N.25.36.123	MOODY BRASSELL	TRS	2-66	16	25	-	56.0	27.0	117.0	356	0	138	44.0	2.3	0.7	585	250	0	3.2	941	8.1
S4N.25.36.232	MOODY BRASSELL	QAB	2-66	9	22	-	55.0	26.0	41.0	164	0	142	32.0	2.1	14.0	415	244	110	1.2	642	7.9
4N.26. 1.141	DEAN WRIGHT	TRS	11-65	-	18	-	74.0	23.0	323.0	336	16	318	242.0	3.0	0.4	1180	280	0	8.4	1880	8.4
4N.26.21.441A	WILEY GRIZZLE	TRS	9-66	-	24	-	25.0	14.0	234.0	376	0	206	74.0	0.6	0.0	763	120	0	9.3	1220	8.2
4N.26.24.332	JEFF GOOD	TRC	5-64	-	16	-	10.0	4.1	316.0	376	0	250	108.0	3.1	0.1	898*	42	0	21.0	1420	7.8
4N.26.27.111	FORT SUMNER	TRS	5-64	17	29	-	48.0	28.0	268.0	387	8	322	103.0	2.6	0.4	1010*	236	0	7.6	1510	8.4
			9-66	18	21	-	21.0	15.0	246.0	352	0	231	82.0	2.3	0.0	791	116	0	9.9	1260	8.2
4N.26.29.334	MOODY BRASSELL	TRC	8-40	18	-	-	38.0	25.0	137.0	330	0	136	58.0	-	1.5	576*	-	-	-	938	-
4N.26.34.121	JEFF GOOD	TRC	5-64	-	44	-	134.0	70.0	522.0	400	0	870	366.0	2.8	1.3	2250*	624	296	9.1	3150	7.3
4N.27.10.433	JEFF GOOD	TRC	11-65	17	29	-	100.0	17.0	152.0	196	0	267	140.0	0.5	16.0	818	320	160	3.7	1270	7.7
4N.28. 8.322	J WITHERSPOON	TO	1-66	15	59	-	108.0	52.0	128.0	184	0	360	161.0	1.6	8.0	968	485	334	2.5	1430	7.6
S4N.28.23.441	SCOTT R BROWN	TRC	12-65	14	14	-	74.0	27.0	60.0	180	0	150	80.0	1.3	7.5	503	295	148	1.5	826	8.0
5N.24. 1.144	PAUL MCREE	TRC	4-66	-	49	0.0	22.0	43.0	140.0	342	39	107	51.0	1.9	0.8	622	230	0	4.0	959	8.9
5N.24.17.232	J P GIBBINS	TRC	1-66	16	23	0.0	151.0	64.0	119.0	218	0	605	62.0	0.5	1.7	1130	640	462	2.0	1570	8.2
5N.24.32.133	WHITTAKER RANCH	TRS	7-65	22	41	-	107.0	36.0	42.0	192	0	230	73.0	0.8	3.8	628	414	256	0.9	949	7.6
5N.25. 1.212	IRA DRUM	TRC	11-65	-	31	-	59.0	13.0	45.0	240	0	50	29.0	0.9	7.3	353	200	4	1.4	543	7.9
5N.25.14.344	IRA DRUM	TRC	11-65	19	22	-	24.0	11.0	154.0	252	20	104	57.0	2.8	3.1	522	105	0	6.5	833	8.9
5N.25.20.211	PAUL MCREE	TRC	1-66	16	22	0.0	20.0	15.0	184.0	298	12	158	56.0	1.3	0.1	615	110	0	7.6	997	8.4
5N.25.34.124	WALTON RANCH	TRC	7-65	20	25	-	39.0	21.0	110.0	238	0	108	74.0	2.2	4.2	508	182	0	3.6	833	7.3
6N.25. 2.323	A + O KILLOUGH	TRC	11-65	16	23	-	16.0	4.9	135.0	254	39	46	13.0	2.3	11.0	415	60	0	7.6	692	8.6
6N.25. 3.424	R M DEOLIVIERIA	TRC	10-65	18	25	-	57.0	13.0	406.0	472	0	442	158.0	1.9	2.4	1340	195	0	13.0	2020	7.9
6N.25. 8.334	R M DEOLIVIERIA	TRC	3-67	-	15	-	2.6	0.4	565.0	-	110	416	370.0	0.5	0.2	1510	8	0	87.0	2790	11.4
6N.25.29.131	A + O KILLOUGH	TRC	10-65	19	43	0.0	52.0	44.0	75.0	352	0	92	59.0	1.9	1.8	542	310	22	1.9	954	8.1
6N.25.35.133	IRA DRUM	TRC	11-65	16	14	-	89.0	24.0	1530.0	268	0	1790	1100.0	1.1	1.1	4680	320	220	37.0	6880	8.1
6N.26.16.131	FRED C WEAVER	TRC	11-65	16	26	-	142.0	52.0	224.0	236	0	588	172.0	1.4	5.7	1330	570	376	4.1	1890	7.9
1S.20.28.141	LOYD WRIGHT	TRS	9-65	18	28	-	90.0	13.0	14.0	230	0	89	4.8	1.2	18.0	371	276	88	0.4	566	7.7
1S.23.26.123	JOHN TRIGG	PAT	12-39	-	-	-	584.0	180.0	14.0	101	0	1987	54.0	-	-	3100*	-	-	-	3070	-
1S.24.16.121	L A HOWARD	PAT	12-39	-	-	-	578.0	310.0	58.0	188	0	2463	93.0	-	-	3936*	-	-	-	3800	-
S1S.24.20.442	JOHN TRIGG	PAT	12-39	-	-	-	576.0	221.0	38.0	128	0	2178	40.0	-	-	3348*	-	-	-	3220	-
1S.24.25.413	L A HOWARD	PAT	1-66	-	11	0.01	393.0	530.0	655.0	68	0	3590	560.0	0.2	0.9	5770	3160	3100	5.1	6620	7.6
1S.26.26.313	SEA CATTLE CO	PAT	3-66	18	25	-	90.0	57.0	170.0	258	0	390	148.0	1.0	1.8	1010	460	248	3.5	1550	8.0
1S.27. 3.443	CORTESE BROS	TRC	2-66	-	26	-	36.0	39.0	690.0	440	0	900	312.0	2.9	6.7	2230	250	0	19.0	3010	-
S1S.27.22.333	BEN HALL	TRC	3-66	-	28	-	49.0	24.0	67.0	254	0	100	33.0	0.9	5.3	432	220	12	2.0	640	8.1
1S.28. 6.331	BEN HALL	TRC	3-66	-	37	-	87.0	41.0	190.0	242	0	354	148.0	3.2	18.0	997	385	186	4.2	1490	7.8
2S.21. 1.444	LOYD WRIGHT	PAT	9-65	18	18	-	550.0	1.9	3.0	140	0	1200	2.6	0.7	3.8	1860	1380	1250	0.0	2040	8.4
2S.23.24.310	GRACE B COONS	PAT	1-63	-	-	-	-	-	-	-	-	-	57.0	-	-	-	-	-	-	4030	-
2S.24.21.122	TOM DECK	PAT	10-40	-	-	-	607.0	94.0	18.0	154	0	1687	34.0	-	12.0	2790*	1901	-	-	2850	-
S2S.24.28.133	TOM DECK	PAT	12-39	-	-	-	604.0	159.0	-	146	0	1903	34.0	-	-	3044*	-	-	-	2950	-
S2S.25. 4.411	JOHN TRIGG	PAT	12-39	-	-	-	574.0	195.0	29.0	139	0	2043	40.0	-	-	3220*	2230	-	-	3110	-
2S.25.22.422	SEA CATTLE CO	PAT	3-39	-	-	-	180.0	51.0	45.0	207	19	477	41.0	-	-	-	-	-	-	1310	-
S2S.25.33.111	SEA CATTLE CO	PAT	12-39	-	-	-	748.0	268.0	3780.0	92	0	3780	5080.0	-	-	13700	-	-	-	18950	-
2S.26.35.111	CLAUDE MCDOWELL	TRC	3-66	-	27	-	145.0	128.0	435.0	272	0	1120	312.0	0.8	6.7	2310	890	667	6.3	3140	7.8
2S.28.30.144	CHESTER RIPPEE	TRC	3-66	18	70	-	198.0	168.0	812.0	232	0	1740	635.0	2.9	51.0	3790	1180	990	10.0	5000	8.2
3S.21.27.144	RED PARSONS	PG	4-66	-	16	-	670.0	294.0	1610.0	210	0	2860	2280.0	2.4	1.6	7840	2880	2710	13.0	10800	7.6
S3S.22.14.211	W M KEY SR	PAT	9-65	-	17	-	600.0	83.0	30.0	128	0	1660	40.0	0.8	17.0	2510	1840	1740	0.3	2720	7.8
3S.22.18.112	W M KEY SR	PSA	10-65	18	17	-	608.0	156.0	331.0	212	0	1870	535.0	1.7	0.6	3620	2160	1990	3.1	4500	7.8
3S.23. 5.243B	TRUMAN ONEILL	PAT	12-58	17	26	0.0	586.0	129.0	99.0	134	0	1870	89.0	1.2	27.0	2890	1990	1880	1.0	3060	7.4
3S.24. 6.114	J D SHIRLEY	PAT	12-39	-	-	-	688.0	156.0	80.0	142	0	2196	92.0	-	-	3572*	-	-	-	3490	-
3S.24.31.432	WALTER BOX	PAT	1-40	-	-	-	599.0	68.0	0.4	198	0	1536	10.0	-	-	2492*	-	-	-	2560	-
3S.25. 3.141	FRED VAN EATON	QAL	3-66	-	30	-	562.0	204.0	129.0	192	0	2100	118.0	2.1	5.7	3240	2240	2080	1.2	3270	7.7
3S.25. 3.3112	FRED VAN EATON	QAL	2-67	-	-	-	-	-	-	-	-	1600	505.0	-	-	-	-	-	-	4170	-
3S.25.16.142	J P GIBBINS	PAT	7-67	19	-	-	-	-	-	-	-	-	3040.0	-	-	-	-	-	-	-	-
3S.25.16.222	J P GIBBINS	PAT	4-66	-	13	0.05	544.0	181.0	2850.0	92	0	4260	2680.0	0.8	0.8	10600	2100	2020	27.0	13900	7.6
3S.25.16.323	J P GIBBINS	QAL	7-67	19	-	-	-	-	-	-	-	-	325.0	-	-	-	-	-	-	-	-
3S.25.16.323A	J P GIBBINS	QAL	7-67	19	-	-	-	-	-	-	-	-	259.0	-	-	-	-	-	-	-	-
3S.26.23.213	CHARLES GOOD	TRC	3-66	17	83	-	292.0	151.0	176.0	158	0	1110	276.0	1.9	66.0	2230	1350	1220	2.1	2920	8.1
3S.26.32.212	SEA CATTLE CO	TRC	3-66	17	38	-	583.0	288.0	518.0	124	0	1620	1390.0	0.3	20.0	4520	2640	2540	4.4	6440	8.2

TABLE 4. SELECTED REPRESENTATIVE CHEMICAL ANALYSES OF SURFACE WATERS IN DE BACA COUNTY, N. MEX.

(Analyses by U. S. Geological Survey. Chemical constituents are in milligrams per liter.)

Location (arranged in downstream order)	Name	Flow at time of collection (cubic feet per second)	Date collected	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Sodium adsorption ratio (SAR)
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	–	7/22/37	–	–	–	–	–	–	513[2]	–	–
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	–	1/14/48	–	–	–	–	–	–	3,200[3]	–	–
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	0.4	2/1-28/65[4]	154	0	1,310	118	1,460	1,330	2,540	7.8	1.1
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	82.0	5/1-4/65[4]	120	0	1,270	111	1,400	1,300	2,430	7.3	1.0
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	434.	6/1-30/65[4]	120	0	554	46	640	542	1,250	7.8	0.7
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	1030.	7/1-9/65[4]	123	0	484	38	580	479	1,140	7.5	0.6
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	97.7	7/29-31/65[4]	127	0	930	77	1,050	946	1,900	7.5	0.8
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	86.5	8/1-2/65[4]	382	0	170	23	470	157	920	7.5	0.4
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	49.0	8/3-12/65[4]	126	0	613	48	713	610	1,370	7.4	0.7
NE¼ sec. 2, T. 4 N., R. 24 E.[1]	Pecos River	98.5	9/1-6/65[4]	120	0	434	30	530	432	1,040	7.6	0.5
SW¼ sec. 10, T. 4 N., R. 24 E.	Salado Creek	0.04	5/22/62	211	–	–	174	–	–	3,750	7.4	–
NW¼ sec. 12, T. 3 N., R. 25 E.[5]	Pecos River	52.6	10/16/61	114	–	602	48	740	646	1,350	7.7	–
NW¼ sec. 12, T. 3 N., R. 25 E.[1]	Pecos River	0.12	5/22/62	154	–	–	83	–	–	1,900	7.5	–
SW¼ sec. 36, T. 2 N., R. 26 E.	Lower Drain	41.0	10/16/61	143	–	752	91	820	703	1,740	8.1	–
SW¼ sec. 36, T. 2 N., R. 26 E.	Lower Drain	4.41	5/22/62	233	–	–	344	–	–	3,870	7.3	–
SW¼ sec. 1, T. 1 N., R. 26 E.[6]	Pecos River	66.8	1/7/59	166	–	818	96	900	764	1,850	7.2	–
SW¼ sec. 1, T. 1 N., R. 26 E.[6]	Pecos River	44.8	5/22/62	211	–	–	153	–	–	2,710	7.3	–
SW¼ sec. 1, T. 1 N., R. 26 E.[6]	Pecos River	41.2	10/10/63	218	–	–	154	–	–	2,740	7.5	–
SW¼ sec. 1, T. 1 N., R. 26 E.[6]	Pecos River	27.6	6/9/64	198	0	1,500	168	1,580	1,420	2,970	7.5	–
SE¼ sec. 35, T. 1 N., R. 25 E.	Yeso Arroyo	<0.1	4/19/66	–	–	–	–	–	–	2,800	–	–
SE¼ sec. 1, T. 1 S., R. 25 E.	Yeso Arroyo	<0.1	4/9/66	–	–	–	–	–	–	2,600	–	–
NW¼ sec. 3, T. 2 S., R. 25 E.	Conejos Creek	0.01	5/22/62	149	–	–	260	–	–	5,800	6.9	–
NW¼ sec. 3, T. 2 S., R. 25 E.	Conejos Creek	0.07	10/10/63	178	–	–	232	–	–	5,450	7.4	–
NW¼ sec. 3, T. 2 S., R. 25 E.	Conejos Creek	0.003	6/9/64	244	0	4,080	252	4,130	3,930	6,000	7.6	–
SE¼ sec. 3, T. 2 S., R. 25 E.[7]	Pecos River	49.3	1/7/59	188	–	1,050	306	1,180	1,030	2,810	7.2	–
SE¼ sec. 3, T. 2 S., R. 25 E.[7]	Pecos River	21.4	5/22/62	152	–	–	540	–	–	4,190	7.3	–
SE¼ sec. 3, T. 2 S., R. 25 E.[7]	Pecos River	35.6	10/10/63	142	–	–	280	–	–	3,100	7.6	–
SE¼ sec. 3, T. 2 S., R. 25 E.[7]	Pecos River	17.6	6/9/64	126	0	1,740	502	1,730	1,630	4,140	7.8	–
NW¼ sec. 10, T. 3 S., R. 25 E.[8]	Pecos River	16.0	5/22/62	137	–	–	580	–	–	4,460	7.3	–
NW¼ sec. 10, T. 3 S., R. 25 E.[8]	Pecos River	33.9	10/10/63	119	–	–	294	–	–	3,180	7.6	–
NW¼ sec. 10, T. 3 S., R. 25 E.[8]	Pecos River	10.2	6/9/64	106	0	1,880	574	1,870	1,780	4,510	7.8	–
SE¼ sec. 3, T. 3 S., R. 24 E.	Arroyo de la Mora	0.04	5/22/62	83	–	–	240	–	–	4,710	6.8	–
SE¼ sec. 3, T. 3 S., R. 24 E.	Arroyo de la Mora	0.04	10/10/63	58	–	–	168	–	–	3,890	7.1	–
SE¼ sec. 3, T. 3 S., R. 24 E.	Arroyo de la Mora	0.02	6/9/64	32	8	3,300	282	3,180	3,140	5,090	8.5	–
NW¼ sec. 16, T. 3 S., R. 25 E.	Arroyo de la Mora	<0.1	4/7/66	–	–	–	–	–	–	5,300	–	–

[1] Below Alamogordo Dam.
[2] Minimum conductance for period 1937-1965.
[3] Maximum conductance for period 1937-1965.
[4] Composite sample made up of daily samples collected between dates shown.
[5] 0.7 mile below Fort Sumner Diversion Dam.
[6] Below mouth of Taiban Creek.
[7] Below mouth of Conejos Creek.
[8] Above mouth of Arroyo de la Mora.

TABLE 6. LOGS OF SELECTED WELLS IN DE BACA COUNTY, N. MEX.

(Logs have been modified for uniformity of presentation. Stratigraphic correlations made by W. A. Mourant and J. W. Shomaker)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Well 1N.22.13.330 Katz and Katz 1 Field		
(Formation tops interpreted from gamma-ray log)		
Permian System		
Artesia Formation	540	540
San Andres Limestone	640	1,180
Glorieta Sandstone	160	1,340
Yeso Formation and older rocks	4,241	5,581
Well 1N.23.35.141 Dick Irwin		
Quaternary System		
Surficial deposits		
Soil	10	10
Caliche	50(?)	60
Triassic System		
Santa Rosa Sandstone		
Sandstone	40(?)	100
Shale, water	10	110
Sandstone	40(?)	150
Shale, water	40	190
Sandstone	10	200
Well 1N.24.34.111 Reed Burton		
Quaternary System		
Surficial material		
Soil	10	10
Triassic System		
Santa Rosa Sandstone		
Slate(?)	40	50
Sandstone, brown	50	100
Permian System		
Artesia Formation		
Gypsum	40	140
No record	14	154
Shale, blue	6	160
Well 1N.25.36.243 Billy Wilton		
Quaternary System		
Surficial material		
Soil	10	10
Gravel and sand	10	20
Triassic System		
Chinle Formation		
Clay, red	70	90
Shale, blue	30	120
Limestone	60	180

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Santa Rosa Sandstone		
Sandstone	10	190
Sandstone and red clay	50	240
Sandstone, water	28	268
Well 1N.26.4.4214 J. L. Duncan		
Quaternary System		
Topsoil	2	2
Alluvium		
Sand and gravel	67	69
Shale, blue	51	120
Sand and gravel	66	186
Triassic(?) System		
Chinle(?) formation		
Clay, red	11	197
Well 1N.26.12.314 Logan Barnhart		
Quaternary System		
Topsoil	10	10
Alluvium		
Sand	20	30
Sand and Gravel	10	40
Water	10	50
Triassic System		
Chinle Formation		
Clay, red	200	250
Quicksand	20	270
Clay, red	10	280
Clay, blue	10	290
Clay, red	10	300
Clay, red and blue	30	330
Clay, red	20	350
Sand, red	20	370
Gravel, red, water	10	380
Clay, red, joint	16	396
Well 1N.26.16.1241 A. W. Skarda		
Quaternary System		
Topsoil	5	5
Alluvium		
Clay, sandy	55	60
Clay and gravel layers	10	70
Clay and gravel	45	115
Gravel, sandy	10	125
Clay and gravel	10	135
Sand and gravel	50	185
Triassic(?) System		
Chinle(?) Formation		
"Redbed"	3	188

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Well 1N.26.21.4111 A. W. Skarda		
Quaternary System		
Surficial sand	10	10
Alluvium		
Gravel and sand	110	120
Clay, red	10	130
Gravel and sand	60	190
Well 1N.26.28.2111 A. W. Skarda		
Quaternary System		
Topsoil	5	5
Alluvium		
Sand	13	18
Clay	2	20
Sand and gravel	42	62
Clay	6	68
Sand and gravel	25	93
Clay	4	97
Sand and gravel	75	172
Clay	4	176
Well 1N.28.3.431 Bill Crenshaw		
Quaternary System		
Surficial material		
Topsoil, brown	3	3
Caliche, white	16	19
Triassic System		
Chinle Formation		
Clay, sandy, pink	56	75
Sand, pink, dry	6	81
Sand, pink (water)	19	100
Well 2N.20.4.310 Hinkle 1 Buchanan		
Quaternary System		
Soil and gypsum(?)	14	14
Triassic System		
Santa Rosa Sandstone		
Sand, brown	108	122
Permian System		
Artesia Formation		
Shale, brown and green	58	180
Lime(?) pink	10	190
Sand and gravel	5	195
Shale, brown	55	250
Gypsum and anhydrite	10	260
Shale, brown and green	25	285
Lime "shell"	5	290
Sand, brown	5	295

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
"Rock", red, and gypsum	90	385
Lime "shell"	5	390
Sand, brown	10	400
Shale, brown	50	450
Lime "shell"	5	455
Sand, red	32	487
Gypsum and shale	3	490
Sand, gray	5	495
Shale, brown	30	525
"Rock", red	40	565
Lime "shell"	5	570
Shale, green	15	585
San Andres(?) Limestone		
Lime	105	690
Shale, green	10	700
No record	140	840

Well 2N.20.35.411 National 1 Buchanan

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Quaternary System		
Topsoil	3	3
Permian System		
Artesia Formation		
Lime	32	35
Clay, red, and gypsum	211	246
San Andres(?) Limestone		
Lime, gray	28	274
"Redbeds"	12	286
Lime, gray	8	294
Gypsum	46	340
Lime, gray	6	346
Gypsum	17	363
Lime, gray	5	368
Gypsum, gray	73	441
Lime, gray	7	448
Gypsum	8	456
Lime	5	461
Gypsum	45	506
Sand, water	1	507
Gravel	2	509
Gypsum	37	546
Shale, blue	18	564
Gypsum	28	592
Lime, very hard	68	660
Glorieta Sandstone		
Sand, white, hard	7	667
Lime	18	685
Sand, white	9	694
Shale	6	700
Sand	25	725
Yeso Formation and older rocks	2,475	3,200

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Well 2N.24.18.130 Frank Miller		
Quaternary System		
Surficial material		
Soil	10	10
Triassic System		
Chinle Formation		
Clay	130(?)	140
Santa Rosa Sandstone		
Sandstone, water at 260	130(?)	270
No record	5	275
Well 2N.24.31.320 Frank Miller		
Quaternary System		
Surficial material		
Caliche	10	10
Soil, sandy	10	20
Triassic System		
Chinle Formation		
Clay	100	120
Santa Rosa Sandstone		
"Rock"	53	173
Well 2N.25.17.340 Hawkins 1 Myrick		
Note: Driller's log to 400'. Log below 400' is interpreted from a description of cutting samples made by the New Mexico State Bureau of Mines and Mineral Resources. Top of San Andres Limestone interpreted from electric log.		
Triassic System		
Santa Rosa Sandstone		
"Redbeds and sand shells"	110(?)	110(?)
Permian System		
Artesia Formation		
"Redbeds and sand shells"	130(?)	240
Gravel, water	20	260
"Redbeds" and shale	140	400
Anhydrite and red shale	70	470
Anhydrite and red sand	270	740
Sandstone, red and gray, fine	60	800
Anhydrite, red sandstone, and red shale	75	875
San Andres Limestone		
Anhydrite, red sandstone, and red shale	115	990
Anhydrite, dolomite, and red sandstone	60	1,050
Dolomite, anhydrite, and red shale	50	1,100
Anhydrite	80	1,180
Anhydrite, dolomite, and red shale	70	1,250
Anhydrite, dolomite, red and gray sandstone, red shale	50	1,300
Sandstone, red	30	1,330
Anhydrite	40	1,370
Dolomite, red shale, and anhydrite	130	1,500
Dolomite	40	1,540

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Limestone	20	1,560
Dolomite	50	1,610
Glorieta Sandstone		
Sandstone and dolomite (cavings?)	30	1,640
Sandstone, white	110	1,750
Yeso Formation and older rocks	4,424	6,174
Well 2N.26.16.3141 J. C. Head		
Quaternary System		
Soil, gray	3	3
Alluvium		
Sand, gray, shaly, and gravel	37	40
Sand, coarse, gray, and gravel, fine	120	160
Triassic(?) System		
Chinle(?) Formation		
Shale, red	40	200
Well 2N.26.29.4212 H. E. Sutter		
Quaternary System		
Topsoil	2	2
Caliche	13	15
Alluvium		
Sand and gravel	90	105
Clay, brown, sandy	5	110
Sand and gravel with "stringers" of clay	90	200
Triassic(?) System		
Chinle Formation		
Sandstone	2	202
Well 3N.22.34.440 A. D. Smith		
Quaternary System		
Surficial deposits		
Soil	10	10
Clay and sand	20	30
Clay and gravel	20	50
Triassic System		
Santa Rosa Sandstone		
Rock	20	70
Shale, red	30	100
No record, water	10	110
Well 3N.24.5.423 Max Wertheim		
Quaternary System		
Surficial material		
Sand	10	10
Caliche	20	30
Triassic System		
Santa Rosa Sandstone		
Sandstone, white	40	70

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Shale, red, and sandstone	90	160
Sandstone	40	200
Shale, red, and sandstone	10	210
Well 3N.24.29.134 Max Wertheim		
Quaternary System		
Surficial material		
Caliche	10	10
Sand	30	40
Sand and gravel	50	90
Triassic System		
Chinle Formation		
Shale, sandy	50	140
Santa Rosa(?) Sandstone		
Sandstone, shale, sandy, shale	91	231
Well 3N.26.7.144 Stanfield and Francisco 1 Brown		
Quaternary System		
Alluvium deposits		
Caliche	6	6
Sand and gravel	9	15
Triassic System		
Chinle Formation		
"Redbeds"	79	94
Santa Rosa Sandstone		
Sand and water	6	100
Shale, red	35	135
Sand	15	150
Shale	52	202
Shale, brown	45	247
Shale, red	60	307
Permian System		
Artesia Formation		
Anhydrite and "redbeds"	16	323
Shale, red	27	350
Anhydrite and brown shale	20	370
Sand and shale	16	386
Sand and water	14	400
Sand, red	12	412
Shale, red and anhydrite	44	456
Sandstone, brown	4	460
Shale, brown, soft	17	477
"Redbeds"	29	506
Sand	32	538
"Gumbo", gray and brown	5	543
Shale, blue	3	546
Sand and water	11	557
Shale, blue	5	562
Sand	4	566
"Gumbo", blue	19	585

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Sand and water	8	593
Lime, brown, rotten	89	682
"Redbeds", firm	3	685
"Redbeds"	1	686
Sand	6	692
"Redbeds"	22	714
Sandstone, brown	13	727
"Redbeds"	10	737
Sand and salt	13	750
Sand, red	26	776
Sand and salt	21	797
Anhydrite	11	808
Shale, blue	6	814
"Redbeds" and anhydrite	6	820
Salt	78	898
San Andres Limestone		
Lime	11	909
Lime, gray, hard	3	912
Lime, white	23	935
Salt	33	968
Lime, white	4	972
Lime, gray	15	987
Lime and anhydrite	11	998
Anhydrite	11	1,009
Lime	16	1,025
Shale, dark	17	1,042
Shale, dark and anhydrite	5	1,047
Lime	38	1,085
Anhydrite	25	1,110
Salt	57	1,167
Anhydrite	23	1,190
Salt	6	1,196
Lime, hard	40	1,236
Lime, white	51	1,287
Salt	111	1,398
Lime, white, soft	22	1,420
Lime, brown	20	1,440
Lime	10	1,450
Lime, hard	70	1,520
Lime, white	5	1,525
Lime, hard	35	1,560
Lime, white	20	1,580
Lime, gray	7	1,587
Lime, hard	31	1,618
Lime, black	5	1,623
Lime, gray	32	1,655
Lime, hard	25	1,680
Glorieta Sandstone		
Sand and water	2	1,682

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Well 3N.26.7.411 Village of Fort Sumner		
Quaternary System		
Alluvial deposits		
Sand and gravel	9	9
Triassic System		
Chinle Formation		
Clay, red	22	31
Sandstone, white and red	9	40
Clay, red and blue	32	72
Sandstone and sand, red and gray	20	92
Santa Rosa Sandstone		
Sandstone, red	26	118
Sandstone, gray and brown	23	141
Shale and sandstone, red	17	158
Sandstone, gray and brown	11	169
Clay with spots of gyp, red	141	310
Permian System		
Artesia Formation		
Clay with spots of gyp, red	65	375
Sandstone, red, soft	23	398
Clay, gyp and silt, red	45	443
Sandstone, red, soft	18	461
Clay, red	9	470
Well 3N.28.31.210 Pure Oil Co. 1 Federal Pure		
Triassic System		
Chinle Formation		
Redbeds and shells	87	87
Santa Rosa Sandstone		
Sand	15	102
Lime and shells	15	117
Rock, red and gravel	98	215
Sand and gravel	105	320
Permian System		
Artesia Formation		
Rock, red	10	330
Rock, red and gyp	10	340
Rock, red and anhydrite	59	399
Rock, red	6	405
Bentonite, green	7	412
Shale, red	14	426
Anhydrite, white	5	431
Shale and lime	12	443
Rock, red and anhydrite	130	573
Shale and anhydrite	72	645
Rock, red and anhydrite	171	816
Shale and anhydrite	184	1,000
Shale, sandy	70	1,070

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Shale and salt	80	1,150
Lime	10	1,160
Shale	25	1,185
San Andres Limestone		
Anhydrite and dolomite	295	1,480
Shale	5	1,485
Rock, red and anhydrite	5	1,490
Rock, red and salt	30	1,520
Salt	45	1,565
Anhydrite and dolomite	15	1,580
Anhydrite and salt	15	1,595
Dolomite	18	1,613
Anhydrite and dolomite	32	1,645
Dolomite	21	1,666
Shale	4	1,670
Salt	90	1,760
Anhydrite and dolomite	10	1,770
Salt and anhydrite	69	1,839
Dolomite	70	1,909
Dolomite with streaks of anhydrite	114	2,023
Dolomite	10	2,033
Dolomite and pyrite	8	2,041
Dolomite and anhydrite	18	2,059
Dolomite	50	2,109
Dolomite and sandy anhydrite	31	2,140
Glorieta Sandstone		
Sand	30	2,170
Sand and anhydrite	10	2,180
Lime, sandy and shale	20	2,200
Shale, sandy, red	114	2,314
Yeso Formation and older rocks	4,154	6,468
Well 4N.20.6.332 Matador 1 Woods		
Permian System		
San Andres Limestone		
Gypsum	15	15
Lime, gray, hard	5	20
"Redbeds"	5	25
Lime, brown, and gypsum	25	50
"Slate", blue	5	55
Lime, gray	10	65
Lime, black, hard	5	70
Lime, gray, sandy	30	100
Lime, brown, hard	5	105
Lime, gray	5	110
"Slate", blue, and gypsum	5	115
Lime, gray, and gypsum	5	120
Lime, white, and gypsum	10	130
Lime, brown	5	135
Lime, brown and black	15	150

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Gypsum	15	165
Gypsum and lime, brown, black, and white	20	185
Gypsum	10	195
"Redbed"(?)	5	200
Lime, white, and gypsum	5	205
Gypsum	5	210
"Redbed"	5	215
Gypsum	15	230
Gypsum and lime, gray	5	235
Lime, brown, and gypsum	10	245
Lime, black, hard	5	250
Gypsum	2	252
Lime, black, hard	18	270
Gypsum	25	295
Lime, black, hard	5	300
"Slate", blue	5	305
"Redbed"	10	315
Gypsum	25	340
Lime, black	5	345
"Slate", blue	5	350
Gypsum	5	355
Lime, gray, hard	10	365
Glorieta Sandstone		
Sand, yellow	50	415
Sand, white	5	420
Shale	10	430
Sand, yellow	5	435
No record	10	445
Sand, yellow	10	455
No record	1	456
Sand, yellow	4	460
Sand, gray	15	475
Sand, gray, and lime	22	497
Yeso Formation and older rocks	4,165	4,662

Well 4N.22. 27.242 Standiforth 1 State

Quaternary System		
Surficial deposits		
Soil and caliche	26	26
"Lime, hard"	16	42
Triassic System		
Santa Rosa Sandstone		
Sandstone and lime, broken	18	60
Sandstone	6	66
Sand, red	17	83
Sand, gray	8	91
Shale, red, sandy	29	120
Sand, gray	44	164
Shale, red	22	186

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Permian System		
Artesia Formation		
Shale, blue	9	195
Shale, red	42	237
"Shell"	2	239
Shale, red	11	250
Gypsum	2	252
Gravel, water	2	254
Gypsum and shale	51	305
Shale, red and "shells"	17	322
Shale, sandy	8	330
Shale, red, and gypsum	35	365
Shale, blue	50	415
Shale, red, and anhydrite	15	430
Shale, red	42	472
Shale, gray and red	153	625
Gypsum and shale	43	668
San Andres(?) Limestone		
Anhydrite and sand	59	727
Lime, brown	11	738
Anhydrite and lime	69	807
Anhydrite, hard	11	818
Anhydrite, broken, and shale	12	830
Anhydrite and sand	33	863
Anhydrite and shale	167	1,030
Shale, blue	16	1,046
Anhydrite and shale	12	1,058
Anhydrite	31	1,089
Shale, blue	17	1,106
Lime, hard	70	1,176
Anhydrite, white	14	1,190
Dolomite	13	1,203
Lime, sandy	1	1,204
Glorieta Sandstone		
Sand, white	166	1,370
Yeso Formation	415	1,785

Well 4N.26.11.224 Frank Griggs 1 State

(Formerly Darden and Hawkins)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Quaternary System		
Alluvial deposits		
Sand	25	25
Triassic System		
Chinle Formation		
Sandstone and redbeds	175	200
Santa Rosa Sandstone		
Sandstone and redbeds	225	425
Permian System		
Artesia Formation		
Gypsum, sandstone and redbeds	725	1,150

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
San Andres Limestone		
Limestone, gypsum, dolomite	925	2,075
Glorieta Sandstone		
Sandstone, anhydrite, shale	155	2,230
Yeso Formation and older rocks	3,350	5,580
Well 4N.26.15.241 Wiley Grizzle		
Quaternary System		
Alluvial deposits		
Caliche and sand	12	12
Triassic System		
Chinle Formation		
Clay, red and sandy with sand streaks	41	53
Gravel, conglomerate, clay	12	65
Clay, red	95	160
Clay, blue and shale	22	182
Shale, blue and sandstone	16	198
Santa Rosa Sandstone		
Sandstone, white	48	246
Sandstone, blue and white	18	264
Shale, red and blue	11	275
Well 4N.26.20.144 Moody Brassell		
Quaternary System		
Alluvial deposits		
Clay, sandy, sand and gravel	42	42
Triassic System		
Chinle Formation		
Clay, red	83	125
Sand, red	1	126
Clay, red	4	130
Shale and sandstone	18	148
Sandstone, yellow	22	170
Well 4N.26.27.111 Fort Sumner		
Quaternary System		
Alluvial deposits		
Sand and gravel	70	70
Triassic System		
Chinle Formation		
Redbeds with interbedded sandstone	130	200
Santa Rosa Sandstone		
Sandstone, light gray, friable	16	216
Well 4N.26.34.212 Jeff Good		
Quaternary System		
Alluvial deposits		
Soil and clay	19	19

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Triassic System		
Chinle Formation		
Clay and shale, red	46	65
Clay, red and blue	10	75
Clay, blue	15	90
Shale, caving, red	10	100
Clay and sandstone, blue	55	155
Santa Rosa Sandstone		
Sandstone, white	6	161
Clay and sandstone, blue	29	190
Sand, white	25	215
Sandstone, blue and white	7	222
Well 5N.25.19.232 Paul McRee		
Triassic System		
Chinle Formation		
Clay, red	70	70
Shale, blue	80	150
Clay, blue, sandy, soft	30	180
Santa Rosa Sandstone		
Sand, yellow	20	200
Sand, yellow, wet	20	220
Sand, yellow and sandrock	10	230
Well 5N.25.24.434 Walton Ranch		
Quaternary System		
Alluvial deposits		
Soil	10	10
Triassic System		
Chinle Formation		
Clay	100	110
Sand and gravel	10	120
Well 5N.26.13.414 V. A. Stallard		
Triassic System		
Chinle Formation		
Soil	10	10
Sand and gravel	40	50
Clay, red	50	100
Shale, red	20	120
Sandrock, red, hard	3	123
Shale	11	134
Rock	19	153
Rock, gray	7	160
Shale, red	44	204
Slate, red	24	228
Sand, clay	7	235
Clay	15	250

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Well 5N.26.22.320 Abercrombie and Hawkins 1 Nappier		
Triassic System		
Chinle Formation		
Sand, gravel, siltstone, red	90	90
Siltstone and sandstone, red	180	270
Santa Rosa Sandstone		
Sandstone, red and siltstone, red	240	510
Permian System		
Artesia Formation		
Siltstone, red, sandy	30	540
Gypsum, white and siltstone, sandy	560	1,100
San Andres Limestone		
Anhydrite, gypsum, siltstone, calcite crystals	1,250	2,350
Glorieta Sandstone		
Geologic top interpreted from electric log	120	2,470
Yeso Formation and older rocks		
Geologic top interpreted from electric log	4,673	7,143
Well 6N.25.2.144 Spaulding Dome 1 Layne		
Triassic System		
Chinle Formation		
Sand and clay	20	20
Sand and red shale	20	40
Redbeds	420	460
Shale, blue	60	520
Redbeds	70	590
Santa Rosa Sandstone		
Lime	76	666
Sand, dry	4	670
Rock, red	16	686
Rock, red, sandy, water	25	711
Permian System		
Artesia Formation		
Shale, red, sandy	154	865
Gypsum, red and white, salt, and salt water	15	880
Gypsum, sandy and red	205	1,085
Rock, red	25	1,110
Sand, soft	20	1,130
Lime	20	1,150
Rock, red	5	1,155
Lime	15	1,170
Rock, red	20	1,190
Lime	15	1,205
Gypsum	20	1,225
Lime	10	1,235
Rock, red	5	1,240
Rock, salt	5	1,245
Lime	13	1,258
Rock, red	2	1,260

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Gypsum	40	1,300
Rock salt and red rock	45	1,345
Lime	10	1,355
Lime, white	7	1,362
Rock, red and salt	73	1,435
Rock Salt	10	1,445
San Andres Limestone		
Lime	40	1,485
Rock Salt	15	1,500
Lime, blue, hard	18	1,518
Lime, rock salt, shale, sandstone	657	2,175
Glorieta Sandstone		
Sandstone, white and brown and salt water	185	2,360
Yeso Formation	1,460	3,820
Well 1S.22.11.400 Grayum Steele		
Permian System		
Artesia Formation		
Clay and silt, red, and gypsum	72	72
Clay and silt, red and blue, and gypsum	90	162
Silt, blue and yellow	73	235
Clay, red	34	269
Silt, red, and sandstone	16	285
Clay, red, and gypsum	22	307
Silt, red	8	315
Clay, red	2	317
Silt, blue, and sandstone	5	322
Clay, red, and gypsum	15	337
Well 1S.24.12.320 L. A. Howard		
Quaternary System		
Soil	2	2
Permian System		
Artesia Formation		
Gypsum	10	12
Sandstone, red	73	85
Shale and clay, blue	20	105
Gypsum	25	130
Shale, blue, and gypsum	80	210
Clay, red, and gypsum	60	270
Clay, blue and red	20	290
Clay, red	40	330
Shale, red, and gypsum	40	370
Clay, blue	5	375
Gypsum	5	380
Clay, red and blue	10	390
Sandstone, black and gray	4	394
Clay, blue, and gypsum	15	409
Sand, red	6	415
Sand, black and gray	4	419

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Sandstone, red	4	423
Clay, red	3	426
Gypsum	6	432
Well 1S.26.26.310 Danciger Oil and Refining Co. 1 State		
Triassic System		
Chinle Formation		
Redbeds	30	30
Santa Rosa Sandstone		
Shale, blue	10	40
Sandstone, gray	100	140
Permian System		
Artesia Formation		
Anhydrite	30	170
Shale, sandy, blue	30	200
Sand and gravel, water	10	210
Shale, blue and sand	10	220
Sand, water	10	230
Shale, brown, sandy	20	250
Redbeds	162	412
Anhydrite	23	435
Redbeds	51	486
Anhydrite	9	495
Shale, brown	5	500
Rock, red	5	505
Anhydrite	70	575
Anhydrite and red rock	15	590
Anhydrite	20	610
Sand, red, water	15	625
Redbeds	75	700
Sand, red	320	1,020
Anhydrite	25	1,045
Shale, brown and gypsum	5	1,050
Anhydrite	25	1,075
San Andres Limestone		
Lime	25	1,100
Anhydrite and lime	70	1,170
Lime	30	1,200
Anhydrite and lime	40	1,240
Anhydrite	200	1,440
Salt and potash	85	1,525
Lime, gray	95	1,620
Shale, black	4	1,624
Lime	76	1,700
Sand, sulphur water	15	1,715
Sand	25	1,740
Lime, sandy	20	1,760
Lime	68	1,828
Glorieta Sandstone		
Sand, salt water	99	1,927
Shale, blue	4	1,931

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Lime	15	1,946
Redbeds	4	1,950
Lime, sandy	35	1,985
Shale	10	1,995
Lime	2	1,997
Shale, sandy	38	2,035
Well 2S.20.13.220 Loyd Wright		
(Formation tops from gamma-ray log)		
Permian System		
Artesia Formation	220	220
San Andres Limestone	381	601
Well 2S.23.24.310 Grace B. Coons		
Permian System		
Artesia Formation		
"Redbeds"	40	40
Sand, red	28	68
Clay, blue	1	69
Clay, gray	21	90
Sand, gray	11	101
Shale and clay, gray	34	135
Clay, blue	3	138
Sand, red	22	160
Well 2S.26.8.240 Danciger Oil and Refining Co. 1 State "A"		
Triassic System		
Chinle Formation		
Clay, red	50	50
Sand, red	45	95
Redbeds	95	190
Santa Rosa Sandstone		
Rock, yellow	20	210
Rock, gray	10	220
Lime	10	230
Redbeds	35	265
Sand, water	10	275
Redbeds	30	305
Sand	30	335
Redbeds	35	370
Sand and shale	40	410
Redbeds	10	420
Permian System		
Artesia Formation		
Sand, red	5	425
Sand and red rock	30	455
Anhydrite	20	475
Shale, blue	15	490

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Anhydrite	5	495
Shale, blue	25	520
Anhydrite	5	525
Anhydrite and redbeds	45	570
Redbeds	5	575
Anhydrite and redbeds	45	620
Redbeds	15	635
Anhydrite and redbeds	15	650
Sand, brown	5	655
Redbeds	255	910
Anhydrite and redbeds	15	925
Redbeds	205	1,130
San Andres Limestone		
Lime, gray	12	1,142
Shale, blue	3	1,145
Lime, gray	15	1,160
Shale, blue	5	1,165
Lime, gray	18	1,183
Shale, blue	2	1,185
Lime, gray	35	1,220
Lime, black, hard	25	1,245
Lime, gray	120	1,365
Lime, black	20	1,385
Lime, gray	40	1,425
Shale, blue	15	1,440
Sand, brown	25	1,465
Salt	30	1,495
Lime, gray	45	1,540
Lime, black	60	1,600
Lime, gray	35	1,635
Lime, black	100	1,735
Lime, gray	45	1,780
Lime, black	30	1,810
Glorieta Sandstone		
Sand, salt water	70	1,880
Shale, blue	10	1,890
Well 3S.22.6.134 Transcontinental 1 McWhorter		
Permian System		
San Andres Limestone		
Lime, hard	70	70
Lime, broken	25	95
Anhydrite	25	120
Lime, blue and gray	130	250
Anhydrite	20	270
Lime, gray	15	285
Gravel(?)	15	300
Lime, blue and gray	60	360
Lime and anhydrite	15	375
Anhydrite	10	385

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Lime, gray	55	440
Gravel(?) brown	5	445
Lime, gray	50	495
Shale, brown	15	510
Lime, black	5	515
Shale, green	30	545
Lime, gray	60	605
Glorieta Sandstone (may include some Yeso Fm.)	175	780
Yeso Formation and older rocks	3,990	4,770
Well 3S.23.27.334 Stinson Martin		
Permian System		
Artesia Formation		
Sand, red and clay	45	45
Sandstone, soft	7	52
Silt, clay, and sandstone	111	163
Sandstone, clay, and sand	27	190
Well 3S.24.13.430 J. P. Gibbins		
Quaternary System		
Surficial deposits		
Soil	7	7
Permian System		
Artesia Formation		
Clay, red	11	18
Sand and gravel	20	38
Gypsum	7	45
Clay, red, and gypsum	25	70
Sandstone, red	8	78
Clay, red	22	100
Sandstone, brown	6	106
Clay, red, and gypsum	24	130
Clay, red	20	150
Clay, gray, and sand, gray	10	160
Gypsum	5	165
Clay, blue	5	170
Sand, brown and gray	10	180
Clay, red, with gypsum	20	200
Sand, red	40	240
Well 3S.24.20.223 Tom Deck		
Quaternary System		
Surficial material		
Soil	5	5
Permian System		
Artesia Formation		
Gypsum, clay "streaks"	115	120
Clay, red, gypsum "streaks"	20	140

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Clay, red and gray	40	180
Sandstone, red	10	190
Sand, red and gray, and gypsum "streaks"	30	220
Clay, with red sand	20	240
Clay, red and gray	60	300
Clay, red with sand	40	340
Sand, red and gray, with lime "streaks"	76	416
Well 3S.24.23.120 Nearburg and Ingram 1 Murray		
(Formation tops interpreted from gamma-ray log)		
Permian System		
Artesia Formation	520	520
San Andres Limestone	840	1,360
Glorieta Sandstone	180	1,540
Yeso Formation and older rocks	3,832	5,372
Well 3S.25.16.142 J. P. Gibbins		
Quaternary System		
Surficial deposits		
Soil	5	5
Clay, red	15	20
Sand and gravel	13	33
Permian System		
Artesia Formation		
Gypsum	2	35
Gypsum and clay	140	175
Sand, red, and gypsum	105	280
Sand, gray	40	320
Clay, red	20	340
Sand, red and gray	40	380
Clay, red	20	400
Well 3S.26.8.222A A. D. Engle 1 State "X"		
(Also known as Firesafe Builders Product Corp. No. 1 State)		
Quaternary System		
Surficial deposits		
Sand	25	25
Triassic System		
Chinle Formation		
Sand	125	150
Santa Rosa Sandstone		
Sand	60	210
Sand, white, soft	80	290
Sand, white and broken shell	10	300
Permian System		
Artesia Formation		
Redbeds	122	422
Redbeds and shale, red and white	328	750

TABLE 6 (cont.)

Stratigraphic unit and material	Thickness (feet)	Depth (feet)
Sand and sandy lime, white	220	970
Lime and gyp shell, white, hard	30	1,000
Salt and potash, red and white, soft	15	1,015
Lime, white, hard	10	1,025
Lime, gray, hard	35	1,060
San Andres Limestone		
Lime, gray, hard	211	1,271
Lime, dark, sandy, hard	66	1,337
Lime, gray, hard	75	1,412
Salt and potash, white and red, soft	128	1,540
Lime, brown, hard	53	1,593
Lime, gray, hard	27	1,620
Lime, brown, hard	208	1,828
Glorieta Sandstone		
Sand, soft	3	1,831

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Appendix

GLOSSARY

acre-foot. The volume of liquid or solid required to cover I acre to a depth of 1 foot. Equivalent to 43,560 cubic feet, or 325,851 gallons.

aquifer. A rock formation or stratum that will yield water in sufficient quantity to be of consequence as a source of supply.

artesian pressure. Pressure which causes water to rise in a well to some point above that at which water is encountered during drilling. If artesian pressure is great enough, water may rise above the land surface and the well will flow. See *confined.*

capillary fringe. A zone, in which the pressure is less than atmospheric, overlying the zone of saturation and containing capillary interstices, that are partly or completely filled with water that is continuous with the water in the zone of saturation and is held above that zone by capillarity acting against gravity.

cfs. Cubic feet per second. A flow of 1 cfs is equal to 448.8 gpm (gallons per minute) .

confined. As a hydrologic term, "confined" refers to water confined in its aquifer by less permeable beds above. Confined water is usually under artesian pressure, rising in a well to some point approaching the elevation of the highest point in the aquifer at which the water is confined.

hydraulic conductivity. A porous medium has a hydraulic conductivity of unit length per unit time if it will transmit in unit time a unit volume of ground water at the prevailing kinematic viscosity through a cross section of unit area, measured at right angles to the direction of flow, under a hydraulic gradient of unit change in head through unit length of flow.

igneous sill. A tabular body of rock introduced in the molten state between beds of some older host rock.

intrinsic permeability. Capacity of a material for transmitting fluids. Permeability depends not only on the size and number of pore spaces, but also on the connections between them; it is measured in terms of area, roughly the area of the average pore.

perennial stream. One which flows continuously. As a rule, the flow is derived not only from rain and snow but also from discharge of ground water to the stream through springs and seeps.

perched water. Water in an aquifer of limited extent that lies above the regional water table and is separated from it by an aerated zone and less permeable rocks.

saturated zone. The zone in which the pore space is saturated with water. As such it includes a part of the capillary fringe.

temperature. Climatological data are in degrees Fahrenheit. Chemical analyses and spring-water temperatures are in degrees Celsius (centigrade) . See conversion table at end of glossary.

transpiration. The process by which water is given off by a living plant and enters the atmosphere.

unsaturated zone. The zone between the lower part of the capillary fringe and the land surface within which pore spaces contain either air, water held by capillarity, or water moving downward to the water table.

water cycle. The complete cycle through which water passes, beginning as atmospheric water vapor, passing into liquid (or solid) form as precipitation, then entering or moving along the surface of the Earth, and finally returning to the atmosphere through evaporation or transpiration.

water table. The surface within the zone of saturation where the pressure is equal to the atmospheric pressure, at the base of the capillary fringe.

TEMPERATURE CONVERSION TABLE

°F (degrees fahrenheit) to °C (degrees Celsius or centrigrade)

°F =	°C	°F =	°C	°F =	°C	°F =	°C
32	0	55	13	78	26	101	38
33	1	56	13	79	26	102	39
34	1	57	14	80	27	103	39
35	2	58	14	81	27	104	40
36	2	59	15	82	28	105	41
37	3	60	16	83	28	106	41
38	3	61	16	84	29	107	42
39	4	62	17	85	29	108	42
40	4	63	17	86	30	109	43
41	5	64	18	87	31	110	43
42	6	65	18	88	31	111	44
43	6	66	19	89	32	112	44
44	7	67	19	90	32	113	45
45	7	68	20	91	33	114	46
46	8	69	21	92	33	115	46
47	8	70	21	93	34	116	47
48	9	71	22	94	34	117	47
49	9	72	22	95	35	118	48
50	10	73	23	96	36	119	48
51	11	74	23	97	36	120	49
52	11	75	24	98	37	121	49
53	12	76	24	99	37	122	50
54	12	77	25	100	38		

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Numbers in **boldface** indicate main sections.