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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Ground Water Branch

DATA ON WATER WELLS IN THE FREMONT VALLEY AREA, KERN COUNTY, CALIFORNIA

By

L. C. Dutcher

Prepared in cooperation with the
California Department of Water Resources

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PLATE

DATA ON WATER WELLS IN THE FREMONT VALLEY AREA, KERN COUNTY, CALIFORNIA

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PURPOSE AND SCOPE OF THE WORK AND REPORT

The data presented in this tabulation were collected by the U. S. Geological Survey in connection with an investigation of water wells and general hydrologic conditions throughout much of the desert region of southern California. The geologic mapping was financed by Federal funds for arid-regions studies, and the canvass of wells and compilation of data were financed under a cooperative agreement with the California Department of Water Resources.

The desert regions of California are characterized by barren mountain ranges and isolated hills surrounding broad valleys or basins which are underlain by alluvial debris derived from the surrounding highlands. These basins generally contain ground water which has a wide range in chemical quality and which can be and in some areas has been developed for beneficial use.

The general objective of the cooperative investigation is to collect and to tabulate all available hydrologic data for the individual desert basins in order to provide public agencies and the general public with data for use in planning water utilization and management and for use in possible subsequent ground-water investigations.

Accordingly, the scope of the work carried out by the Geological Survey in each area has included: (1) Brief reconnaissance mapping of major geologic features to define the extent and general character of the deposits that contain the ground water; (2) visiting and examining virtually all the water wells in the area; determining and recording their locations in relation to geographic and cultural features and the public-land net, wherever possible; and recording well depths and sizes, types and capacities of installed equipment, uses of the water, and other pertinent information available at the well site; (3) measurement of the depth to the water surface below an established and described measuring point at or near the land surface; (4) selection of representative wells to be measured periodically in order to detect and record changes of water levels; and (5) collection and assembly of well records, including well logs, water-level measurements, and chemical analyses.

The work has been carried on by the U. S. Geological Survey under the general supervision of Harry D. Wilson, Jr., district engineer in charge of ground-water investigations in California, and under the immediate supervision of Fred Kunkel, geologist in charge of the Long Beach subdistrict office.

LOCATION AND GENERAL FEATURES OF THE AREA

The Fremont Valley area covers about 680 square miles and includes most of Fremont Valley and the northeastern part of Antelope Valley as defined by Thompson (1929, pls. 16 and 19) and parts of the Tehachapi, El Paso, and Rand Mountains (pl. 1).

The area of this study lies in the southwestern part of the Mojave Desert region between 117°35' and 118°10' west longitude and about 35°00' and 35°25' north latitude, north and east of the town of Mojave. The eastern boundary of the area coincides with the Kern and San Bernardino Counties' boundary line at the west edge of the Cuddeback, Superior, and Harper Valleys (Kunkel, 1956); the southern boundary in the Antelope Valley is U. S. Highway 466 (Edwards Air Force Base); and in the Fremont Valley is the Muroc fault at the northeast edge of the Willow Springs, Gloster, and Chaffee areas (Kunkel and others, 1957); the western boundary is the Sierra Nevada; and the northern boundary is the El Paso Mountains.

The area includes one large ground-water basin in Fremont Valley, part of the North Muroc basin north of U. S. Highway 466 in Antelope Valley, and three or more minor basins or subbasins in Antelope Valley in the area east of Castle Butte and south of the Rand Mountains. The large basin in Fremont Valley extends north from Castle Butte to the Sierra Nevada and El Paso Mountains and on the northeast is contained in the narrow depression between the El Paso and Rand Mountains.

The area extending from the Rand Mountains southward to North Muroc basin is, in general, uplifted in relation to the main valley area to the north and west. Granitic rocks (bedrock), volcanic rocks, and virtually impermeable sedimentary rocks of Tertiary age crop out in many hills and in extensive areas of low relief. Many faults strike across the area, and ground water occurs in the small but locally deep depressions bounded by these geologic structures or by hills of impermeable rock.

The surface drainage of the area is of the closed type, and infrequent runoff reaches one or another of the small playas shown on plate 1, or reaches the larger playas known as Koehn Lake, in the northeastern part of Fremont Valley, and Rogers Lake (south of U. S. Highway 466, and not shown on pl. 1) in the northeastern part of Antelope Valley.

The area is shown on all or parts of the following U. S. Geological Survey topographic quadrangle maps: Boron, Castle Butte, Cross Mountain, Kramer, Mojave, Randsburg, and Saltdale, all at a scale of 1:62,500.

Access to the area is provided by U. S. Highways 6 and 466 and several paved and many unpaved roads.

Geographically the area consists mainly of alluvial fans and plains built out from the Sierra Nevada, El Paso, and Rand Mountains. On the east and south the Rosamond Hills, Castle Butte, Desert Butte, and other isolated hills rise above the valley floor.

PREVIOUS INVESTIGATIONS AND ACKNOWLEDGMENTS

Data on ground water in the Fremont Valley area are contained in three reports: U. S. Geological Survey Water-Supply Paper 578, "The Mohave Desert Region, California" (Thompson, 1929, p. 201-223, 289-371), includes data obtained in 1918 on 53 wells in the area of the present investigation; a U. S. Geological Survey open-file report, "Ground-Water Reconnaissance in the Western Part of the Mojave Desert, Calif., with Particular Respect to the Boron Content of Well Water" (Stone, 1957), contains data collected in 1954 on 171 wells in the area; and a private report (Williams, 1930) contains information collected in 1929 and 1930 on 23 wells in the area. The data on wells from all these reports are included herein.

Part of Fremont Valley and vicinity is shown on the geologic maps of the Saltdale and Castle Butte quadrangles by Dibblee (1952 and 1958). The geology shown on plate 1 was compiled and modified from the published maps mentioned above and from unpublished maps of the Boron and Mojave quadrangles by T. W. Dibblee and unpublished maps by the author.

The California Department of Water Resources provided access to all pertinent information in its files, including numerous well logs and chemical analyses. The U. S. Borax and Chemical Corp. and the M and R Sheep and Cattle Co. provided access to a large amount of data in their files, as did many private well owners, well drillers, and others.

The cooperation and assistance given by these people and agencies contributed materially to the completeness of the data presented in this report, and are most gratefully acknowledged.

GEOLOGIC AND HYDROLOGIC FEATURES OF THE AREA

The geologic units in Fremont Valley and vicinity can be grouped into two broad categories: Consolidated rocks and unconsolidated deposits. The consolidated rocks are for the most part impervious and, except for minor amounts of water in cracks and weathered zones, yield little or no water. The consolidated rocks (pl. 1) comprise the old crystalline, metamorphic, and consolidated sedimentary rocks of pre-Tertiary age which collectively form the basement complex (map symbol bc) and the consolidated sedimentary rocks of Tertiary age (map symbol Tc).

The consolidated sedimentary and pyroclastic rocks of Tertiary age (map symbol Tc) are part of the Goler formation of Eocene to early Miocene age and the Ricardo formation of Pliocene age mapped by Dibblee (1952) in the Saltdale quadrangle, and the Tropico group of Miocene(?) and Pliocene(?) age mapped by Dibblee (1958) in the Castle Butte quadrangle. They consist mainly of gray and red conglomerate, arkose, cobble gravel, tuff, sandstone, chert, limestone, gravel, sand, silt, and clay. For the most part these rocks are poorly permeable, but locally where penetrated by deep wells they yield small amounts of water to domestic wells.

Volcanic rocks of acidic composition, mainly andesite, rhyolite, and dacite of Miocene and Pliocene age (map symbol Tav), also occur in the Fremont Valley area. These rocks are part of the Ricardo formation mapped by Dibblee (1952) in the Saltdale quadrangle and the Tropico group mapped by Dibblee (1958) in the Castle Butte quadrangle.

Extrusive and intrusive basalts of Miocene(?) to Pleistocene age (map symbol QTb) also occur in the area. These rocks are part of the Ricardo formation mapped by Dibblee (1952) in the Saltdale quadrangle, the Tropico group mapped by Dibblee (1958) in the Castle Butte quadrangle, and the Black Mountain basalt mapped in the Saltdale quadrangle by Dibblee (1952).

The unconsolidated older alluvium of late Pleistocene age (map symbol Qoal) consists of compact arkosic gravel, sand, silt, and clay. The deposits are weathered, and locally the feldspars have been altered to clay. Near the hills the unit is predominantly gravel but beneath the valley areas it is finer grained and better sorted. Because the older alluvium overlies older fan deposits (Qof) or Tertiary continental rocks (Tc) on which an erosional surface of considerable local relief is present, the thickness of the older alluvium varies greatly from place to place. Where saturated the older alluvium contains the main aquifers in the area.

The older fan deposits of Pleistocene age (map symbol Qof) consist of weakly consolidated fanglomerate or unsorted unbedded boulder gravel occurring as isolated erosional remnants. The materials are mainly of granitic origin but fragments of basalt, andesite, dacite, and metamorphic rocks are common. The unit is nearly everywhere above the water level in wells and is unsaturated. However, the attitude of this unit suggests that locally it extends beneath the younger or older alluvium in the valley and where saturated may yield small quantities of water to deep wells.

The younger alluvium of Recent age (map symbol Qyal) is mostly gravel, sand, and silt, and overlies the older units beneath the central parts of the valleys. These deposits are generally above the water table except in the lower parts of the valley, where they may yield small amounts of water to shallow wells.

The younger fan deposits of Recent age (map symbol Qyf) are mostly poorly sorted boulders, arkosic gravel, sand, silt, and clay derived from nearby hills or mountains. The materials have been transported only a short distance and mainly represent mudflow or slope-wash debris. Near the hills and mountains the younger fan deposits are coarse grained, but they become finer with increasing distance from the areas of active erosion. These deposits are poorly sorted and poorly permeable, are usually above the water table, and are believed to be unpromising sources of water.

Playa deposits of Recent age (map symbol Qp) occur principally at Koehn Lake, the lowest point in Fremont Valley, and at the base level of some minor drainage areas. They consist principally of silt and clay and minor amounts of sand, are of low permeability, and where saturated usually contain water having a moderate to very high dissolved-solids content.

Unconsolidated coarse to fine dune sand (map symbol Qds) occurs in the lower parts of the valleys. The dunes are, in part at least, actively drifting; locally some small interdune playas are included in the area shown as dune sand on plate 1.

Lakeshore deposits of Recent age (map symbol Qls) occur locally near the old shorelines of large perennial lakes which formerly existed in the lowest parts of the valleys. These deposits consist mainly of coarse gravel and sand but are everywhere above the water table, are not saturated, and therefore do not yield water to wells.

In 1958 the water levels in wells in Fremont Valley ranged from above the land surface in the lowest part of the valley near Koehn Lake to more than 625 feet beneath the higher alluvial slopes north of the Muroc fault and more than 400 feet beneath the alluvial fans extending into the valley from the Rand Mountains east of Koehn Lake.

Recharge to the basin occurs by subsurface ground-water outflow from the Chaffee area (Kunkel and others, 1957) and the North Muroc basin through the older alluvium between Desert and Castle Buttes (pl. 1), from runoff from the directly tributary mountains and hills, and in very minor amounts by deep penetration of rain during infrequent periods of heavy precipitation.

The ground water in Fremont Valley is moderately to highly mineralized. The highest concentration of dissolved solids, about 28,000 ppm (parts per million), occurs in shallow wells near Koehn Lake. The waters of best quality are from wells drilled in the alluvial fans and the higher slopes of the younger alluvium in the southwestern part of the valley, where the dissolved-solids content is only about 400 to 600 ppm.

In North Muroc basin (pl. 1) in 1958 the water levels in wells were about 80 to 100 feet below the land surface beneath the central part of the basin and more than 250 feet beneath the higher alluvial slopes near the town of Boron. Ground water in the North Muroc basin moves from the surrounding hills or the adjacent ground-water basins (or subbasins) northwestward between Castle and Desert Buttes, through a low topographic divide underlain by alluvium, to Fremont Valley.

The ground water in the North Muroc basin has a low to moderate concentration of dissolved solids. The highest concentration of dissolved solids, about 1,000 ppm, occurs in wells near Boron. The waters of best quality come from wells drilled near the western part of the basin, where the dissolved-solids content locally is less than 500 ppm.

Three areas are underlain mainly by younger alluvium in the generally uplifted area north of the North Muroc basin and south of the Rand Mountains. Several large northwest-trending faults strike across the area, and bedrock crops out in numerous hills east of Castle Butte. The largest of the three alluvial areas is between the Rand Mountains and the Lockhart fault (pl. 1). The occurrence and movement of ground water in the area is imperfectly known because of the lack of wells. However, meager data suggest that subsurface flow from the area enters either the Harper Valley of Kunkel (1956) or the other and smaller subbasins to the south, and thence enters North Muroc basin.

In the area east of Castle Butte, north of the North Muroc basin and south of the Lockhart fault, there are two valley areas underlain by younger alluvium which contain ground water. Each of these two areas contains several large-capacity irrigation or industrial supply wells.

Recharge to the three valley areas east of Castle Butte occurs mainly from runoff from the local hills and mountains. Discharge occurs by pumping and by subsurface flow to the North Muroc basin and eventually to Fremont Valley.

The quality of water is suitable for most domestic, irrigation, and industrial use.

Of the approximately 700 square miles of the Fremont Valley area, more than half is underlain by consolidated rocks where wells have not been drilled. The valley areas underlain by unconsolidated deposits contain 370 wells which are shown on plate 1 and are described in table 1.

Table 2 lists cross indexes of Geological Survey well numbers and the numbers previously given to the same wells by other workers in the area.

Table 3 lists all available water-level measurements, and table 4 lists all drillers' logs of wells.

Table 5 contains chemical analyses of water from wells. The analyses were made by the agencies shown in the table.

ECONOMIC ASPECTS OF GROUND WATER IN THE AREA

The principal towns in the Fremont Valley area are Randsburg near the northeast margin and Boron near the southeast corner. Boron was named for the borate minerals mined near the town by the U. S. Borax and Chemical Corp. The borate deposit is the largest ever discovered in the United States.

On the basis of economic development, the Fremont Valley area can be divided roughly into three parts. The economy of the southern part of the area, extending from Boron and U. S. Highway 466 to Castle Butte (pl. 1), is based almost entirely on the mining of the borate deposits near Boron, the residential development resulting from the employment of workers at nearby Edwards Air Force Base south of U. S. Highway 466, and commerce with the travelers using the highway.

In Fremont Valley, which extends about from Castle Butte to several miles northeast of Koehn Lake, the economy is based almost wholly on irrigated agriculture. In 1958 roughly 8,000 acres of land was irrigated by pumping ground water at three large and several smaller ranches.

Finally, in the area near Randsburg the economy formerly was based on the mining of gold, silver, tungsten, and other metals and minerals. In recent years, however, many of the mines have closed and only limited mining is now done. In many instances the difficulty of obtaining water is great, and long pipelines have been built from the lower parts of the valley where it is possible to drill large-capacity wells to supply water to the mines and mills.

WELL-NUMBERING SYSTEM

The well-numbering system used in the Fremont Valley area conforms to that used in virtually all ground-water investigations made by the Geological Survey in California since 1940. It has been adopted as official by the California Department of Water Resources and by the California Water Pollution Control Board for use throughout the State.

Wells are assigned numbers according to their location in the rectangular system for the subdivision of public land. For example, in the number 11/8-33L1, assigned to a well shown on plate 1, the part of the number preceding the bar indicates the township (T. 11 N.), the part between the bar and the hyphen indicates the range (R. 8 W.), the number between the hyphen and the letter indicates the section (sec. 33), and the letter indicates the 40-acre subdivision of the section as shown in the accompanying diagram.

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

33

Within the 40-acre tract the wells are numbered serially as indicated by the final digit. Thus, well 11/8-33L1 is the first well to be listed in the NE¼SW¼ sec. 33 (San Bernardino base and meridian).

Similarly, well 32/37-16R1 is in the $SE\frac{1}{4}SE\frac{1}{4}$ sec. 16, T. 32 S., R. 37 E., Mt. Diablo base and meridian. Because all of the wells in the Fremont Valley area are either in the northwest quadrant of the San Bernardino base and meridian lines or in the southeast quadrant of the Mt. Diablo base and meridian lines, the foregoing abbreviations of the township and range are sufficient.

For well numbers where a dash has been substituted for the letter designating the 40-acre tract, the dash indicates that the well is plotted from unverified location descriptions; the indicated sites of such wells were visited but no evidence of a well could be found.

For some wells the letter following the section number is designated X. This indicates that the well has been field located and is accurately plotted with respect to its position on the map, but that the control for the public-land net is too poor to warrant assigning a more accurate location number.

REFERENCES CITED

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Stone, R. S., 1957, Ground-water reconnaissance in the western part of the Mojave Desert, Calif., with particular respect to the boron content of well water: U. S. Geol. Survey open-file rept., 102 p.

Thompson, D. G., 1929, The Mohave Desert region, California: U. S. Geol. Survey Water-Supply Paper 578, 759 p.

Williams, Cyril, Jr., consulting engineer, San Francisco, Calif., 1930, Supply investigation in the vicinity of Mojave, Calif.: Prepared for Pacific Portland Cement Co.

Table 1.- Descriptions of wells in the Fremont Valley area, California

USGS number: The number given is the Geological Survey number assigned to the well according to the system described in the section on the well-numbering system.

Source of data and other numbers: The source of data on each line is indicated by the following symbols: GS, observations and measurements made by the Geological Survey on the dates indicated as well as information reported to the Geological Survey by owners, drillers, or others; DGT, from Thompson (1929); CW, from Cyril Williams, Jr. (1930); DWR, from California Department of Water Resources; Owner, from owner. A number following the letters is the well number used in the reports by Thompson (1929) or Williams (1930).

Date of observation: Data for each well are given in reverse chronological order, with the most recent information summarized on the top line, opposite the well number.

Owner or user: The name given is the owner or user of the well on the date indicated. If more than one set of data are given for a well the name is not repeated unless it is known to be different.

Year completed: The completion date was obtained from the driller's log or reported by the owner or others.

Depth: Depths of wells given in whole feet were reported by owners, drillers, or others; depths given in feet and tenths were measured below land-surface datum by the Geological Survey.

Type of well and diameter: The type of well construction is indicated by symbols as follows: A auger, C cable tool, D dug, DC dug and deepened by cable tool, R rotary, RG rotary gravel-packed well. The number following the letter is the diameter of the casing or pit, in inches, and where no casing was installed the symbol N is used.

Pump type and power: The type of pump or method of lift is indicated as follows: A airlift, B bucket, C centrifugal, J jet, L lift, N none, S submersible, T turbine. The type of power is indicated as follows: D diesel engine, E electric motor of undetermined horsepower (where a number appears in this column it indicates the rated horsepower of an electric motor), G gasoline engine, H hand operated, N none, W windmill.

Yield: The yield of the well in gallons per minute generally is reported by the driller or owner and is not necessarily the maximum capacity of the well.

Specific capacity: The specific capacity of a well is its rate of yield per unit of drawdown of the water level in the well. It is determined by dividing the figure in the Yield column by the drawdown resulting from sustained pumping at that rate; the result is expressed in terms of gallons per minute per foot of drawdown. The yield and drawdown data are principally from tests performed by the California Electric Power Company and reported by well owners and drillers.

Use: Dc duck club, Dm domestic, Ds destroyed or dry, In industrial, Ir irrigation, Ob observation, Ps public supply, RR railroad, S stock, T test hole, Un unused.

Measuring point: The point from which the water-level measurement(s) by the Geological Survey are made is described as follows:

Bap bottom of access pipe	Hcc hole in casing cover	Tc top of casing
Bpb bottom edge of pump base	Hpb hole in pump base	Tcc top of casing cover
Bcc bottom of casing cover	Ls land surface	Tcp top of conductor pipe
Bdp bottom of discharge pipe	Na no access	Thf top of hole in flange
Bnc bottom of notch in casing	Nc notch in casing	Tmc top of masonry curb
Edp edge of discharge pipe	Sc slot in casing	Tpb top of pump base
Epb edge of pump base	Tap top of access pipe	Tsc top of slot in casing
Hc hole in casing	Tbc top of board cover	Twc top of wooden curb

The suffix letters N, S, E, and W, indicate the side (north, south, east, or west) where used. The distance of the measuring point above or below(-) land-surface datum is given in feet and tenths

and sometimes hundredths. All measurements of water level are from the same measuring point unless otherwise indicated; however, the measuring points used by Thompson (1929), owners, drillers, and California Department of Water Resources are not known.

Altitude: The altitude given is the altitude of land-surface datum, the plane of reference approximately at ground surface, at the well. Altitudes given to the nearest foot were interpolated from Geological Survey topographic maps, those given in feet and tenths were determined by spirit leveling by Cyril Williams, Jr., (1930) or by the well owner.

Depth to water: Measured depths to water level are given in feet, tenths, and hundredths, or feet and tenths; reported or approximate depths to water level are given in whole feet. The water-level measurements are below or above(+) land-surface datum. For the measurements made by the Geological Survey (GS) and Williams (CW, 1930), the difference in altitude between land-surface datum and the measuring point has been subtracted from or added to the measured water level below the measuring point. The measurement given is the depth to water level below or above land-surface datum.

Other data: C chemical analysis of water is given in table 5, L driller's log of well is given in table 4, W records of water levels in wells are given in table 3; all known records of water levels in wells in the area are given in either table 1 or 3. E electric log for well in the files of the Geological Survey, R automatic water-level recorder, installed and maintained by the owner, was operating in the well at the time of the Geological Survey field canvass.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Well data: Depth (ft.)	Well data: Type, diameter (in.)	Well data: Pump type and power	Well data: Yield (gpm)	Well data: Specific capacity	Well data: Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 10 N., R. 7 W.												
10/7-5D1	GS	1-12-58				C 8	N N			Un	TcN	1.0	2,470	261.09	C
5F1	GS	1-14-58	Boron Improvement Corp.			RG 8	N N			Un	TcN	2.0	2,495	180.24	
6A1	GS	1-13-58	Boron Com. Serv. Dist., well 7				S E	113		Dm	Tap	2.0	2,470	a280	
	GS	1- 8-51												223	
6B1	GS	1-14-58	Boron Com. Serv. Dist., well 5	1945		6	S E	13	3	Un	TcN	1.0	2,460	243.30	
	Owner	9-11-50												201	
	Owner	12- 9-46												185	
	Owner	9- 7-45												a182	
6B2	GS	1-14-58	Boron Com. Serv. Dist., well 6	1955	454	C 12	S E	30	4	Ps	Tap	2.0	2,460	271.83	L
			T. 10 N., R. 8 W.												
10/8-2M1	GS	1-14-58	Mojave Corp.	1954	510	RG	T 25			In	TcN	3.0	2,410	206.40	

T. 11 N., R. 7 W.

11/7-30G1	GS	1-13-58	Steussy	1929	675	C	6	L	1	4		Dm	Na		2,475	310	C
31J1	GS	1-14-58	Arabian Tlr. Village	1957	500	RG	8	S	E			Un	Tap	2.0	2,445	242.61	
31P1	GS	1-14-58	Boron Com. Serv. Dist., well 4	1926	300	C	9	N	N			Ds			2,445		
	GS	1-31-51						L	1			Dm	TapW	.2		246.95	
31P2	GS	1-14-58	Boron Com. Serv. Dist., well 2				8	T	5			Un	Na		2,445		
31P3	GS	1-14-58	Boron Com. Serv. Dist., well 3		b223		6	L	1			Un			2,445		
32E1	GS	1-14-58	Boron Com. Serv. Dist., well 8	1956	502	RG	10	S	E	325	3.3	Ps	Tap	1.0	2,455	241.45	a,L
32G1	GS	1-13-58	Vincent Morgan		230.4		6	N	N			Un	Tc	-2.0	2,460	151.75	
32G2	GS	1-13-58	Franklin	1954	210	C	5	S	E			Dm	TcW	1.0	2,460	148.57	L
32G3	GS	1-13-58	Wilkins	1946	300	C	5	L	1			Dm	Na		2,460		
	Owner	1946														170	
32G4	GS	1-12-58	Vincent Morgan	1956	400	RG	8	S	E			Dm	Tap	2.0	2,465	147.98	
32G5	GS	1-14-58	P. C. Paczkowski			RG	8	S	E			Dm	Tap	2.5	2,455	237.29	
32H1	GS	1-14-58	Boron Dev. Co.	1956	429	RG	8	N	N	225	1.7	Un	TcS	1.5	2,465	160.04	L
32K1	GS	1-14-58	Boron Com. Serv. Dist., well 10	1957	684	RG	10	S	E	30		Ps	Tcp	.5	2,460	146.75	C,E,L
32M1	GS	1-14-58	Boron Com. Serv. Dist., well 1	1950	410	C	6	T	7½			Un	Tc	1.0	2,450	(c)	
	Owner	4-22-53														201	

a. Pumping.
b. Depth to obstruction which is above the water level.
c. Tape smeared.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 11 N., R. 7 W.--Continued												
11/7-32M2	GS	1-14-58	Boron Com. Serv. Dist., well 9	1956	530	RG 10	S E	240	1.3	Ps	Tap	1.0	2,450	216.55	C,L
32N1	GS	1-14-58	George Morrison		305	6	L N	7		Un	TcN	0	2,470	155.48	C
	GS	11- 3-52					L W			Dm				156.83	
	GS	11-27-51					L W			Dm				156.4	
32N2	GS	1-14-58	Mrs. Gill, well 2		454	RG	T 5			Dm	Na		2,455		C
	Owner	1953						20	.3					225	
32N3	GS	1-14-58	Mrs. Gill, well 1		400		T 5	40		In	Na		2,465		C
	Owner	1953												a289	
32N4	GS	1-14-58	H. S. Debord	1946	375	8	L 1½	10		Dm	TcS	.8	2,455	216.26	C
32P1	GS	1-14-58	Adam Kostopoulos	1934	220	8	L W	6		Un	HccS	2.0	2,465	160.86	
			T. 11 N., R. 8 W.												
11/8-1D1	GS	1-15-58	U. S. Borax and Chemical Corp.		156.9	C 5	N N			Ds	Tc	2.0	2,590	dry	

2N1	GS DWR Owner GS	1-15-58 7-18-55 7-30-52 6- 6-52	U. S. Borax and Chemical Corp., well 2	1941	336	C	14	S	20	125		In	Hpb	1.0	2,480	(d) 178 143 e177.0	C,L
2P1	GS DWR GS Owner	1-15-58 7-18-55 6- 6-52 6-6-52	U. S. Borax and Chemical Corp., well 3	1941	346	RG		S	10	75	2.8	In	Hpb	1.0	2,490	(d) 188.0 e187.0 165	C,L
2-1	GS	1-15-58	U. S. BCC, well 1	1926	300	C		N	N			Ds			2,490		C,L
2-2	GS	1-15-58	U. S. BCC, well 4		270	C		N	N			Ds			2,480		L
2-3	GS	1-15-58	U. S. BCC, well 5		352	C		N	N			Ds			2,490		L
2-4	GS	1-15-58	U. S. BCC, well 6		344	C		N	N			Ds			2,480		L
3C1	GS	1-15-58	U. S. BCC, well 25	1954	449	C	N	N	N	57	1.2	Ds			2,490		L
3E1	GS Owner	1-15-58 9- ?-48	U. S. BCC, well 13	1948	170	C	N	N	N			Ds			2,465	167	L
3P1	GS	1-15-58	U. S. BCC, well 21	1954	430	C	14	S	E	30	1	In	TapN	1.0	2,466	(d)	C,L
3Q1	GS Owner	1-15-58 1954	U. S. BCC, well 20	1954	414	C	16	S	60	600	6.6	In			2,472.5	(d) 160	L
3R1	GS	1-15-58	U. S. BCC, well 24	1954	500	C	12	S	E			In			2,471	(d)	L

a. Pumping.
d. Well inside locked enclosure.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Well data: Depth (ft.)	Well data: Type, diameter (in.)	Well data: Pump type and power	Well data: Yield (gpm)	Well data: Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 11 N., R. 8 W.--Continued												
11/8-3-1	GS	1-15-58	U. S. Borax and Chemical Corp., well 19	1948	221	C	N N			Ds			2,500		
3-2	GS	1-15-58	U. S. BCC, well 14	1948	220	C N	N N			Ds			2,500		L
3-3	GS	1-15-58	U. S. BCC, well 15	1948	414	C N	N N			Ds			2,472		L
	Owner	10- 9-48						200						157	
10P1	GS	1-15-58	U. S. BCC, well 10	1948	239	C 10	N N			Un	Hcc	0.7	2,435	140.46	L
	GS	2-25-53												140.00	
	GS	4-19-52												140.22	
10R1	GS	1-15-58	Harold Ogg	1954	225	C 10	L W			Dm	Na		2,440	144	C
10-1	GS	1-15-58	U. S. BCC, well 11	1948	322	C	N N	35		Ds			2,435		L
	Owner	6- ?-48												140	
11D1	GS	1-15-58	U. S. BCC, well 7	1945	512	C 14	S 25	200		In			2,480	(d)	C,L
	Owner	6- 6-52												168	
11-1	GS	1-15-58	U. S. BCC, well 12	1948	404	C	N N	145	3.4	Un			2,475		L
	Owner	7- ?-48												156	

12R1	GS	1-15-58	McGinty		353.8		12	N	N			Un	Hcc	0	2,535	225.58	
	GS	2-25-53						L	G							224.1	
15K1	GS	1-15-58	U. S. Borax and Chemical Corp., well 26	1954	678	C	14	N	N	67	1.9	Un	TcN	1.0	2,426	159.05	L
16C1	GS	1-15-58	U. S. BCC, well 9	1948	181.9	C	N	N	N			Ds	Ls	0	2,420	dry	L
16D1	GS	1-15-58	U. S. BCC, well 8	1948	218	C	N	N	N			Ds			2,420		L
17R1	GS	1-15-58	Garrett Corp., Rex Div.	1957	367	RG	6	S	E	12		In	Hpb	-3.4	2,395	178.10	L
19K1	GS	1-16-58			137.4	C	6	N	N			Ds	TcN	.5	2,350	dry	
	GS	11- 3-52										Un				142.82	
	GS	7-30-52			355.8							Un				142.90	
19L1	GS	1-16-58	U. S. BCC, well 42	1955	383	RG	12	N	N	535	14	Un	Tap	1.0	2,350	144.00	L
20H1	GS	1-15-58	D. W. Swanson	1926	213.9	C	6	N	N			Un	Tc	.73	2,380	166.11	W
20H2	GS	1-15-58	D. W. Swanson		500	C	8	L	W	5		Dm	TcE	0	2,385	172.12	C
	GS	2-24-53														170.8	
22E1	GS	1-15-58					6	L	N			Un	TcW	1.0	2,395	170.46	C
26A1	GS	1-15-58	C. J. Roycroft	1927f	1170	C	5	L	3			Dm	Na		2,425	200	L
26D1	GS	1-15-58	C. J. Roycroft			C	6	N	N			Un	Hcc	1.5	2,400	169.99	
26E1	GS	1-15-58	C. J. Roycroft									Ds			2,385		C
	GS	11- 3-52			175	C	6	L	G			Dm	Tc	1.0		159.37	

d. Well inside locked enclosure.
f. Well cleaned to a depth of 321 feet in October 1956.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 11 N., R. 8 W.--Continued												
11/8-26J1	GS	1-15-58	W. H. Campbell		400	C 9	L N			Un	Na		2,410		C
26J2	GS	1-15-58	Borax Exploration Co.	1941	1400	C 12	N N			Un	Tsc	N 0	2,405	171.14	
28A1	GS	1-15-58			176.1	C 6	N N			Un	TcW	1.0	2,380	168.15	
	GS	2-25-53												c172.3	
29K1	GS	1-15-58	U. S. Borax and Chemical Corp., well 41	1955	495	RG 12	N N	750	14	Un	Tap	.5	2,355	139.24	L
30C1	GS	1-16-58	Arlene Millhowlen	1954		RG 12	L W			Dm	BccW	0	2,345	130.51	
	GS	3- 6-56												130.16	
30F1	GS	1-16-58	Arlene Millhowlen	1954		8	L G			Dm	Na		2,340	130	
30H1	GS	1-16-58	L. M. Griffin	1957	243	C 10	S 3	50	17	Dm	Tc	1.0	2,345	132.04	
30Q1	GS	1-16-58	U. S. Borax and Chemical Corp., well 32	1955	485	RG 12	N N	345	2.6	Un	ScS	.5	2,335	117.36	L

31P1	GS	1-15-58	U. S. Borax and Chemical Corp., well 39	1955	303	RG	12	N	N	1,350	29	Un	Tap	1.0	2,325	109.20	C,E,L
	GS	3- 6-56														107.96	
32G1	GS	3-10-58			156.0	C	14	N	N			Un	Hcc	2.12	2,340	128.86	W
33L1	GS	1-17-58	Calif. Borax Co.	1958	500	C	10	S	E			In	Tc	2.0	2,345	131.37	L
35D1	GS	1-15-58	H. B. Hays, Desert Lake	1955	606	RG	12	N	N	275	6	Un	Tap	.5	2,380	167.44	L
35N1	GS	1-16-58	H. B. Hays	1956	667	RG	6	S	E	395	3.8	Ps	Tap	1.0	2,395	(c)	C,E
	Owner	11-11-57														210	
			T. 11 N., R. 9 W.														
11/9-6M1	GS	12-29-57			179.0	C	12	N	N			Un	Tc	.5	2,350	167.69	
	GS	7-25-56														165.65	
6P1	GS	7-25-56			2.0							Ds			2,350		
	DGT-56	1917			235											170	
7M1	GS	1-29-58			0	R	N	N	N			Ds			2,335		
	GS	4-15-53			165.0								Tbc	0		155.0	
12L1	GS	1-16-58	M and R, Conklin Ranch		b155		6	L	G			Un	ThfE	2.0	2,385		
	GS	7-30-52			200											168.64	
12Q1	GS	1-16-58	Peters	1957	297	C	8	L	G			Dm	Na		2,375	182	
13D1	GS	1-16-58	U. S. Borax and Chemical Corp., well 40	1955	312	RG	12	N	N	955	15	Un	Tap	1.0	2,375	158.34	L
13L1	GS	1-16-58	U. S. BCC, well 45	1955	462	RG	12	N	N	1,200	100	Ob	NcN	.5	2,360	144.39	L,R

b. Depth to obstruction which is above the water level.
c. Tape smeared.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
T. 11 N., R. 9 W.--Continued															
11/9-13R1	GS	1-16-58					N N			Ds			2,370		
	GS	4-21-52			188.0	6	N N			Un	TcS	2.0		134.38	
14B1	GS	1-16-58			0		N N			Ds			2,370		
	GS	7-30-52			157.0	12	N N			Un	TcN	1.0		156.78	
15H1	GS	1-16-58	M and R, Conklin Ranch	1957	361.9	RG 6	N N			Un	TcS	.5	2,360	156.38	
17M1	GS	7-30-52		1952		N	N N			Ds	Ls	0	2,330	134	
17N1	GS	3- 4-58			184.6	C 12	T N			Un	TcN	.5	2,324	130.67	W
18J1	GS	4-11-51			86.4	D 36	N N			Ds	TwcE	0	2,330	dry	
	DGT-57	1917			140									106	
19A1	GS	1-28-58	W. McClanaghan	1953	175	RG 6	T G	30		Dm	Na		2,320		
	GS	4-16-53									EdpW	1.0		124.50	
22P1	GS	1-17-53	James	1957		RG 8	N N			Un	TcW	1.7	2,320	99.69	
22Q1	GS	1-17-58	J. C. Schecter		193	C 6	L W			Dm	Twc	1.0	2,320	105.61	C,W
23B1	GS	1-16-58	Fisher		200	6	L G			Dm			2,395	c143	C

23B2	GS	1-16-58	Fisher	1957	391.8	C	6	N	N			Un	TcS	1.0	2,375	133.60		
24A1	GS	1-16-58	U. S. Borax and Chemical Corp., well 27	1955	900	C	16	N	N	96	.5	Un	Tap	1.0	2,348.8	136.28		L
24B1	GS	1-16-58	U. S. BCC, old well		150.4	C	8	N	N			Un	TcS	1.4	2,345	133.11		
	GS	4-21-53														129.88		
	GS	11- 3-52														131.27		
	GS	4-21-52														131.29		
24B2	GS	1-16-58	U. S. BCC, well 43	1955	542	RG	12	S	40	1,460	73	In	HpbW	3.0	2,345	132.92		L
24Q1	GS	1-16-58	U. S. BCC, well 33	1955	360	RG	12	S	E	900	35	In	HpbW	3.0	2,335	(d)		L
25L1	GS	1-16-58	U. S. BCC, well 34	1955	480	RG	12	N	N	930	77	Un	Tap	.5	2,330	111.00		L
	GS	3- 6-56														110.48		
26R1	GS	1-16-58	Millholin				6	L	W			Dm	Na		2,325			
27F1	GS	1-17-58	Antelope Valley Water Co.	1957	330	RG		T	40			Ps	TapS	1.0	2,310	(d)		
28B1	GS	1-16-58	Harry Levy	1957	275	RG	8	S	E			Dm	Tap	2.0	2,315	94.87		
28C1	GS	1-17-58	Harry Levy	1932	186.9	C	5	N	N			Un	TcS	2.0	2,305	87.34		L
28K1	GS	1-28-58	Wonder Acres	1953	300	RG	12	T	25	920	115	Ps	Na		2,300	84		
28N1	GS	1-14-58	Dune Invest. Co.	1957	300	RG	16	T	40	230		Ps	Tap	1.0	2,290	80.49		
28R1	GS	1-17-58	J. W. MacClatchie	1953	200	R	6	N	N			Un	Na		2,295			
	GS	3- 6-56						L	E	4		Un	TcE	.2		83.77		
28R2	GS	1-17-58	Fred Cannon	1954	300	RG	8	J	E			Dm	BccE	.5	2,295	e81.65		

a. Pumping.
d. Well inside locked enclosure.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 11 N., R. 9 W.--Continued												
11/9-29H1	GS	1-16-58	U. S. Borax and Chemical Corp., well 37	1955	395	RG 12	N N	850	31	Un	Tap	1.0	2,305	93.16	L
29K1	GS	1-17-58	U. S. BCC, well 38	1955	405	RG 12	N N	940	55	Un	Tap	.5	2,300	86.03	L
30H1	GS	1-28-58	W. MacClanaghan	1956	270	RG 10	T 2	10		Un	TcN	2.0	2,310	93.20	
30N1	GS	3-10-58	Flourr		200	12	N N			Un	TcE	0	2,328	115.74	C,W
30Q1	GS	1-17-58	A. F. Green		169.1	12	N N	7		Un	TcW	1.2	2,320	100.51	W
31D1	GS	1-17-58	Flourr	1956	350	RG	S 3/4			Dm	Na		2,330		
	GS	3- 6-56									TcN	.5		113.54	
31D2	GS	1-17-58	Muroc Motel	1955	400	RG 8	S 15	35	.3	Dm	TapW	1.1	2,330	e144.60	
33E1	GS	1-14-58	W. R. Merry	1958	300.5	RG 10	N N			Un	TcN	1.0	2,280	75.74	
33F1	GS	1-14-58	Edgmont Tlr. Ct.	1955	290	RG 8	T 5			Dm	Na		2,270		
33F2	GS	1-14-58	Dune Invest. Co.	1957	260	RG 8	S 5	600		Dm	TcN	1.5	2,280	64.33	

34A1	GS DGT-3(A)	5-14-58	F. J. Schultz	1910	193.5	C	10	T	3			Dm	TcS	.4	2,303	93.92	C,W
34B1	GS	1-17-58	J. J. Frank		125		6	J	1			Dm	Na		2,305		
34B2	GS	1-17-58	P. C. Garner	1955			6	J	1			Dm	Na		2,305		
34B3	GS	1-17-58	J. A. Gregory	1952	132	C		S	E			Dm			2,310	(d)	
34K1	GS GS	1-17-58 1-25-51	Millhollin	1950	147	C	6	J	3			Dm	Na HccE	 1.0	2,300	 80.75	L,W
34L1	GS	1-17-58	A. C. Williamson				6	S	1			Dm	Na		2,295		C
36A1	GS GS	1-16-58 3- 6-56	U. S. Borax and Chemical Corp., well 28	1955	610	C	16	N	N	365	12	Un	TcE	0	2,323.6	111.64 111.50	C,L
36C1	GS GS	1-16-58 3- 6-56	U. S. BCC, well 30	1955	407	RG	12	N	N	850	37	Un	Tap	.84	2,325	106.05 105.94	C,L
36C2	GS	1-16-58	U. S. BCC, well 35	1955	372	C	10	N	N			Ob			2,325	(d)	R
36C3	GS GS	1-16-58 3- 6-56	U. S. BCC, well 36	1955	382	C	10	N	N			Un	Tap	2.0	2,325	103.69 103.41	
36D1	GS GS	1-16-58 3- 6-56	U. S. BCC, well 29	1955	414	C	14	N	N	690	29	Un	Tap	1.15	2,320	100.62 100.34	C,L
36H1	GS GS	1-16-58 3- 6-56	U. S. BCC, well 31	1955	300	RG	12	N	N	410	14	Un	Tap	.9	2,325	104.07 103.89	C,L
36R1	GS GS GS	1-16-58 7-27-56 5- 5-54	U. S. Air Force	1953	298	C	10	N	N			Un	BncW	0	2,315	98.49 98.45 98.25	L

d. Well inside locked enclosure.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Well data: Depth (ft.)	Well data: Type, diameter (in.)	Well data: Pump type and power	Well data: Yield (gpm)	Well data: Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 11 N., R. 10 W.												
11/10-4J1	GS	7-23-56	Walt Miller		232.6	9	N N			Un	TcS	1.0	2,403	205.32	
26F1	GS	9-10-52			118.5	C 12	N N			Ds	Tc	0	2,400	dry	
36A1	GS	1-28-58	A. F. Green	1957	300	RG 10	N N			Un	Hcc	1.0	2,340	121.80	L
36B1	GS	1-28-58	A. F. Green		238	RG 8	T 7½			Ps			2,345	(d)	L
	GS	4-25-52			235.7						TcS	1.0		127.82	
36H1	GS	1-28-58	ATSF Railway	1953	320	RG 10	T 10	150		RR	Bap	2.0	2,337.0	118.68	C,L
	GS	5- 5-54												118.49	
	GS	4-13-53												a181	
			T. 12 N., R. 8 W.												
12/8-34A1	GS	1-15-58	McGinty		b214	6	L N			Un	TcN	0	2,540		
	GS	2-25-53								Un				216.55	

T. 12 N., R. 9 W.																	
12/9-35L1	GS Owner	11-22-57 12-12-56	Food Machinery and Chemical Corp., Peerless Pump well 5	1956	1260	RG	16	T 20	1,833	34	Ir	HpbN	1.0	2,450	255.64 235	E
36N1	GS	11-22-57	McLain	1956		RG	16	N N	550		Un	TcN	0	2,435	221.90		
T. 12 N., R. 10 W.																	
12/10-31-1	GS DGT-52	7-26-56 1917			380			N N			Ds			2,420	156		
34D1	GS DGT-54	7-23-56 1917			113.2		12	N N			Ds	TcS	2.0	2,380	dry dry		
35P1	GS DGT-55	1-29-58 1918			194.1 378	C	10	N N			Ds	Tc	1.0	2,365	dry 199	C,W	
T. 29 S., R. 37 E.																	
29/37-34B1	GS	2-27-58	McMillan		100			J 1	16		S	TcS	1.0	2,580	8.70		
34B2	GS DGT-14	2-27-58 1917	McMillan		0				16		Ds			2,580			
T. 29 S., R. 39 E.																	
29/39-11R1	GS	2-27-58	Jennifer Mining Co.		b300	C	14	N N			Un	TapN	0	2,390			
12N1	GS	2-13-58	Yellow Aster Mining Co., well 3		520	R	16	T 50			In	HpbW	1.0	2,395	397.41	C	

a. Pumping.
b. Depth to obstruction which is above the water.
d. Well inside locked enclosure.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)	Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 29 S., R. 39 E.--Continued											
29/39-12X1	GS	2-27-58	Yellow Aster Mining		100.7	D 60	N N			Ds		2,490	dry	
	Owner	1917	Co.		450		B G	65						
12X2	GS	2-27-58	Yellow Aster Mining		350.2	C 10	N N			Ds		2,490	dry	C
	DGT-4	1917	Co., well 4		520	9	T G	65					440	
12X3	GS	2-27-58	Yellow Aster Mng. Co.,		600+	C 12	N N			Un	Tcc 0	2,450	392.08	C
	DGT-3(F)	1917	well 5		1400		L G	65	1.6	In			440	
14A1	GS	2- 4-58	Yellow Aster Mng. Co.			R	T N			Un	Na	2,350		
15E1	GS	2-13-58			56.2	D 48	N N			Ds		2,230	dry	
	DGT-5	10- 2-17	Jack Watson		65.2								55.7	
15M1	GS	2-13-58	E and R Martin		g80	D 60	L G			Un	Tbc 3.0	2,240	63.85	C
	DGT-6	1917			30								dry	
21A1	GS	2-13-58	Mrs. M. Austin	1955	103	C 8	L G			Dm	Bdp 1.11	2,180	46.46	
22D1	GS	2-13-58	Mrs. Sarah Slocum			D 48	L N			Un	Tbc 0	2,150	48.37	
	GS	4-23-53			56.4								49.31	
	DGT-7	10- 2-17			48								42.1	

22D2	GS	2-13-58	Mrs. Sarah Slocum		6.0	D	48	N	N			Ds			2,150			
	DGT-8	1917			46												20	
22E1	GS	2-12-58	Lee Reams		71.1	C		N	N			Ds			2,140			
	DGT-9	10- 2-17			102								Tbc	0			28.0	
23J1	GS	2-13-58	T. F. Prather	1954	600	C	14	T	D	600	15	Ir	TcW	1.0	2,280		(c)	
	Owner	7-26-54															350	
26A1	GS	2-13-58	T. F. Prather	1957	343.6	C	N	N	N			Un	TcW	0	2,270		h138.25	
27K1	GS	2-13-58			124.3	C	10	N	N			Ds			2,145		dry	
	DGT-10	1917						L	W								200	
28H1	GS	2-13-58			205.7		12	N	N			Un	Tc	2.0	2,100		174.50	W
29M1	GS	2-13-58	Mark Morris		265		14	T	D	800	29	Ir	TcN	.5	1,980		69.07	C
29N1	GS	2-13-58	Wirtz	1942	165		8	T	G	350		Ir	Hpb	1.5	1,980		65.77	C
32C1	GS	2-13-58	Wirtz	1949	238	R	14	T	D	1160		Ir	HpbS	1.0	1,980		76.85	
	GS	10-11-56															76.01	
	GS	4-23-53															j79.3	
	Owner	11- ?-49															78	
32E1	GS	2-13-58	Jones		125		6	A	G			Dm	TcN	2.85	1,950		54.18	
	GS	10-11-56															54.06	
32J1	GS	2-13-58										Ds			2,020			
	DGT-12				295		12										90	
33C1	GS	2-13-58			31.3	C	8	N	N			Ds	Tc	-3.3	1,995		dry	
	DGT-11	1917			300												130	

g. Well deepened since previous measurement.
h. Depth to fluid level.
j. Nearby well being pumped.
c. Tape smeared.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 29 S., R. 39 E.--Continued												
29/39-33H1	GS	2-13-58	Stocton, Works, et al.	1953	460	RG 16	T D	1,100	5	Ir	TcE	1.0	2,105	176.50	C,L
33K1	GS	2-13-58	Stocton,Works, et al	1956	403.4	RG 16	N N			Un	TcW	1.0	2,070	131.16	L
34F1	GS	2-13-58	Jesse Stocton		177.7	C 10	N N			Ds	Tc	2.0	2,150	dry	
35H1	GS	2-13-58	U.S. Grazing Serv.			6	L N			Un	TcE	.7	2,300	356.17	
			T. 29 S., R. 40 E.												
29/40-21X1	GS	2-27-58			b408	C 12	T 40			Un	TcW	0	2,800		
22X1	GS	2-27-58	Geo. Moore, well 1			C	T 75			Un	Na		2,840		
22X2	GS	2-27-58	Geo. Moore, well 2			C	T 50			Un	Na		2,880		
22X3	GS	2-27-58	Geo. Moore, well 3	1942	860	C 14	T 40	94	3	Un	Na		2,910	396	C,

T. 30 S., R. 37 E.

30/37-12N1	GS	2-27-58	Donley	1947	160	RG	6	L	G	8		Dm	Tc	1.5	2,200	106.57	C
	GS	8-27-56														107.35	
	GS	4-23-53														104.80	
13E1	GS	2-27-58	Crookshank, well 1		2910		18	N	N			T			2,200	dry	L
13F1	GS	2-26-58	Crookshank, well 1A		1859		12	N	N			T	Na		2,100		L
14N1	GS	8-29-56	Frank Pappas		200		6	L	H			Un	NcS	.7	2,155	89.80	
23D1	GS	2-26-58	J. M. Bishop				6	L	2			Dm	TcE	0	2,180	184.69	C
	GS	7-27-56														182.85	
23J1	GS	2-26-58	Cantil School Dist.				10	T	2			Ps	Na		2,015		C
	GS	3-18-53											TcN	1.0		55.74	
23J2	GS	2-26-58			b65			L	1			Dm	Tbc	1.0	2,020		
23J3	GS	2-26-58	Southern Pacific Co.		431	C		L	½			Dm	Na		2,020		C
	Owner	9- 2-48								55	2.1					57	
	DGT-16	1919														60.4	
23J4	GS	2-26-58	Cantil School Dist.				6					Un	Na		2,015		
24B1	GS	8-29-56	Southern Pacific Co.		50.1		12	N	N			Ds			2,010	dry	L
	CW-24A	1931															C
24G1	GS	2-26-58	Brown				12	T	G			Un	TcE	1.0	2,000	50.73	
	GS	8-29-56														49.33	
	GS	5- 5-53														48.01	
24G2	GS	2-28-58	Clark	1957	200	R	8	J	2			Un			1,990	(d)	

b. Depth to obstruction which is above the water level.
d. Well inside locked enclosure.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Well data: Depth (ft.)	Well data: Type, diameter (in.)	Well data: Pump type and power	Well data: Yield (gpm)	Well data: Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
T. 30 S., R. 37 E.--Continued															
30/37-24J1	GS	2-26-58	Earl Brown		107.9	C 12	N N			Un	TcW	0	1,985	25.75	
	GS	8-29-56												25.50	
24K1	GS	2-26-58	Fred Clark	1952	211	A 8	T 10	200		Un	TcS	1.0	1,980	23.66	C
	GS	8-29-56												22.23	
24K2	GS	2-26-58	Gene Getty		120	6	J E			Dm	TcN	.85	1,980	28.23	
	GS	8-29-56												27.55	
24M1	GS	2-28-56				C 8	L N			Un	TcW	0		43.77	W
	CW-24B	10- 3-29											2,000.0	37.50	
24N1	GS	2-26-58			b6	4	L W			Un			1,990		
24N2	GS	2-26-58		1957		R	J 2			Dm	Na		1,990		
24R1	GS	2-26-58	Geo. Pappas	1936	197.0	C 8	N N	360	18	Un	Tmc	.5	1,955	3.97	
	GS	8-30-56												3.75	
24R2	GS	2-26-58	Geo. Pappas		163	C 8	J ½	215	11	Dm	TcE	2.0		+.80	
	GS	8-30-56												.80	
	GS	5- 6-53												flowing	
	CW-24C	10- 3-29											1,958.0	flowing	

25M1	GS GS	2-26-58 3-17-53	M and R, Cantil Ranch, 4		692	RG	18	T	75			Ir	TpbW Tc	.85 .5	1,975		33.88 29.32	L
26D1	GS GS	7-27-56 3-17-53	M and R, Cantil Ranch		77.7		10	N T	N 2			Ds Dm	TcW	0	2,040		dry 78.15	C
26E1	GS GS	2-26-58 7-27-56	MR, Cantil, 13	1950	485	RG	14	T	50	1,800		Ir	TcW	.5	2,040		80.51 81.89	C,L
26K1	GS GS DGT-18	2-26-58 7-27-56	John MacRorie	1914	55.0 640	C	12	N A	N	900		Un	TcN	2.0	2,000		52.38 49.46 60	
26K2	GS	2-26-58	John MacRorie		6.1	C	6	L	N			Ds			2,000		dry	
26M1	GS	2-26-58	R. R. Rogers	1914	b58.5	C	12	A	N	180		Un			2,025			
26M2	GS Owner	2-26-58 1952	R. R. Rogers		100	C	12	J	2			Dm	Na		2,030		70+ 65	
26M3	GS	2-26-58	R. R. Rogers	1914	640	C	12	T	G	1,125	70	Ir	Na		2,030		70+	
26M4	GS	2-26-58	R. R. Rogers	1914		C		N	N			Un	Na		2,025			
26-1	GS CW-26A DGT-17	2-26-58	MR, Cantil Ranch		350	C	12	N A	N	810	62	Ds			2,040		65	
27H1	GS GS Owner	2-26-58 7-27-56 3-12-53	J. L. Shesler	1924	220	C	10	T	5	100	12	Dm	HpbS	1.0	2,050		94.14 91.49 87	
27P1	GS GS	2-26-58 8-18-53	R. R. Rogers			R	12	N	N			Un	Tap	1.0	2,070		118.41 119.4	

b. Depth to obstruction which is above the water level.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 30 S., R. 37 E.--Continued												
30/37-27-1	GS	2-26-58	R. R. Rogers		4760	R 11	N N			Un	Na		2,055		E
28H1	GS	1-28-58	George Pye	1918	198	8	J 2			Dm	TcE	.8	2,120	78.06	C
28J1	GS	1-28-58	Bruce Minard	1957	231	C 8	T 5	150		In	TcN	4.0	2,100	125.42	
34B1	GS	2-27-58	M. M. Black	1920	141	C 12	L 1	2		Dm	Na		2,045		
	GS	3-12-53									Tc	2.0		79.3	
34F1	GS	2-26-58	Rosenbaum	1956		C 10	T G			Ir	Tc	2.11	2,040	78.84	
	GS	7-27-56												76.31	
34H1	GS	2-26-58		1947		6	J 3			Dm	BpbW	3.2	2,025	69.16	
	GS	7-27-56												67.55	
	GS	3-12-53												55.0	
	Owner	1952												47	
35D1	GS	1-31-58	M and R, Cantil Ranch, 5		844	RG 18	T 75	1,800		Ir	Bap	2.0	2,020	97.12	L
35Q1	GS	1-31-58	MR, Cantil, 9		810	RG 20	T 75			Ir	Tc	2.0	2,030	63.42	L
36C1	GS	1-31-58	MR, Cantil, 14		500	RG 14	N N			Un	Na		2,000		C,L

36G1	GS	1-31-58	MR, Cantil, 7		938	R 14	T 5	1,200	20	Dm	Tc	0			33.31	L
	GS	3-12-53													29.32	
	CW-36A	10-29-29											1,981.0		18.0	
	DGT-19	1917													flowing	
36K1	GS	1-31-58	MR, Cantil, 15		527	RG 14	T 75			Ir	TcE	0	2,005		50.28	L
	GS	3-11-53													62.82	
36N1	GS	1-31-58	MR, Cantil, 10		590	RG 20	T 75	2,000		Ir	BncW	.8	2,025		71.52	C,L
	GS	3-11-53													53.9	
			T. 30 S., R. 38 E.														
30/38-3B1	GS	10-10-56	Western Salt Co.	1954	99	C 10	T 1½			Dm	HcW	1.0	1,945		27.87	C
3G1	GS	10-11-56	Western Salt Co.			C 12	T 10			In			1,905		(c)	
3J1	GS	10-11-56	Western Salt Co.			C 12	T 15			In	Tc	.4	1,900		56.02	
3K1	GS	10-11-56	Western Salt Co.				N N			Ds			1,900			
	GS	5- 5-53				D 40	L H			Un	Thf	1.0			2.20	
3K2	GS	10-11-56	Western Salt Co.			12	T 20			In			1,905		(c)	
5A1	GS	2-13-58	Walter Tisch	1941	140	D 8	J ½			Dm	TcN	.65	2,000		100.35	C
	GS	10-10-56									Tbc	0			101.31	
	GS	4-23-53													e117.05	
5R1	GS	2-14-58	E. S. McKendry		31.0	12	N N			Un	TcN	1.5	1,914		14.89	
	GS	10-10-56													14.50	
	GS	5- 5-53													14.32	
5R2	GS	2-14-58	E. S. McKendry		22.2	C 12	N N			Un	Tc	1.0	1,914		13.10	

c. Tape smeared.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 30 S., R. 38 E.--Continued												
30/38-8E1	GS	2-14-58	E. S. McKendry			L	N			Un	Na		1,980		
8E2	GS	2-14-58	E. S. McKendry		27.1	D 30	N	N		Un	TcW	0	1,980	26.09	
8G1	GS	2-14-58	E. S. McKendry		12.8	D 48	L	W	70	3.9 Dm	TbcS	0	1,950	3.31	
	GS	5- 5-53												2.38	
	DGT-13				19									flowing	
8J1	GS	2-14-58	E. S. McKendry			20	N	N	20	Un	Sc	2.0	1,950	flowing	C
	GS	10-10-56												flowing	
	GS	5- 5-53												flowing	
8K1	GS	2-14-58	E. S. McKendry		32	6	N	N		Un	TcS	2.0	1,950	+1.42	
	GS	10-10-56												1.01	
8K2	GS	2-14-58	E. S. McKendry		275	C 10	T.G		350	S	TcS	0	1,950	flowing	
	GS	10-10-56												7.20	
8N1	GS	2-14-58	E. S. McKendry		52	C 10	J	1		S	TcW	0	1,950	25.45	W
8N2	GS	2-14-58	E. S. McKendry				N	N		Un	Na		1,950		

19A1	GS	2-14-58	J. E. Sprott	1926	2727	R	N	N	N			Ds			1,950			L
19F1	GS	2-28-58	Crookshank, well 2		2883	R	18	N	N			Ds	Na		1,970			E,L
19K1	GS	2-26-58	J. E. Sprott	1913	845	C	24	T	10	370	8.8	Ir	TcW	0	1,955	15.58		C
	GS	8-30-56														e24.95		
	DGT-21				828		12	C		1,125	22					+4		
19M1	GS	2-26-58	J. E. Sprott	1911	1190	C	24	T	N	500	5.8	Un	TcW	1.0	1,975	21.91		C
	GS	8-29-56														24.16		
	GS	5- 5-53														a105.5		
	DGT-20				880		12	C		936	14					12		
19P1	GS	2-26-58	Crookshank, well 3		3090	R	12	N	N			Un	Na		1,940			E,L
19P2	GS	2-26-58	J. E. Sprott		5065	R	18	N	N			Un	Ls	0	1,940	flowing		L
20B1	GS	2-26-58	Pierose	1957		R	10	T	30			Dc	TcW	.5	1,935	4.33		
20C1	GS	2-14-58	Pierose		142.7		8	N	N			Dc	Tc	2.8	1,925	+1.60		C
	GS	10-10-56			180											flowing		
20C2	GS	2-14-58	Pierose		80	C	8	L	W			Dm	Na		1,930			C
20C3	GS	2-14-58	J. C. Cristie	1957	205	C	8	L	W			Dm	TcS	2.5	1,935	7.10		
20C4	GS	2-14-58	Pierose	1957		R	12	N	N			Dc	TcE	4.0	1,925	+3.24		
20E1	GS	2-25-58	McColloway		24.0		8	N	W			Un	TcE	0	1,940	6.48		
	GS	10-10-56														6.22		
	DGT-23				130											6		
20F1	GS	2-26-58	Ted McKey	1955	205	RG	12	T	20	500		Ir	HcE	1.7	1,940	3.52		C
	GS	10-10-56														1.50		

a. Pumping.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 30 S., R. 38 E.--Continued												
30/38-21D1	GS	10-10-56	Ted McKey		8	N	N			S	TcE	2.0	1,900	+0.70	C
	GS	5-12-53						20						flowing	
24F1	GS	2-12-58	Lincoln	1944	550	R 5	N	N		Un	TcW	2.0	1,940	13.02	C
	GS	5- 7-53												12.19	
28D1	GS	2-12-58	Mrs. A. Daly	1918	152	C 10	N	N	5	Un			1,900	flowing	
	GS	5- 7-53												flowing	
29-1	GS	1-31-58	Fred Hartsook							Ds					
	DGT-31	1917			600	7								flowing	
30B1	GS	2-26-58				12	N	N	10	S	Tc	1.3		flowing	
	GS	5- 6-53												flowing	
	CW-30B	10- 3-29											1,944.0	flowing	
30B2	GS	2-26-58	H. E. Bean		2.6	C 24	N	N		Ds			1,935	dry	
	DGT-15	1917							90					flowing	
30E1	GS	1-31-58	E. H. Price		260	C 12	J	1		Un	TccN	3.0		4.15	
	GS	5-13-53												3.61	
	CW-30A												1,949.0	flowing	
	DGT-22	1917							40					flowing	

30P1	GS	1-31-58	M and R, Cantil Ranch, well 1		643	RG	20	T	100	1,566		Ir	Nc	1.5	1,960	23.88	L
30Q1	GS	1-31-58			93.8	C	12	N	N			Un	TcE	2.5	1,960	13.01	
30R1	GS	1-31-58	W. M. Munsey	1917	80	C	6	L	W			Un	TcE	0	1,955	14.23	C
	GS	5- 7-53														16.10	
	DGT-31A	1917														flowing	
30R2	GS	1-31-58	W. M. Munsey		37.5	C	6	N	N			Un	TcS	.3	1,955	12.24	
31F1	GS	1-30-58	M and R, Cantil		658	RG	16	T	60			Ir	TcS	2.0	1,990	50.50	L
	Owner	4-22-53	Ranch, well 3							1,280	17					a125.0	
31G1	GS	1-30-58	MR, Cantil, well 2		656	RG	20	N	N	1,560	20	Un	Na		1,990		L
31L1	GS	1-30-58	MR, Cantil Ranch	1957		RG	16	T	E			Ir	TcN	1.0	2,000	67.26	
32D1	GS	1-31-58	Holderness	1935	300	R	6	J	2			Dm	TcN	-2.0	1,965	28.07	C
32D2	GS	1-31-58	Holderness	1947	167	RG	12	T	G			Un	Na		1,970		
32E1	GS	1-31-58	MR, Cantil Ranch		107.4	C	12	N	N			Un	TcN	1.0	1,980	37.15	W
32G1	GS	1-31-58	MR, Cantil, well 8		863		20	J	1			S	Na				L
	CW-32A	10- 3-29													1,949.0	flowing	
32N1	GS	1-31-58		1914		C		C	N			Un	Na		2,000		
	DGT-24				615			C		585	29					13	
32-1	GS	1-31-58				C		N	N			Ds			1,990		
	DGT-24A				300											27	
34C1	GS	2-12-58	Peter Cassou	1923	367	C	10	T	15	250		Ir	TcE	2.0	1,970	7.80	C
	GS	5- 7-53														k8.0	

a. Pumping.
k. Flowing into pipe 8.0 feet below land surface.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)	Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 30 S., R. 38 E.--Continued											
30/38-34C2	GS	2-12-58	Peter Cassou		52	C 12	N N			Un	Tc 2.0	1,950	12.89	
	GS	5-13-53											j8.9	
			T. 30 S., R. 39 E.											
30/39-3C1	GS	2-13-58	James Stockton	1956	610	RG 14	N N	1,600	35	Un	TcW .5	2,140	237.34	L
4H1	GS	4-30-53			225.0	12	N N			Ds	Tc 3.0	2,165	dry	
6G1	GS	2-12-58			19.8	10	N N			Ds		1,930	dry	
	GS	10-11-56								Un	Tbc 1.0		23.1	
	GS	5-13-53											24.28	
8A1	GS	2-12-58			268.3	C 12	N N			Un	Tc 1.0	2,075	137.91	C,W
8E1	GS	2-12-58		1956	83.7	R N	N N			Ds		2,000	dry	
			T. 31 S., R. 37 E.											
31/37-1H1	GS	1-30-58	M and R, Cantil		504	RG 14	T 100			Ir	BapS 2.12	2,030	81.28	C,L
	GS	3-11-53	Ranch, well 16								Tc 2.0		61.60	

1R1	GS	1-30-58 MR, Cantil, well 11		468	RG 20 T 100	2,578	Ir	BapS	1.0	2,065	125.73	L	
2D1	GS	1-31-58 MR, Cantil Ranch			RG 16 T 150		Ir	BapS	1.5	2,050	105.15		
2P1	GS	1-30-58 MR, Cantil, well 6		380	RG 18 T 100	2,073	Ir	BapS	2.0	2,080	147.32	L	
2-1	GS DGT-25	1-30-58 MR, Cantil Ranch		300			Ds			2,080	100		
4N1	GS	1-28-58 MR, Conklin, well 17	1952		RG 16 T 75	1,500	Ir	Na		2,120			
5M1	GS	1-28-58 Cinco Serv. Sta.	1946	205	C 6 J $\frac{1}{4}$	8	Dm	TcE	1.5	2,150	155.78	C	
6J1	GS	1-28-58 Wm. Paganeu			D 4 S E		Dm	Na		2,170			
8C1	GS	1-28-58 MR, Conklin, well 16	1952	650	RG 16 T 200		Un	EpbS	1.95	2,190	174.14	W	
10A1	GS	3-10-53 James Hunter	1948	320	RG 12 T D	500	Ir			2,120	120	C	
10Q1	GS DGT-27	1-30-58 1917		161.9 177	D 48 N N		Ds	Tbc	.5	2,160	dry		
10-1	GS DGT-26	1-30-58 James Hunter		174	6		Ds			2,120	124		
12H1	GS	1-30-58 MR, Cantil, well 12			RG 18 T 125		Un	Hpb	1.0	2,100	155.54		
12N1	GS GS	1-30-58 MR, Cantil Ranch 2- 9-53		0	N N N RG 18		Ds	Tc	1.0	2,135	h79.86		
12-1	GS DGT-28	1-30-58 MR, Cantil Ranch 1917					Ds			2,070	96		

h. Depth to fluid level.
j. Nearby well being pumped.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 31 S., R. 37 E.--Continued												
31/37-13A1	GS	1-30-58	Lewis Ryan	1915	400	C 12	N N			Un	ScE	0	2,135	184.12	
13B1	GS	3- 6-57	Lewis Ryan	1916	400	C 12	N N			Un	TcS	1.0	2,140	174.28	W
	DGT-29	1917												130	
14L1	GS	1-30-58	L. H. Giddings	1914	170.0	DC 60	L W			Un	Na				C
	GS	1-22-53				D 6	J G			Dm	Tmc	.5		196.60	
	CW-14A	10- 1-29				6		500					2,179.1	184.5	
22J1	GS	1-30-58	Cinco, well 1		b275	R 10	N N			Un			2,235		L
~~22R1~~	~~GS~~	~~1-30-58~~	~~Hix, well 1~~		~~67.0~~	~~R 12~~	~~N N~~			~~Ds~~			~~2,240~~	~~dry~~	~~E,L~~
22Q1	GS	11-22-57	L. W. Giddings	1914	500	C 14	T N			Un	TcN	0		269.32	W
	CW-22A	9-30-29											2,260.0	253.0	
23K1	GS	1-30-58	M and R. Conklin	1953	205.0	R N	N N			Ds			2,210	dry	
	Owner	1953	Ranch, well 18		482	RG 16		750	3.3						
26K1	GS	1-30-58	R. M. Morrow		244.7	C 14	N N			Un	Tc	0		244.36	
	GS	8-16-56												237.75	
	CW-26A	3- 5-30											2,240.0	231.40	
	CW-26A	9-30-29												231.00	
	DGT-36	2- 5-18			374	16	W							233.0	

28P1	GS	1-28-58	City of Fremont Valley	1957			RG	14	N	N			Un	Tc	.5	2,340	266.33	
28Q1	GS	1-28-58	Dr. Slaughter	1956	600		RG	16	T	D	1,400		Ir	TapS	.2	2,330	243.43	
30F1	GS	1-28-58	Giddings				C	16	N	N			Un	Hcc	1.0		307.20	
	CW-30A	3- 5-30						20								2,371.7	300.50	
	CW-30A	10- 3-29															300.80	
	DGT-33	10- 3-17															304.0	
32A1	GS	1-28-58	F. H. Sauders				C	12	N	N			Un	Na				
	GS	1-23-53			b276.9									Tc	0			
	CW-32B	3- 5-30						16								2,348.0	277.40	
	CW-32B	10- 1-29															277.20	
	DGT-35				320												275	
32-1	GS	1-28-58	W. E. Gantt										Ds			2,380		
	DGT-34	10- 3-17			349		10		W		18						307.0	
33H1	GS	1-28-58	M and R, Conklin Ranch, well 12		535		RG	16	T	200			Ir	Bap	1.5	2,340	274.48	E
33-1	GS	1-15-58	MR, Conklin Ranch										Ds					
	CW-33A	3- 5-30					C	14					Un	Tc	.62	2,324.0	256.18	
	CW-33A	9-30-29	L. D. Davis														255.78	
34A1	GS	1-29-58	MR, Conklin Ranch	1914	205.3		C	12	N	N			Ds	TcE	.59		dry	
	GS	1-22-53			401.3								Un				200.95	
	CW-34A	3- 5-30	Kent Realty Co.													2,271.0	201.11	
	CW-34A	10- 1-29															200.61	
35N1	GS	3- 4-58	MR, Conklin, well 7	1952	439		RG	16	N	N			Un	Hcc	-.1	2,320	243.72	C,E
	GS	1-30-58															244.08	
	Owner	4-14-53															a293.0	
	GS	1-22-53							T	E				Hpb	.5		230.79	

a. Pumping.
b. Depth to obstruction which is above the water level.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Well data: Depth (ft.)	Well data: Type, diameter (in.)	Well data: Pump type and power	Well data: Yield (gpm)	Well data: Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 31 S., R. 38 E.												
31/38-6B1	GS DGT-30	1-31-58	Jarves		21.9	D 60	N G	720		Ds			2,025	35	
18P1	GS GS DGT-32	1-30-58 2- 9-53 1917	M and R, Conklin Ranch			C 12	L G			Un	HccE	0	2,225	147.22 147.42 140	
22H1	GS	1-30-58	Fremont Oil Syndicate, well 1		1440	8	N N			Ds	Tc	2.5	2,660	dry	L
22H2	GS	1-30-58	Fremont Oil Syndicate, well 2		270.0	5	N N			Ds			2,655	dry	L
22J1	GS	1-30-58			0					Ds			2,640		
31C1	GS GS DGT-37	1-30-58 2- 9-53 1917			202.3	C 12	N N	450		Un	TcW	.5	2,300	197.66 199.90 e230	
			T. 31 S., R. 39 E.												
31/39-23K1	GS	1-29-58	Mojave Invest. Corp.	1957	330.0	R N	N N			Ds	Ls	0	2,970	dry	

24M1	GS	11-19-57	Mojave Invest. Corp., well 2	1957		R 14	N N	Un	TcN	1.5	2,930	369.30	
24P1	GS	11-19-57	MIC, well 1	1957		R 14	N N	Un	Bnc	1.0	2,925	c385	
35C1	GS	1-29-58	MIC	1957		R 16	N N	Un	TcS	1.0	2,845	289.44	
35F1	GS	1-29-58	MIC	1952	344.3	R 10	N N	Un	TcN	2.0	2,825	330.33	
35F2	GS	1-29-58	MIC	1957	64.3	R N	N N	Ds			2,825	dry	
			T. 31 S., R. 40 E.										
31/40-32F1	GS	11-19-57	U.S. Grazing Serv.		250.5	6	N N	Ds	Tc	.5	2,800	dry	
	GS	2-17-53										253.2	
	GS	10-15-52			256.3			S				253.80	
35N1	GS	11-19-57	N. P. Mirildy		217.0	R 6	L N	Un	Tc	.5	2,744	195.38	
	GS	4-22-53										195.45	
			T. 32 S., R. 36 E.										
32/36-14Q1	GS	1-27-58	M and R, Conklin Ranch	1929	61.9	D 60	N N	Ds			2,630	dry	
22B1	GS	1-27-58	Oliver Pesch	1947	829	6	L 2½	Dm	Na		2,710		C,L
22B2	GS	1-27-58	Musical Well Ranch		534	6	N N	1/			2,710	dry	
22C1	GS	1-27-58		1957	625+	6	N N	Un	TcN	1.5	2,720	612.40	
23Q1	GS	1-27-58	Henry Kirschman	1952	1000	R 12	N N	Un	TcN	1.0	2,670	c350	
	GS	12- 3-52										569.6	

1. The well has a harmonica welded into the casing cover and because the well "blows" constantly the resulting long wail is reported to be a tune called "How dry I am."

c. Tape smeared.

e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 32 S., R. 37 E.												
32/37-1N1	GS	2- 3-58	M and R, Conklin Ranch		860	RG 18	N N			Un	TcS	1.3	2,330	229.71	E,W
2E1	GS	1-22-53	MR, Conklin Ranch		6.0		N N			Ds				dry	
	CW-2B	2-25-30				D 6					Tmc	.47	2,316.5	242.63	
	CW-2B	9-30-29												e251.4	
	DGT-38				446			315						244	
2F1	GS	1-30-58	MR, Conklin Ranch		201.9	RG 16	N N			Ds	Tc	-4.0	2,320	dry	
	GS	2- 9-53								Un	TcN	6.0		232.41	
2N1	GS	1-22-53	MR, Conklin Ranch		89.8	10	N N			Ds	TcN	.58		dry	
	CW-2A	2-25-30					L N						2,329.5	252.32	
	CW-2A	9-30-29												251.82	
4D1	GS	1-28-58	MR, Conklin, well 9	1952		RG 16	T 200			Ir	HpbE	1.0	2,390	335.19	
	Owner	4-17-53						1,916						a365.0	
	GS	1-23-53												301.06	
4D2	GS	1-28-58	MR, Conklin, test well 16			R N	N N			Ds			2,390		E
4P1	GS	1-28-58	MR, Conklin, well 8			RG 16	T 200			Ir	HpbW	1.5	2,405	339.90	C

4P2	GS	1-28-58	MR, Conklin, test well 15		812	R	N	N N		Ds			2,405		E*
4Q1	GS CW-4A	1-28-58 9-30-29	MR, Conklin Ranch		204.9	C	12	N N	150	Ds	NcN Tmc	0 .01	2,388.7	dry 303.19	W
6L1	GS CW-6A	1-27-58			84.9	DC	8	N N		Ds	Tbc	0	2,480	dry	
8E1	GS DGT-39	1-27-58	H. V. Reeves		364.0 410	C	10	N N		Ds	Tc	3.5	2,470	dry 370	
9Q1	GS	1-28-58	MR, Conklin, well 13		711	RG	16	T 200		Ir	Bap	2.0	2,410	364.67	E
9-1	GS	1-28-58	MR, Childs Wall, well 1		2232	R	N	N N		Ds			2,445		E,L
11N1	GS GS GS	3- 4-58 1-30-58 1-22-53	MR, Conklin, well 5	1952	600+	RG	16	N N T 125		Un	Hcc Hpb	.24 1.0	2,375	279.08 280.18 268.09	
12M1	GS	1-30-58	Danny Jones	1957		RG	16	T 15	300	Ir	Hcc	1.0	2,350	(a c)	
14N1	GS	1-30-58	MR, Conklin, well 4	1952		RG	16	T 125		Ir	HpbN	2.0	2,400	323.39	C
14Q1	GS DGT-41	2- 9-53	MR, Conklin Ranch	1917		C		T N		Un	Na		2,395		
16R1	GS	1-28-58	MR, Conklin, well 14		686	RG	16	T 250		Ir	Hpb	1.0	2,440	385.59	L
19R1	GS DGT-40	1-27-58			60.1 98	C	8	N N		Ds			2,560	dry dry	
22N1	GS	1-28-58	MR, Conklin, well 2	1952		RG	16	T 200		Ir	Tmc	3.46	2,460	394.25	

a. Pumping.
c. Tape smeared.
e. Pumped recently.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)		Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 32 S., R. 37 E.--Continued												
32/37-22-1	GS	1-29-58	M and R, Conklin				N N			Ds					
	CW-22A	2-26-30	Ranch								Tc	3.8	2,418.0	304.8	
	CW-22A	9-30-29				12								304.2	
	DGT-43	2- 6-18			513	C 12								312.0	
23N1	GS	1-30-58	MR, Conklin, well 3	1952		RG 16	T 200			Ir	Hpb	1.5	2,415	353.23	
	Owner	4-15-53						1,784						a401.0	
24N1	GS	1-29-58	MR, Conklin Ranch	1952	266.3	RG 18	N N	250		Ds	HcS	1.5	2,385	dry	W
24N2	GS	1-29-58	MR, Conklin Ranch		337	C 12	L G	315		Dm	Na				C
	~~CW-24A~~	~~9- 4-29~~						~~225~~			Ls	0	2,383.0	238.0	
	DGT-44													242	
26G1	GS	1-29-58	MR, Conklin, well 10	1952	b298	RG 16	T 200			Ir	TcS	.5	2,405		
	GS	1-21-53			553									300.62	E
26G2	GS	1-21-53	MR, Conklin Ranch			C 8	N N			Ds					
	CW-26A	3- 5-30									Tcc	.4	2,388.0	268.80	
	CW-26A	11-23-29												268.80	
	DGT-45													268	

26M1	GS	1-29-58	MR, Conklin, well 15		1953	598	RG	16	T	200		Ir	Bap	1.0	2,420	351.98	L
	GS	10- 7-55														346.66	
26N1	GS	1-29-58	MR, Conklin, well 1		1952		RG		T	125		Ir	HpbE	1.0	2,420	361.86	
	GS	10- 7-55														341.18	
	GS	1-22-53														a365.8	
26R1	GS	1-29-58	MR, Conklin, well 1A			b160	RG	16	T	200		Ir	TpbW	.5	2,395		
	Owner	4-21-53														a338	
26-1	GS	1-29-58	MR, Conklin Ranch				C					Ds			2,410		
	DGT-46					335										258	
32N1	GS	1-27-58	MR, Conklin Ranch		1952	1800	RG	16	N	N	1,000	Un	TcN	1.0	2,550	(c)	
	GS	2- 9-53														418.9	
34D1	GS	1-27-58	MR, Conklin Ranch			334.6	C	12	N	N		Ds	TcN	-3.0		dry	
	CW-34A	3-11-30											Tc	.02	2,449.5	341.18	
	CW-34A	10- 3-29														341.18	
35G1	GS	1-29-58	MR, Conklin, well 11		1952	662	RG		T	150	500	Ir	TapN	1.5	2,405	358.60	E
36N1	GS	1-21-53	MR, Conklin Ranch		1952	1350	RG	N	N	N	550	Ds			2,395		E
36R1	GS	7-24-56	School District			140.6	C	8	N	N		Ds	TcN	.7	2,385	dry	
	DGT-48					287										245	
			T. 32 S., R. 38 E.															
32/38-10P1	GS	1-29-58	U. S. Grazing Serv.			168.9	C	7	N	N		Ds	TcE	.5	2,475	dry	C
	GS	4-15-53				200.0										177.04	

a. Pumping.
b. Depth to obstruction which is above the water level.
c. Tape smeared.

USGS number	Source of data and other numbers	Date of observation	Owner or user	Well data: Year completed	Depth (ft.)	Type, diameter (in.)	Pump type and power	Yield (gpm)	Sp. cap.	Use	Measuring point (feet)	Altitude of lsd (feet)	Water level: Depth below lsd (feet)	Other data
			T. 32 S., R. 38 E.--Continued											
32/38-10P2	GS	1-29-58			600+	R 6	N N			Un	Tbc 0	2,475	179.00	
20D1	GS	1-29-58			97.7	D 48	N N			Ds	Ls 0	2,330	dry	
	DGT-42				90								dry	
30G1	GS	1-29-58			220.1	C 12	N N			Ds		2,360	dry	
	GS	3-15-54									Tmc 0		236.32	
	GS	2- 9-53									Tc -7.0		220.30	
	GS	11-15-51									Tmc 0		221.75	
	GS	4-11-51			240.0						Tmc 0		222.14	
32N1	GS	3- 4-58	MR, Conklin Ranch			C 10	L W			Un	TcS 1.7	2,370	247.35	C,W
			T. 32 S., R. 39 E.											
32/39- 4L1	GS	1-29-58	Johnson Co., well 1		237.0	R 10	N N			Un	TcE 1.0	2,725	207.28	C,L
	GS	4-21-53											207.3	
28G1	GS	11-22-57	Food Machinery and Chemical Corp., Peerless Pump Div., well 2	1956	900	R	N			Ds		2,530		E

30R1	GS	1-29-58	U. S. Grazing Serv.		253.0	C	12	L	N			Un	TcW	.5	2,485	227.18	
	GS	4-15-53														a238.8	
	GS	7-30-52														e232.23	
32C1	GS	1-29-58	MR, Conklin Ranch		230.6	C	10	N	N			Ds	Tc	1.0	2,480	dry	
33A1	GS	11-22-57	Food Machy. and Chem. Corp., Peerless, well 3	1956		R		N				Ds			2,510		E
33L1	GS	11-22-57	Food Machy.,	1956	1400	RG	16	T	200			Ir	Hpb	1.0	2,485	297.37	C
	Owner	12-12-56	Peerless, 1							1,785	67					a267.5	
	DWR	5-29-56														251.7	
33N1	GS	11-22-57	Food Machy.,	1956	1410	RG	16	T	200			Ir	Hpb	1.0	2,465	269.49	E
	Owner	12-12-56	Peerless, 6							1,833	37					243.0	
33R1	GS	11-22-57	Food Machy., Peerless, 7	1956	300	RG	10	J	7½	40		Dm	BpbE	1.0	2,470	230.48	
			T. 32 S., R. 40 E.														
32/40-31B1	GS	1-15-58	U. S. Borax and	1954	290	C	N	N	N			Ds			2,530		
	Owner	4-29-54	Chemical Corp., well 22										Ls	0		214.3	L
31F1	GS	1-15-58	USBCC, well 23	1954	500	C	N	N	N	19	.2	Ds			2,520		L

a. Pumping.
e. Pumped recently.

Table 2.- Cross index of other well numbers and U. S. Geological Survey numbers

The first column shows the number assigned to the well by others and the second column shows the Geological Survey number assigned to the same well. The numbers in the first column are listed consecutively. Numbers missing in the consecutive listings are for wells outside the Fremont Valley and vicinity area or for wells for which no data are available.

Part 1. Numbers used by Thompson(1929)

Other number	USGS number	Other number	USGS number	Other number	USGS number
3A	11/9-34A1	20	30/38-19M1	36	31/37-26K1
3F	29/39-12X3	21	19K1	37	31/38-31C1
4	12X2	22	30E1	38	32/37- 2E1
5	15E1	23	20E1	39	8E1
6	15M1	24	32N1	40	19R1
7	22D1	24A	32-1	41	14Q1
8	22D2	25	31/37- 2-1	42	32/38-20D1
9	22E1	26	10-1	43	32/37-22-1
10	27K1	27	10Q1	44	24N2
11	33C1	28	12-1	45	26G2
12	32J1	29	13B1	46	26-1
13	30/38- 8G1	30	31/38- 6B1	48	36R1
14	29/37-34B2	31	30/38-29-1	52	12/10-31-1
15	30/38-30B2	31A	30R1	54	34D1
16	30/37-23J3	32	31/38-18P1	55	35P1
17	26-1	33	31/37-30F1	56	11/9- 6P1
18	26K1	34	32-1	57	18J1
19	36G1	35	32A1		

Part 2. Numbers used by Cyril Williams, Jr., (1930)

Other number	USGS number	Other number	USGS number
30/37-24-A	30/37-24B1	31/37-32-B	31/37-32A1
24-B	24M1	33-A	33-1
24-C	24R2	34-A	34A1
26-A	26-1	32/37- 2-A	32/37- 2N1
36-A	36G1	2-B	2E1
30/38-30-A	30/38-30E1	4-A	4Q1
30-B	30B1	6-A	6L1
32-A	32G1	22-A	22-1
31/37-14-A	31/37-14L1	24-A	24N2
22-A	22Q1	26-A	26G2
26-A	26K1	34-A	34D1
30-A	30F1		

Table 3.- Records of water levels in wells

Included are all known records of water-level measurements in wells where six or more measurements have been made; records for wells where less than six measurements have been made are shown in table 1.

Altitudes given are in feet above mean sea level for the land-surface datum at the well. Land-surface datum is a plane of reference which approximates land surface. Altitudes given in whole feet are interpolated from topographic maps. Altitudes given in feet and tenths were determined by spirit leveling/from records by Cyril Williams, Jr. (1930)/.

Measurements. All measurements of water level have been adjusted to depth below land-surface datum. That is, the altitudes of the measuring points as reported above land-surface datum have been subtracted from the water-level measurements below the described measuring point. Measurements at 14 wells (11/8-32G1, 11/9-17N1, 30N1, 34A1, 29/39-28H1, 30/37-24M1, 30/38-32E1, 30/39-8A1, 31/37-8C1, 13B1, 35N1, 32/37-1N1, 11N1, and 32/38-32N1) are made by the Geological Survey during the spring and autumn each year.

All measurements are by the Geological Survey unless otherwise indicated.

11/8-20H1. D. W. Swanson. Depth 213.9 feet. Altitude about 2,380 feet. Measuring point: Top of casing 0.73 foot above lsd.

Date	Water level	Date	Water level	Date	Water level
Mar. 8, 1951	165.67	July 25, 1951	165.76	Mar. 8, 1952	165.72
Apr. 10	165.72	Aug. 21	165.72	Nov. 3	165.71
May 7	165.72	Sept. 18	165.73	Mar. 13, 1953	165.77
June 28	165.65	Nov. 15	165.65	Jan. 15, 1958	166.11
				Measurements discontinued	

11/8-32G1. Owner unknown. Depth 156.0 feet. Altitude about 2,340 feet. Measuring point: Hole in casing cover 2.12 feet above lsd.

Jan. 26, 1951	128.56	Dec. 21, 1951	128.67	June 5, 1957	128.81
Feb. 28	128.57	Jan. 16, 1952	128.60	July 16	128.80
Apr. 10	128.58	Mar. 8	128.60	Aug. 14	128.83
May 7	128.62	Sept. 3	128.58	Sept. 24	128.88
June 28	128.59	Nov. 3	128.63	Nov. 15	128.84
July 25	128.62	Mar. 13, 1953	128.62	Feb. 3, 1958	128.81
Aug. 21	128.60	May 5, 1954	128.66	Mar. 10	128.86
Sept. 18	128.60	Nov. 29, 1956	128.83	Apr. 9	128.86
Oct. 16	128.58	Mar. 7, 1957	128.82	May 14	128.89
Nov. 15	128.66	Apr. 30	128.73		

11/9-17N1(formerly 11/9-17M1). Owner unknown. Depth 184.6 feet. Altitude about 2,324 feet. Measuring point: Top of casing 0.5 foot above lsd.

Date	Water level	Date	Water level	Date	Water level
Apr. 11, 1951	129.56	Apr. 16, 1953	129.55	Nov. 27, 1956	130.21
Nov. 15	129.58	May 5, 1954	129.67	Mar. 6, 1957	129.70
Mar. 8, 1952	129.58	Mar. 2, 1955	129.82	Nov. 19	130.58
Nov. 3	129.53	Nov. 14	130.76	Mar. 4, 1958	130.67
Mar. 13, 1953	129.60	Mar. 22, 1956	130.05		

11/9-22Q1. J. C. Schecter. Depth 193 feet. Altitude about 2,320 feet. Measuring point: Top of wooden block over casing 1.0 foot above lsd.

Mar. 8, 1951	106.77	July 2, 1951	105.85	Mar. 8, 1952	a107.02
Apr. 10	106.00	Aug. 21	105.83	Nov. 3	b108.07
May 7	105.84	Sept. 18	105.70	Jan. 17, 1958	105.61
June 28	a110.25	Nov. 15	105.80	Measurements discontinued	

11/9-30N1 (formerly 11/9-31D1). Flourr. Depth 200 feet. Altitude about 2,328 feet. Measuring point: Top of casing at lsd.

Jan. 26, 1951	114.14	Aug. 21, 1951	a114.61	Mar. 8, 1952	115.59
Feb. 28	114.14	Sept. 18	114.27	July 27, 1956	115.40
Apr. 10	114.16	Oct. 16	a117.21	Mar. 7, 1957	115.60
May 7	114.18	Nov. 16	114.35	Nov. 15	115.91
June 28	114.19	Dec. 21	114.28	Mar. 4, 1958	115.81
July 25	114.34	Jan. 16, 1952	a117.14	10	115.74

11/9-30Q1. A. F. Green. Depth 169.1 feet. Altitude about 2,320 feet. Measuring point: Top of casing 1.2 feet above lsd.

Apr. 5, 1952	99.99	Mar. 17, 1954	100.13	Mar. 22, 1956	100.34
18	99.98	May 5	100.13	July 27	104.00
Sept. 3	99.99	Dec. 3	100.19	Jan. 17, 1958	100.51
Nov. 3	99.90	Mar. 2, 1955	100.24	Measurements discontinued	
Mar. 13, 1953	100.04	Nov. 14	100.47		

11/9-34A1 (DGT, Antelope Valley 3). F. J. Schultz. Depth 193.5 feet. Altitude about 2,303 feet. Measuring point: Top of casing, south side, 0.4 foot above lsd.

Jan. 25, 1951	93.11	Mar. 7, 1957	93.68	Nov. 15, 1957	93.75
Nov. 15	93.28	Apr. 30	93.71	Feb. 3, 1958	93.83
Mar. 8, 1952	93.19	June 5	94.16	Mar. 10	93.91
Mar. 2, 1955	93.57	July 16	93.77	Apr. 9	93.92
Nov. 14	93.56	Aug. 14	93.83	May 14	93.92
Mar. 22, 1956	93.60	Sept. 24	94.13		
Nov. 27	93.80	Oct. 16	93.79		

a. Pumped recently.
b. Pumping.

11/9-34K1. Millhollin. Depth 147 feet. Altitude about 2,300 feet. No access into well after July 27, 1956.

Date	Water level	Date	Water level	Date	Water level
Jan. 25, 1951	80.75	Aug. 21, 1951	80.79	Mar. 8, 1952	80.84
Feb. 28	80.76	Sept. 18	80.79	Sept. 3	80.88
Apr. 10	80.77	Oct. 16	80.80	Nov. 3	80.91
May 7	80.80	Nov. 15	80.83	Mar. 13, 1953	80.91
June 28	80.82	Dec. 21	80.84	Measurements discontinued	
July 25	80.80	Jan. 16, 1952	80.81		

12/10-35P1 (DGT-55). Owner unknown. Depth 271.8 feet prior to December 3, 1954, 194.1 feet after that date. Altitude about 2,365 feet. Measuring point: Top of casing 1.0 foot above lsd.

Feb. 5 or 6, 1918 a	c199	Mar. 8, 1952	193.47	Apr. 21, 1953	195.47
		Sept. 10	193.50	Dec. 3, 1954	dry
Apr. 11, 1951	193.53	Feb. 9, 1953	193.60		
Nov. 15	193.48	Apr. 16	197.3		

29/39-28H1. Owner unknown. Depth 205.7 feet. Altitude about 2,100 feet. Measuring point: Top of casing 2.0 feet above lsd.

Apr. 30, 1953	173.09	Nov. 15, 1955	173.82	Nov. 22, 1957	174.59
Mar. 17, 1954	173.23	Mar. 20, 1956	173.93	Feb. 13, 1958	174.50
Dec. 3	173.50	Nov. 28	174.16		
Mar. 2, 1955	173.57	Mar. 6, 1957	174.28		

30/37-24M1 (formerly 30/37-24N1). Owner unknown. Depth unknown. Altitude 2,000.0 feet. Measuring point: Top of casing at lsd.

Oct. 3, 1929	d37.50	Mar. 2, 1955	40.85	Nov. 27, 1956	42.22
Mar. 18, 1953	32.64	Nov. 15	41.36	Mar. 6, 1957	41.95
Mar. 17, 1954	39.21	Mar. 19, 1956	40.90	Nov. 22	43.84
Nov. 30	41.15	Aug. 29	41.64	Feb. 26, 1958	43.77

30/38-8N1. E. S. McKendry. Depth 52 feet. Altitude about 1,950 feet. Measuring point: Top of casing at lsd.

May 5, 1953	22.89	Nov. 30, 1954	22.23	Oct. 10, 1956	23.42
Mar. 17, 1954	21.90	Mar. 2, 1955	22.50	Feb. 14, 1958	25.45

30/38-32E1. M and R, Cantil Ranch. Depth 107.4 feet. Altitude about 1,980 feet. Measuring point: Top of casing 1.0 foot above lsd.

May 7, 1953	25.14	Nov. 15, 1955	34.09	Nov. 22, 1957	38.67
Mar. 17, 1954	28.79	Mar. 19, 1956	34.74	Jan. 31, 1958	37.15
Nov. 30	30.21	Nov. 27	36.37		
Mar. 2, 1955	e31.37	Mar. 6, 1957	37.19		

a. Pumped recently.
c. Measurement by Thompson (1929).
d. Measurement by Williams (1930).
e. Nearby well being pumped.

30/39-8A1 (formerly 30/39-5R1). Owner unknown. Depth 268.3 feet. Altitude about 2,075 feet. Measuring point: Top of casing 1.0 foot above lsd.

Date	Water level	Date	Water level	Date	Water level
Apr. 30, 1953	136.64	Nov. 15, 1955	136.74	Mar. 6, 1957	138.13
Mar. 17, 1954	136.89	Mar. 20, 1956	136.83	Nov. 22	138.40
Dec. 3	136.70	Oct. 11	138.01	Feb. 12, 1958	137.91
Mar. 2, 1955	136.55	Nov. 28	138.15		

31/37-8C1. M and R, Conklin Ranch, well 16. Depth 650 feet. Altitude about 2,190 feet. Measuring point: Edge of pump base, southwest side, 1.95 feet above lsd and 0.95 foot above top of casing.

Mar. 17, 1954	149.30	Nov. 15, 1955	171.49	Mar. 6, 1957	174.68
Nov. 30	170.66	Mar. 19, 1956	171.81	Nov. 20,	174.14
Mar. 2, 1955	170.70	Nov. 28	173.04	Mar. 4, 1958	174.30

31/37-13B1 (DGT-29). Lewis Ryan. Depth 400 feet. Altitude about 2,140 feet. Measuring point: Top of casing 1.0 foot above lsd.

1917 c130		Mar. 2, 1955	167.13	Nov. 27, 1956	173.41
Jan. 22, 1953	155.84	Nov. 15	169.78	Mar. 6, 1957	174.28
Mar. 15, 1954	163.60	Mar. 22, 1956	170.30	Mar. 4, 1958	177.80
Dec. 3	167.74	Aug. 17	172.75		

31/37-22Q1. L. W. Giddings. Depth 500 feet. Altitude 2,260.0 feet. Measuring point: Top of casing at lsd.

Sept. 30, 1929	d253.0	Mar. 2, 1955	262.93	Mar. 6, 1957	268.97
Jan. 22, 1953	257.77	Nov. 15	265.09	Nov. 22	269.32
Mar. 15, 1954	260.15	Mar. 22, 1956	265.99		
Dec. 3	262.14	Nov. 27	267.91		

32/37-1N1. M and R, Conklin Ranch. Depth 860 feet. Altitude about 2,330 feet. Measuring point: Top of casing 1.3 feet above lsd on February 3, 1958, and 9.0 feet above lsd before that date.

Feb. 9, 1953	223.59	Nov. 15, 1955	225.43	Nov. 22, 1957	230.11
Mar. 15, 1954	226.48	Mar. 22, 1956	225.28	Feb. 3, 1958	229.71
Dec. 3	226.03	Nov. 27	227.72		
Mar. 2, 1955	225.16	Mar. 6, 1957	229.98		

32/37-4Q1. M and R, Conklin Ranch (formerly R. D. Floyd). Depth unknown prior to March 6, 1957, 204.9 feet thereafter. Altitude 2,388.7 feet. Measuring point: Top of casing at lsd.

Sept. 30, 1929	d303.19	Jan. 23, 1953	302.98	Mar. 2, 1955	310.64
Feb. 25, 1930	d304.29	Mar. 15, 1954	e315.55	Mar. 22, 1956	317.87

c. Measurement by Thompson (1929).
d. Measurement by Williams (1930).
e. Nearby well being pumped.

32/37-24N1. M and R, Conklin Ranch. Depth about 480 feet prior to March 6, 1957, and 266.3 feet thereafter. Altitude about 2,385 feet. Measuring point: Hole in side of casing 1.5 feet above lsd.

Date	Water level	Date	Water level	Date	Water level
Jan. 23, 1953	251.83	Mar. 2, 1955	264.24	Nov. 27, 1956	275.68
Mar. 15, 1954	262.01	Oct. 5	271.58	Measurements discontinued	
Dec. 3	266.61	Mar. 22, 1956	271.90		

32/38-32N1. M and R, Conklin Ranch. Depth unknown. Altitude about 2,370 feet. Measuring point: Top of casing 1.7 feet above lsd.

Apr. 11, 1951	223.35	Apr. 16, 1953	225.30	Mar. 22, 1956	239.14
Nov. 15	223.20	Mar. 15, 1954	231.79	Nov. 27	242.36
Mar. 8, 1952	223.82	Dec. 3	235.90	Mar. 6, 1957	243.80
Jan. 22, 1953	224.08	Mar. 2, 1955	236.03	Nov. 19	246.62
Feb. 9	224.16	Oct. 7	237.56	Mar. 4, 1958	247.35

Table 4.- Drillers' logs of wells

10/7-6B2. Boron Community Services District, well 6. Altitude about 2,460 feet. Drilled by Barber-Bridge Drilling Corp. in June 1955. 12-inch casing, zero to 454 feet, perforated from 353 to 363 feet.

Material	Thickness (feet)	Depth (feet)
Sandy yellow clay	352	352
Sand and gravel	5	357
Sandy yellow clay	97	454

11/7-32E1. Boron Community Services District, well 8. Altitude about 2,455 feet. Drilled by Rottman Drilling Co. in July 1956. 10-inch casing zero to 502 feet, perforated 262 to 502 feet.

Clay and sand	50	50
Clay and gravel	22	72
Clay and sand	22	94
Coarse sand	22	116
Coarse sand and clay	24	140
Sand and clay	44	184
Sand and clay streaks	26	210
Hard clay	22	232
Clay and gravel	24	256
Clay and sand streaks	22	278
Gravel and clay streaks	22	300
Gravel	23	323
Boulders, clay, and sand	22	345
Gravel and boulders	26	371
Hard pack gravel	21	392
Hard pack clay and gravel	23	415
Hard clay and gravel	66	481
Gravel and hard clay	21	502

11/7-32G2. Franklin. Altitude about 2,460 feet. Drilled by owner in 1954. 5-inch casing. (Log not complete.)

Overburden	8	8
Hard caliche	102	110
Sticky brown clay	20	130
Caliche and brown calcareous sandy silt	80	210

11/7-32H1. Boron Development Co. Altitude about 2,465 feet. Drilled by Rottman Drilling Co. in April 1956. 8-inch casing zero to 429 feet, perforated from 253 to 429 feet.

Material	Thickness (feet)	Depth (feet)
Sand and clay	25	25
Sand	25	50
Coarse sand	30	80
Clay and coarse sand	12	92
Sand and clay streaks	30	122
Coarse sand and clay	24	146
Coarse sand and rocks	13	159
Sand and clay streaks	23	182
Sandy clay	23	205
Coarse sand and clay	45	250
Clay and coarse sand	70	320
Coarse sand	20	340
Coarse sand, clay streaks	37	377
Boulders and coarse sand	18	395
Coarse sand and clay streaks	10	405
Coarse gravel	24	429

11/7-32K1. Boron Community Services District, well 10. Altitude about 2,460 feet. Drilled by Rottman Drilling Co. in July 1957. 10-inch casing zero to 600 feet, uncased hole 600 to 684 feet, perforated from 400 to 600 feet.

Coarse sand-clay	25	25
Coarse sand-boulders	25	50
Boulders-sand	25	75
Coarse sand	12	87
Cement sand	10	97
Hard cement sand	23	120
Coarse sand-boulders	10	130
Boulders-fine sand	20	150
Coarse sand-clay streaks	23	173
Sand and clay	13	186
Coarse sand and clay	10	196
Clay-coarse sand	49	245
Gravel-clay	8	253
Gravel-clay streaks	10	263
Small gravel-clay streaks	12	275
Pea gravel-clay	10	285
Coarse gravel-clay	12	297
Coarse sand-gravel	22	319
Coarse gravel-boulders	23	342
Coarse sand	10	352
Coarse sand-clay streaks	34	386
Coarse sand and clay	44	430
Boulders, sand, and clay	67	497
Coarse sand-some clay	23	520
Coarse sand and clay	42	562
Gravel and clay	16	578

Continued

11/7-32K1.--Continued.

Material	Thickness (feet)	Depth (feet)
Boulders-clay	22	600
Gravel and clay	23	623
Coarse sand-small boulders	53	676
Clay and coarse sand	7	683
Boulders, coarse sand	1	684

11/7-32M2. Boron Community Services District, well 9. Altitude about 2,450 feet. Drilled by Rottman Drilling Co. in November 1956. 10-inch casing zero to 522 feet, perforated from 287 to 522 feet.

Sand and boulders	25	25
Sand, clay, and boulders	15	40
Coarse sand and clay	20	60
Coarse sand and boulders	20	80
Coarse sand, some clay	25	105
Coarse sand, clay streaks	22	127
Coarse sand, some clay	23	150
Clay and coarse sand	44	194
Fine sand and clay	22	216
Clay and fine sand	22	238
Fine sand and clay	22	260
Coarse sand and clay	78	338
Boulders and coarse sand	24	362
Small boulders, sand	10	372
Coarse sand, some clay	28	400
Boulders and sand	8	408
Coarse sand and boulders	22	430
Clay, sand, and boulders	22	452
Packed clay and sand	22	474
Hard sand, clay, boulders	22	496
Boulders and granite	10	506
Granite	24	530

11/8-2N1. U. S. Borax and Chemical Corp., well 2. Altitude about 2,480 feet. Drilled by owner in 1936. 14-inch casing.

Material	Thickness (feet)	Depth (feet)
Decomposed granite	95	95
Gray sandy clay	75	170
Red sandy clay	15	185
"Water"	2	187
Red sandy clay	18	205
"Water"	2	207
Red sandy clay	8	215
"Water"	2	217
Red sandy clay	38	255
Gravel water, large flow	9	264
Hard shell	4	268
Decomposed granite	26	294
Hard shell	2	296
Decomposed granite	12	308
Hard shell	3	311
Decomposed granite	4	315
Very soft	3	318
Decomposed granite	9	327
Basalt, very hard	9	336

11/8-2P1. U. S. Borax and Chemical Corp., well 3. Altitude about 2,490 feet. Drilled by owner in 1941.

Sand, gravel, and clay	336	336
Basalt	10	346

11/8-2-1. U. S. Borax and Chemical Corp., well 1. Altitude about 2,490 feet. Drilled by owner in 1926.

Surface material	155	155
Gravel	145	300

11/8-2-2. U. S. Borax and Chemical Corp., well 4. Altitude about 2,480 feet. Drilled by owner.

Sand, gravel, and clay	270	270

11/8-2-3. U. S. Borax and Chemical Corp., well 5. Altitude about 2,490 feet. Drilled by owner.

Surface sand and gravel	332	332
Basalt	20	352

11/8-2-4. U. S. Borax and Chemical Corp., well 6. Altitude about 2,480 feet. Drilled by owner.

Material	Thickness (feet)	Depth (feet)
Surface sand and gravel	326	326
Basalt	18	344

11/8-3C1. U. S. Borax and Chemical Corp., well 25. Altitude about 2,490 feet. Drilled by owner in June 1954. 16-inch casing was removed after well was test pumped.

Sand, clay and gravel; sand, medium to fine-grained, clay light brown, gravel pebble to boulder size	40	40
Gravel and clay; gravel coarse, clay light brown	12	52
Sand, clay and gravel; sand medium-grain, light brown clay and coarse gravel	133	185
Clay and sand; clay light yellowish brown, sand very fine to coarse, subangular	60	245
Clay; bright reddish-brown, plastic possibly some bentonite	5	250
Clay; gray green	3	253
Clay; reddish-brown containing red decomposed inclusions which appear as volcanic origin	12	265
Clay; mixed red, green and yellow	16	281
Clay; brick red	4	285
Clay; reddish nodules of clay and yellow decomposed clay inclusions. Some streaks of greenish sandstone	10	295
Clay; mixed red, yellow, brown and gray	14	309
Clay; yellow, hard	11	320
Clay; red and blue with streaks of gravel	8	328
Clay; reddish brown	17	345
Clay; gray with occasional streaks of reddish-brown sandy clay, some altered volcanic ash	40	385
Clay; dark reddish-brown	15	400
Clay; gray-brown with streaks of gray, possibly altered volcanic ash	40	440
Sandstone; gray, fine grain, clay	9	449

11/8-3E1. U. S. Borax and Chemical Corp., well 13. Altitude about 2,465 feet. Drilled by owner in 1948. Casing removed after well completed.

Sand, gravel, and silt	55	55
Cemented gravel	30	85
Sandy clay	13	98
Basalt	72	170

11/8-3P1. U. S. Borax and Chemical Corp., well 21. Altitude about 2,466 feet. Drilled by owner in April 1954. 14-inch casing zero to 304 feet, 10-inch casing 304 to 430 feet.

Material	Thickness (feet)	Depth (feet)
Sand, clay, gravel; poorly sorted, moderately cemented	91	91
Clay; brown, sandy	4	95
Sand, clay and gravel; sand, medium grain subrounded, quartz, feldspars, some basalt pebbles	22	117
Sand, clay and gravel; sand medium-grained, subrounded, basalt, quartz and feldspar pebbles ranging to 25 mm., clay reddish-brown, moderate cementing	52	169
Gravel, sand and clay; gravel fine, well-sorted, clay reddish-brown as thin stringers	13	182
Clay; brown, sandy	3	185
Gravel, sand and clay; clay reddish-brown possibly contains some bentonite	12	197
Basalt; brecciated or broken, black, contains some opalized material	35	232
Volcanic ash or tuff; reddish brown, bentonitic	3	235
Basalt; brecciated or broken, reddish brown, cellular with secondary quartz filling	6	241
Basalt; black, dense	41	282
Basalt; broken, brownish-red	13	295
Basalt; dense, black	75	370
Basalt; broken, cellular	30	400
Basalt; dense black	10	410
Basalt, broken, soft, contains some fine-grained basaltic sand, possibly a filled fissure or cavity	4	414
Basalt; broken, hard, black	2	416
Basalt; soft, black	3	419
Basalt; dense, black, hard with few soft zones; driller reports broken and softer basalt was increasing down section	11	430

11/8-3Q1. U. S. Borax and Chemical Corp., well 20. Altitude 2,472.5 feet. Drilled by owner in March 1954. 16-inch casing zero to 266 feet, perforated interval unknown, uncased hole from 266 to 414 feet.

Sand, clay and gravel, moderately well cemented, occasional granitic boulders	115	115
Sand, clay and gravel, sand increasing, gravel contains some basalt boulders	60	175
Gravel, sandy with streaks of brown clay	10	185
Clay and sand, sand fine grain, poorly sorted, occasional pebbles	8	193
Gravel and sand, some brown clay	12	205
Clay and sandy gravel, poorly sorted	5	210
Gravel and sand	10	220
Clay, sandy with occasional granitic boulders	5	225

Continued

11/8-3Q1.--Continued.

Material	Thickness (feet)	Depth (feet)
Gravel and sand with some basalt boulders	13	238
Basalt breccia, broken, black, with some red zones	22	260
Basalt, black, dense, alternate zones of easy and hard drilling	80	340
Volcanic ash, white, bedded, tight, tuff	54	394
Basalt, black, dense	20	414

11/8-3R1. U. S. Borax and Chemical Corp., well 24. Altitude about 2,471 feet. Drilled by owner in May 1954. 12-inch casing zero to 353 feet; 8-inch casing from 347 to 468 feet; tools in uncased hole from 468 to 500 feet.

Sand, clay and gravel; poorly sorted, moderately cemented, occasional boulders of basalt	180	180
Sand and gravel with occasional streaks of reddish-brown clay	25	205
Gravel and sand; mostly quartz and feldspars, some basalt boulders	65	270
Basalt; black, broken	7	277
Clay; sandy with some bentonite, reddish-brown, sticky, volcanic	2	279
Basalt; broken, black	1	280
Basalt; broken with streaks of brown ash or clay	31	311
Basalt; broken	9	320
Clay, tuff or volcanic ash, reddish-brown, sandy, contains some bentonite	5	325
Basalt; broken	17	342
Basalt; broken with streaks of reddish-brown clay, some bentonite	10	352
Basalt; dense, hard, black	19	371
Clay; reddish-brown, sandy, volcanic ash or tuff, contains some bentonite	4	375
Basalt; dense, hard, broken with few streaks of clay	25	400
Basalt; black, cellular, soft. Drillers report it contains some water	19	419
Basalt; black, with some streaks of ash or clay	53	472
Clay; volcanic ash or tuff, reddish-brown, sandy, bentonitic	10	482
Basalt; black, dense, hard	18	500

11/8-3-2. U. S. Borax and Chemical Corp., well 14. Altitude about 2,500 feet. Drilled by owner in 1948. Casing removed from well.

Sand	43	43
Sandy silt	55	98
Gravel	5	103
Cemented sand and gravel	75	178
Broken lava	32	210
Solid basalt	10	220

11/8-3-3. U. S. Borax and Chemical Corp., well 15. Altitude about 2,472 feet. Drilled by owner in 1948, casing removed from well.

Material	Thickness (feet)	Depth (feet)
Cemented sand and gravel (3-ft seam of loose gravel at 64 ft)	115	115
Sandy clay and gravel	60	175
Loose water-bearing gravel	10	185
Sandy clay and gravel	40	225
Cemented gravel and basalt boulders	10	235
Broken basalt	7	242
Basalt	97	339
Volcanic ash and breccia	68	407
Basalt	7	414

11/8-10P1. U. S. Borax and Chemical Corp., well 10. Altitude about 2,435 feet. Drilled by owner in 1948. 10-inch casing.

Decomposed granite	95	95
Cemented gravel	14	109
Basalt	65	174
Mixed basalt and sand clay	9	183
Basalt	6	189
Broken basalt	20	209
Brown sand, clay, and basalt	30	239

11/8-10-1. U. S. Borax and Chemical Corp., well 11. Altitude about 2,435 feet. Drilled by owner in 1948.

Decomposed granite	80	80
Coarse sand	13	93
Cemented gravel	47	140
Basalt	168	308
Sandy clay	2	310
Basalt	12	322

11/8-11D1. U. S. Borax and Chemical Corp., well 7. Altitude about 2,480 feet. Drilled by owner in 1945. 14-inch casing.

Surface sand and gravel	285	285
Basalt	227	512

11/8-11-1. U. S. Borax and Chemical Corp., well 12. Altitude about 2,475 feet. Drilled by owner in 1948.

Decomposed granite sand and gravel	97	97
Sandy clay	78	175
Hardpan	5	180
Coarse gravel	3	183
Clay with gravel	11	194
Sandy clay	68	262
Cemented gravel and basalt boulders	52	314
Hard basalt	6	320
Cemented gravel	13	333
Basalt	71	404

11/8-15K1. U. S. Borax and Chemical Corp., well 26. Altitude about 2,426 feet. Drilled by Mogle Brothers in September 1954. 14-inch casing zero to 483 feet, perforated 170 to 230 and 360 to 400 feet, uncased hole 483 to 678 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil; sandy, light brown, with some gravel	15	15
Sand and clay; sand, coarse to very coarse, buff, subangular, clay, light brown	95	110
Sand, clay and gravel; well mixed, compact, light brown	12	122
Clay; light brown	32	154
Sand, clay and gravel; sand medium to coarse, clay light brown, gravel up to 3/4 inch containing some basalt pebbles	12	166
Clay; sandy, gray, micaceous	26	192
Sand and clay; light gray	2	194
Limestone; white to light gray, hard, siliceous, possibly indurated old caliche zone	6	200
Sand; coarse grain, gray, some pebbles	10	210
Clay; gray green, sandy	18	228
Limestone; white to light gray, hard, siliceous, possibly indurated old caliche zone	2	230
Clay; gray green	5	235
Limestone; gray, possibly large boulder	1	236
Clay; dark green	33	269
Limestone; white to gray, hard, secondary calcite and nodules and bands of siliceous material	2½	271½
Shale; gray green, hard, dry	6	277½
Shale; gray green, with inclusions of volcanic ash or pumice. Inclusions subrounded to rounded make up to 70 percent of sample	2½	280
Shale; light gray green	2	282
Shale; dark green, some banding	5	287
Sandstone; gray to buff, calcareous, silty, hard, very fine grain, well-sorted, tight	1	288
Shale; dark gray brown, banded, carbonaceous, micaceous	2	290
Shale; gray green, streaks of yellow material	8	298
Shale; bentonitic, contains volcanic debris, possibly pumice	2	300
Limestone; tan, dolomitic, siliceous, hard, opalized or cherty seams and nodules	15	315
Shale and sandstone; shale light green, sandstone hard, siliceous, fine grain	5	320
Shale; dark gray green, compact	20	340
Shale; sandy with inclusions of basalt and scoria	2	342
Limestone; white, sandy, hard, possibly indurated caliche	1	343
Shale; light gray green, fractured, siliceous	1	344
Sandstone; dark gray-green, hard, containing pebbles of cellular basalt, siliceous	16	360
Clay; brown and coarse gravel, some basalt grains	23	383

Continued

11/8-15K1.--Continued

Material	Thickness (feet)	Depth (feet)
Shale; light gray-green, sandy	17	400
Shale; light gray-green with some sand	20	420
Shale; green, sandy	63	483
Basalt; black, hard with occasional red clay zones	174	657
Clay; red and medium to coarse-grained gravel ranging from 1/16 to 1/4 inch	8	665
Clay; blue-gray and gravel ranging to 1/4 inch (slight caving-bottom depth November 3, 1954)	13	678

11/8-16C1. U. S. Borax and Chemical Corp., well 9. Altitude about 2,420 feet. Drilled by owner in 1948. 16-inch uncased hole.

Alluvium	83	83
Gravel and boulders	12	95
Sand and clay	80	175
Ash and basalt	15	190
Basalt and water seepage	18	208
Basalt	19	227

11/8-16D1. U. S. Borax and Chemical Corp., well 8. Altitude about 2,420 feet. Drilled by owner in 1948. Uncased hole.

Decomposed granite	75	75
Basalt	18	93
Decomposed granite	34	127
Basalt	23	150
Basalt and clay	39	189
Basalt	29	218

11/8-17R1. Garrett Corp., Rex Division. Altitude about 2,395 feet. Drilled by Rottman Drilling Co. in May 1957. 6-inch casing, perforated 181 to 366 feet.

Sand	20	20
Sand-rock	20	40
Cemented sand	50	90
Coarse sand cemented	13	103
Coarse sand-hard rock	20	123
Hard packed gravel-rock	10	133
Boulders	13	146
Hard cemented sand	4	150
Boulders	4	154
Clay	4	158
Cemented gravel	8	166
Rock	10	176
Hard rock	36	212
Broken rock-shale	4	216
Hard black rock	30	246
Soft lava rock	10	256

Continued

11/8-17R1.--Continued

Material	Thickness (feet)	Depth (feet)
Soft lava rock-sand	9	265
Black lava-soft gray streaks	32	297
Lava rock-hard	59	356
Softer rock-sand streaks	2	358
Hard black rock	9	367

11/8-19L1. U. S. Borax and Chemical Corp., well 42. Altitude about 2,350 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 361 feet; perforated 96 to 361 feet.

Surface sand and clay	76	76
Coarse sand	13	89
Coarse sand, clay	14	103
Coarse sand	25	128
Sandy clay	28	156
Sandy clay and gravel	18	174
Clay and fine sand	8	182
Clay and coarse sand	13	195
Coarse gravel and clay	23	218
Clay and hard sand	11	229
Clay and fine sand	11	240
Coarse sand and clay	21	261
Clay and hard sand	9	270
Clay and fine sand	14	284
Clay and coarse gravel	14	298
Coarse gravel	8	306
Coarse sand and clay	17	323
Clay and sand	11	334
Coarse sand	6	340
Clay, gravel	18	358
Hard shell	4	362
Clay and coarse sand	12	374
Rock and hard sand	9	383

11/8-26A1. C. J. Roycroft. Altitude about 2,425 feet. Drilled by Pacific Coast Borax Co. in 1927, redrilled by owner in 1956. 5-inch casing zero to 321 feet, perforated 281 to 321 feet; uncased hole 321 to 500 feet, 6-inch casing 500 to 950 feet, uncased hole 950 to 1,100 feet.

Granite	1,100	1,100

11/8-29K1. U. S. Borax and Chemical Corp., well 41. Altitude about 2,355 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 495 feet; perforated 96 to 495 feet.

Material	Thickness (feet)	Depth (feet)
Surface sand and clay	96	96
Medium sand	11	107
Coarse sand and clay	20	127
Fine sand, clay	16	143
Hard sand	16	159
Clay, coarse gravel	13	172
Clay and boulders	23	195
Hard sand and clay	22	217
Clay, fine sand	12	229
Clay, coarse sand	11	240
Coarse sand and clay	18	258
Coarse sand	13	271
Coarse sand and clay	14	285
Clay	21	306
Fine sand and clay	19	325
Coarse gravel	11	336
Coarse gravel and clay	32	368
Coarse gravel	6	374
Coarse sand and clay	22	396
Coarse gravel	7	403
Coarse gravel and clay	24	427
Sandy clay and gravel	25	452
Coarse sand	6	458
Coarse gravel and clay	15	473
Coarse gravel	9	482
Clay and rock	13	495

11/8-30Q1. U. S. Borax and Chemical Corp., well 32. Altitude about 2,335 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 485 feet, perforated 96 to 485 feet.

Surface sand and clay	52	52
Gravel and coarse sand	9	61
Gravel and clay	11	72
Hard sand	10	82
Coarse sand	12	94
Hard sand and clay	11	105
Small gravel clay	11	116
Fine sand and gravel	11	127
Clay and fine sand	14	141
Gravel and clay	9	150
Clay and coarse sand	22	172
Coarse gravel-sand	14	186
Gravel and coarse sand	9	195
Gravel and clay	22	217

Continued

11/8-30Q1.--Continued

Material	Thickness (feet)	Depth (feet)
Clay, coarse sand	14	231
Coarse gravel	9	240
Clay and coarse sand	21	261
Fine sand and clay	22	283
Clay and coarse gravel	12	295
Clay	11	306
Clay and fine sand	19	325
Clay, gravel	14	339
Clay	11	350
Coarse gravel and sand	14	364
Coarse sand and clay	14	378
Cemented sand	10	388
Coarse gravel and clay	12	400
Gravel and sand	8	408
Coarse gravel and clay	20	428
Coarse sand	5	433
Cemented sand and rock	15	448
Cemented sand rock	12	460
Rock and cemented sand	6	466
Cement, sand, rock	19	485

11/8-31P1. U. S. Borax and Chemical Corp., well 39. Altitude about 2,325 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 303 feet; perforated 96 to 303 feet.

Surface sand and clay	96	96
Medium sand	12	108
Coarse sand and clay	19	127
Coarse sand	12	139
Coarse sand and clay	22	161
Coarse gravel	11	172
Coarse gravel and clay	26	198
Coarse gravel	9	207
Coarse gravel and clay	20	227
Coarse gravel and rock	9	236
Medium sand and gravel	8	244
Coarse gravel and clay	24	268
Hard sand and rock	4	272
Rock and cemented sand	18	290
Cemented sand	10	300
Rock	3	303

11/8-33L1. California Borax Co. Altitude about 2,345 feet. Drilled by R. C. Clay in Janaury 1958. 10-inch casing zero to 500 feet; perforated 290 to 320 and 383 to 485 feet.

Material	Thickness (feet)	Depth (feet)
Fill and brown clay	140	140
Gray shale sand	20	160
Yellow-brown clay and sand mixed	35	195
Reddish clay and coarse sand mixed	15	210
Sticky red clay, some sand mixed	15	225
Brown clay, sticky, some sand mixed	57	282
Red gravelly coarse sand	33	315
Cemented gravel	2	317
Red sticky clay and sand with gravel	38	355
Sticky clay	25	380
Sandy clay	2	382
Sticky clay	5	387
Brown sandy clay	11	398
Sticky clay	6	404
Sandy clay	5	409
Gravelly sand streak	4	413
Sticky clay	2	415
Sticky clay with some gravel	6	421
Sticky clay	17	438
Sand clay and some gravel	3	441
Sticky clay	3	444
Sand and gravel; very sandy	6	450
Sand, gravel, and cobbles	15	465
Sandy clay	4	469
Sticky clay	31	500

11/8-35D1. H. B. Hays, Desert Lake. Altitude about 2,380 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 606 feet; perforated 96 to 606 feet.

Surface sand and clay	68	68
Coarse sand and clay	13	81
Medium sand	15	96
Coarse sand and clay	16	112
Coarse sand	8	120
Coarse sand and clay	17	137
Coarse sand	5	142
Sandy clay	21	163
Clay, streaks hard shell	17	180
Medium sand	9	189
Medium sand and clay	17	206
Coarse sand	5	211
Coarse sand and clay	15	226
Clay and fine sand	12	238
Coarse gravel and clay	13	251
Coarse sand	16	267

Continued

11/8-35D1.--Continued

Material	Thickness (feet)	Depth (feet)
Clay and fine sand	12	279
Coarse gravel and clay	15	294
Fine sand	11	305
Sandy clay	14	319
Coarse sand and clay	17	336
Medium sand and clay	16	352
Coarse gravel and clay	17	369
Coarse sand and clay	13	382
Fine sand and clay	13	395
Sandy clay	21	416
Coarse gravel and clay	13	429
Coarse sand and clay	11	440
Sandy clay	11	451
Coarse sand	11	462
Fine sand and clay	16	478
Sandy clay	18	496
Coarse sand and clay	13	509
Sandy clay	10	519
Coarse sand	13	532
Fine sand and rock	10	542
Cemented sand and rock	25	567
Gravel and clay	10	577
Hard sand and rock	12	589
Coarse sand	8	597
Clay and rock	9	606

11/9-13D1. U. S. Borax and Chemical Corp., well 40. Altitude about 2,375 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 312 feet; perforated 96 to 312 feet.

Surface sand and clay	96	96
Medium sand	13	109
Medium sand and clay	18	127
Fine hard sand	11	138
Medium sand, clay	25	163
Medium sand	9	172
Medium sand and clay	18	190
Coarse sand	13	203
Coarse sand and clay	27	230
Coarse sand	9	239
Coarse sand and clay	8	247
Clay and coarse sand	14	261
Coarse gravel and clay	12	273
Fine sand and clay	11	284
Cemented sand and rock	21	305
Clay and rock	7	312

11/9-13L1. U. S. Borax and Chemical Corp., well 45. Altitude about 2,360 feet. Drilled by Reliance Drilling Co. in August 1955. 12-inch casing zero to 462 feet; perforated 144 to 462 feet.

Material	Thickness (feet)	Depth (feet)
Surface sand and clay	68	68
Coarse sand and clay	14	82
Fine sand and clay	14	96
Coarse sand and clay	12	108
Coarse gravel and clay	11	119
Fine sand, clay	13	132
Coarse sand and clay	12	144
Medium sand	12	156
Medium sand and clay	22	178
Coarse sand	8	186
Medium sand and clay	26	212
Cemented sand	11	223
Fine sand and clay	25	248
Coarse sand	6	254
Clay, small boulders	19	273
Coarse sand	8	281
Black rock	154	435
Black rock, thin streaks clay	16	451
Black rock	11	462

11/9-24A1. U. S. Borax and Chemical Corp., well 27. Altitude 2,348.8 feet. Drilled by Roscoe Moss Drilling Co. in April 1955. 16-inch casing zero to 888 feet; perforated 200 to 870 feet, uncased hole 888-900 feet.

Topsoil; sandy, light brown	1	1
Sand and clay; light brown, few pebbles and boulders, sand fine to very coarse grain, subangular, quartz and feldspars predominant with occasional pebbles of dark reddish-brown basalt	107	108
Clay; sandy, light brown, sand fine grain, quartz and feldspar	10	118
Clay; sandy, light gray	69	187
Sand, clay and gravel; light brown, sand very coarse, gravel up to 1 inch well rounded	5	192
Clay; light brown, sandy with few pebbles of granitic material	108	300
Clay and sand; light brown, hard	48	348
Sand, clay and gravel; light brown, poorly sorted, sand fine to coarse grain, pebbles and boulders of basalt and granitic material subrounded	2	350
Sand and clay; light brown, hard, some basalt pebbles	20	370
Sand, gravel and clay; sand fine to very coarse, quartz and feldspars predominant, gravel mostly basalt, scoria and other volcanic-flow material	18	388

Continued

11/9-24A1.--Continued

Material	Thickness (feet)	Depth (feet)
Sand, clay and gravel; brown, sand very coarse, gravel mostly basalt and other flow material, poorly sorted	60	448
Basalt; broken, soft, clay filling in cracks and fissures	9	457
Sand, gravel and clay; very coarse sand and basalt pebbles poorly sorted in a clay matrix	18	475
Sand, clay and gravel; hard, cemented, coarse material mostly basalt and granitic material	33	508
Clay; light brown, sandy, hard	92	600
Clay and sand; light brown, hard with occasional pebbles up to 1 inch	140	740
Sand clay and gravel; light gray-green, sand very coarse, 10 percent to 20 percent of sample composed of subrounded basaltic and granitic pebbles ranging up to 2-inch diameter. Clay and sand contains some volcanic ash	55	795
Sand and gravel; silty, composed of basalt pebbles and boulders well cemented in a sandy clay matrix, contains some volcanic ash	20	815
Clay and sand; light brown some 1/4-inch gravel	20	835
Clay; sandy, light gray-green	25	860
Clay; sandy, dark gray-green	30	890
Sand and clay; gray-green with yellowish-brown zones, sand mostly volcanic debris "bottom"	10	900

11/9-24B2. U. S. Borax and Chemical Corp., well 43. Altitude about 2,345 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 542 feet; perforated 96 to 542 feet.

Surface sand and clay	96	96
Coarse sand and clay	23	119
Coarse sand	7	126
Coarse sand and clay	13	139
Fine sand and clay	11	150
Hard sand and clay	9	159
Coarse gravel and clay	13	172
Coarse sand	16	188
Fine sand and clay	15	203
Medium sand and clay	13	216
Coarse sand and clay	23	239
Coarse gravel, clay	21	260
Boulders and clay	11	271
Coarse sand	17	288
Coarse sand and clay	18	306
Clay and fine sand	15	321
Clay and coarse sand	29	350
Sandy clay	22	372

Continued

11/9-24B2.--Continued

Material	Thickness (feet)	Depth (feet)
Medium sand	21	393
Medium sand and clay	23	416
Coarse sand	7	423
Coarse sand and clay	15	438
Coarse sand	9	447
Coarse sand and clay	13	460
Sandy clay	21	481
Coarse sand	12	493
Coarse sand and clay	15	508
Hard sand and rock	9	517
Clay and rock	4	521
Hard sand and rock	12	533
Coarse gravel, clay, rock	9	542

11/9-24Q1. U. S. Borax and Chemical Corp., well 33. Altitude about 2,335 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 360 feet; perforated 96 to 360 feet.

Surface sand and clay	96	96
Coarse sand and clay	18	114
Coarse sand	9	123
Gravel and clay	17	140
Coarse sand	8	148
Sand and clay	14	162
Coarse sand	14	176
Coarse sand and clay	13	189
Medium sand	12	201
Coarse sand and clay	13	214
Medium sand	9	223
Coarse sand and clay	13	236
Coarse sand	12	248
Medium sand and clay	13	261
Medium sand	9	270
Cemented sand	14	284
Cemented sand and gravel	9	293
Boulders and hard sand	12	305
Hard sand	15	320
Fine hard sand	15	335
Cemented sand with clay	14	349
Medium sand	4	353
Clay, sand	7	360

11/9-25L1. U. S. Borax and Chemical Corp., well 34. Altitude about 2,330 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 480 feet; perforated 96 to 480 feet.

Material	Thickness (feet)	Depth (feet)
Surface sand and clay	64	64
Coarse gravel with clay	12	76
Coarse sand and clay	22	98
Fine sand and clay	18	116
Coarse gravel and clay	16	132
Coarse sand and clay	18	150
Fine sand and clay	11	161
Hard sand and clay	11	172
Coarse gravel, sand	10	182
Hard sand	12	194
Coarse sand and clay	15	209
Coarse gravel and clay	16	225
Fine sand and clay	15	240
Coarse sand and clay	16	256
Hard sand	8	264
Fine sand and clay	15	279
Medium sand and clay	14	293
Clay and boulders	14	307
Hard sand and clay	10	317
Clay and fine sand	8	325
Coarse sand and gravel	11	336
Coarse sand and clay	14	350
Medium sand	11	361
Gravel and clay	16	377
Coarse gravel	7	384
Gravel, clay	12	396
Cemented sand	10	406
Gravel and clay	13	419
Clay and small boulders	8	427
Sand and gravel	7	434
Coarse sand and clay	9	443
Clay and sand	17	460
Medium sand	9	469
Clay with coarse gravel	8	477
Hard shell	3	480

11/9-28C1. Harry Levy. Altitude about 2,305 feet. Drilled by Pacific Coast Borax Co. in April 1932. 5-inch casing.

Pack sand and topsoil	40	40
Gravel	10	50
Sand	20	70
Water sand and gravel	110	180
Coarse gravel	5	185
Brown shale	5	190
Sticky green shale	45	235

Continued

11/9-28C1.--Continued

Material	Thickness (feet)	Depth (feet)
Brown shale	5	240
Dark gray shale	20	260
Brown shale	10	270
Dark gray shale	8	278
Granitic sand	12	290
Gray sandy shale	13	303
Blue shale	23	326
Brown shale	50	376
Blue shale	9	385
Hard blue sandstone	68	453
Blue shale	10	463
Hard blue sandstone	5	468
Blue-green shale	59	527
Hard dark gray sandstone	148	675
Quartz	27	702
Hard blue sandstone	6	708
Granite sand	152	860
Hard blue sandstone	40	900
Hard blue sandy shale	36	936
Hard brown sandy shale	19	955
Blue sandy shale	15	970
Light gray sandy shale	76	1,046
Brown sandy shale	14	1,060
Hard white sandstone	12	1,072
Brown sandy shale	13	1,085
Gray sandy shale	40	1,125
Brown sandy shale	35	1,160
Gray sandy shale	50	1,210
Granite sand	130	1,340

11/9-29H1. U. S. Borax and Chemical Corp., well 37. Altitude about 2,305 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 395 feet; perforated 96 to 395 feet.

Surface sand and clay	58	58
Coarse sand	13	71
Coarse sand and gravel	17	88
Coarse sand and clay	15	103
Clay and gravel	9	112
Coarse gravel and clay	14	126
Coarse gravel	12	138
Coarse gravel and clay	18	156
Coarse sand, gravel	7	163
Coarse sand and clay	17	180
Gravel	9	189
Gravel and clay	17	206
Clay and sand	11	217
Coarse sand and clay	11	228
Medium sand	13	241

Continued

11/9-29H1.--Continued

Material	Thickness (feet)	Depth (feet)
Coarse sand and clay	15	256
Medium sand and clay	11	267
Medium sand	7	274
Medium sand and clay	16	290
Coarse gravel and clay	15	305
Hard sand and clay	11	316
Clay and gravel	10	326
Clay	14	340
Fine sand and clay	10	350
Coarse gravel, clay	13	363
Hard sand and clay	9	372
Hard cemented sand rock	23	395

11/9-29K1. U. S. Borax and Chemical Corp., well 38. Altitude about 2,300 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 405 feet; perforated 96 to 405 feet.

Surface sand and clay	96	96
Coarse sand and clay	18	114
Coarse sand	12	126
Medium sand and clay	16	142
Coarse sand	14	156
Coarse sand and clay	12	168
Gravel and small boulders	9	177
Coarse sand and clay	16	193
Medium sand	10	203
Gravel and clay	14	217
Medium sand and gravel	11	228
Gravel and clay	13	241
Gravel	8	249
Clay and gravel	19	268
Coarse sand	6	274
Clay and gravel	22	296
Medium sand and gravel	13	309
Coarse sand and gravel	14	323
Clay and coarse gravel	15	338
Coarse gravel, coarse sand	13	351
Gravel with clay	17	368
Coarse gravel	6	374
Hard sand and clay	12	386
Coarse gravel and clay	9	395
Hard sand, coarse gravel	10	405

11/9-34K1. Millhollin. Altitude about 2,300 feet. Drilled by Pauley Bros. in April 1950. 6-inch casing.

Material	Thickness (feet)	Depth (feet)
Clay	29	29
Coarse gravel, water	1	30
Sandy clay	22	52
Gravel and sand	2	54
Clay	4	58
Clay and gravel	31	89
Water gravel	1	90
Clay and gravel	16	106
Water gravel and quicksand	10	116
Sandy clay	8	124
Sandy clay, some streaks of coarse gravel and sand	23	147

11/9-36A1. U. S. Borax and Chemical Corp., well 28. Altitude 2,323.6 feet. Drilled by Roscoe Moss Drilling Co. in June 1955. 16-inch casing zero to 486 feet; perforated 110 to 470 feet; uncased hole 486 to 610 feet.

Sandy clay	32	32
Cemented sand	58	90
Brown sandy clay	45	135
Coarse sand and gravel, 1/4-inch	7	142
Brown sandy clay	68	210
Boulders in cemented sand	120	330
Cemented sand	18	348
Boulders of sandy clay	27	375
Cemented sand and boulders	15	390
Boulders and sandy clay	5	395
Sandy clay and boulders, some shale	151	546
Sandy clay and boulders	64	610

11/9-36C1. U. S. Borax and Chemical Corp., well 30. Altitude about 2,325 feet. Drilled by Reliance Drilling Co. in June 1955. 12-inch casing zero to 407 feet; perforated 96 to 407 feet.

Surface sand and clay	50	50
Medium gravel	15	65
Gravel with clay	15	80
Coarse gravel	25	105
Gravel with clay	13	118
Coarse gravel, streaks of clay	42	160
Clay	12	172
Medium gravel with clay	24	196
Coarse gravel	10	206
Coarse gravel with clay	12	218
Coarse sand	12	230
Hard sand and clay	14	244
Sandy clay	14	258

Continued

11/9-36C1.--Continued

Material	Thickness (feet)	Depth (feet)
Hard sand	13	271
Coarse gravel	9	280
Coarse gravel, with clay	13	293
Hard sand and gravel	10	303
Fine sand and gravel	13	316
Sandy clay	9	325
Boulders and hard sand	6	331
Coarse gravel	16	347
Boulders and clay	14	361
Gravel and boulders	13	374
Cemented sand	8	382
Sand and clay	12	394
Medium sand	8	402
Clay and boulders	5	407

11/9-36D1. U. S. Borax and Chemical Corp., well 29. Altitude about 2,320 feet. Drilled by Roscoe Moss Drilling Co. in June 1955. 14-inch casing zero to 370 feet; perforated 110 to 350 feet; uncased hole 370 to 414 feet.

Sand	5	5
Brown sandy clay	170	175
Sandy clay, very little clay	50	225
Sandy clay and gravel, 1½ inches	110	335
Cemented sand and gravel, 2 inches	5	340
Clay and boulders	25	365
Cemented sand and gravel	49	414

11/9-36H1. U. S. Borax and Chemical Corp., well 31. Altitude about 2,325 feet. Drilled by Reliance Drilling Co. in July 1955. 12-inch casing zero to 250 feet; perforated 96 to 250 feet; uncased hole 250 to 300 feet.

Surface sand and clay	50	50
Hard coarse sand	11	61
Gravel and clay	17	78
Coarse gravel	14	92
Gravel with clay	12	104
Hard sand	12	116
Small gravel and clay	10	126
Fine sand and clay	14	140
Gravel and clay	10	150
Fine gravel	19	169
Gravel and clay	5	174
Coarse gravel	7	181
Clay and boulders	33	214
Cemented sand and boulders	5	219
Clay and boulders	11	230
Gravel and clay	11	241
Clay and boulders	9	250
Cemented sand	13	263
Cemented sand and rock	37	300

11/9-36R1. U. S. Air Force. Altitude about 2,315 feet. Drilled by Mogle Bros. Drilling Co. in April 1953. 10-inch casing zero to 298 feet, perforated 100 to 132 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil-desert sand	5	5
Hard clay	27	32
Sand clay (hard)	68	100
Rock and gravel	32	132
Hard clay	16	148
Granite, decomposed	12	160
Hard red granite and rock	138	298

11/10-36A1. A. F. Green. Altitude about 2,340 feet. Drilled by D. W. Slocum in June 1957. 10-inch casing zero to 300 feet; perforated 198 to 300 feet.

Sandy soil	14	14
Yellow sandy clay	26	40
Coarse sand	6	46
Yellow sandy clay and rocks	9	55
Coarse sand	7	62
Yellow sandy clay	16	78
Coarse sand and rock	7	85
Yellow sandy clay	22	107
Coarse sand	8	115
Yellow sandy clay	10	125
Coarse sand	7	132
Yellow sandy clay	16	148
Coarse sand	11	159
Yellow sandy clay	11	170
Coarse sand	9	179
Yellow sandy clay	15	194
Coarse sand	8	202
Yellow sandy clay	14	216
Coarse sand and gravel	14	230
Yellow sandy clay	15	245
Coarse sand and rocks	13	258
Yellow sandy clay	12	270
Coarse sand and gravel	5	275
Yellow sandy clay	8	283
Coarse sand	5	288
Yellow clay	12	300

11/10-36B1. A. F. Green. Altitude about 2,345 feet. Drilled by D. W. Slocum. 8-inch casing zero to 238 feet; perforated 159 to 238 feet.

Material	Thickness (feet)	Depth (feet)
Fine sand and brown clay	18	18
Clay	28	46
Sand	5	51
Clay and gravel	32	83
Sand	15	98
Gray clay	14	112
Hard white clay	17	129
Clay with hard streaks	11	140
Hard clay, small rocks	11	151
Good water sand	8	159
Clay, gravel mixed	9	168
Sand fine	8	176
Clay	14	190
Gravel	14	204
Hard packer clay	14	218
Sand gravel	20	238
Rock	--	238

11/10-36H1. Atchison, Topeka, and Santa Fe Railway. Altitude 2,337.0 feet. Drilled by Beylic Bros. Drilling Co. in 1953. 10-inch casing zero to 300 feet; uncased hole 300 to 320 feet.

Topsoil	5	5
Sand	5	10
Sand and clay	10	20
Sandy clay	30	50
Fine sand, gravel and clay, hard	10	60
Coarse gravel and sand, hard	20	80
Coarse gravel and clay	10	90
Soft clay and gravel	10	100
Coarse gravel and hard clay	10	110
Soft clay and gravel	10	120
Sandy clay and gravel	20	140
Coarse sand and clay	10	150
Coarse sand, gravel and clay	50	200
Coarse gravel and clay, hard	10	210
Small boulders, gravel and clay	10	220
Sand and gravel	10	230
Sand, gravel and clay, hard	20	250
Gravel, sand, and hard clay	10	260
Sand, gravel, and hard clay	20	280
Decomposed granite	35	315
Hard granite	5	320

29/39-33H1. Stocton, Works, et al. Altitude about 2,105 feet. Drilled by D. W. Slocum in July 1953. 16-inch casing zero to 460 feet; perforated 200 to 460 feet.

Material	Thickness (feet)	Depth (feet)
Sand	6	6
Rock gravel	90	96
Yellow clay	8	104
Rock gravel	15	119
Yellow clay rock	45	164
Gravel rock	22	186
Yellow clay	32	218
Coarse gravel rock	34	252
Yellow clay rock	24	276
Coarse gravel rock	14	290
Yellow clay rock	16	306
Coarse gravel rock	14	320
Yellow clay rock	24	344
Coarse sand gravel	6	350
Yellow clay rock	45	395
Coarse sand gravel	11	406
Clay rock	34	440
Rock brown sand	10	450
Clay rock	6	456
Rock	4	460

29/39-33K1. Jesse Stocton. Altitude about 2,070 feet. Drilled by D. W. Slocum in June 1956. 16-inch casing zero to 402 feet; perforated 210 to 402 feet.

Sandy soil	4	4
Rocks and sand	4	8
Yellow clay	10	18
Sand and rocks	22	40
Yellow clay	8	48
Rocks and sand	12	60
Yellow clay	12	72
Coarse sand	16	88
Yellow clay	5	93
Coarse sand	14	107
Yellow clay	5	112
Coarse sand	8	120
Yellow clay and rocks	20	140
Coarse sand	4	144
Yellow clay	7	151
Coarse sand	5	156
Yellow clay	7	163
Coarse sand	4	167
Yellow clay	11	178
Coarse sand	4	182
Yellow clay	19	201

Continued

29/39-33K1.--Continued

Material	Thickness (feet)	Depth (feet)
Coarse sand	2	203
Yellow clay	6	209
Coarse sand	5	214
Yellow clay	14	228
Coarse sand	6	234
Yellow clay	11	245
Coarse sand	7	252
Yellow clay	12	264
Coarse sand and gravel	8	272
Yellow clay	8	280
Coarse sand and gravel	8	288
Yellow clay	6	294
Coarse sand and gravel	6	300
Yellow clay	11	311
Coarse sand	7	318
Yellow clay	11	329
Coarse sand and gravel	6	335
Yellow clay	9	344
Coarse sand and gravel	4	348
Yellow clay	12	360
Coarse sand and gravel	4	364
Yellow clay	12	376
Coarse sand and gravel	5	381
Yellow clay	21	402

30/37-13E1. Crookshank, well 1. Altitude about 2,200 feet. 18-inch surface casing, not perforated.

Sand and gravel	103	103
Hard sand	70	173
Clay, hard sand streaks	157	330
Shale and sand streaks	245	575
Shale	25	600
Gravel, small amount of water	15	615
Hard sand	20	635
Brown shale	50	685
Hard sand and shale streaks	87	772
Shale and hard shells	118	890
Sandy shale	70	960
Brown sandy shale	157	1,117
Sand and shale streaks	183	1,300
Shale	15	1,315
Sandy shale	10	1,325
Shale	32	1,357
Sand	23	1,380
Streaks, shale and sand	110	1,490
Blue shale	42	1,532
Blue shale and sand streaks	65	1,597

Continued

30/37-13E1.--Continued

Material	Thickness (feet)	Depth (feet)
Blue shale	20	1,617
Blue shale and sand streaks	46	1,663
Hard sand	52	1,715
Sticky blue shale	44	1,759
Sand	2	1,761
Hard shale	34	1,795
Hard sandy shale	88	1,883
Sandy shale	112	1,995
Tough brown shale	21	2,016
Sandy shale	113	2,129
Sticky blue shale	14	2,143
Hard brown shale	45	2,188
Sand (dry)	51	2,239
Sticky brown shale	34	2,273
Blue sandy shale	44	2,317
Hard brown shale	31	2,348
Sand (dry)	38	2,386
Brown shale	25	2,411
Sand	11	2,422
Hard brown shale	54	2,476
Sand streaks and blue shale	38	2,514
Streaks of lime	16	2,530
Hard brown shale	8	2,538
Sandy shale	55	2,593
Sticky brown shale	17	2,610
Sand and shells	60	2,670
Hard sandy shale	64	2,734
Hard blue shale	53	2,787
Sand, streaks of shale	65	2,852
"Bentinite" in sand	18	2,870
Hard brown shale	30	2,900
Sand (dry)	10	2,910

30/37-13F1. Crookshank, well 1A. Altitude about 2,100 feet. 12-inch surface casing, not perforated.

Sand, some clay	967	967
Sand, light buff-yellow color, fine- to medium-grained, firm, friable	20	987
Sand, some clay	325	1,312
Claystone or mudstone, light greenish-brown or buff, massive, no apparent dips; and fine to medium sand with interstitial silt, greenish-gray	20	1,332
Sand, some clay	527	1,859

30/37-24B1. Southern Pacific Co. Altitude about 2,010 feet. 12-inch casing.

Material	Thickness (feet)	Depth (feet)
Sand and silt	81	81
Hardpan	15	96
Sand and fine gravel	10	106
Hardpan	14	120
Coarse sand	15	135
Clay	1	136
Coarse gravel	3	139
Coarse sand	13	152
Hardpan	130	282
Coarse sand	3	285
Sandy clay	109	394
Coarse gravel	5	399
Sandy clay	14	413
Fine sand	1	414
Sandy clay	86	500

30/37-25M1. M and R, Cantil Ranch, well 4. Altitude about 1,975 feet. 18-inch casing zero to 282 feet, 12-inch casing 288-692 feet; perforated 120-282 and 288-692 feet.

Sand	20	20
Sandy clay	18	38
Sand	47	85
Coarse sand	30	115
Clay	65	180
Sand	50	230
Clay	45	275
Sandy clay	30	305
Sand	100	405
Clay	25	430
Sand and gravel	40	470
Sandy clay	46	516
Clay	14	530
Sand	155	685
Clay	7	692

30/37-26E1. M and R, Cantil Ranch, well 13. Altitude about 2,040 feet. Drilled by Clarence Raley in 1950. 14-inch casing zero to 485 feet, perforated 233 to 485 feet.

Red sand	485	485

30/37-35D1. M and R, Cantil Ranch, well 5. Altitude about 2,020 feet. 18-inch casing zero to 282 feet, 12-inch casing 282 to 844 feet; perforated 120 to 282 and 288 to 844 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil	20	20
Sand	30	50
Boulders and clay	40	90
Sand	25	115
Blue clay	5	120
Sand, blue clay	60	180
Gray sand	32	212
Sand with streaks of clay	103	315
Sand	56	371
Sand with streaks of clay	84	455
Sandy clay	40	495
Sand	65	560
Sand with streaks of clay	64	624
Sandy clay	56	680
Hard sand	22	702
Fine sand	32	734
Sand with streaks of clay	90	824
Clay	20	844

30/37-35Q1. M and R, Cantil Ranch, well 9. Altitude about 2,030 feet. 20-inch casing zero to 408 feet, 12-inch casing 408 to 810 feet; perforated 246 to 408 and 414 to 810 feet.

Topsoil and yellow clay	68	68
Blue clay	22	90
Blue sandy clay	80	170
Yellow clay	20	190
Blue sand with streaks of clay	140	330
Coarse sand	220	550
Clay	40	590
Coarse sand and streaks of clay	120	710
Clay	50	760
Sand	32	792
Clay	18	810

30/37-36C1. M and R, Cantil Ranch, well 14. Altitude about 2,000 feet. 14-inch casing zero to 500 feet, perforated 248 to 500 feet.

Topsoil and clay	50	50
Red sand	57	107
Blue clay	38	145
Blue sand	80	225
Sand with streaks of clay	115	340
Sand	160	500

30/37-36G1. M and R, Cantil Ranch, well 7. Altitude 1,981.0 feet. Drilled by S. F. Caty. 14-inch casing; perforated interval: 12-52, 106-110, 138-144, 171-180, 238-250, 293-309, 418-424, 436-440, 446-450, 457-463, 767-787, 816-824, 832-838, 902-907, 916-919 feet.

Material	Thickness (feet)	Depth (feet)
Soil	7	7
Clay	22	29
Dark clay	11	40
Sand and fine gravel	12	52
Soft dark clay	54	106
Sand	4	110
Dark clay	28	138
Sand	6	144
Dark clay	27	171
Good gravel	9	180
Dark clay	30	210
Yellow clay	10	220
Dark clay	10	230
Yellow clay	8	238
Sand and fine gravel	12	250
Soft yellow clay	43	293
Sand and fine gravel	16	309
Black clay	63	372
Yellow clay	46	418
Sand	6	424
Yellow clay	12	436
Sand	4	440
Clay	6	446
Sand	4	450
Clay	7	457
Gravel	6	463
Yellow clay	121	584
Blue clay	20	604
Red clay	80	684
Dark clay	24	708
Yellow clay	10	718
Light-colored clay	8	726
Blue clay	9	735
Yellow clay	32	767
Good gravel	20	787
Yellow clay	29	816
Sand and fine gravel	8	824
Sandy clay	8	832
Gravel	6	838
Sandy clay	64	902
Sand and fine gravel	5	907
Sandy clay	9	916
Sand	3	919
Sandy clay	9	928
Sand and fine gravel	8	936
Tough clay	2	938

30/37-36K1. M and R, Cantil Ranch, well 15. Altitude about 2,005 feet. 14-inch casing zero to 527 feet, perforated 275 to 527 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil and clay	30	30
Streaks of sand and clay	120	150
Clay	75	225
Red sand	302	527

30/37-36N1. M and R, Cantil Ranch, well 10. Altitude about 2,025 feet. 20-inch casing zero to 410 feet, 12-inch casing 410 to 590 feet; perforated 244 to 410 and 416 to 590 feet.

Topsoil and clay	60	60
Red sand	60	120
Clay	10	130
Coarse sand and boulders	30	160
Sand with thin streaks of clay	120	280
Clay	40	320
Red sand	190	510
Sandy clay	25	535
Sand	45	580
Granite	10	590

30/38-19A1. J. E. Sprott, formerly Crookshank. Altitude about 1,950 feet. Uncased.

Surface sand	72	72
Sand and gravel	40	112
Sticky blue shale	13	125
Sand with hard streaks	31	156
Hard sand	9	165
Sandy shale	30	195
Sandy blue shale	15	210
Sand with streaks of hard sand	50	260
Sand	20	280
Hard sand	5	285
Sticky clay	5	290
Sand	40	330
Sticky blue shale	10	340
Sand and gravel	20	360
Sand	40	400
Clay and streaks of sand	40	440
Sand and streaks of clay	10	450
Sand and boulders	50	500
Sandy shale	40	540
Hard sand and streaks of clay	40	580
Hard sand	20	600
Hard sand and streaks of gypsum	40	640
Hard sand	20	660
Sticky blue shale streaked with sand	45	705
Shale streaked with hard sand	35	740

Continued

30/38-19A1.--Continued

Material	Thickness (feet)	Depth (feet)
Sticky blue shale	10	750
Hard sand	32	782
Sand and boulders	45	827
Sandy shale	118	945
Sticky blue clay	10	955
Sandy shale	30	985
Hard sand	17	1,002
Sandy shale with streaks of blue shale and hard sand	198	1,200
Hard sand	10	1,210
Blue clay	2	1,212
Hard sand	102	1,314
Shale and boulders	12	1,326
Sticky shale	8	1,334
Hard sand	10	1,344
Hard sandy shale	75	1,419
Hard sand	54	1,473
Shale and streaks of hard sand	12	1,485
Hard sand	30	1,515
Shale and streaks of hard sand	12	1,527
Hard sand	28	1,555
Shale and streaks of hard sand	5	1,560
Sticky shale	15	1,575
Hard sand	155	1,730
Sandy shale	22	1,752
Sandy shale and streaks of hard sand	43	1,795
Sand and sticky shale	13	1,808
Sticky shale	52	1,860
Sticky shale, hard sand, occasional boulders	83	1,943
Sandy shale, occasional boulders	70	2,013
Sticky shale	5	2,018
Sticky shale and boulders	15	2,033
Hard sand	37	2,070
Shales, occasional boulders	190	2,260
Hard sand	27	2,287
Sticky shale	38	2,325
Hard shale	4	2,329
Sand and tough shale	30	2,359
Sand	51	2,410
Sticky shale and sand	47	2,457
Tough shales	23	2,480
Hard sand	14	2,494
Sticky shale with streaks of hard sand	28	2,522
Sticky shale	28	2,550
Hard sandy shale	22	2,572
Hard sand	3	2,575
Sandy shale	2	2,577
Hard sand	14	2,591
Tough shale	9	2,600
Hard sand	59	2,659

Continued

30/38-19A1.--Continued

Material	Thickness (feet)	Depth (feet)
Hard sand and shale	2	2,661
Tough sand and shale	20	2,681
Shale and streaks of hard sand	10	2,691
Sandy shale	25	2,716
Sand, dry	11	2,727
Shale	--	2,727

30/38-19F1. Crookshank, well 2. Altitude about 1,970 feet. 18-inch surface casing.

Alluvium	80	80
Clay	40	120
Sand	50	170
Blue clay	50	220
Sand	60	280
Blue clay	20	300
Gravel	50	350
Blue clay	15	365
Sand	25	390
Blue clay	50	440
Sand	25	465
Blue clay	40	505
Hard sand	30	535
Hard blue shale	27	562
Hard sand	35	597
Hard shale	21	618
Hard sand	36	654
Hard shale	25	679
Sand	25	704
Hard shale	52	756
Sand	28	784
Hard shale	16	800
Sand	9	809
Hard shale	12	821
Sand	19	840
Shale	34	874
Sand	25	899
Shale	16	915
Sandy shale	38	953
Shale	38	991
Sandy shale	35	1,026
Sand	46	1,072
Shale	42	1,114
Sandy shale	50	1,164
Sand	42	1,206
Shale	41	1,247
Sand	53	1,300
Shale, blue	56	1,356
Sandy shale	47	1,403

Continued

30/38-19F1.--Continued

Material	Thickness (feet)	Depth (feet)
Shale, blue	61	1,464
Sticky blue shale	36	1,500
Sand	10	1,510
Sticky blue shale	45	1,555
Sandy shale	30	1,585
Sand, streaks of shale	120	1,705
Sandy shale	70	1,775
Shale and sand streaks	60	1,835
Sand	25	1,860
Sticky blue shale	70	1,930
Shale and streaks of sand	35	1,965
Shale	33	1,998
Shale and sand	27	2,025
Sand	5	2,030
Sticky blue shale and sand	67	2,097
Sand	17	2,114
Blue shale	96	2,210
Sand	4	2,214
Blue shale	24	2,238
Sand	27	2,265
Brown shale	23	2,288
Sandy shale	27	2,315
Blue shale	50	2,365
Sticky blue shale	25	2,390
Hard sandy shale	40	2,430
Hard blue shale	30	2,460
Tough brown shale	25	2,485
Sand	10	2,495
Shale and lime streaks	45	2,540
Sticky shale	30	2,570
Sandy shale	45	2,615
Sand, dry, showing fault	15	2,630
Hard sand, dry	27	2,657
Blue silt (and) sandstone, fault	33	2,690
Blue shale and sand, faults	20	2,710
Hard blue shale, faults	16	2,726
Blue shale	49	2,775
Sticky shale	28	2,803
Blue silt (and) sandstone	37	2,840
Blue shale	35	2,875
Blue shale, faulted, dips of 85°	8	2,883

30/38-19P1. Crookshank, well 3. Altitude about 1,940 feet. 12-inch casing.

Material	Thickness (feet)	Depth (feet)
Alluvial clay and sand	20	20
Clay	20	40
Sand	30	70
Clay	10	80
Sand-water	20	100
Clay, blue	10	110
Sandy clay	30	140
Clay and streaks (of) sand	120	260
Clay	10	270
Sandy clay	30	300
Sand-water gravel	30	330
Clay	5	335
Sand	45	380
Clay, blue	25	405
Sand and clay streaks	45	450
Clay, blue, hard	10	460
Sandy clay	20	480
Blue clay, hard	40	520
Sand, water gravel	40	560
Blue clay, hard	15	575
Sand	25	600
Sandy shale	40	640
Sandy shale, streaks (of) sand	210	850
Sticky shale	20	870
Streaks of sand and shale	30	900
Sand, hard	50	950
Hard blue shale	10	960
Hard sandy shale	25	985
Sand	55	1,040
Sandy shale	60	1,100
Shale	5	1,105
Sandy shale	30	1,135
Sand	15	1,150
Sandy shale	25	1,175
Shale	10	1,185
Hard sand	20	1,205
Sandy shale	65	1,270
Shale	15	1,285
Hard sand	10	1,295
Shale	13	1,308
Sand	48	1,356
Shale	9	1,365
Sand	15	1,380
Shale, hard	20	1,400
Sandy shale	70	1,470
Shale	25	1,495
Sand,hard	25	1,520
Sandy shale	10	1,530
Sand	30	1,560

Continued

30/38-19P1.--Continued

Material	Thickness (feet)	Depth (feet)
Shale, hard	45	1,605
Sand	65	1,670
Sandy shale	137	1,807
Shale	13	1,820
Sand	22	1,842
Shale	8	1,850
Sand, hard	10	1,860
Sandy shale	30	1,890
Shale	18	1,908
Sand	2	1,910
Shale, streaks (of) sand	80	1,990
Sand	20	2,010
Shale	10	2,020
Sand	10	2,030
Shale	20	2,050
Sand	20	2,070
Shale	15	2,085
Sandy shale	10	2,095
Sand, hard	17	2,112
Shale	33	2,145
Sand	20	2,165
Sandy shale	65	2,230
Sand, streaks (of) shale	60	2,290
Shale	10	2,300
Sandy shale	40	2,340
Sand, hard	45	2,385
Sand	28	2,413
Sandy shale	77	2,490
Shale	10	2,500
Sand, streaks (of) shale	60	2,560
Shale	15	2,575
Sand, hard	15	2,590
Hard shale	15	2,605
Sand, streaks (of) shale	95	2,700
Hard shale	26	2,726
Loose gray sand (dry)	9	2,735
Hard sand and shale	3	2,738
Hard sand (dry)	12	2,750
Sandy shale	30	2,780
Hard shale	27	2,807
Hard sand	13	2,820
Hard shale and sand streaks	66	2,886
Hard sand	34	2,920
Hard shale	30	2,950
Hard sand	20	2,970
Hard shale	40	3,010
Hard sand	10	3,020
Hard shale	7	3,027
Hard sand	13	3,040
Hard shale	20	3,060
Hard sand	10	3,070
Shale	20	3,090

30/38-19P2. J. E. Sprott. Altitude about 1,940 feet.
18-inch casing.

Material	Thickness (feet)	Depth (feet)
Surface soil	30	30
Sand and gravel, streaks of clay	345	375
Shale and boulders	30	405
Tough shale and streaks of sand	70	475
Tough shale and sand	25	500
Sand and boulders	90	590
Sand and gravel	15	605
Clay (and) boulders	25	630
Clay and gravel	58	688
Sand and gravel	20	708
Clay and gravel	102	810
Clay and boulders	10	820
Boulders	5	825
Boulders and tough clay	12	837
Clay and boulders	98	935
Hard sand	20	955
Hard sand and gravel	110	1,065
Hard sand	10	1,075
Gravel	45	1,120
Loose sand	5	1,125
Hard sand and gravel	15	1,140
Hard sand	5	1,145
Gravel	45	1,190
Tough shale	10	1,200
Sticky shale	10	1,210
Clay and streaks of sand	35	1,245
Hard sand and boulders	5	1,250
Sand and gravel	42	1,292
Hard sand and gravel	16	1,308
Sticky sand	4	1,312
Sand	2	1,314
Sandy shale	15	1,329
Tough shale	23	1,352
Hard sand	4	1,356
Sticky black shale	14	1,370
Hard sand	5	1,375
Shale and streaks (of) sand	8	1,383
Shale	67	1,450
Sticky shale, blue	40	1,490
Sticky shale	10	1,500
Sand	10	1,510
Sticky shale	10	1,520
Sticky blue shale	35	1,555
Shale and sand	25	1,580
Sand and streaks of shale	120	1,700
Sandy shale	75	1,775
Sand and streaks of shale	80	1,855
Sticky blue shale	75	1,930
Shale and streaks of sand	15	1,945
Shale	50	1,995
Shale and sand	30	2,025
Sand	2	2,027
Sticky blue sand with streaks of sand	63	2,090
Sticky shale	10	2,100
Sand	14	2,114
Shale	68	2,182
Hard blue shale	28	2,210
Sand	3	2,213
Shale	25	2,238
Blue shale	32	2,270
Brown shale	11	2,281
Sandy and tough shale	29	2,310
Sandy shale	30	2,340
Blue shale	25	2,365
Sticky blue shale	20	2,385
Hard sandy shale	5	2,390
Sticky shale	39	2,429
Sticky blue shale	10	2,439
Hard blue shale	25	2,464
Tough brown shale	26	2,490
Hard sand	5	2,495
Sticky shale with streaks of lime	20	2,515
Brown shale with streaks of lime	25	2,540
Brown sticky shale	5	2,545
Sandy shale and boulders	75	2,620
Sand	5	2,625
Sticky shale	30	2,655
Hard sand and gravel	2	2,657
Sticky blue shale	13	2,670
Sticky shale and sand and gravel	30	2,700
Sandy shale and shale	15	2,715
Blue shale	5	2,720
Sandy shale	31	2,751

Continued

30/38-19P2.--Continued

Material	Thickness (feet)	Depth (feet)
Sandy shale, streaks hard sand	6	2,757
Blue shale and lime	4	2,761
Shale	9	2,770
Hard	1	2,771
Sticky shale	49	2,820
Sand	23	2,843
Sand and boulders	20	2,863
Blue sandy shale	5	2,868
Sand	30	2,898
Sticky blue shale	3	2,901
Tough sticky blue shale	36	2,937
Sticky blue shale	16	2,953
Sand	6	2,959
Sandy shale and boulders	9	2,968
Sandy shale	124	3,092
Sticky shale	15	3,107
Sandy shale, streaks hard sand	35	3,142
Sticky shale	14	3,156
Sandy shale with streaks hard sand	34	3,190
Sandy shale	10	3,200
Sticky blue shale	5	3,205
Hard sandy shale	5	3,210
Sandy shale	4	3,214
Hard sand	10	3,224
Sticky blue shale	12	3,236
Sand	1	3,237
Sandy shale	10	3,247
Tough sticky shale	10	3,257
Sticky shale	19	3,276
Coarse sand	7	3,283
Hard sandy shale	10	3,293
Sticky shale	20	3,313
Sandy shale, streaks of hard sand	64	3,377
Sandy shale	10	3,387
Blue sticky shale	10	3,397
Sandy shale	6	3,403
Sandy shale and hard sand	23	3,426
Sticky blue shale	16	3,442
Tough sticky shale	65	3,507
Sandy shale	12	3,519
Tough sticky shale	11	3,530
Sandy shale	8	3,538
Sticky blue shale	17	3,555
Hard sand	2	3,557
Sticky shale	21	3,578
Tough sticky shale	62	3,640
Sand	2	3,642
Tough sticky shale	31	3,673
Hard sand	2	3,675
Shale and streaks of sand	25	3,700
No entry	9	3,709
Sticky shale	15	3,724
Sand	3	3,727
Sand and shale	9	3,736
Sticky blue shale	10	3,746
Sandy shale	4	3,750
Hard sand and sandy shale	15	3,765
Sandy shale with streaks of streaky shale	15	3,780
Sandy brown shale	17	3,797
Sandy brown shale, streak sand	11	3,808
Brown shale and streaky shale	8	3,816
Sandy shale and shells	3	3,819
Brown shale and streaks of hard sand	18	3,837
Brown shale	10	3,847
Sticky shale	5	3,852
Sandy shale, tough	13	3,865
Sandy shale	10	3,875
Sand	4	3,879
Sandy shale	7	3,886
Sticky shale	23	3,909
Tough sticky shale	4	3,913
No entry	4	3,917
Blue shale	18	3,935
Hard sand	1	3,936
Blue shale	2	3,938
Sticky shale	8	3,946
Blue shale	5	3,951
Sticky shale	10	3,961
Shale and lime	25	3,986
Sticky shale	4	3,990
Blue shale	32	4,022
Tough sticky shale	3	4,025
Sticky shale	20	4,045
Brown sandy shale	15	4,060
Brown sandy and sticky shale	5	4,065
Hard sand	5	4,070

Continued

30/38-19P2.--Continued

Material	Thickness (feet)	Depth (feet)
Hard brown sandy shale --	10	4,080
Hard brown shale -------	14	4,094
Sticky shale ----------	4	4,098
Hard sandy shale -------	6	4,104
Brown shale and lime ----	7	4,111
Hard sand and lime ------	4	4,115
Hard brown shale -------	20	4,135
Hard brown shale and lime ----------	15	4,150
Sticky brown shale ------	9	4,159
Sticky shale ----------	2	4,161
Sticky blue shale -------	7	4,168
Sandy shale ----------	18	4,186
Sticky shale ----------	11	4,197
Sticky blue shale -------	3	4,200
Sticky shale ----------	6	4,206
Brown shale ----------	5	4,211
Sticky shale ----------	13	4,224
Sticky blue shale and lime ----------	5	4,229
Tough blue shale and lime ----------	18	4,247
Sticky shale and lime ---	8	4,255
Blue shale and lime -----	75	4,330
Brown shale ----------	12	4,342
Blue shale and lime -----	42	4,384
Lime rock ----------	1	4,385
Rock and lime shell -----	6	4,391
Blue shale and lime -----	51	4,442
Sticky shale, some lime--	5	4,447
Brown sandy shale and lime ----------	18	4,465
Brown shale and lime ----	9	4,474
Shale and lime ----------	9	4,483
Blue shale and lime -----	189	4,672
Brown shale and lime ----	28	4,700
Sticky blue shale and lime ----------	7	4,707
Blue shale and lime -----	20	4,727
Sticky brown shale, some lime ----------	1	4,728
Brown shale and lime ----	60	4,788
Blue shale and lime --	82	4,870
Dark shale and lime --	10	4,880
Dark shale, some sand-	8	4,888
Blue shale, some sand-	12	4,900
Sticky shale, brown, some sand ----------	7	4,907
Brown sandy shale ----	2	4,909
Sticky brown shale ---	5	4,914
Sticky brown shale and lime ----------	10	4,924
Dark shale, some lime-	4	4,928
Blue shale and lime --	7	4,935
Dark shale, little lime ----------	22	4,957
Shale and lime -------	6	4,963
Sticky shale and lime-	10	4,973
Brown shale and lime--	13	4,986
Sticky brown shale, some lime ----------	8	4,994
Dark shale ----------	9	5,003
Blue shale, slightly sandy ----------	7	5,010
Hard dry sand -------	5	5,015
Brown shale ----------	3	5,018
Brown shale, some lime	5	5,023
Brown shale and lime--	7	5,030
Brown shale, streaks of sand ----------	8	5,038
Brown shale, some sand and lime ------	6	5,044
Brown shale and lime--	21	5,065

30/38-30P1. M and R, Cantil Ranch, well 1. Altitude about 1,960 feet. 20-inch casing zero to 150 feet, 12-inch casing 150 to 643 feet; perforated 130 to 150 and 153 to 643 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil	15	15
Sand	165	180
Coarse sand	85	265
Brown clay	25	290
Dark blue clay	95	385
Clay	20	405
Sand	48	453
Clay	20	473
Sandy clay	24	497
Coarse sand	80	577
Clay	27	604
Sand	17	621
Clay	22	643

30/38-31F1. M and R, Cantil Ranch, well 3. Altitude about 1,990 feet. 16-inch casing zero to 196 feet, 12-inch casing 196 to 658 feet; perforated 118 to 196 and 202 to 658 feet.

Sand	15	15
Coarse sand	35	50
Clay	110	160
Sand	30	190
Coarse gravel	40	230
Sandy clay	30	260
Clay	30	290
Sand	123	413
Coarse sand	23	436
Clay	44	480
Sandy clay	30	510
Sand with streaks of coarse gravel	98	608
Clay	19	627
Sand	21	648
Clay	10	658

30/38-31G1. M and R, Cantil Ranch, well 2. Altitude about 1,990 feet. 20-inch casing zero to 156 feet, 12-inch casing 156 to 656 feet; perforated 120 to 656 feet.

Sand	45	45
Clay	65	110
Clay with streaks of coarse sand	55	165
Gravel	52	217
Hard rock	6	223
Coarse sand	25	248
Clay	12	260
Sandy clay	125	385
Sandy clay with streaks of hard sand	95	480
Coarse sand	60	540
Sand and streaks of clay	40	580
Sand	10	590
Yellow clay	15	605
Coarse sand	47	652
Clay	4	656

30/38-32G1. M and R, Cantil Ranch, well 8. Altitude 1,949.0 feet. 20-inch casing zero to 408 feet, 12-inch casing 408 to 852 feet; perforated 120 to 408 and 414 to 852 feet; uncased hole 852 to 863 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil and clay	50	50
Red sand with streaks of clay	110	160
Blue clay	30	190
Blue-gray sand with streaks of clay	220	410
Yellow clay	70	480
Red sand	129	609
Yellow clay	121	730
Yellow sandy clay	82	812
Coarse sand	35	847
Hard sand	16	863

30/39-3C1. James Stocton. Altitude about 2,140 feet. Drilled by D. W. Slocum in July 1956. 14-inch casing zero to 600 feet, perforated 234 to 600 feet; uncased hole 600 to 610 feet.

Material	Thickness (feet)	Depth (feet)
Sandy soil	3	3
Sand rock and gravel	17	20
Coarse sand	15	35
Yellow sandy clay	5	40
Coarse sand and rock	20	60
Yellow sandy clay	4	64
Coarse sand and gravel	17	81
Yellow sandy clay	11	92
Coarse sand and rocks	22	114
Sandy clay and rocks	22	136
Coarse sand and gravel	5	141
Sandy clay and rocks	24	165
Coarse sand and gravel	7	172
Sandy clay and rocks	18	190
Coarse sand and rocks	8	198
Sandy clay and rocks	12	210
Coarse sand and gravel	6	216
Sandy clay and rocks	14	230
Coarse sand and gravel	8	238
Sandy clay and gravel	12	250
Coarse sand	5	255
Yellow clay	10	265
Coarse sand	5	270
Yellow clay	12	282
Coarse sand	6	288
Yellow clay	13	301
Coarse sand	6	307
Yellow clay	5	312
Coarse sand and rocks	6	318
Yellow clay	12	330
Coarse sand and rock	5	335
Yellow clay	15	350
Coarse sand	8	358
Yellow sandy clay	4	362
Coarse sand	6	368
Yellow sandy clay	10	378
Coarse sand	7	385
Yellow sandy clay	17	402
Coarse sand	8	410
Yellow clay	16	426
Coarse sand	7	433
Yellow clay	13	446
Coarse sand	6	452
Yellow clay	8	460
Coarse sand	8	468
Yellow clay	7	475
Coarse sand and gravel	9	484
Yellow clay (sandy)	14	498
Coarse sand	7	505
Yellow sandy clay	15	520
Coarse sand	8	528
Yellow clay	12	540
Coarse sand	6	546
Yellow clay	12	558
Coarse sand	6	564
Yellow clay	17	581
Coarse sand	8	589
Yellow sandy clay	5	594
Coarse sand	4	598
Yellow sandy clay	6	604
Coarse sand	6	610

31/37-1H1. M and R, Cantil Ranch, well 16. Altitude about 2,030 feet. 14-inch casing zero to 504 feet, perforated 252 to 504 feet.

Material	Thickness (feet)	Depth (feet)
Topsoil and clay	30	30
Red sand	60	90
Yellow clay	40	130
Blue clay	10	140
Coarse sand with streaks of clay	180	320
Coarse sand	90	410
Clay	20	430
Sand	74	504

31/37-1R1. M and R, Cantil Ranch, well 11. Altitude about 2,065 feet. 20-inch casing zero to 402 feet, 12-inch casing 402 to 468 feet; perforated 240 to 402 and 408 to 468 feet.

Topsoil and clay	60	60
Red sand	110	170
Sandy clay	60	230
Red sand	155	385
Blue sand and clay	60	445
Hard granite	23	468

31/37-2P1. M and R, Cantil Ranch well 6. Altitude about 2,080 feet. 18-inch casing zero to 324 feet, perforated 120 to 324 feet; reducer 324 to 330 feet; 12-inch perforated casing 330 to 380 feet.

Topsoil and sand	10	10
Fine dry sand	10	20
Gravel	5	25
Clay	85	110
Clay with streaks of sand and gravel	69	179
Clay	14	193
Gravel	5	198
Sandy clay	27	225
Sand	51	276
Sand and gravel	65	341
Granite	39	380

31/37-22J1. Cinco, well 1, oil test. Altitude about 2,235 feet. 10-inch surface casing.

Coarse sand	40	40
Sand and sandy shale	98	138
Sand and sticky shale	34	172
Hard fine sand	35	207
Sandy shale and bentonite	5	212
Gray sand carrying water	58	270
Bentonite	10	280
Hard sand	8	288
Hard sand, streaks of bentonite	49	337

Continued

31/37-22J1.--Continued

Material	Thickness (feet)	Depth (feet)
Brown sticky clay	54	391
Sandy clay	56	447
Brown sand	67	514
Hard sandstone	89	603
Hard sand and gray shale	60	663
Hard shale	58	721
Gray sandstone and shale	34	755
Hard brown sand	28	783
Hard sandstone	36	819
Gray shale and hard sand	23	842
Clay and hard sandstone	156	998
Sandy shale	63	1,061
Sandy shale and pebble beds	27	1,088
Sandy shale, streaks of blue shale	32	1,120
Hard sandstone	71	1,191
Sandstone and limy sandstone	200	1,391
Limy sandstone	72	1,463
Lime and sandstone	101	1,564
Limy gray shale	103	1,667
Limy sandstone and gray shale	51	1,718

31/37-22R1. Hix, well 1, oil test. Altitude about 2,240 feet. Drilled by Cinco Development Co. 12-inch surface casing.

Topsoil, red clay and gravel	40	40
Coarse sand with shale and clay	160	200
Shale and lime	100	300
Dry water sand and gravel	50	350
Coarse chert and sand	200	550
Lime, shale, silt	30	580
Layers (of) lime shale and chert	120	700
Sand, chert, shale and gravel	40	740
Chert, lime and shale	95	835
Hard gray lime, sand and chert	65	900
Hard shales, lime, sand	175	1,075
Shale and hard lime	55	1,130
Hard shale, lime and small round boulders	310	1,440

31/38-22H1. Fremont Oil Syndicate, well 1, oil test. Altitude about 2,660 feet. Drilled by Fremont Oil Corp. 8-inch surface casing.

Material	Thickness (feet)	Depth (feet)
Sedimentary	139	139
Coarse sandy gravel	102	241
Boulders	11	252
Light brown shale	62	314
Shale, sticky, blue	18	332
Sandy shale	86	418
Sticky shale	30	448
Water sand	2	450
Blue clay	12	462
Lime	8	470
Decomposed granite	24	494
Lime	20	514
Blue shale	12	526
Conglomerate	46	572
Blue shale	24	596
Conglomerate	54	650
Blue shale	28	678
Hard sand, like quartz	4	682
(The log has been lost)	209	891
Gumbo	10	901
Blue shale	101	1,002
Hard cemented sand	47	1,049
Sticky blue shale	19	1,068
Hard sand	34	1,102
Hard sand rock	19	1,121
Dry gravel (caving)	6	1,127
Gray shale	28	1,155
Hard lime rock	13	1,168
Dark sticky shale	24	1,192
Hard cemented sand and gravel	26	1,218
Blue shale	17	1,235
Hard shell	8	1,243
Sandy gray shale (very hard)	22	1,265
Hard shell with streaks of shale	28	1,293
Gypsum rock	5	1,298
Strata of hard sand rock and strata of dark blue shale	20	1,318
Sandy gray shale	100	1,418
Very hard sand rock	1	1,419
Conglomerate	21	1,440

31/38-22H2. Fremont Oil Syndicate, well 2, oil test. Altitude about 2,655 feet. Drilled by Fremont Oil Corp. 5-inch surface casing.

Material	Thickness (feet)	Depth (feet)
Sedimentary	5	5
Sedimentary with streak of quartz	5	10
Rotten quartz	7	17
Sedimentary	128	145
Sand and gravel	39	184
Yellow sand and gravel	11	195
Coarse gravel	10	205
Sand and gravel	7	212
Quartz	3	215
Sand, gravel and quartz	10	225
Yellow gravel and sand	11	236
Yellow gravel	14	250
Yellow sand and gravel	2	252
Quartz	4	256
Yellow clay, sand and gravel	19	275
Yellow clay and gravel	20	295
Yellow sand	5	300
Fine sand	5	305
Yellow sand and gravel	10	315
Yellow clay and gravel	22	337
Light yellow sandy clay	33	370
Quartz	25	395
Light clay, sand and gravel	15	410
Sticky white clay	5	415
Lime, clay sand and gravel	37	452
Water sand, very light	2	454
Lime clay sandy	75	529
Boulders	53	582
Sand and gravel	84	666
Quartz	36	702
White clay or bentonite	5	707
Gravel	13	720
Clay and gravel	36	756
Water gravel	4	760
Quartz	45	805
Sharp sands	22	827
Quartz	88	915
Hard sands	75	990
Quartz	25	1,015
Gray shale	39	1,054
Sandy gray shale	34	1,088
Quartz	20	1,108
Sandy gray shale	27	1,135
Shells	7	1,142
Sticky blue shale	20	1,162
Sandy gray shale	14	1,176
Quartz	6	1,182
Shells	2	1,184
Sandy gray shale	100	1,284
Blue clay	22	1,306
Sandy gray shale	27	1,333
Hard shell	12	1,345
Sandy gray shale	115	1,460
Shell	5	1,465
Sandy gray shale	76	1,541
Blue clay	71	1,612
Blue sandy shale	43	1,655
Sandy gray shale	213	1,868
Hard shell	5	1,873
Sandy gray shale	212	2,085
Hard shell	5	2,090
Sandy gray shale	51	2,141
Hard shell	3	2,144
Gray shale, rotten smell	29	2,173
Very hard shell	4	2,177
Gray shale	25	2,202
Hard shell	2	2,204
Sandy gray shale, some very sticky	17	2,221
Shell	3	2,224
Gray sandy shale	73	2,297
Sandy shale	3	2,300
Hard shell	5	2,305
Gray shale	27	2,332
Gray sandy shale	18	2,350
Gray shale	9	2,359
Gray sandy shale	86	2,445
Sandy blue clay	30	2,475
Sandy blue shale	10	2,485
Gray sandy shale	13	2,498
Hard shell	5	2,503
Gray sandy shale	25	2,528
Hard shell	5	2,533
Gray sandy shale	15	2,548
Hard shell	7	2,555
Gray shale	15	2,570
Hard shell	2	2,572
Gray sandy shale	26	2,598
Gray shale	22	2,620

32/36-22B1. Oliver Pesch. Altitude about 2,710 feet. Drilled by W. H. Colquitt in October 1947. 6-inch casing zero to 713 feet, uncased hole 713 to 829 feet.

Material	Thickness (feet)	Depth (feet)
Not logged	--	535
Yellow clay streaks and loose gravel streaks	70	605
Clean coarse sand	95	700
Not logged	--	829

32/37-9-1. M and R, Conklin Ranch, formerly J. S. and L. Exploration Co., Childs Wall, well 1, oil test. Altitude about 2,445 feet. Casing record not available.

Alluvial sand and clay	202	202
Clay	3	205
Sand	5	210
Sandy clay and boulders	90	300
Clay	20	320
Sand	10	330
Sandy clay	15	345
Sand and streak of clay	65	410
Hard shell	10	420
Water sand	30	450
Hard clay	40	490
Hard sand, streak of hard shale	180	670
Hard shale	40	710
Hard sand	8	718
Hard shale	12	730
Sand and streak of hard shale	70	800
Hard shale	60	860
Hard sand	15	875
Hard sandy shale	135	1,010
Hard cemented sand	190	1,200
Sandy shale	50	1,250
Sand	25	1,275
Sandy shale	35	1,310
Sand and boulders	70	1,380
Hard sand	20	1,400
Sandy shale	75	1,475
Cemented sandy shale	35	1,510
Hard shale	52	1,562
Hard sand	52	1,614
Hard shale	67	1,681
Hard sandy shale	22	1,703
Hard sand	33	1,736
Hard sandy streaked shale	69	1,805
Hard sandy shale	46	1,851
Cemented sand	89	1,940
Hard sandy shale	35	1,975
Hard shale	17	1,992
Hard sand	22	2,014
Hard sandy shale	29	2,043
Hard shale	30	2,073
Hard sand	29	2,102
Hard sandy shale	85	2,187
Hard sand and boulders	17	2,204
Hard shale	28	2,232

32/37-16R1. M and R, Conklin Ranch, well 14. Altitude about 2,440 feet. Drilled by Jess Goforth. 16-inch casing.

Material	Thickness (feet)	Depth (feet)
No record	--	205
Large- to medium-grained sand	30	235
Intermittent streaks of sand and clay	20	255
Streaks of gravel	20	275
Large streaks of gravel	40	315
Definitely a boulder conglomerate, basal in character	5	320
Dense fine-grain varicolored sand	20	340
Small streaks of clay and a fine unconsolidated varicolored sand	40	380
Large streaks of clay	15	395
Medium- to fine-grained sand and streaks, good water possibility	35	430
Small streaks of gravel and small sand	30	460
Medium- to fine-grained varicolored sand with small streaks of gravel, good water possibility	45	505
Small streaks of gravel and small rocks	40	545
A medium- to very fine-grained sand, crystals predominate, some quartz crystals, some rounded small sand, excellent water possibility	40	585
Clay content more than 50 percent in well-consolidated sand	30	615
Some streaks of unconsolidated sand	30	645
Streaks of clay and a medium sand	41	686

32/37-26M1. M and R, Conklin Ranch, well 15. Altitude about 2,420 feet. Drilled by Jess Goforth in 1953. 16-inch casing.

No log	--	215
A medium- to fine-grain sand, varicolored and very sharp	15	230
A small streak of coarse gravel	10	240
A medium- to small-grain sand, varicolored and more rounded than above, water possibility	25	265
Alternate streaks of clay and sand	25	290
Gravel and small boulders with streaks of clay	25	315
A medium- to fine-grain sand, number of large crystals, good water possibility	50	365
Medium- to fine-grain sand, clay streaks	25	390
As above, with more clay streaks	7	397
Mostly clay streaked with small sand	33	430
A few streaks of small boulders	10	440
Medium- to fine-grain sand, alternating with small gravel	20	460
A medium- to fine-grain sand, varicolored, small grains are well rounded and mainly clear and black minerals, excellent water possibility	75	535
A very hard streak of well-cemented sand and gravel	15	550
A varicolored large to medium sand, some crystals well rounded	10	560
Small gravel and large-grained sand, good water possibility; cuttings from bottom are large sand, sharp, many flakes from dark and clear minerals	38	598

32/39-4L1. J. E. Johnson Co., M and R well 1, oil test. Altitude about 2,725 feet. 10-inch surface casing.

Material	Thickness (feet)	Depth (feet)
Alluvial sand and hard shells	43	43
Hard sand and shells	218	261
Sand and hard streaks	77	338
Sandy clay, streaks of gravel	250	588
Sandy shale	178	766
Hard blue shale	67	833
Sticky shale	55	888
Sandy shale	132	1,020
Sand and shale	101	1,121
Sandy shale and streaks of gravel	63	1,184
Tight sand and boulders	190	1,374
Hard sand	23	1,397
Cemented decomposed granitic material	1	1,398
Decomposed granite and shale	107	1,505
Hard sand	79	1,584
Decomposed cemented granite	32	1,616
Tight coarse sand	10	1,626
Decomposed lime and granite	82	1,708
Hard sand	286	1,994
Decomposed lime and granite	123	2,117
Hard sand	158	2,275
Sandy shale	48	2,323
Hard sand	33	2,356
Sandy shale, streaks of hard sand	26	2,382
Decomposed lime and granite	10	2,392

32/40-31B1. U. S. Borax and Chemical Corp., well 22. Altitude about 2,530 feet. Drilled by owner in April 1954. Uncased hole zero to 290 feet.

Sand, clay and gravel, hard, moderately well cemented	160	160
Sand and gravel with thin zones of brown clay	15	175
Sand, clay and gravel; well mixed, brown, hard	60	235
Clay, brown, hard, sandy, streaks of coarse water gravel at 260 feet	30	265
Sand, clay, gravel, hard	25	290

32/40-31F1. U. S. Borax and Chemical Corp., well 23. Altitude about 2,520 feet. Drilled by owner in April 1954. Uncased hole zero to 500 feet.

Material	Thickness (feet)	Depth (feet)
Sand, clay and gravel; sand granitic, clay brown, well mixed, compact, hard	170	170
Sand and gravel; water bearing	5	175
Sand, clay and gravel; brown, well mixed, hard, compact	95	270
Sand and gravel; some streaks of brown clay, gravel increasing down section	22	292
Sand, clay and gravel, brown, well mixed	138	430
Sand; very coarse, poorly sorted, few pebbles and boulders	10	440
Clay; sandy, gray	3	443
Gravel; coarse, waterworn, some basalt pebbles, thin streaks of clay and sand	4	447
Clay; sandy, gray	13	460
Sand and gravel, very coarse, poorly sorted, basalt and granitic boulders	16	476
Clay, blue-gray, sandy with occasional gravel streaks	24	500

Table 5.- Chemical analyses of water from wells

Constituents: Where the value for sodium is preceded by the letter a it indicates sodium and potassium expressed as sodium. The value for dissolved solids is the analytically determined value reported by the laboratory. The sum of determined constituents is the sum of the tabulated constituents minus approximately half (50.8 percent) of the bicarbonate. Because all the major constituents (except silica in many of the analyses) that commonly occur in ground water were analytically determined, the values for dissolved solids and sum of determined constituents should be approximately the same. Constituents shown in parentheses are values calculated by the Geological Survey, Ground Water Branch. All values have been rounded where necessary to conform to the standards of the Geological Survey, Quality of Water Branch.

Temperature: For the Geological Survey analyses (GW, GP, and QW), where the temperature is given the sample was collected from the pump discharge; where the temperature is omitted the samples were collected mainly from a storage facility at the well. For the other analyses the point of collection was mainly from the pump discharge.

Analyzing laboratory: DWR, State of California, Department of Water Resources; GP, U. S. Geological Survey, Geochemistry and Petrology Branch; GW, U. S. Geological Survey, Ground Water Branch; H, Hornkohl Co.; QW, U. S. Geological Survey, Quality of Water Branch; SE, Smith-Emery Co. For analyses for which the analyzing laboratory is not given the agency from which the analysis was collected is given: CW, Cyril Williams, Jr. (1930); DGT, Thompson (1929); SP, Southern Pacific Co.

Well number	10/7-5D1	11/7-30G1	11/7-32E1	11/7-32K1
Constituents in parts per million				
Silica (SiO_2)	44	15	51	
Iron (Fe)			Trace	0.10
Calcium (Ca)	48	49	72	28
Magnesium (Mg)	7.0	11	19	4.9
Sodium (Na)	330	215	356	366
Potassium (K)	6.0	6.0		
Bicarbonate (HCO_3)	162	192	220	168
Carbonate (CO_3)	17		0	18
Sulfate (SO_4)	271	223	345	310
Chloride (Cl)	302	180	350	278
Fluoride (F)	.8	1.6		
Nitrate (NO_3)	5.0	5.0		12
Boron (B)	2.2	1.3		
Dissolved solids (Dis. S)		840		1,090
Sum of determined constituents	(1,110)	(80_2)	(1,300)	(1,100)
Hardness as $CaCO_3$	(149)	(168)	(258)	90
Percent sodium (%Na)	82	74	(75)	(90)
Specific conductance (micromhos at 77°F)	1,810	1,190		1,660
pH	8.4	7.8		8.3
Temperature (°F)				
Date collected (Date)		4-22-53	6-11-56	8-9-57
Depth of well in feet (Depth)		675	502	684
Analyzing laboratory and number (Lab., No.)		GP	SE	H

11/7-32M2		11/7-32N1	11/7-32N2	11/7-32N3	11/7-32N4	11/8-2N1
		24	58	36		72
0.10		.50				.06
63		39	54	60	46	30
11		7.7	8.0	9.5	11	8.5
356		304	280	343	295	125
		0	9.0		7.0	6.4
207		267	235	201	239	201
0		0	0	0	0	
346		268	256	290	262	87
316	195	191	231	323	218	83
		.8	1.2	.6	.5	.9
20		27	20	13	25	24
		1.5	2.7	2.3	1.9	.60
1,220		1,000	1,060	1,240	1,060	536
(1,210)		(995)	(1,040)	(1,180)	(984)	(536)
202	145	129	(168)	188	(160)	110
(79)		83	79	80	(79)	70
1,560	1,590	1,590	1,530	1,910	1,600	805
7.4		8.0	7.7	7.9	7.8	8.2
		70	72			72
11-29-56	11-27-51	4-2-52	4-22-53	4-9-51	6-5-53	4-2-52
530	305	305	454	400	375	350
H 98527	GW	GP	GP	SE	DWR P-676	QW 8529

	11/8-2N1	11/8-2P1		11/8-2-1	11/8-3P1	11/8-10R1
SiO_2		60				
Fe						
Ca	30	38	27		34	37
Mg	9.0	10	11		9.0	11
Na	128	128	142		110	145
K	2.8	5.0	4.8		4.1	4.3
HCO_3	198	205	201		171	195
CO_3	0		0		0	0
SO_4	85	93	96		80	119
Cl	89	90	90		80	115
F	.9		.7		.6	.7
NO_3	27		26		22	25
B	.70	.60	.77		.55	1.2
Dis. S.	543	590	548	566	573	615
Sum	(470)	(526)	(497)		(424)	(554)
Hardness	(112)	(136)	(113)		(122)	(138)
%Na	71	68	72		66	69
Micromhos	843	871	884		775	1,010
pH	7.8	8.1	7.8		7.8	8.0
°F		71				
Date	7-28-55	2-24-53	7-18-55		7-18-55	7-18-55
Depth	350	346	346	300	430	225
Lab.,No.	DWR R-711	GP	DWR R-710		DWR R-712	DWR R-713

	11/8-11D1		11/8-20H2		11/8-22E1	
SiO_2	66		61			25
Fe			3.6			.58
Ca	35		40	42		29
Mg	9.8		15	15		8.9
Na	128		80	74		206
K	10		10	5.5		6.2
HCO_3	193		185	183		207
CO_3	0		0	0		0
SO_4	93		95	96		148
Cl	89	62	63	59	212	167
F				.5		.6
NO_3				10		1.3
B	.50		1.0	1.2		14
Dis. S.	568		513	462		709
Sum	(526)		(460)	(393)		(709)
Hardness	(128)	185	(162)	(167)	170	(109)
%Na	69		54	48		79
Micromhos	789	683	671	886	1,460	1,150
pH	8.0		7.7	7.8		8.0
°F	75		74			70
Date	2-24-53	12-21-51	2-24-53	10-31-55	12-21-51	4-2-52
Depth	512	500	500	500		
Lab., No.	GP	GW	GP	DWR R-911		QW 8533

11/8-26J1			:11/8-26E1:	11/8-31P1	:11/8-35N1:		11/9-22Q1
	25			58			58
				Trace	0.10		.07
	54			120	78		38
	12			22	20		36
	216			384	44		82
	9.0						1.3
	198			317	207		166
	0			0	0		
	231			293	497		139
201	192	212		468	400	72	87
				1.6			.3
				8.8	19		14
	1.3			4.0			1.2
	874			1,660	1,160		537
	(838)			(1,520)	(1,160)		(539)
195	(184)	125		(390)	276	120	243
	73			(68)	(25)		42
1,400	1,350	1,360		2,370	1,820	892	896
	7.7			7.7	7.4		7.9
	68	80					69
11-27-51	2-25-53	11-27-51		9-12-55	12-13-56	12-21-51	4-2-52
400	400	175		303	667	193	193
GW	GP	GW		SE 408048	H 98626		QW 8527

11/9-23B1:	11/9-30N1		:11/9-34A1:	11/9-34L1	:11/9-36A1:	11/9-36C1
8.4	36				18	45
	.04				Trace	.10
7.6	76			20	48	46
2.6	13			7.0	11	18
205	175			216	305	277
6.0	7.7			1.9		
226	198			222	336	281
10				10	0	3
176	111			68	184	202
68	245	253	342	186	256	245
	.3			2.5	1.4	.8
	3.6			6.4	0	0
.30	.32			.40	.20	3.2
598	765			648	1,160	1,120
(595)	(765)			(628)	(989)	(978)
(30)	243	270	515	(79)	(165)	(189)
94	60			(85)	(80)	(76)
964	1,300	1,320	2,100	1,170	1,830	
8.8	7.7			8.3	8.2	8.1
66	68					
2-24-53	4-5-52	12-21-51	12-21-51	8-23-55	6-27-55	7-29-55
200	200	200	193.5		610	407
GP	QW 8532	GW		DWR 6106	SE 403956	SE 405710

	:11/9-36D1	:11/9-36H1		11/10-36H1	:12/10-35P1	:29/39-12N1
SiO_2	50	60	26		25	
Fe	.20	Trace	.20			
Ca	32	33	90	92	19	74
Mg	6.8	11	27	22	4.0	60
Na	222	294	267	260	143	143
K				4.4	3.0	7.3
HCO_3	305	305	329	337	210	302
CO_3	6			0		0
SO_4	132	182	189	186	99	432
Cl	137	230	320	300	70	25
F	1.4	2.0		.6	1.6	.7
NO_3				0	2.5	7.6
B	2.5	2.6	.40	.58	.10	.70
Dis. S.	891	1,110	1,250	1,100		992
Sum	(740)	(965)	(1,080)	(1,030)	(471)	(899)
Hardness	(108)	(128)	338	(320)	(62)	(432)
%Na	(82)	(83)	(63)	(63)	82	41
Micromhos			1,700	1,810	738	1,330
pH	8.3	8.1	7.5	7.7	7.5	7.4
°F						
Date	7-29-55	7-29-55	1-28-53	2-18-55	5-14-53	9-26-55
Depth	414	300	297	297	378	520
Lab., No.	SE 405709	SE 405711		DWR 5365	GP	DWR R-869

	:29/39-12X2	:29/39-12X3		29/39-15M1	:29/39-29M1	:29/39-29N1
SiO_2	55	74		20	4.0	
Fe	.15	.09				
Ca	99	32	79	144	50	49
Mg	52	9.7	117	102	37	53
Na	a154	a(67)	182	184	141	132
K			11	13	9.0	12
HCO_3	285	176	216	0	227	285
CO_3	0	10	4	0		17
SO_4	468	59	782	810	138	225
Cl	21	27	50	260	187	100
F			.7	.4	.8	1.0
NO_3	.8	6.4	3.7	0	5.0	8.4
B			.60	.75	1.3	1.6
Dis. S.	1,010	387	1,400	1,510	714	783
Sum	(990)	(372)	(1,340)	(1,530)	(685)	(739)
Hardness	(461)	(120)	(679)	(779)	(277)	(341)
%Na	(42)	(55)	(36)	(33)	(52)	(45)
Micromhos			1,840	2,280	1,130	1,140
pH			8.4	4.0	7.7	8.3
°F					76	
Date	10-2-17	10-5-17	6-5-53	7-1-57	4-23-53	8-24-55
Depth	520	1,400	80	80	265	165
Lab., No.	DGT	DGT	DWR P-675	DWR T-864	GP	DWR 6084

29/39-29N1	29/39-33H1	29/40-22X3	30/37-12N1	30/37-23D1		30/37-23J1
34			54	30		27
48	47	8.0	53	164	66	64
38	36	2.0	3.2	4.0	12	16
174	160	115	734	602	102	106
8.0	.8	2.0	6.0	4.0	2.6	3.5
235	146	165	196	102	256	281
0	0	0		0	2	0
104	74	79	934	999	156	155
230	305	39	427	480	42	43
1.2	.2	.6	8.0	4.0	.8	1.5
3.7	6.9	2.2	2.0	.7	3.9	4.7
2.2	1.0	.38	33.4	1.8	1.7	2.0
849	1,030	349			563	588
(759)	(703)	(330)	(2,350)	(2,340)	(515)	(561)
(276)	(266)	(28)	(146)	(426)	(214)	(226)
(57)	(57)	89	(91)	(75)	(51)	(50)
1,320	1,440	570	3,480	3,500	822	931
7.9	7.9	7.5	8.2	7.5	8.3	7.8
78	78			70		
7-1-57	8-24-55	8-24-55	10-7-53	3-11-53	8-24-55	7-1-57
165	460	860	160			
DWR T-883	DWR 6109	DWR R-913	GP	GP	DWR 17827	DWR T-885

	30/37-23J3				:30/37-24B1	:30/37-24K1
b32	40	b38	41	63	32	50
					Trace	
65	72	71	73	176	65	71
14	14	14	14	22	14	7.0
90	100	98	85	296	90	113
						4.0
294	316	303	285	276	294	275
116	125	128	114	145	116	174
37	48	47	53	565	37	44
						1.6
				3.6		2.0
						2.8
(499)	555	546	521	1,410	499	
(499)	(555)	(545)	(520)	(1,410)	(499)	(605)
(220)	240	236	242	531	220	(206)
(47)	(48)	(48)	(43)	(55)	(47)	54
						871
	7.6	7.3	7.7	6.7		7.7
						68
6-7-09	1-29-49	8-17-49	4-3-51	10-31-52	6-7-09	5-13-53
431	431	431	431	431		211
SP	SP W-9279	SP W-9415	SP W-9631	SP W-9948	CW	GP

b. Includes iron and aluminum oxides (Fe_2O_3 and Al_2O_3).

	:30/37-24R1:	30/37-26D1		:30/37-26E1	:30/37-28H1	:30/37-36C1
SiO_2	40		31	26		40
Fe						
Ca	66	164	56	67	70	57
Mg	19	55	39	21	34	16
Na	80	170	146	78	75	82
K	2.6	4.5	4.4	3.0	2.3	4.0
HCO_3	294	454	206	315	305	176
CO_3		0	0		0	
SO_4	135	382	290	109	164	121
Cl	32	133	96	26	32	80
F	1.6	.5	.5	.7	.9	.4
NO_3	2.5	52	32	3.7	11	.6
B	1.0	.70	.48	.60	.48	.70
Dis. S.		1,210			550	
Sum	(524)	(1,190)	797	(490)	(540)	(488)
Hardness	(242)	(637)	300	(254)	(315)	(208)
%Na	41	(36)	51	41	(34)	47
Micromhos	796	1,860	1,180	798	906	762
pH	7.5	7.6	8.0	7.6	7.7	7.7
°F				66	70	74
Date	5-7-53	6-4-53	8-24-55	3-17-53	7-13-55	3-11-53
Depth	197.0			485	198	500
Lab., No.		DWR P-670	QW 17455	GP	DWR 5938	GP

	:30/37-36N1:	30/38-3B1		:	30/38-5A1	
SiO_2	31		33	65		34
Fe						
Ca	58	268	224	148	167	154
Mg	15	180	120	30	39	39
Na	89	10,000	8,100	653	940	918
K	5.0	52	78	10	30	15
HCO_3	156	372	342	123	107	108
CO_3		0	0		0	0
SO_4	128	2,610	2,110	1,100	1,150	1,120
Cl	103	14,600	11,500	501	975	910
F	.2	1.2	1.8	2.4	2.5	2.4
NO_3	3.5	0	0	1.5	0	0
B	1.0	28	28	20	18	16
Dis.S.		28,000	23,900		3,390	3,400
Sum	(510)	(27,900)	(22,400)	(2,590)	(3,370)	(3,260)
Hardness	(207)	(1,410)	(1,050)	(492)	(578)	(545)
%Na	49	(94)	(94)	(74)	(77)	(78)
Micromhos	856	37,800	34,900	3,750	5,070	4,960
pH	7.7	6.7	7.4	7.8	7.9	7.6
°F	82		78			
Date	3-11-53	8-24-55	7-1-57	10-7-53	8-24-55	7-1-57
Depth	590	99	99	140	140	140
Lab., No.	GP	DWR 1608	DWR T-882	GP	DWR 6107	DWR T-884

30/38-8J1:	30/38-19K1			: 30/38-19M1		:30/38-20C1
75	66		26	31	40	39
	.57			.22		
59	60	35	36	38	68	69
14	15	7.9	9.0	9.6	14	13
1,630	a90	86	84	a83	77	84
14		5.1	3.5		2.0	6.0
263	302	219	244	214	284	300
	0	0	0	0		
535	127	66	28	33	122	122
2,130	25	51	53	66	26	33
1.6		.8	1.2		1.6	.8
5.0	.9	.7	2.0	2.0	1.3	.7
2.6		.25	.35		.40	1.1
	531	404	410	366		
(4,600)	(533)	(361)	(363)	(368)	(492)	(516)
(205)	(212)	(120)	(127)	(134)	(227)	(226)
(94)	(48)	(60)	(60)	(57)	(42)	(44)
7,390		597	611		728	790
7.6		8.2	7.8		7.7	7.9
82			78		71	
5-13-53	10-3-17	8-24-55	7-1-57	10-3-17	5-13-53	3-12-53
	845	845	845	1,190	1,190	180
GP	DGT	DWR 17454	DWR T-886	DGT	GP	GP

30/38-20C2:	30/38-20F1			:30/38-21D1	:30/38-24F1	:30/38-30R1
49		26		75		24
60	70	65		67	1,650	53
10	11	11		17	36	45
105	82	92		70	3,190	89
5.0	3.5	4.6		7.0	36	4.7
355	308	322	301	253	61	142
	0	0	0			0
85	117	109		134	844	150
28	28	28	30	33	7,250	170
.9	1.1	2.2		1.6	3.2	.4
.3	1.1	0		1.5	5.0	2.5
.80	.24	.25		.15	51	.26
	482	540				
(519)	(466)	(497)		(531)	(13,100)	609
(191)	(220)	(208)	226	(237)	(4,270)	316
(54)	44	(49)		(38)	(62)	38
796	812	785	776	738	20,000	1,040
8.1	7.7	8.0	7.6	7.6	7.9	8.1
		72		67		72
3-12-53	12-17-55	7-1-57	12-19-57	5-13-53	5-13-53	8-24-55
80	205	205	205		550	80
GP	DWR R-912	DWR T-870	DWR 8598	GP	GP	QW 17448

	:30/38-30R1	:30/38-32D1	:30/38-34C1	:30/39-8A1		31/37-1H1
SiO_2	19	30	20	2.5		20
Fe						
Ca	100	837	355	145	62	55
Mg	30	370	9.8	36	14	17
Na	98	589	78	463	75	81
K	3.9	10	4.0	13	3.9	4.2
HCO_3	172	155	107	151	146	146
CO_3	0	0	0		0	0
SO_4	163	1,660	834	303	136	135
Cl	215	2,120	92	778	81	85
F	1.4	.4	.4	.4	.2	.3
NO_3	0	5.0	3.0	5.0	4.6	5.3
B	.35	3.0	.85	4.6	.33	.21
Dis. S.	775				477	482
Sum	(715)	(5,700)	(1,450)	(1,820)	(449)	(475)
Hardness	(373)	(3,610)	(927)	(510)	(212)	(207)
%Na	(36)	(26)	(15)	(66)	(43)	(46)
Micromhos	1,240	7,900	1,890	3,080		776
pH	8.2	7.3	7.6	7.6	8.2	8.2
°F	76		82		79	78
Date	7-1-57	5-13-53	5-13-53	5-13-53	8-24-55	7-1-57
Depth	80	300	367	268.3	504	504
Lab., No.	DWR T-871	GP	GP	GP	DWR 17786	DWR T-888

	:31/37-5M1	31/37-10A1		:31/37-14L1		:31/37-35N1
SiO_2			23	26		30
Fe						
Ca	43	63	52	62	65	62
Mg	34	12	19	14	16	14
Na	108	81	90	79	80	112
K	4.4	4.7	4.6	4.0	4.3	3.0
HCO_3	232	151	151	164	151	129
CO_3	0	0	0		2.1	
SO_4	240	159	149	119	126	123
Cl	38	73	80	88	96	158
F	.7	.2	.3	.1	.3	.3
NO_3	6.0	5.6	6.2	1.0	4.7	2.9
B	1.2	.43	.32	.80	.38	1.0
Dis. S.	605	504	510		500	
Sum	(590)	(473)	(499)	(475)	(469)	(570)
Hardness	(247)	(207)	(208)	(212)	(228)	(212)
%Na	(48)	(45)	(48)	(44)	43	(53)
Micromhos	922	788	802	783	802	1,010
pH	7.7	8.2	8.1	7.6	8.4	7.9
°F	76	80	80	72		78
Date	7-13-55	8-24-55	7-1-57	3-10-53	7-13-55	3-10-53
Depth	205	320	320	170.0	170.0	439
Lab., No.	DWR 5940	DWR 17785	DWR T-889	GP	DWR R-751	GP

	32/36-22B1		:32/37-4P1:		32/37-14N1	
		21		26		20
	124	109	48	29	30	31
	38	41	12	7.0	8.0	7.0
	102	115	91	125	132	132
	5.9	6.9	3.9	4.0	3.2	2.4
	217	227	192	218	210	223
	3.0	0	0		3.0	0
	393	391	104	93	98	89
58	59	63	76	79	82	76
	.3	.2	.3	.9	.9	2.4
	9.9	8.3	4.8	1.0	3.8	0
	1.7	1.8	.48	1.3	.58	.40
	895	910	450		484	
	(844)	(869)	(435)	(474)	(465)	(470)
465	(466)	(441)	(169)	(101)	(108)	(106)
	32	(36)	53	(72)	72	(73)
1,230	1,240	1,260	690	808	797	797
	8.4	7.8	8.3	7.9	8.4	7.9
			81		80	
12-3-52	7-12-55	7-1-57	7-13-55	3-10-53	7-13-55	7-1-57
829	829	829				
GW	DWR R-747	DWR T-891	DWR R-749	GP	DWR R-750	DWR T-872

	32/37-24N2		:32/38-10P1:	:32/38-32N1:	:32/39-4L1:	:32/39-33L1
27		22	20	28	50	
44	40	22	26	21	11	41
15	13	7.0	10	8.0	(3.8)	3.0
136	140	137	253	178	400	101
2.0	3.8	3.5	38	2.0	8.0	4.8
218	183	183	700	258	606	226
	0	18		12	12	0
113	168	91	15	104	256	84
114	121	80	74	93	90	39
.7	.7	1.8	.4	1.8	4.0	.7
2.0	5.9	2.6	.5	.8	2.5	11
1.2	1.2	.32	.50	.60	3.3	1.2
	542	548				479
(562)	(584)	(475)	(782)	(576)	(1,140)	(397)
(172)	(153)	(84)	(106)	(85)	(43)	115
(63)	66	(78)	(78)	(81)	(94)	65
935	925	790	1,730	957	1,700	694
7.8	8.0	8.4	7.2	8.6	8.3	7.7
80		80				
3-10-53	7-13-55	7-1-57	5-14-53	3-10-53	5-14-53	5-29-56
337	337	337	168.9		237.0	1,400
GP	DWR R-748	DWR T-887	GP	GP	GP	DWR R-1100