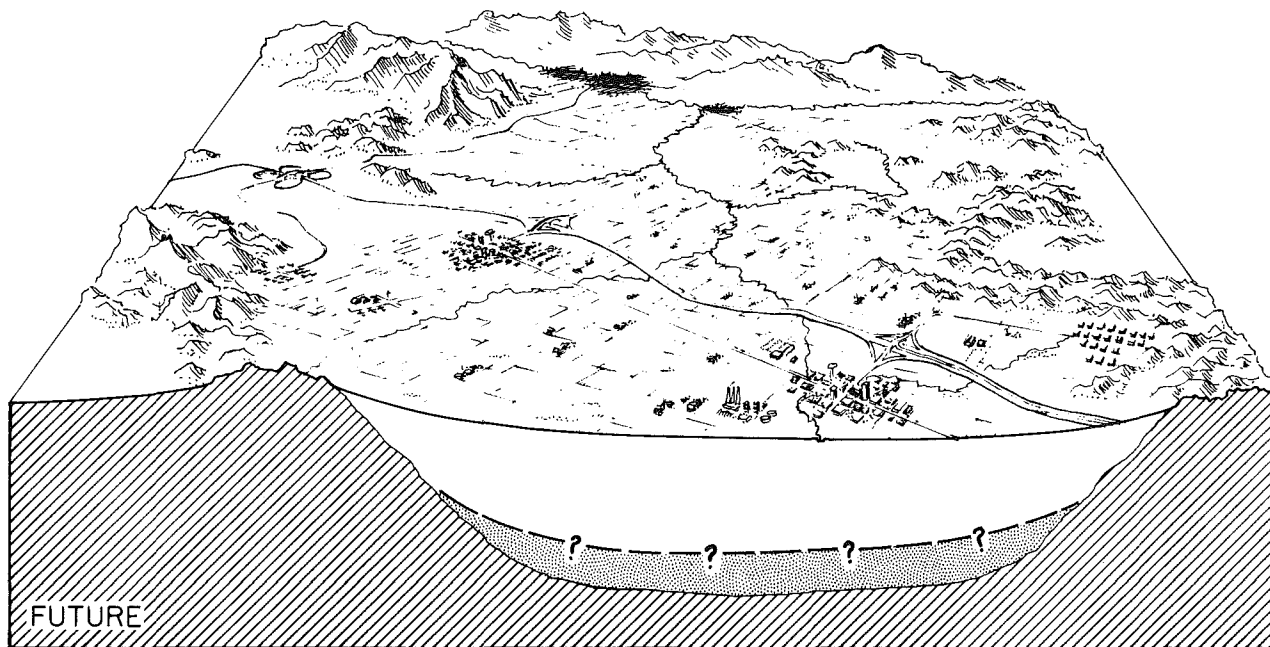
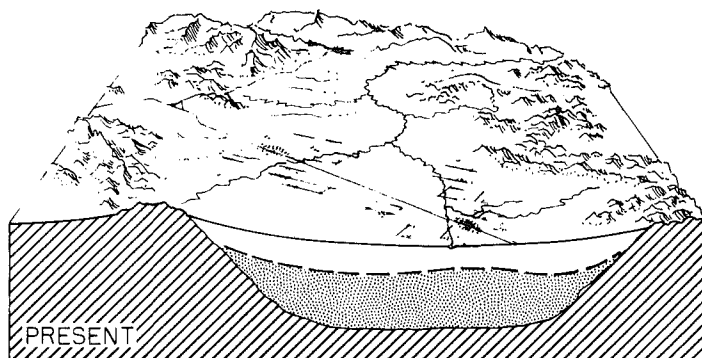
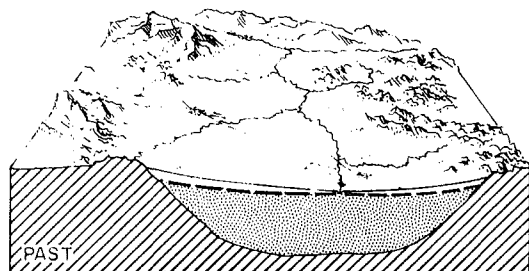


ARIZONA STATE LAND DEPARTMENT
OBED M. LASSEN, COMMISSIONER



BASIC HYDROLOGIC DATA
FOR SAN SIMON BASIN,
COCHISE AND
GRAHAM COUNTIES,
ARIZONA, AND
HIDALGO COUNTY,
NEW MEXICO

BY NATALIE D. WHITE
AND CLARA R. SMITH

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BASIC HYDROLOGIC DATA FOR SAN SIMON BASIN, COCHISE AND GRAHAM COUNTIES, ARIZONA, AND HIDALGO COUNTY, NEW MEXICO

By Natalie D. White and Clara R. Smith

Introduction

The San Simon basin is in the southeastern corner of Arizona, and the southeast end extends into New Mexico (fig. 1). The data for this report and for two previous reports were collected by the

U.S. Geological Survey as a part of the statewide ground-water program in cooperation with the Arizona State Land Department.

The first of the previous reports—U. S. Geological Survey Water-Supply Paper 1619-DD

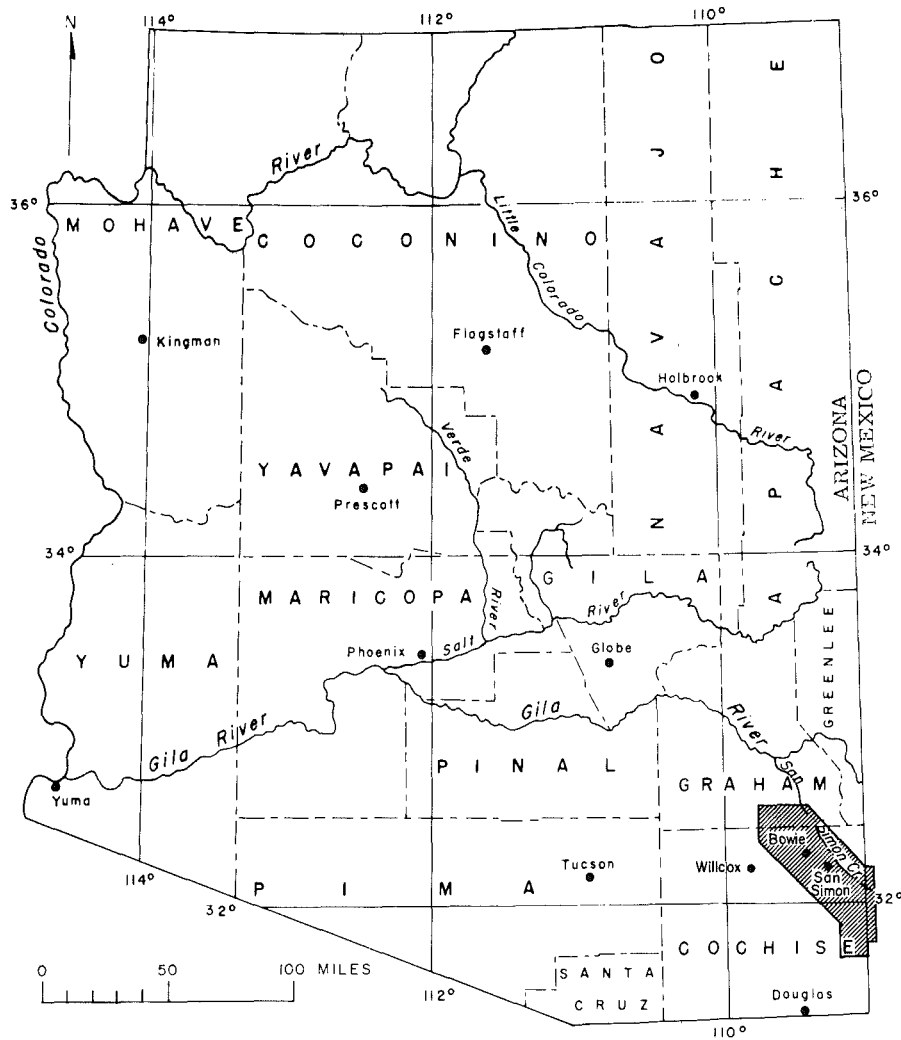


Figure 1. -- Map showing location of San Simon basin.

(White, 1963)---contains an analysis of the data by several methods in general use. The second report (White and Hardt, 1964), which has been released to the open file and approved for publication as a U. S. Geological Survey water-supply paper, contains further analyses of the data by other methods and includes analysis by electrical-analog model. Most of the data have been collected since about 1945, although some information dates from 1942; in addition, early data were available from a report by Schwennesen (1919) for 1913 and 1915.

This report summarizes the hydrologic data available for the area. For the most part, the well records, drillers' logs, well discharges, and draw-downs were obtained from well-registration forms of the Arizona State Land Department. Some data, particularly measurements of water levels in wells, were made by U.S. Geological Survey personnel. Plate 1 shows the location of the wells in the area.

Acknowledgments

Acknowledgment is made to the many well owners, drillers, and others in the area for their excellent cooperation in furnishing information. Mr. Carmy G. Page, Cochise County Agricultural Agent, supplied estimates of irrigated acreage and wells in operation that were especially useful. The El Paso Natural Gas Co. was most cooperative in furnishing information on all wells drilled at their station east of San Simon. Power companies operating in the area furnished information on the amount of electric or gas power consumed for pumping water for irrigation use.

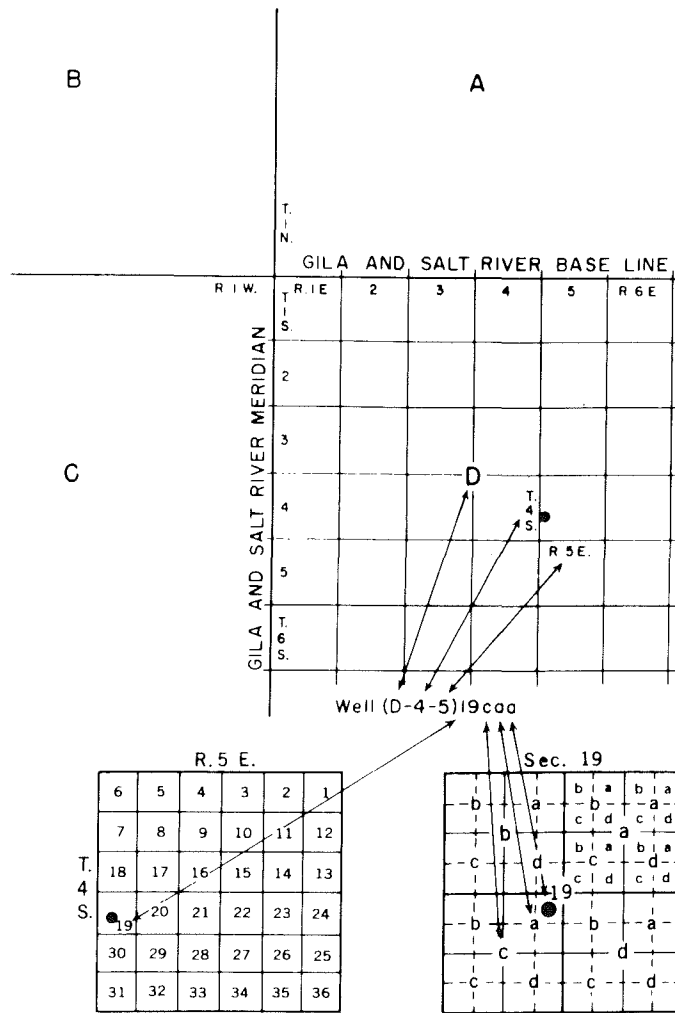
Explanation of Tables and Illustrations

Included in this report are well records, drillers' logs, and chemical analyses of water from

wells, which are given in tables 1, 2, and 3, respectively. The data in each table are arranged in order by township, range, and section, according to the well-numbering system used by the Geological Survey in Arizona (fig. 2). Each of the tables is discussed separately in numerical order.

Table 1. -- Records for most of the wells in the basin are included in table 1, and the well locations are shown on figure 3. The table includes the well-location number, the date the well was drilled to the depth shown, the casing diameter, and the perforated interval in the casing or the amount of open hole. For the most part, the land-surface altitude was obtained from topographic maps, although spirit levels were available for a few wells. The first water levels shown are those reported by the owners or drillers when the well was drilled or the first depth-to-water measurements made by the Geological Survey. The second water level shown is the latest measured depth to water for that well. Well yield and drawdown were reported by the driller or owner or estimated or measured by the Geological Survey. The type of lift and use of the water were reported by the owner or ascertained in the field by personnel of the U. S. Geological Survey. The remarks column contains cross references to the tables of drillers' logs and chemical analyses and other pertinent information.

Table 2. -- Table 2 includes most of the drillers' logs available for wells in the area. There are no drillers' logs available for Hidalgo County, N. Mex. The drillers' terminology has been used, and, except for minor changes in spelling and punctuation, these logs are the same as those submitted by the well driller or owner to the State Land Department or to a U. S. Geological Survey representative.



The well numbers used by the Geological Survey in Arizona are in accordance with the Bureau of Land Management's system of land subdivision. The land survey in Arizona is based on the Gila and Salt River meridian and base line, which divide the State into four quadrants. These quadrants are designated counterclockwise by the capital letters A, B, C, and D. All land north and east of the point of origin is in A quadrant, that north and west in B quadrant, that south and west in C quadrant, and that south and east in D quadrant. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d after the section number indicate the well location within the section. The first letter denotes a particular 160-acre tract, the second the 40-acre tract, and the third the 10-acre tract. These letters also are assigned in a counterclockwise direction, beginning in the northeast quarter. If the location is known within the 10-acre tract, three lowercase letters are shown in the well number. In the example shown, well number (D-4-5)19caa designates the well as being in the $NE\frac{1}{4}NE\frac{1}{4}SW\frac{1}{4}$ sec. 19, T. 4 S., R. 5 E. Where there is more than one well within a 10-acre tract, consecutive numbers beginning with 1 are added as suffixes.

Figure 2. --Well-numbering system in Arizona.

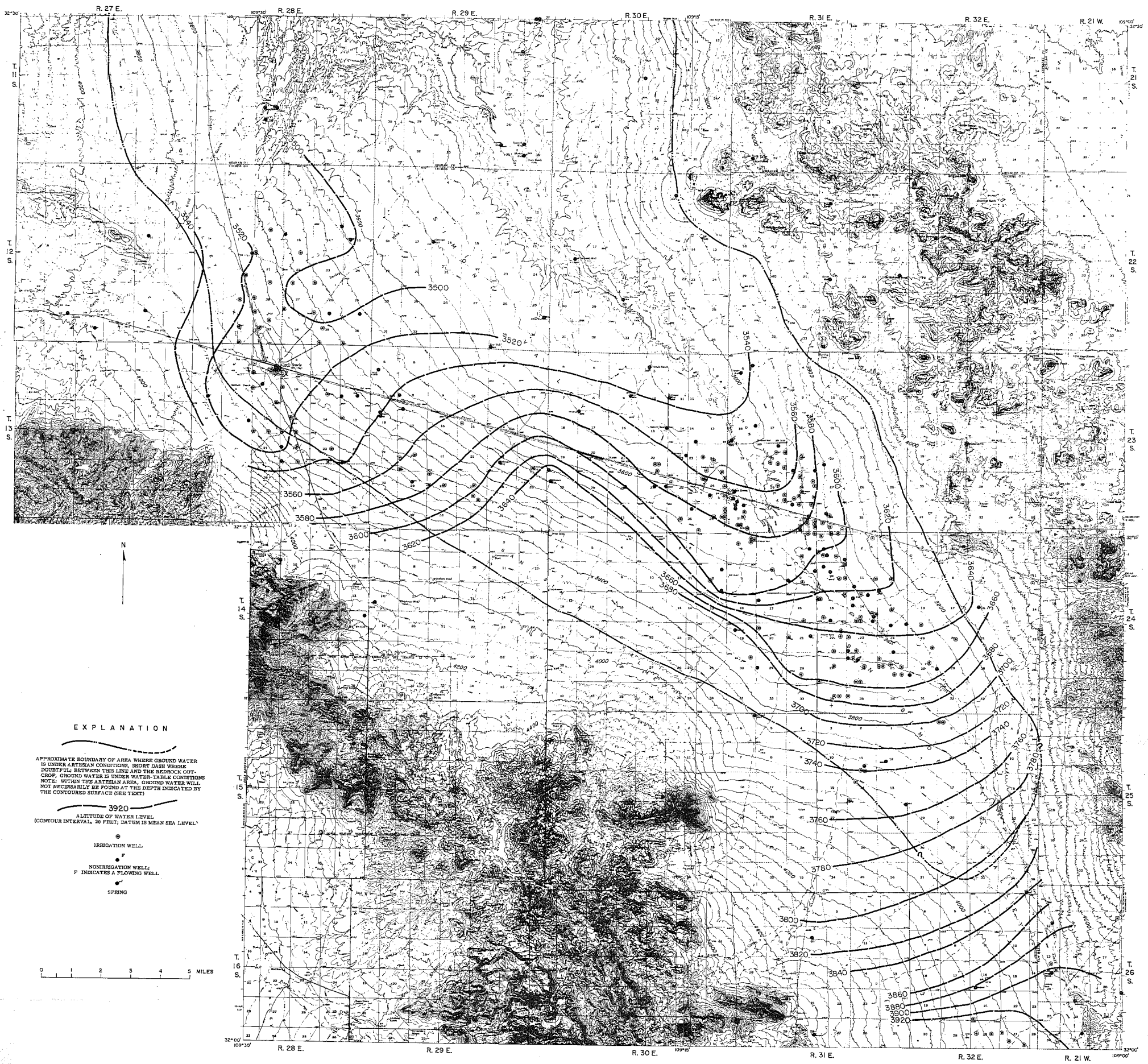


Figure 3.--Map of San Simon basin, showing location of wells and water-level contours for spring 1964. (In two sheets.)

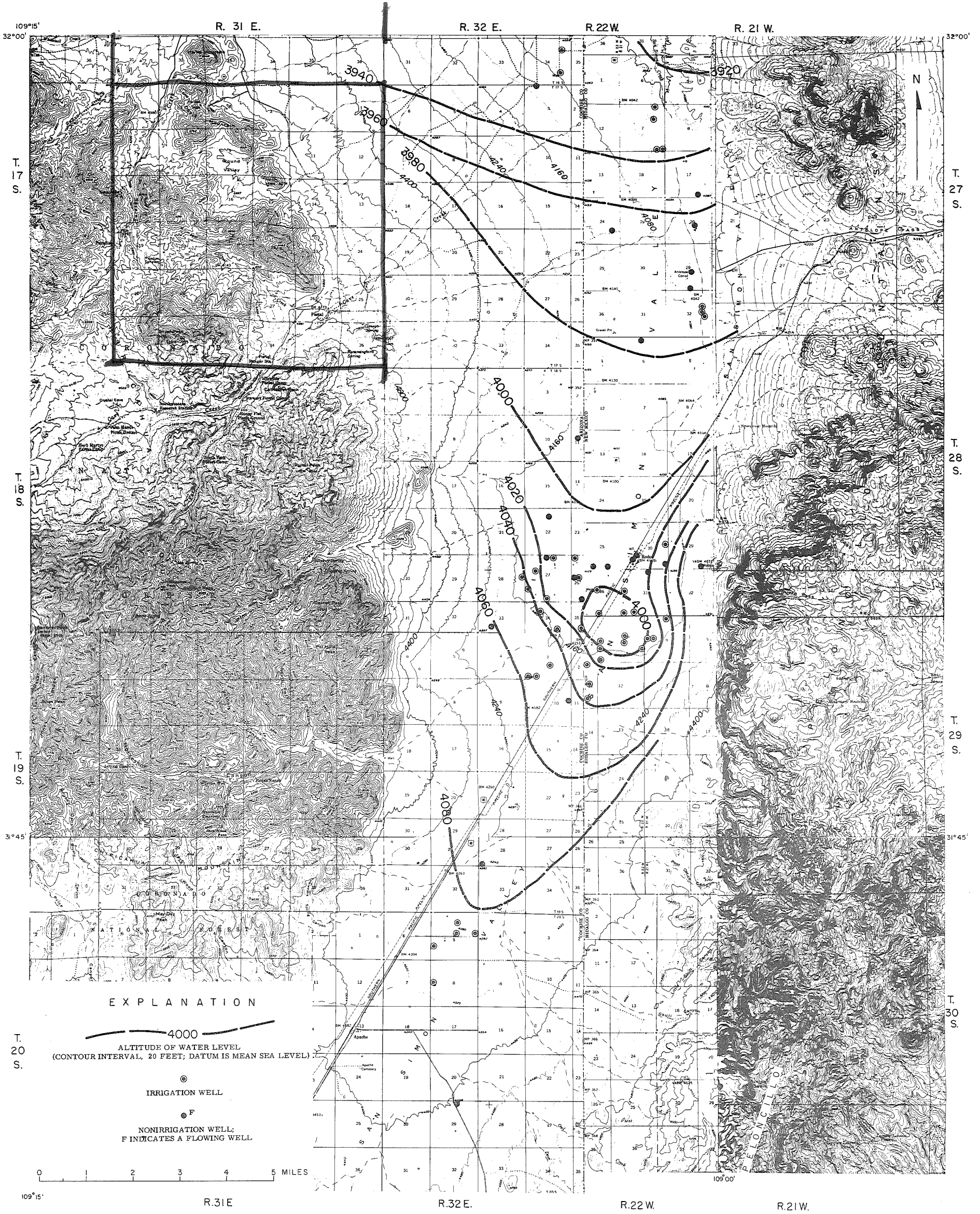


Figure 3.--Map of San Simon basin, showing location of wells and water-level contours for spring 1964. (In two sheets.)

Table 3.--Table 3 contains laboratory determinations of the dissolved constituents in the ground water. The water from some wells was sampled more than once, and these analyses show the change in the chemical quality with time. The table contains information pertaining to the quality and the variations in the quality of ground water from place to place in the basin.

Illustrations.--Figure 3, in addition to showing location of wells, shows the altitude of the water level in wells in feet above mean sea level. The water-level contours depict the altitude of the artesian-pressure surface, except along the margins of the basin where the artesian aquifer and the

water-table aquifer merge. In the center of the basin, where ground water is under artesian conditions, water will not necessarily be encountered at the depth indicated by the contoured surface, but in a deep well that penetrates the artesian aquifer the water is expected to rise to the altitude of the contoured surface. Some water also is present under water-table conditions in the center of the basin; however, the water-table surface may be at altitudes either higher or lower than the artesian-pressure surface, depending on the location in the basin. Contours on the water-table surface are not shown on figure 3 owing to insufficient data.

Figure 4 is a bar graph that depicts the amount of ground water withdrawn by wells in the

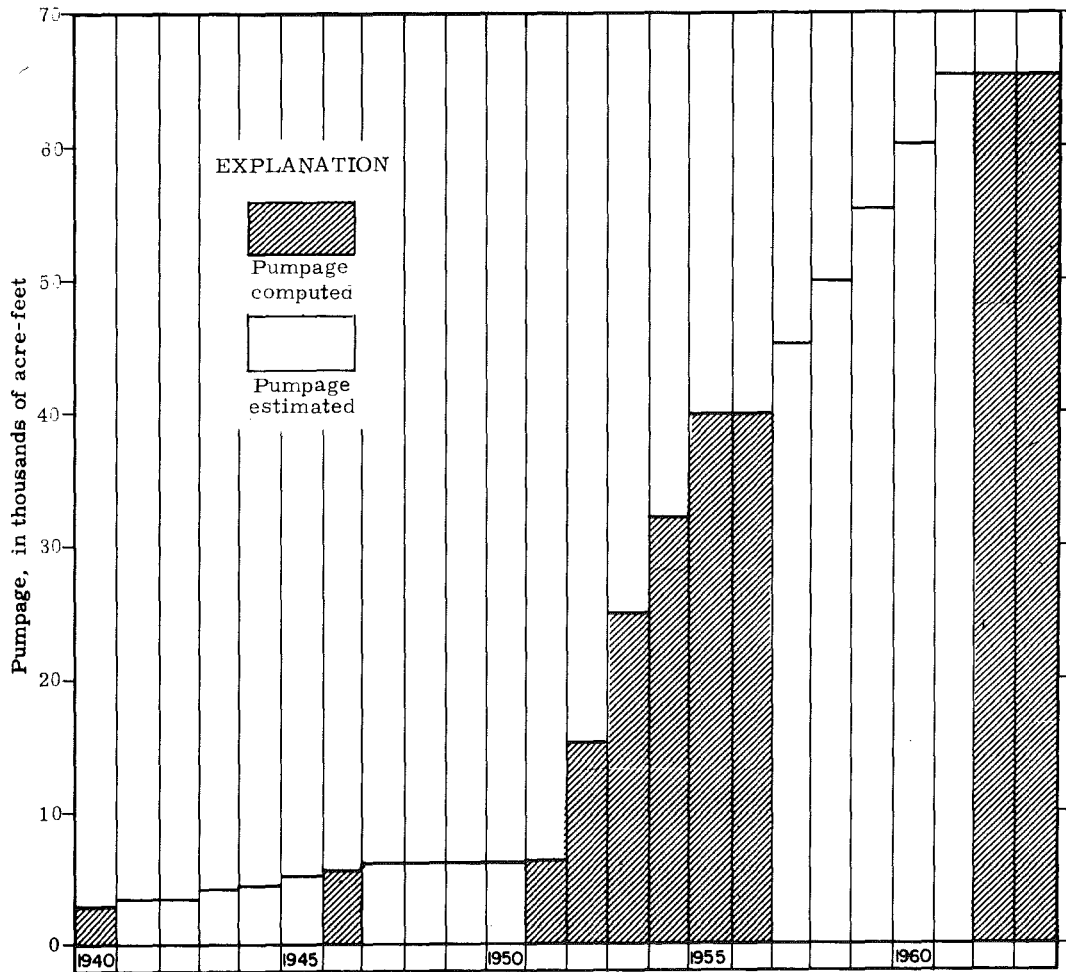


Figure 4. --Ground-water pumpage, San Simon basin.

San Simon basin from 1940 through 1963. For part of the years, the amount of ground water pumped was computed on the basis of total power used for well operation multiplied by an average factor for the amount of power required to lift the water. Data for total power consumption for well operation, in kilowatt hours of electricity or cubic feet of gas, were obtained from the power companies in the area. During the pumping season, the discharge of many wells was measured, and the rate of power consumption to operate the well was determined. Application of a simple formula to these data determines the power required to lift an acre-foot of water; an average of many of these single measurements can then be applied to the total power consumption to compute the acre-feet of water pumped in the area. For the years when these data were not available, the pumpage was estimated on

the basis of the number of acres irrigated or an assumed amount of increase over the previous years.

References Cited

- Schwennesen, A. T., 1919, Ground water in San Simon Valley, Arizona and New Mexico, with a section on agriculture by R. H. Forbes: U.S. Geol. Survey Water-Supply Paper 425-A, 36 p.
- White, N. D., 1963, Analysis and evaluation of available hydrologic data for San Simon basin, Cochise and Graham Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1619-DD, 33 p.
- White, N. D., and Hardt, W. F., 1964, Further analysis of hydrologic data for San Simon basin, Cochise and Graham Counties, Arizona, including analysis by electrical-analog model: U.S. Geol. Survey open-file report, 63 p.

T A B L E S

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.

Well location: See figure 2 for sketch showing numbering and location system in Arizona. New Mexico locations are shown by full description.
 Perforated interval: OH, open hole.
 Altitude of land surface: Altitude of land surface at most wells determined from topographic maps.
 Water level: Water levels are in feet above (+) or below land surface; measured unless otherwise indicated. R, reported; Fl, well flows at land surface, no static measurement available.
 Discharge data: Yield is given to the nearest 10 gpm (gallons per minute), except where very small,

then to the nearest gallon per minute; measured unless otherwise indicated. E, estimated; R, reported.
 Type of lift: C, cylinder; Cf, centrifugal; J, jack pump; N, none; S, submersible; T, turbine.
 B, butane; D, diesel; E, electric; G, gasoline; NG, natural gas; W, windmill.
 Use of water: D, domestic; I, irrigation; Ind, industrial; N, not used; PS, public supply; RR, railroad; S, stock.
 Remarks: C, chemical analysis of water shown in table 3; L, driller's log of well shown in table 2.

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-10-28)25dd	1928	1,555	8			Fl	/33	20 E		/33	N		Oil test.
36aac	1927	1,925	8			Fl	11/52	340		11/52	N	S, I	C; oil test.
(D-10-29)20ac		525	8		3,650	170 R	3/60				C, W	S	Oil test.
(D-11-28)28aba	1960	1,818	8		3,552	52 R	/63				T, B	I	L; electric log.
28bab	1928	670			3,200								L; oil test; abandoned.
(D-11-29)1cdc ¹		600	4		3,460	Fl	8/46	70		8/46	N	S, I	
						Fl	11/62	3 E		11/62			
1cdc ²		600	5		3,460	Fl	8/46	40		8/46	N	S, I	C.
						Fl	11/52	40		11/52			
14aaa	1928	676	4		3,450	+25.5	11/52	30		11/52	N	D, S	L.
						Fl	11/62	2 E		11/62			
35bbd					3,420	+77	11/52	3		11/52	N	S	Shut-in pressure, about 34 pounds per square inch, 11/19/52.
						0 R	11/62						
36bbc			6		3,420	+94.5	11/52	17		11/52	N	S	Shut-in pressure, about 42 pounds per square inch, 11/19/52.
								1 E		11/62			
36cbb	1924	680	5		3,430	+30	8/46	24		8/46	N	D, S, I	C; L.
								17		11/52			
								1 E		11/62			
(D-11-30)15ccb					3,630	18.50	11/62				C, W	S	
(D-12-27)26cdd	1955	330	6		3,900	293.20	6/57				J, E	D, S	
33dba	1963	325	8	208-308	3,985	193.00	7/63	35	127	7/63		PS	L.
(D-12-28)13bcd		770	6		3,619	72	12/15				C, W	S	
						116.37	3/63						
14aaa	1953		12		3,620	92.67	5/53				J, G	D, S	
15bcb	1953	1,000	16		3,680	83.36	1/54				T, B	D	
						155.38	2/63						
15dcc	1953		16		3,670	107.77	5/53				T, NG	I	
16abc	1962	830	16	600-780 OH 780-830	3,695	216.40	9/62				T, NG	I	L.
						166.02	2/63						
16ccc	1953	700	16		3,725	98.18	5/53	740		6/62	T, NG	I	
						190.91	2/63						
17ddd		567	6		3,730	70.0	12/15				C, W	S	
						189.48	2/63						
20dbd		800	16	600-800	3,750	214.94	2/63	2,500 E			T, NG	I	L.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-12-28)21dec	1955	2,000	16-12		3,715	181.32	2/63	1,490 600		6/62 9/62	T,NG	I	
22cdc	1951	660	16	550-648 OH 648-660	3,690	48.77 71.10	6/51 5/52	1,170 80	76 72	6/51 5/52	T,NG	I	L.
23ccc	1952	1,000	20	500-980	3,670	26.84	1/54	1,490		6/62	T,NG	I	L.
25dcc	1955	1,360	18-14	720-1,340	3,645	126.65	3/63				T,NG	N	L; recorder installed 7/17/63; gamma-ray log.
26dcc	1953	687	16	476-664 OH 664-687	3,673	65.37 105.23	3/53 2/63	2,000 E		2/54	T,NG	N	L; gamma-ray log; abandoned 9/26/62.
27ccb	1956	655	16	320-650	3,715	70	R /56	1,030		6/62	T,NG	I	
28bcc	1963	653			3,740	215.70	2/63				T,NG	I	Gamma-ray log.
28ccc	1953	500	16		3,745	124.75	1/54	1,900		8/56	T,NG	I	
29dbb		560		400-560	3,790	234.03	2/63	740		6/62	T,NG	I	L.
32acc		600	16	400-600	3,780	264.05	2/63	870		6/62	T,NG	I	L.
32dcc	1954	600	12		3,795	275.79	2/63	1,000 520	300	8/54 9/62	T,NG	I	
33abc	1951	550	16	403-550	3,735	89.47 212.97	10/51 2/63	830	45	7/52	T,NG	I	L.
33bcd		488	14	438-488	3,750	269.30 235.49	9/62 2/63	800		5/52	T,NG	I	L.
35bdc	1956	640	16	300-315 540-618	3,690	179.05	8/56	770		6/62	T,NG	I	L.
35cdc	1951	620	16	475-620	3,700	54.26 180.16	10/51 2/63	660		5/52	T,NG	I	L.
36ccc	1953	715	16	410-650 OH 650-715	3,680	211.55 156.07	9/62 3/63	1,600 440	129	4/53 6/62	T,NG	I	L.
(D-12-29)16bcc			6		3,561	56.47	11/62				N	N	Abandoned 11/21/62.
25ddc		65	8		3,538	53.35 55.20	1/52 12/57				C,W	S	
35ccc		300			3,571	16.90 21.10	1/52 12/57				C,W	S	
(D-13-28)4ccc	1951	462	18-16	135-240	3,795	161.12 281.00	4/52 3/63	1,500 560	19	12/51 6/62	T,NG	I	L; gamma-ray log.
4ddb	1936	830			3,765								C; L.
7dbc	1951	400	22-15-12		3,889	267.95 364.75	1/54 2/63	640		5/53	T,D	D	L.
9bcc	1951	700	18		3,809	157.48 293.93	1/52 2/63	2,100 1,500		5/52 9/62	T,NG	I	C.
9bdb	1951	450	16	214-316 OH 316-450	3,797	156.67 271.65	3/53 2/63	1,040	19	9/51	T,NG	N	L; gamma-ray log.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-13-28)9ddc	1953	380	8		3,795	160.54 264.54	1/54 2/63				S, E	I	
10bcc	1952	1,000	20	290-990	3,775	120.09 256.48	1/52 2/63	1,700		4/52	T, NG	I	L.
11dbc	1953	500	16		3,720	94.90 199.95	1/54 3/63	880 1,000		5/55 6/62	T, NG	I	L.
12cbc		515	8		3,720	195 R					S, E	D	
13bcc	1955	803	18-14	100-800	3,740	170.00	1/59	2,500	150	4/55	T, NG	I	L.
15bdc	1953 1958	460 1,013	16 12	200-460 450-1,013	3,790	144.11	3/53	790		6/57	T, NG	I	L; deepened February 1958.
15ccc	1952	455	18-16	242-452	3,820	173.30 255.97	3/53 2/63	1,210 600	132	8/52 6/62	T, NG	I	L.
15cdd	1952	475	18	195-406	3,802	152.51 272.25	3/53 2/63	2,300	290	1/53	T, NG	I	L.
16ccc	1952	895	18-14	437-895	3,869	223.87 384.15	3/53 2/63	2,150 880	150	12/52 6/62	C, NG	I	L.
16dcc	1953	671	18	200-671	3,847	201.32 332.98	3/53 2/63	2,100	100	1/53	T, B	I	L.
22acc	1953	465	16	221-441 OH 441-465	3,815	172.90 281.97	1/54 2/63	900 820	220	5/53 6/62	T, NG	I	L.
22bcc					3,840	316.60	3/63				N	N	Gamma-ray log; recorder installed, December 1963.
22ccc	1953	500	16		3,860	221.10 Dry	1/54 9/62				N	N	Gamma-ray log.
22dcc	1953	500	18	185-470	3,840	176.11	3/53	2,200	365	7/53	T, NG	I	L.
23acd	1960	511	16	193-493 OH 493-511	3,815	175 R	8/60	2,250	105	8/60	T, NG	I	L.
23dcc	1953	530	16	200-440 OH 440-530	3,815	146.94 265.22	3/53 2/63	3,000	210	5/53	T, NG	I	L.
24ccc	1960	520	16	250-300 350-480 OH 487-520	3,805			2,130	120	/60	T, NG	I	L.
(D-13-29)6ccc	1915	835	6		3,675	9.49 140.00	5/41 2/63				T, E	S	C.
6cdb	1952	1,275	18-12	775-1,275	3,665	14.77 127.92	1/52 2/63	1,500 R			T, E	I	L.
8cbb	1915	482	4		3,672	.65 119.62	4/42 2/63				N	N	
8ccd	1953	562	8		3,678	28.78 120.39	1/54 2/63				T, E	I	
18bac		800	18		3,705	44.53 160.97	8/46 2/63				N	N	Gamma-ray log.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. ---Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-13-29)18bdb	1915	860	8	.....	3,718	40.0 166.85	12/15 2/63	.....	.....	.....	C, W	S	C.
20acc	1953	616	16	320-560 OH 560-616	3,735	131.10	5/56	2,260	154	8/56	T, NG	I	L.
20cbb	1925 1962	500 576	6 16	..... 276-576	3,740	100.10 189.52	7/53 2/63	1,380	.....	6/62	T, NG	I	L.
20ccc	1953	560	16	443-520 OH 520-560	3,765	167.50	5/56	1,270 1,310	.....	8/56 6/62	T, NG	I	L.
23cad	1953	870	16-12	535-870	3,665	99.13 94.81	9/62 2/63	.....	.....	.....	T, E	I	L; gamma-ray log; well filled in to 194 feet, 1962.
24dcc	1952	964	18	320-930 OH 930-964	3,660	F1 21.06	4/52 2/63	25	.....	4/52	T, E	I	C; L.
25cdc	1964	795	16	500-790 OH 790-795	3,710	150 R	5/64	.....	.....	.....	.....	I	L.
27acc .....	.....	1,040	16-12	.....	3,731	47.30	3/53	1,490	.....	5/52	T, NG	I	
27dcb	1958	.....	.....	.....	3,745	.....	.....	.....	.....	.....	T, NG	I	
27dcd	1953	608	16	130-498 OH 498-608	3,758	79.30 147.39	1/54 2/63	1,200 1,230	155	2/54 6/62	T, NG	I	L.
28acc .....	.....	540	16	.....	3,750	164.68	2/64	.....	.....	.....	T, NG	I	
28bbb	1958	660	16	.....	3,750	.....	.....	1,600	.....	/58	T, NG	I	L.
28bcc	1952	629	16	365-500 OH 530-629	3,762	83.15 173.93	3/53 2/63	2,000 1,390	190	/52 6/57	T, NG	I	L.
29bdd .....	.....	.....	6	.....	3,771	89.78 182.83	1/53 2/63	.....	.....	.....	C, W	S	
(D-13-30)3bdc	1913	860	4	.....	3,558	+13 8.64	10/15 12/57	.....	.....	.....	N	D, S	C; L.
8ccc .....	.....	80	.....	.....	3,573	72.8 72.54	1/52 2/63	.....	.....	.....	C, W	S	
9acd .....	.....	92	14	.....	3,570	23.29 38.57	11/40 3/63	.....	.....	.....	N	N	
11bcc	1915	950	6	.....	3,568	.....	.....	2	.....	11/40	.....	S	C.
14ddd	1913	930	10	.....	3,582	F1 F1	10/15 11/52	21 3	.....	10/15 11/52	N	S	C; L; abandoned, 1963.
15daa	1911	975	6	.....	3,580	F1	4/46	11	.....	4/46	N	D	C; L.
19ccc	1952	980	.....	.....	3,640	F1	3/63	.....	.....	.....	.....	.....	L.
22dbc	1955	113	12	.....	3,605	70.80	10/62	.....	.....	.....	T, E	I	
22dbd .....	.....	113	.....	.....	3,590	.....	.....	330	.....	5/56	T, E	I	
22dcd	1956	118	12	.....	3,605	68 R	5/56	230	.....	8/56	T, E	I	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-13-30)23acc	1915	900	6	.....	3,593	+9 +4.5	10/15 4/42	9 3	.....	10/15 4/42	N	S	
24bcd .....	.....	120	16	.....	3,590	.....	.....	300	.....	8/56	T, E	I	
24cdc .....	.....	120	16	.....	3,595	58.61 62.72	1/54 2/63	270 260	.....	8/56 6/62	T, E	I	
24dbb .....	.....	120	16	.....	3,595	60.03	1/54	260	.....	8/56	T, E	I	
24ddc .....	.....	120	16	.....	3,605	.....	.....	190	.....	8/56	T, E	I	
25aad	1953	.....	.....	.....	3,608	61.69 66.90	5/53 2/63	260 250	.....	6/57 6/62	T, E	I	
25add	1958	123	16	67-123	3,610	.....	.....	.....	.....	.....	T, E	I	L.
25bac	1963	115	16-14	65-105	3,600	.....	.....	.....	.....	.....	.....	.....	L.
25bbd	1963	108	16	72-108	3,600	65.45	3/63	.....	.....	.....	T, E	I	L.
25bdc	1963	150	16	65-85 OH 90-150	3,600	65 R	8/63	.....	.....	.....	.....	I	L.
25cad	1959	154	16-10	76-100 140-152	3,601	.....	.....	.....	.....	.....	.....	I	L.
27acc	1952	190	12	100-168 OH 168-190	3,610	80.50	2/63	.....	.....	.....	.....	I	L.
27add	1939	6,650	12-5	.....	3,603	.....	.....	.....	.....	.....	.....	.....	Oil test; gamma-ray and electric log.
28acc	1952	1,354	16	.....	3,617	36.28 80.40	4/52 2/63	.....	.....	.....	N	N	L.
30bcb	1915	960	5	.....	3,660	F1	11/40	2	.....	11/40	.....	.....
35aca	1963	185	16	60-185	3,615	.....	.....	.....	.....	.....	.....	.....	L.
36aad	1960	.....	.....	.....	3,615	.....	.....	190	.....	6/62	T, E	I	
36acc	1960	.....	.....	.....	3,615	72.51	10/62	180	.....	6/62	T, E	I	
36ada	1960	.....	.....	.....	3,615	71.87	10/62	.....	.....	.....	T, E	I	
36add ¹	1960	.....	.....	.....	3,618	.....	.....	280	.....	6/62	T, E	I	
36add ²	1960	.....	.....	.....	3,618	.....	.....	.....	.....	.....	T, E	I	
36ccc .....	.....	1,835	20	.....	3,629	F1 114.67 105.90	1/53 1/57 2/61	35 E 580	.....	1/53 6/57	T, NG	I	
(D-13-31)6adc	1959	120	18	80-120	3,625	77.64	2/64	.....	.....	.....	C, W	S	
18ccc ¹	1913	.....	4	.....	3,569	+19.0 F1	1/52 1/54	.....	.....	.....	T, E	D	C.
18ccc ² .....	.....	.....	.....	.....	3,569	35.65	3/63	.....	.....	.....	T, E	D, I	
20aba	1913	750	4	.....	3,618	8.72 46.13	4/46 2/62	.....	.....	.....	C, W	D	L.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. --Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-13-31)20aca	1954	.....	.....	.....	3,634	54.68	3/63	.....	.....	.....	T, E	I	
20ada .....		.....	.....	.....	3,620	.....	.....	260	.....	8/56	T, E	S, I	
20cad	1915	840	4	.....	3,592	F1	11/40	2 E 270	.....	11/40 6/62	T, E	I	
20daa	1915	615	4	.....	3,623	+2.5	11/40	.....	.....	.....	C, G	D, S	C.
20dda	1915	600	5	.....	3,626	+27	10/15	140	.....	10/15	T, E	I	C; L; well reconditioned in 1946.
21caa		1,280	12	435-460 OH 915-1,280	3,645	31.30 72.17	1/54 2/63	510	.....	5/52	T, E	I	L.
21ccd		750	.....	.....	3,630	60 R	.....	.....	.....	.....	S, E	D	
21ddd		640	.....	.....	3,660	80.36	2/64	.....	.....	.....	.....	D	
28ada .....		.....	.....	.....	3,660	88.60	2/64	.....	.....	.....	T, E	I	
28add		1,100	.....	.....	3,660	.....	.....	410	.....	6/62	T, E	I	
28bad .....		.....	4	.....	3,640	F1	4/46	5 E 240	.....	4/46 6/62	T, E	I	
28cad ¹	1920	700	5	.....	3,640	F1 5.10	4/46 1/53	1 E	.....	6/46	N	N	
28cad ²	1948	757	12-8	80-100 200-290 OH 298-757	3,640	F1	12/48	25 R 90	.....	12/48 5/52	T, E	I	L.
28ccd	1945	100	12	.....	3,630	64.73 62.67	1/52 12/57	.....	.....	.....	T, E	I	
28cda ¹ .....		.....	6	.....	3,640	F1 54.00	4/46 11/62	3 E	.....	4/46	T, E	I	
28cda ²		630	4	580-621	3,640	61.47	10/62	.....	.....	.....	S, E	D	
28dda	1953	800	14	.....	3,660	34.64 79.04	1/54 2/63	670	170	8/53	T, E	I	
29acd .....		.....	.....	.....	3,610	.....	.....	.....	.....	.....	T, E	I	
29dad	1951	540	12	.....	3,620	20 R	10/51	400 R 130	.....	10/51 7/57	T, E	I	L.
29dda	1947	740	12	.....	3,624	57.65 57.30	1/54 2/63	.....	.....	.....	T, E	D	
29ddd	1952	660	12	.....	3,624	58 R	5/56	.....	.....	.....	T, E	I	
30cab	1944	900	14-10	480-900	3,605	.....	.....	250 R	120	3/46	T, E	PS	L; flows 6-10 gpm, 10 hours after sump is shut down, 3/1/46.
30cca		72	5	.....	3,610	61.64	12/40	.....	.....	.....	C, W	D	C.
30cdc		72	4	.....	3,613	60.74 68.32	12/40 2/63	.....	.....	.....	N	N	
31acb	1958	111	12	65-95 OH 95-111	3,610	67.45	10/62	300	9	5/59	T, E	D, I	L.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-13-31)31acc	1956	100	10	75-100	3,615	65 R	10/62	.....	.....	.....	T, E	I	
31bad		860	5	.....	3,615	40.10	3/63	.....	.....	.....	N	N	L.
31cad ¹	1958	110	.....	.....	3,620	62.83	3/60	.....	.....	.....	T, E	I	
31cad ²		110	.....	.....	3,620	.....	.....	.....	.....	.....	T, E	D, I	
31dca	1947	4,137	.....	.....	3,620	65.47	10/62	.....	.....	.....	T, E	I	Oil test; now used as irrigation well, 1963.
33aab	1933	654	.....	.....	3,660	61.32	3/63	230	.....	4/42	T, D	D, I	
33baa ¹	1916	635	4	500-550 OH 550-635	3,640	.....	.....	.....	.....	.....	T, E	D	
33baa ²	1955	790	.....	.....	3,640	.....	.....	260	.....	8/56	T, E	I	
33bba		180	12	.....	3,630	60.25 59.31	11/62 2/63	.....	.....	.....	N	N	
33cda .....		.....	.....	.....	3,640	.....	.....	.....	.....	.....	T, E	I	
33cdd	1916	730	6	.....	3,640	F1	4/41	17	.....	4/41	N	D, S, I	C.
33dad .....		.....	12	.....	3,660	72.86 70.54	10/62 3/63	.....	.....	.....	T, E	I	
33dba	1915	600	5	.....	3,645	+23 64.84	10/15 10/62	120	.....	10/15	T, E	D, I	
33dbd	1946	100	12	.....	3,645	21.13 27.54	1/54 12/57	.....	.....	.....	T, E	I	
33dda ¹	1927	600	6	.....	3,655	+3 R	4/41	3 E	.....	4/41	T, E	D, I	C.
33dda ²	1928	700	6	.....	3,655	+4 R	4/41	25 R	.....	4/41	S, E	D, I	C.
34bdd	1955	715	.....	.....	3,685	89.65	10/62	.....	.....	.....	T, E	I	
34cbd	1926	763	6	.....	3,675	12 R	4/42	.....	.....	.....	Cf, E	I	
34cda	1957	760	16-8	100-760	3,685	87.25	2/63	.....	.....	.....	T, NG	I	L.
(D-14-30)12adb ¹	1915	1,040	6	.....	3,649	F1	10/15	.....	.....	.....	.....	D	
12adb ²	1915	.....	10	.....	3,649	F1 +4	10/15 12/40	15 E	.....	12/40	T, G	D	C.
12caa	1958	800	16	.....	3,760	.....	.....	.....	.....	.....	T, E	I	
12ddc		856	16	.....	3,664	.97 73.61	1/54 2/63	.....	.....	.....	N	N	Gamma-ray log.
(D-14-31)3aba	1957	735	18-12	100-163 400-615 OH 615-735	3,695	101.79	10/62	1,300	58	9/58	T, E	I	L.
3baa		721	16	421-721	3,680	94.70	2/64	.....	.....	.....	T, E	I	
3bbd ¹	1912	700	6	.....	3,658	.....	.....	.....	.....	.....	N	N	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-14-31)3bbd ²	1912	700	12-10	70-90 300-600 OH 600-700	3,658	13.70	10/62	.....	.....	.....	T,E	I	
3cba	1952	.....	.....	.....	3,660	.....	.....	80	.....	5/53	N	N	Abandoned, October 1962.
3cbc .....	.....	760	.....	.....	3,655	60.50 52.53	10/62 2/63	.....	.....	.....	T,E	I	
3cca .....	.....	720	10-4	.....	3,665	+24	10/15	170 190	.....	10/15 6/53	T,E	I	C.
3cdb	1915	720	8	.....	3,660	+10 R	4/41	20 170	.....	4/41 4/46	T,E	N	L; abandoned, October 1962.
3dcb .....	.....	600	6	.....	3,670	71.25	10/62	130	.....	4/42	T,E	I	
3ddd .....	.....	400	8	.....	3,690	17.57 86.80	4/41 2/64	.....	.....	.....	N	N	Recorder in operation 1954-60.
4aaa	1952	732	12	.....	3,660	.....	.....	780	.....	8/56	T,E	I	
4aba	1920	730	6	.....	3,640	F1	4/46	6 960	.....	4/46 6/62	Cf,E	I	C; L.
4dcb .....	.....	.....	.....	.....	3,645	34.28 50.64	1/54 2/63	180	.....	6/62	T,E	I	
6aac .....	.....	.....	.....	.....	3,625	67.58	10/62	.....	.....	.....	T,E	I	
6aad	1954	98	8	65-98	3,625	70.47 64.05	2/55 2/63	270 R	22 R	/54	T,E	I	
6adb	1962	94	12	70-75 80-94	3,625	68 R	/62	.....	.....	.....	S,E	I	L.
6bda .....	.....	165	.....	.....	3,625	.....	.....	.....	.....	.....	T,E	I	
8abc	1915	800	5	.....	3,640	60.70 69.14	1/54 2/63	.....	.....	.....	T,E	S,I	
9cbb	1914	800	3	OH 100-800	3,640	F1 F1	10/15 11/46	45 3E	.....	10/15 11/46	N	N	
9dbc .....	.....	.....	.....	.....	3,640	.....	.....	690	.....	6/62	T,NG	I	
10aaa	1959	750	12	495-750	3,680	.....	.....	1,500 R 980	140 R	3/59 10/62	T,E	I	L.
10bbd	1953	680	12	.....	3,655	9.50 42.70	1/54 2/63	.....	.....	.....	T,E	N	Abandoned, October 1962.
10daa	1953	552	12	.....	3,670	69 R	.....	380	.....	10/62	T,E	I	
10dba	1915	650	6	.....	3,665	F1 48.50	10/15 2/63	260	.....	10/15	T,E	I	C.
11cca	1948	712	12	OH 368-712	3,680	12 R	8/48	500 R	48 R	8/48	.....	N	L.
11daa	1959	.....	16	.....	3,725	106.85	2/63	.....	.....	.....	.....	I	
12caa	1959	800	16	.....	3,760	115.15 134.75	5/59 2/63	1,290	.....	6/62	T,NG	I	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.--Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-14-31)12ccc	1959	110			3,709	85.88	2/64				S, E	D	
13caa ¹	1953	750	16		3,720	65.11 86.62	1/54 2/63	1,300 R		10/62	T, B	N	
13caa ²		850	16		3,720	82.35	2/63	2,300 R			T, NG	I	
14aba	1915				3,700	25.64 62.80	1/54 2/63	240		7/57	T, E	N	
14baa ¹					3,685						T, E	I	
14baa ²	1915	700	5		3,685						T, E	D, S, I	
14bbd		800	12-8		3,670	40	R				C, W	D, S	
14bcd		800	18-8		3,665	37.35 33.20	11/62 2/63				N	N	
14cda		750	12		3,600	25	R				T, NG	I	
14cdc		750	12		3,665	25	R				T, NG	I	
14cdd	1920	750	16		3,665	45.07 29.78	10/62 2/63	500 R		/62	T, NG	I	
14dac	1930	750	5	500-750	3,680	+7.0	4/42	80		4/42	T, E	I	
14dad	1940	700	6		3,685	+9.5	12/40	120 R		12/40	T, E	S, I	C.
14ddb	1922	755	6	500-755	3,680	+10	5/41	80		5/41		N	I.
14ddc			5		3,670	43.93	10/62				N	N	
15aaa		810	4	OH 140-810	3,660	F1 45.92	4/42 1/57	15 E		4/42	T, E	I	L.
15bbc ¹	1915	822	10		3,660	F1 F1 30.25	10/15 4/41 3/63	210 30		10/15 4/41	T, E	D, I	C.
15bbc ²	1915	790	10		3,660	+36 F1	10/15 4/41	270 50		10/15 4/41	T, E	D, I	
15cca	1915		6		3,676	F1 60	10/15 11/62	70		10/15	T, E	I	
15cdd	1951	800	18		3,680	5.99 51.62	6/51 2/63	550		5/52	N	N	C.
16dcc		2,000	8		3,680	43.84	3/63	450		6/62	T, NG	I	C; L.
17bbc	1915		6		3,665	+27 1.65	10/15 12/46				N	N	C; abandoned, October 1962.
19bac	1915	1,140	6	OH 200-1,140	3,715	F1 27.70	10/15 2/63	1		10/15	C, W	S	C.
20bbc		820	8		3,700	30.80	10/62					I	
21bcc	1951	711		80-711	3,700	44.11 44.95	1/54 2/62	450 440		5/53 6/62	T, NG	I	C; L.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. ---Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-14-31)22adb	1915	620	5	.....	3,690	+10 F1	10/15 8/46	30	.....	10/15	T,E	D,S	
22adc	1959	800	16	65-85 185-199 360-370 390-403 454-470 487-497 650-800	3,690	54.68	10/62	1,980	163	/59	T,E	I	L.
22dcc	1962	.....	.....	.....	3,710	53.80	2/63	.....	.....	.....	T,E	I	
23bcc	1913	705	14	.....	3,690	+24 49.38	10/15 2/63	250	.....	10/15	N	N	
23cdc	1952	744	12	OH 133-744	3,710	60.60	10/62	380	.....	6/53	T,E	I	L.
24aaa	1962	660	16	300-613 OH 613-660	3,720	84.70	10/62	.....	.....	.....	N	N	L.
24abb	1953	.....	.....	.....	3,695	16.67 49.21	1/54 2/63	.....	.....	.....	N	N	
24dcc	1917	630	6	.....	3,700	F1	8/46	7	.....	8/46	N	N	C.
25adc .....	.....	600	.....	.....	3,720	66.85 58.66	10/62 2/63	560 380	.....	6/53 6/62	T,E	S,I	
25bbc .....	.....	.....	.....	.....	3,715	.....	.....	.....	.....	.....	T,E	I	
25bcc .....	.....	700	.....	.....	3,725	78.50	10/62	.....	.....	.....	T,E	I	
25bcd .....	.....	700	.....	.....	3,720	65.20	10/62	.....	.....	.....	T,E	I	
25bda .....	.....	645	.....	.....	3,715	55.38	10/62	.....	.....	.....	T,NG	I	
25dac .....	.....	.....	.....	.....	3,730	51.74 71.15	1/61 10/62	.....	.....	.....	T,E	I	
25dbc	1920	630	8	.....	3,730	12.85 38.67	12/40 1/56	550	.....	6/62	T,NG	I	C.
26acc	1953	.....	.....	.....	3,730	.....	.....	400	.....	6/57	T,E	I	
26bbc	1915	920	8	.....	3,720	F1 54.84	10/15 2/62	25 290	.....	10/15 6/53	.....	.....	C.
26bbd .....	.....	752	14-12	.....	3,720	58.20	10/62	680	.....	6/62	T,E	I	
26cdc .....	.....	760	.....	.....	3,750	.....	.....	.....	.....	.....	T,E	I	
26cdd	1954	740	16-12	500-740	3,750	88.95	10/62	1,100 R	160 R	/62	T,E	I	
27acc .....	.....	718	16	.....	3,735	.....	.....	.....	.....	.....	T,E	I	
27ccc	1960	800	20	115-800	3,760	99.89 101.10	10/62 2/63	.....	.....	.....	T,E	S,I	L.
28cad	1958	915	.....	.....	3,750	89.40	3/63	1,450 R 810	38 R	3/59 6/62	T,NG	I	
29bcc .....	.....	200	.....	.....	3,755	.....	.....	.....	.....	.....	T,E	S	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.—Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-14-31)30aac		265	24		3,740	115.02	10/62				S, E		
34acc	1959	1,000			3,775			1,170 E	68 E	8/59	T, NG	I	
34acd	1960		12		3,775	113.30	10/62	720		6/62	T, E	I	
35bcc	1958	800	16	500-800	3,770	110.17 101.30	10/62 2/63	1,350 750	91	12/58 6/62	T, E	I	L.
(D-14-32)16cab ¹	1952	250	11	174-235	3,873	200 R	7/52					N	L.
16cab ²	1952	251	11	160-240	3,864	190 R	8/52					N	L.
16cab ³	1957	465	10-8	129-406 411-460	3,860	202 R 228.20	4/57 2/63	130 R	4 R	4/57	T, E	Ind	L.
16cab ⁴	1963	470	13-11	246-470	3,860	227.80	1/63				T, E	Ind	L.
19baa	1960	750	16	300-717	3,740	105.10 98.42	10/62 2/63	910		6/62	T, E	D, I	L.
19ddb					3,710						T, NG	I	
20dbb	1960	641	16	138-538 OH 538-641	3,790						T, NG	I	L.
30aca					3,710	27.00 55.56	1/54 2/63	150		6/53	T, NG	I	
30cbc		490	4	OH 185-490	3,725	66.23	10/62	280		8/56	T, E	I	L.
(D-15-31)6aaa			6		3,833	154.48 155.58	1/52 1/57				N	N	
11edd	1958	700	18	OH 300-700	3,900	178.5	10/62				T, NG	I	
11dcc	1962	750	16	205-512 OH 515-750	3,900	153.20 149.20	10/62 2/63				T, NG	I	L.
12cac		169	6		3,868	147.16 153.21	1/52 12/57				N	N	
14bdb					3,920						T, NG	I	
14ccc	1956	604	14-10	170-604	3,980			710		7/62	S, E	D, S, I	L.
24aaa		172	6		3,914	162.44 165.30	1/52 5/56				N	N	C.
(D-15-32)5bca					3,765	66.11	2/63				T, E	I	
5bcb					3,780			860		7/62	T, E	I	
34ddd		280	7		3,860	19.42	10/46				C, W	S	C.
(D-16-31)9caa		5,353			4,320	507.68	2/64						Oil test; gamma-ray and electric log.
28dbb	1948	360	6		4,511	278.95 305.64	1/52 1/59				C, W	S	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. ---Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-16-32)10ccb	1959	400	16	92-235 250-327 OH 327-400	3,980	75 R	/59	1,500 R	.....	.....	T, D	I	L.
16ccd .....	.....	136	6	.....	4,060	131.05	10/46	.....	.....	.....	C, W	D	
21ccc	1953	340	16	.....	4,090	153.56 158.81	12/53 2/63	1,300 R	45 R	1/53	T, E	I	
27bcc .....	.....	.....	.....	.....	4,060	.....	.....	.....	.....	.....	T, D	I	
27cac .....	.....	.....	.....	.....	4,055	.....	.....	.....	.....	.....	T, D	I	
27ddb .....	.....	.....	.....	.....	4,040	.....	.....	.....	.....	.....	T, D	I	
28acd .....	.....	.....	.....	.....	4,070	.....	.....	.....	.....	.....	T, D	I	
28bcd .....	.....	.....	.....	.....	4,100	.....	.....	.....	.....	.....	T, D	I	
32cba	1963	840	16-12	275-840	4,180	239 R	10/63	.....	.....	.....	.....	.....	L.
34aac .....	.....	.....	.....	.....	4,040	.....	.....	.....	.....	.....	T, D	I	
34cc .....	.....	175	5	.....	4,100	153.5	10/46	.....	.....	.....	C, W	S	C.
34ddb .....	.....	.....	.....	.....	4,080	.....	.....	.....	.....	.....	T, D	I	
(D-17-31)25aa .....	.....	160	6	.....	4,601	76.10 59.53	10/46 2/63	.....	.....	.....	C, W	S	C; water level fluctuates with flow in creek.
(D-17-32)4dac	1963	326	16	165-326	4,160	.....	.....	.....	.....	.....	.....	I	L.
6aa .....	.....	281	6	.....	4,225	269.25 281.85	10/46 2/63	.....	.....	.....	C, W	S	C.
6aab	1962	740	16	290-740	4,245	291.50 271 R	9/62 12/62	2,200 E	65 E	.....	T, D	I	L.
(D-18-32)11ebb .....	.....	172	6	.....	4,150	145.44 152.72	11/49 2/64	2	.....	10/46	C, W	S	C.
26bbb	1949	1,000	16	325-365 OH 465-1,000	4,125	74.85 123.02	11/49 2/63	1,200-1,300 R	17 R	.....	T, NG	I	
26bcc .....	.....	.....	16	.....	4,140	.....	.....	500 E	.....	.....	T, NG	I	
26bcd .....	.....	.....	.....	.....	4,130	107.00 123.00	1/54 2/64	.....	.....	.....	.....	.....
26ccd	1908	160	6	.....	4,150	86.40 84.58	12/49 3/51	.....	.....	.....	C, W	D, S	
27abb .....	.....	.....	16	.....	4,140	68.72 68.19	11/49 3/51	.....	.....	.....	T, NG	I	
27bca	1949	.....	6	.....	4,155	90.52 94.06	11/49 12/52	.....	.....	.....	T, NG	I	
27cbc .....	.....	.....	16	.....	4,155	105.18	12/57	.....	.....	.....	T, NG	I	
27cdd	1949	150	14	.....	4,160	66.77 67.19	11/49 3/51	.....	.....	.....	T, NG	I	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. ---Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
(D-18-32)28add	1949	353	14	.....	4,155	67.45 71.31	11/49 3/51	.....	.....	.....	T,NG	I	
33bca ¹	1947	200	14	.....	4,220	107.78 130.18	9/50 2/61	.....	.....	.....	N	N	
33bca ² .....	.....	227	6	.....	4,220	149.2	11/62	.....	.....	.....	S,E	D,S	
34bac .....	.....	.....	16	.....	4,160	88.43 100.56	1/54 12/57	170 E	.....	.....	T,NG	I	
34dba .....	.....	.....	16	.....	4,155	92.34 119.27	1/54 2/64	.....	.....	.....	T,NG	I	
35cba .....	.....	290	16	.....	4,155	152.70 145.90	11/62 2/63	1,000 R	100 R	7/53	T,NG	I	L.
(D-19-32)3acd	1956	315	14	100-315	4,165	96 R	12/56	750 R	90 R	12/56	T,NG	I	L.
3ccc .....	.....	265	.....	.....	4,195	.....	.....	.....	.....	.....	T,E	D,S,I	
3cdc .....	.....	.....	.....	.....	4,185	.....	.....	350 E	.....	.....	T,NG	I	
3dbc	1949	350	16	.....	4,180	76 R	11/49	.....	.....	.....	T,NG	I	
3dcb	1953	392	16	.....	4,180	96.48 125.16	11/54 2/64	.....	.....	.....	T,NG	I	
10add .....	.....	300	5	.....	4,180	153.60	11/62	.....	.....	.....	T,NG	I	
28ccc	1963	510	16	160-510	4,250	187.87	2/64	.....	.....	.....	.....	.....	L.
(D-20-32)5abc	1959	500	16	.....	4,280	185 R	12/62	.....	.....	.....	T,NG	I	
5acc .....	.....	400	16	.....	4,285	195.50	12/62	450 E	.....	7/53	T,NG	I	
5add	1959	400	16	.....	4,280	185 R	12/62	.....	.....	.....	T,NG	I	
5cdc	1959	435	.....	.....	4,300	170 R	12/62	.....	.....	.....	T,NG	I	
8bcc	1958	460	16	149-449 OH 449-460	4,315	180 R	9/58	.....	.....	.....	T,NG	I	L.
22ddb	1964	450	7	400-450	4,540	385 R	2/64	.....	.....	.....	.....	.....
29abb .....	.....	412	6	.....	4,408	380 R	12/62	.....	.....	.....	J,W	D,S	
Hidalgo County, N. Mex.													
T. 26 S., R. 21 W.													
SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 19 .....	.....	15	8	.....	4,000	12.15	10/46	.....	.....	.....	.....	.....	C: dug well.
NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 21 .....	.....	225	.....	.....	4,050	154.42 158.58	3/51 2/63	.....	.....	.....	C,W	S	C.
NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31 .....	.....	76	6	.....	3,990	50.76	10/46	.....	.....	.....	C,W	D,S	C.
T. 26 S., R. 22 W.													
NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12 .....	.....	8	18	.....	3,870	1.37 1.45	10/46 2/64	.....	.....	.....	N	N	C: dug well; near cienaga.

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex. ---Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
Hidalgo County, N. Mex. ---Continued													
T. 26 S., R. 22 W. --- Continued													
SE $\frac{1}{2}$ SE $\frac{1}{4}$ sec. 13		200	.....	.....	3,910	32 R	12/62	.....	.....	.....	T, D	I	
SE $\frac{1}{2}$ SE $\frac{1}{4}$ sec. 13		170	.....	.....	3,910	6 R	12/62	.....	.....	.....	T, D	I	
NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24		25	8	.....	3,925	12.10 16.02	3/51 2/64	.....	.....	.....	C, W	S	Near cienaga.
T. 27 S., R. 21 W.													
NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7		400	16	.....	4,010	84.34 89.05	12/53 2/64	.....	.....	.....	T, E	I	
SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7		300	.....	.....	4,020	74.12	2/64	.....	.....	.....	T, E	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 7		300	.....	.....	4,035	117.20	2/64	.....	.....	.....	T, E	I	
SE $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 7	1962	500	16	OH 300-500	4,035	104.88	2/64	.....	.....	.....	T, B	I	
SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 17		141	6	.....	4,075	95.02	10/46	.....	.....	.....	C, W	S	C.
NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20 .....		.....	6	.....	4,040	66.89	2/64	.....	.....	.....	N	N	
SE $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 29	1939	235	6	.....	4,060	75.80	10/46	.....	.....	.....	C, W	N	
NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29		74	6	.....	4,050	.....	.....	.....	.....	.....	C, W	S	C.
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32 .....		.....	.....	.....	4,050	.....	.....	.....	.....	.....	T, E	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32 .....		.....	.....	.....	4,050	.....	.....	.....	.....	.....	T, E	I	
NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 32 .....		.....	.....	.....	4,050	69.87	2/64	.....	.....	.....	T, E	I	
T. 27 S., R. 22 W.													
SE $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24		164	6	.....	4,125	147.06 148.72	10/46 1/52	.....	.....	.....	C, W	S	C.
T. 28 S., R. 21 W.													
SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29 .....		.....	.....	.....	4,230	176.85	2/64	.....	.....	.....	C, W	.....
SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30 .....		.....	16	.....	4,140	120.88 106.17	12/53 2/64	.....	.....	.....	T, NG	I	
SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 30 .....		.....	.....	.....	4,130	.....	.....	.....	.....	.....	.....	RR	
NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 30 .....		.....	.....	.....	4,130	.....	.....	.....	.....	.....	.....	RR	
SE $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 30 .....		.....	12	.....	4,130	94.70 101.38	1/54 2/64	.....	.....	.....	T, B	N	
SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 31 .....		.....	.....	.....	4,140	99.32 138.81	1/54 2/64	.....	.....	.....	T, NG	I	
SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31 .....		.....	.....	.....	4,145	116.32 153.74	1/54 2/64	.....	.....	.....	T, NG	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31 .....		.....	.....	.....	4,145	.....	.....	.....	.....	.....	T, E	I	

Table 1.--Records of wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.—Continued

Well location	Year completed	Depth of well (feet)	Diameter of casing (inches)	Perforated interval (feet below land surface)	Altitude of land surface (feet above mean sea level)	Water level		Discharge data			Type of lift	Use of water	Remarks
						Depth (feet)	Date measured (mo/yr)	Yield (gpm)	Drawdown (feet)	Date measured (mo/yr)			
Hidalgo County, N. Mex.—Continued													
<u>T. 28 S., R. 22 W.</u>													
SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25					4,135						C, W	D, S	
SE $\frac{1}{4}$ SE $\frac{1}{2}$ SW $\frac{1}{4}$ sec. 25					4,140						T, NG	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 36					4,135						T, NG	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 36					4,140						T, NG	I	
<u>T. 29 S., R. 21 W.</u>													
NE $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 6					4,155						T, NG	I	
SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 6					4,155	109.39 154.10	1/54 2/63				T, NG	I	
SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 6					4,155						T, NG	I	
<u>T. 29 S., R. 22 W.</u>													
SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 1		350			4,155	108.06 162.43	1/54 2/64				T, NG	I	
NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1					4,155						T, NG	I	
SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1					4,160						T, NG	I	
SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1					4,165	112.72 156.56	1/54 2/64				T, NG	I	
SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1		400			4,160						T, NG	I	
NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1		350			4,155						T, NG	I	
SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11	1953	350			4,175						T, NG	I	
SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 11	1953	350			4,180						T, NG	I	

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz.

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-11-28)28aba			(D-12-28)20dbd—Continued		
Light clay	108	108	Conglomerate ribs and gravel	250	800
Sandy clay	52	160	TOTAL DEPTH		800
Dark-blue clay	25	185	(D-12-28)22cdc		
Light-blue clay	365	550	Surface soil	6	6
Brown clay	145	695	Caliche	24	30
Sand	935	1,630	Sand	40	70
Light-gray sandy clay	95	1,725	Clay and sand streaks	8	78
Red clay	27	1,752	Clay and sand	6	84
Sand	3	1,755	Caliche	4	88
Red clay	63	1,818	Gravel and sand (lost circulation at 90 feet)	6	94
TOTAL DEPTH		1,818	Sandy rock	6	100
(D-11-28)28bab			Yellow clay	78	178
Blue clay	215	215	Gravel and sand	7	185
Coarse gravel	50	265	Blue clay	10	195
Blue clay	35	300	Shale and clay	35	230
Blue cemented gravel	50	350	Blue clay, sticky	47	277
Blue clay	50	400	Shale	46	323
Gray-colored clay	50	450	Clay and shale	29	352
Sandy blue clay	30	480	Clay	114	466
Brown clay	42	522	Clay, little sandy (soft)	40	506
Gray-colored clay	43	565	Blue clay	44	550
Blue shale	32	597	Gravel (top of water 555 feet)	48	598
Gravel	13	610	Gravel and clay streaks	18	616
Brown shale	30	640	Boulder shells and sand streaks	6	622
Blue shale	20	660	Hard boulders and gravel	38	660
Brown shale	10	670	(This bottom sure to carry some water)		
TOTAL DEPTH		670	TOTAL DEPTH		660
(D-11-29)14aaa			(D-12-28)23ccc		
Sand	25	25	Soil	5	5
Yellow clay	100	125	Caliche	9	14
Blue clay	375	500	Clay	56	70
Very fine, light sand	100	600	Blue clay	435	505
Clay, sand, shells, and gypsum	50	650	Red clay	30	535
Artesian water sands; black	6	656	Gravel	4	539
Gray clay	20	676	Clay and gravel	21	560
TOTAL DEPTH		676	Sand and gravel	10	570
(D-11-29)36cbb			Sand, gravel with clay strata	30	600
Soil	8	8	Clay	20	620
Loose sand	8	16	Sand and gravel with clay strata	25	645
Very tight formation	7	23	Sand, gravel	15	660
Water sand	22	45	Sand, gravel with clay	160	820
Blue clay, soft	600	645	Cemented gravel	6	826
Artesian water sand	1	646	Gravel cemented with clay	14	840
Gray clay	1	647	Sand, gravel with clay strata	34	874
Fine quicksand; well flows 5 gpm	33	680	Conglomerate, sand and gravel with clay	126	1,000
TOTAL DEPTH		680	TOTAL DEPTH		1,000
(D-12-27)33dba			(D-12-28)25dcc		
Loose sandy conglomerate with small boulders	60	60	Top soil	11	11
Large boulders in cemented conglomerate	150	210	Sand clay	36	47
A little water sand, seems like a crack or fault in rock. Very little water	2	212	Clay	13	60
Cemented conglomerate with large boulders	23	235	Sandy clay	30	90
A crack or fault with quite a lot of sand, possibly some water	5	240	Clay	8	98
Cemented conglomerate with large boulders	42	282	Blue shale	450	548
Large pocket of sand, definitely carrying water	8	290	Gray shale	98	646
Cemented conglomerate with large boulders	35	325	Silt and clay	74	720
TOTAL DEPTH		325	Conglomerate	15	735
(D-12-28)16abc			Silt	10	745
Top soil, sand	125	125	Fine sand	5	750
Sand and gravel	25	150	Silt and clay	11	761
Blue clay and sand streaks	300	450	Sand and clay	34	795
Sand, fine	125	575	Conglomerate	130	925
Gravel and conglomerate ribs	255	830	Sandy clay	261	1,186
TOTAL DEPTH		830	Conglomerate of clay and gravel	162	1,348
(D-12-28)20dbd			Hard clay	12	1,360
Sandy clay	175	175	TOTAL DEPTH		1,360
Gravel	25	200	(D-12-28)26dcc		
Blue mud	250	450	Soil	3	3
Sand, fine	100	550	Caliche and hard streaks	43	46
			Red clay and boulders	59	105
			Sand boulders	22	127
			Blue clay with sand streaks	19	146
			Yellow and blue clay, sand streaks	14	160
			Sand and gravel	15	175
			Blue clay with few boulders	210	385
			470 water sand and gray clay mixed	173	558
			Sand, some quartz	82	640
			Hard cemented sand with boulders	38	678
			Hard fine sand	9	687
			TOTAL DEPTH		687

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-12-28)29dbb			(D-12-28)35cdc --Continued		
Sandy clay	85	85	Sandy clay	20	28
Gravel	25	110	Clay	7	35
Blue clay	180	290	Sand and gravel, dry	15	50
Sand and gravel	270	560	Clay	20	70
TOTAL DEPTH		560	Clay and boulders	5	75
(D-12-28)32acc			Clay	40	115
Sandy clay, red hard sand	50	50	Sand and gravel	5	120
Gravel	25	75	Sand and rock	15	135
Blue clay	205	280	Clay with sand	31	166
Sand and gravel	320	600	Blue shale, sticky	29	195
TOTAL DEPTH		600	Blue clay	38	233
(D-12-28)33abc			Sand and gravel	22	255
Top soil, dark color	9	9	Shale, sticky	13	268
Sand and clay, yellow	11	20	Gravel and boulders (little water)	7	275
Sand and boulders, yellow (some water)	128	148	Shale, sticky	30	305
Blue clay with sand streaks	79	227	Clay and shale	60	365
Sand, hard, light	20	247	Shale, sticky	110	475
Shale, blue	36	283	Sand and gravel (water at 485 feet)	20	495
Sand and gravel, some boulders and some water, red ..	21	304	Gravel and sand with clay streaks	10	505
Clay, yellow	34	338	Sand and gravel	89	594
Sand and gravel, light	7	345	Sand and fine gravel	6	600
Sandstone, hard, gray	10	355	Boulders	15	615
Gravel and sand, yellow	3	358	Hard sand rock	5	620
Clay, soft, yellow	23	381	TOTAL DEPTH		620
Sand and boulders, yellow	19	400	(D-12-28)36ccc		
Sand, yellow	150	550	Top soil	3	3
TOTAL DEPTH		550	Caliche	9	12
(D-12-28)33bcd			Sand	20	32
Red clay	94	94	Sand and boulders	18	50
Blue clay	111	205	Sandy clay	58	108
Gray sandy clay	160	365	Sand	27	135
Sand and gravel	10	375	Sand and gravel	5	140
Red clay	5	380	Blue and yellow clay	40	180
Sand and gravel	5	385	Blue clay	190	370
Gray sticky clay	5	390	Blue and gray clay, mixed	110	480
Sand and boulders	5	395	Sandy blue clay	10	490
Gray sticky clay	5	400	Sand and gravel	25	515
Packed sand	5	405	Clay and sand	7	522
Yellow sticky clay	5	410	Sand and gravel, water	118	640
Sand and boulders	5	415	Hard sand and boulders	75	715
Yellow sticky clay	5	420	TOTAL DEPTH		715
Packed sand	5	425	(D-13-28)4ccc		
Yellow sticky clay	5	430	Soil, red	2	2
Packed sand	15	445	Clay, red	4	6
Sand and boulders	15	460	Boulders, clay, red	12	18
Yellow sticky clay	5	465	Sand, red	10	28
Sand and boulders	5	470	Clay, red	32	60
Yellow sticky clay	5	475	Sand, boulders, trace water, red	25	85
Sand and boulders	5	480	Sand, clay, red	36	121
Yellow sticky clay	2	482	Clay, sand, boulders, little water, blue	19	140
Sand and boulders	6	488	Clay, sand, boulders, red	107	247
TOTAL DEPTH		488	Sand, light	13	260
(D-12-28)35bdc			Sand, very hard, red in color	4	264
Top soil	8	8	Sand, gravel, some large gravel, light	24	288
Clay	2	10	Quartz, granite boulders, hard, light	20	308
Sand clay	40	50	Sandy quartz, hard	54	362
Shale	40	90	Sandy quartzite, some granite hard, light	38	400
Sand	1	91	Quartzite, hard granite, dark	62	462
Clay	49	140	TOTAL DEPTH		462
Blue shale	167	307	(D-13-28)4ddb		
Water sand	3	310	Sand	2	2
Clay	237	547	Soil	8	10
Sand	4	551	Clay	5	15
Clay	36	587	Sand and gravel	2	17
Sand	4	591	Clay	2	19
Clay	3	594	Sand and gravel	11	30
Sand	3	597	Clay	8	38
Clay	3	600	Sand and gravel	13	51
Sand	10	610	Light brown clay	57	108
Clay	3	613	Sand	2	110
Sand	5	618	Gray shale	25	135
Clay	22	640	Water sand	5	140
TOTAL DEPTH		640	Blue clay	10	150
(D-12-28)35cdc			Brown clay	38	188
Top soil	4	4	Gray shale	64	252
Caliche	4	8	Sandstone	3	255
			Gray shale	19	274
			Brown sandy shale	41	315
			Sand and gravel	5	320
			Brown shale, sand and gravel	5	325
			Sand and gravel	126	451
			Brown shale	41	492
			Sand and gravel	50	542
			Boulders	3	545

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-28)4ddb—Continued			(D-13-28)13bcc—Continued		
Blue shale	7	552	Hard sand, quartz	45	760
Sand and gravel	56	608	Hard conglomerate	43	803
Water sand, big flow	4	612	TOTAL DEPTH		803
Sand and gravel	113	725	(D-13-28)15bdc		
Sand and gravel, hard	40	765	Red clay	179	179
Water sand	50	815	Gravel and sand, water	6	185
Blue shale, hard	15	830	Blue clay	75	260
TOTAL DEPTH		830	Gravel and sand	6	266
(D-13-28)7dbc			Blue clay	74	340
Surface soil	20	20	Gravel and sand	5	345
Sand and boulders	28	48	Conglomerate	63	408
Gravel and sand	57	105	Gravel and sand	9	417
Yellow clay	90	195	Conglomerate	43	460
Clay and boulders	45	240	Conglomerate	120	580
Sand	17	257	Gravel and sand	11	591
Hard boulders	59	316	Conglomerate	172	763
Hard boulders and rock	25	341	Gravel and sand	6	769
Rock	35	376	Conglomerate	117	886
Hard rock	3	379	Gravel and sand	6	892
Hard rock	21	400	Conglomerate	88	980
TOTAL DEPTH		400	Gravel and sand	24	1,004
(D-13-28)9bdb			Hard sand and rock	9	1,013
Soil, red	14	14	TOTAL DEPTH		1,013
Sand, red	9	23	(D-13-28)15ccc		
Boulders, sand, red	12	35	Top soil	3	3
Sand, red	10	45	Clay	15	18
Clay, boulders, red	10	55	Sand and gravel	12	30
Sand, boulders, red	20	75	Yellow clay, small boulders	15	45
Clay and few boulders, yellow	15	90	Boulders, large, some sand	13	60
Clay, yellow	75	165	Clay, boulders	25	85
Clay, sand, small boulders, yellow	35	200	Sand and boulders	20	105
Bluish clay with sand streaks, light	32	232	Sand and clay streaks	62	167
Sand, some water, light	19	251	Sand and gravel	9	176
Clay, light	11	262	Clay and boulders	7	183
Gravel, sand, light	40	302	Gray and blue shale, sand streaks	35	218
Boulders, hard quartz, light	27	329	Sand, quartz, polyhalite, soft	24	242
Sand, gravel small, soft, gray	17	346	Boulders, quartz, hard	57	299
Boulders, hard quartz, light	14	360	Sand, gravel, small boulders, soft to hard	14	313
Hard boulders, sandy, light	16	376	Hard cemented sand	14	327
Granite with some quartz	74	450	Boulders and sand, hard	18	345
TOTAL DEPTH		450	Sand, hard with soft streaks	18	363
(D-13-28)10bcc			Cemented sand with hard boulders	9	372
Soil	5	5	Red sand, small gravel, rhyolite boulders, hard	12	384
Caliche, boulders	15	20	Sand (water), soft	13	397
Gravel, boulders	30	50	Hard cemented sand and boulders	12	409
Blue clay	145	195	Sand with quartz, large gravel (show of water)	16	425
Blue clay with sand	50	245	Sand (water)	30	455
Sand, gravel	5	250	TOTAL DEPTH		455
Blue clay, sand	40	290	(D-13-28)15cdd		
Boulders, sand, gravel	3	293	Top soil	2	2
Clay with gravel strata	32	325	Sand	2	4
Large gravel	28	353	Caliche	6	10
Clay and gravel	22	375	Sand and boulders	20	30
Sand, gravel with cemented shell	10	385	Clay and boulders	50	80
Gravel, boulders	10	395	Sand with quartz (show of water)	50	130
Sand, gravel with hard shells	20	415	Clay, sandy	10	140
Cemented gravel	14	429	Clay, yellow, with small blue streaks	40	180
Gravel	6	435	Gray and blue clay with sand streaks, some quartz	15	195
Clay with gravel embedded	18	453	Sand and quartz	26	221
Gravel with boulders	4	457	Sand and quartz clay streaks	9	230
Gravel with cemented strata	120	577	Sand and gravel	11	241
Large boulders cemented with seams of loose layers of gravel	423	1,000	Sand, gravel, polyhalite quartz	7	248
TOTAL DEPTH		1,000	Sand, quartz, rhyolite boulders, hard streaks, gray	7	255
(D-13-28)13bcc			Sand with gray clay streaks	27	282
Top soil	3	3	Sand, granite boulders, hard	15	297
Clay	25	28	Hard cemented sand and quartz, to medium hard	12	309
Sand and clay streaks	112	140	Sand, quartz, some mica, medium soft	9	318
Sand, soft	10	150	Sand, quartz, show of water	12	330
Blue shale	126	276	Hard cemented sand with rhyolite boulders	20	350
Sand, hard	14	290	Sand	10	360
Sandy clay	110	400	Sand, boulders, hard	22	382
Sand and gravel, water	20	420	Sand, small gravel, soft small streak gray clay	8	390
Sandy clay	20	440	Cemented sand, quartz, boulders, hard	12	402
Hard rhyolite boulders	30	470	Sand, large gravel, hard, soft streaks	23	425
Medium hard rhyolite, water	5	475	Large hard boulders	5	430
Hard quartz	93	568	Cemented sand, hard	45	475
Sand quartz, cemented	102	670	TOTAL DEPTH		475
Hard fine sand streaks, water	45	715			

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-28)16ccc			(D-13-28)23acd		
Soil and sand	8	8	Brown clay	10	10
Shale and boulders	162	170	Sandy brown clay	40	50
White shale	60	230	Brown clay	10	60
Sand and gravel	15	245	Brown clay with gravel	85	145
Sand, gravel, and shale	40	285	Water sand, fine	2	147
Sand, gravel, and water	10	295	Green clay, fine gravel	68	215
Sand and gravel, caving in	5	300	Blue and green clay	32	247
Sand and gravel, started to run pipe	60	360	White conglomerate	5	252
Sand and gravel	65	425	Blue and gray clay	40	292
Brown shale	12	437	Brown clay	35	327
Sand and gravel	38	475	Green clay	15	342
Sand and gravel, granite boulders	25	500	Brown clay	83	425
Granite boulders	10	510	Conglomerate	7	432
Gravel and shale	30	540	Brown clay	6	438
Brown shale and granite boulders	35	575	Sand and gravel	6	444
Brown shale, gravel, and sand	25	600	Brown clay	5	449
Yellow shale, gravel, and sand	25	625	Conglomerate, water gravel	45	494
Gray shale, quartz, and gravel	25	650	Brown sand, hard	17	511
Brown shale, gravel, and sand	25	675	TOTAL DEPTH		511
Gray shale, gravel, and sand	150	825			
Gravel and boulders	20	845	(D-13-28)23dcc		
Brown shale and boulders	50	895	Top soil	1	1
TOTAL DEPTH		895	Caliche	17	18
(D-13-28)16dcc			Boulders and rocks	27	45
Soil and sand	15	15	Sand, hard	42	87
Shale and boulders	170	185	Sand and boulders	55	142
White shale	25	210	Sandy clay	31	173
Sand, gravel, and water	190	400	Hard quartz	12	185
Brown shale	15	415	Quartz, hard	7	192
Sand, gravel, and granite boulders	80	495	Blue clay, boulders	35	227
Gravel and shale	25	520	Quartz, sand, coarse (water)	24	251
Brown shale	40	560	Quartz, boulders, hard	14	265
Brown shale, gravel, and sand	20	580	Quartz, boulders, firm with soft streaks (H ₂ O)	67	332
Yellow shale, gravel, and sand	30	610	Hard cemented sand with rhyolite boulders	35	367
Gray shale, quartz, and gravel	30	640	Sand, quartz good	30	397
Brown shale, gravel, and sand	20	660	Hard sand	18	415
Gray shale, gravel, and sand	11	671	Sand, quartz with hard streaks	32	447
TOTAL DEPTH		671	Cemented sand, medium hard to hard	38	485
(D-13-28)22acc			Cemented sand with rhyolite, hard	28	513
Top soil	6	6	Boulders, large, granite hard	17	530
Boulders and sand	99	105	TOTAL DEPTH		530
Boulders and clay	32	137	(D-13-28)24ccc		
Clay	15	152	Top soil	5	5
Quartz	58	210	Sandy clay	45	50
Sand, small gravel, boulders, soft at 230 feet (water) ..	82	292	Clay	100	150
Hard cemented sand with quartz	17	309	Streaks of sand and clay	50	200
Sand and boulders, soft streaks, water	101	410	Fine sand	40	240
Hard cemented sand, granite boulders	20	430	Clay	10	250
Hard granite	35	465	Streaks of gravel and clay	50	300
TOTAL DEPTH		465	Clay	50	350
(D-13-28)22dcc			Streaks of gravel and clay	100	450
Top soil	10	10	Gravel	30	480
Sand, gravel, clay	20	30	Gravel and clay conglomerate	40	520
Gravel, clay	30	60	TOTAL DEPTH		520
Clay and gravel	38	98	(D-13-29)6cdb		
Clay with gravel streaks	62	160	Clay fill	165	165
Shale	25	185	Blue shale	120	285
Gravel, water	15	200	Clay	183	468
Shale and gravel	40	240	Sand and water, raised to 100 feet	14	482
Clay	35	275	Blue clay	10	492
Lime and conglomerate	10	285	Sand and some water	6	498
Clay	10	295	Clay and gravel	7	505
Rock	10	305	Sand and water	7	512
Clay	25	330	Sand and clay	6	518
Rock	10	340	Sand and water	8	526
Clay	17	357	Sand and clay	4	530
Rock	13	370	Sand	7	537
Clay	12	382	Sandstone	8	545
Rock	13	395	Gravel and water	6	551
Clay	5	400	Clay	27	578
Rock	31	431	Sand, gravel, and clay	14	592
Lime	1	432	Sand, clay, water raised to 11 feet	36	628
Water sand	5	437	Hard sandstone and clay	77	705
Clay	2	439	Hard sandstone, clay, and water	55	760
Quartz	2	441	Sand, gravel, clay, and some water	40	800
Rock	9	450	Sand	174	974
Shale, gravel, and quicksand	6	456	Sand rock	26	1,000
Shale and gravel	19	475	Sand rock	11	1,011
Clay and gravel	2	477	Conglomeration of R. shale, B. shale, and sand	9	1,020
Boulders	2	479	Gray shale and sand	9	1,029
Boulders and clay	9	488	Bed sand with some red shale	22	1,051
Boulders and clay	12	500	Sand, hard streaks of quartz	147	1,198
TOTAL DEPTH		500	Sandstone, very hard	27	1,225
			Sand, soft (some water)	50	1,275
			TOTAL DEPTH		1,275

Table 2.--Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz.—Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-29)20acc			(D-13-29)24dcc—Continued		
Top soil.....	4	4	Sandy clay (water).....	17	112
Clay and gravel.....	16	20	Lime clay.....	28	140
Sandy, clay, boulders.....	35	55	Brownish shale.....	8	148
Sand, clay streaks, large boulders.....	25	80	Blue shale.....	180	328
Hard cemented sand, boulders, quartz.....	94	174	Sandy blue shale.....	7	335
Sand and boulders, no water.....	24	198	Blue shale, hard.....	245	580
Blue clay and few boulders.....	82	280	Black shale, tough.....	48	628
Sand, blue clay, light clay streaks.....	70	350	Blue shale (trace of sand).....	7	635
Sand, gravel, small boulders, water.....	186	536	Blue shale.....	43	678
Conglomerate, granite boulders, hard sand streaks....	80	616	Brown shale, hard limestone.....	107	785
TOTAL DEPTH.....		616	Black fine sandy clay.....	23	808
(D-13-29)20cbb			(D-13-29)25cdc		
Brown clay.....	10	10	Top soil and brown clay.....	28	28
Sandy brown clay.....	35	45	Brown sandy clay.....	147	175
Sand and gravel.....	10	55	Water sand.....	2	177
Brown clay.....	90	145	Blue clay.....	413	590
Water sand.....	1	146	Water gravel.....	5	595
Green clay.....	66	212	Conglomerate.....	35	630
Blue and green clay.....	33	245	Gravel and sand.....	7	637
Caliche.....	5	250	Conglomerate.....	8	645
Blue and green clay.....	40	290	Gravel and sand.....	5	650
Brown clay.....	35	325	Conglomerate.....	20	670
Green clay.....	15	340	Gravel and sand.....	8	678
Brown clay.....	80	420	Conglomerate.....	34	712
Sand and gravel.....	5	425	Gravel and sand.....	5	717
Conglomerate.....	5	430	Conglomerate.....	8	725
Brown clay.....	5	435	Gravel and sand.....	7	732
Sand and gravel.....	5	440	Conglomerate.....	28	760
Brown clay.....	5	445	Gravel and sand.....	2	762
Conglomerate.....	45	490	Conglomerate.....	6	768
Brown clay.....	5	495	Gravel and sand.....	7	775
Conglomerate.....	3	498	Conglomerate.....	20	795
Sand and gravel.....	6	504	TOTAL DEPTH.....		795
Conglomerate and pockets of gravel.....	36	540	(D-13-29)27dcd		
Sand and gravel.....	5	545	Top soil.....	4	4
Conglomerate.....	12	557	Red clay and boulders.....	36	40
Sand and gravel.....	7	564	Sandy, clay and boulders.....	20	60
Conglomerate.....	2	566	Sand and boulders, hard.....	72	132
Sand and gravel.....	4	570	Sand, few hard boulders (water).....	23	155
Conglomerate.....	6	576	Sandy (clay light) streaks, boulders.....	32	187
TOTAL DEPTH.....		576	Blue shale, few boulders.....	78	265
(D-13-29)20ccc			(D-13-29)28bbb		
Top soil.....	2	2	Blue and gray shale.....	73	338
Sand and gravel.....	13	15	Gray shale, lot of boulders.....	70	408
Sandy clay.....	11	26	Hard cemented sand.....	4	412
Boulders and clay.....	30	56	Sand, small gravel with boulders (water).....	36	448
Hard cemented sand and boulders, quartz.....	112	168	Sand, small gravel, quartzite, hard streaks.....	122	570
Rhyolite boulders and clay, some sand, and quartzite..	29	197	Rhyolite, quartzite, sandy, hard.....	38	608
Blue clay and boulders, sandy.....	47	244	TOTAL DEPTH.....		608
Sand, small gravel, with hard streaks (little water)....	11	255	(D-13-29)23cad		
Boulders with sand and clay, bluish (water).....	87	342	Top soil.....	3	3
Sand, small gravel with thin yellow clay streaks.....	34	376	Caliche.....	7	10
Conglomerate of sand, quartz, boulders, soft streaks..	21	397	Clay and boulders.....	20	30
Sand and quartz, soft with hard streaks.....	65	462	Sand and boulders.....	25	55
Hard, rhyolite boulders, quartzite.....	58	520	Hard sand, boulders, and quartzite.....	116	171
Granite with some boulders.....	40	560	Gray and blue shale.....	31	202
TOTAL DEPTH.....		560	Blue shale.....	381	583
(D-13-29)24dcc			(D-13-29)24dcb		
Top soil.....	3	3	Sand, coarse; some water.....	58	641
Hardpan.....	3	6	Sand, quartzite, hard shale streaks.....	13	654
Caliche.....	74	80	Sand, hard gray lime streaks.....	30	684
Sandy clay, gray.....	8	88	Hard rhyolite and quartzite, 1 foot of brown shale at 818 feet.....	134	818
Brown clay, soft.....	7	95	Sand, rhyolite boulders, quartzite (water).....	12	830
			Very hard.....	11	841
			Very hard.....	29	870
TOTAL DEPTH.....		870	TOTAL DEPTH.....		870
(D-13-29)24dca			(D-13-29)24dcb		
Top soil.....	3	3	Sandy loam.....	3	3
Hardpan.....	3	6	Red clay.....	181	184
Caliche.....	74	80	Blue shale.....	26	210
Sandy clay, gray.....	8	88	Fine sand, a seep of water.....	1	211
Brown clay, soft.....	7	95	Blue clay.....	49	260
			Coarse water sand and gravel.....	20	280
			Sandy brown clay.....	87	367
			Coarse water sand and gravel.....	13	380
			Sandy brown clay.....	25	405
			Hard sand rock.....	2	407
			Red sandy clay.....	18	425
			Hard sand rock.....	1	426
			Red sandy clay.....	54	480
			Conglomerate—rock and blue clay.....	50	530
			Blue granite rock.....	17	547
			Blue clay.....	8	555
			Blue granite rock.....	15	570
			Coarse water gravel.....	3	573
			Hard conglomerate—rock and blue clay.....	39	612
			Coarse water gravel.....	3	615
			Hard conglomerate—rock and blue clay.....	40	655
			Blue granite rock.....	5	660
			TOTAL DEPTH.....		660

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-29)28bcc			(D-13-30)25add		
Top soil	4	4	Water gravel, water rose to 67 feet	80	80
Soil and sandy, some small gravel	27	31	Coarse gravel	7	87
Clay, small boulders	53	84	Clay	10	97
Sand	8	92	Water sand	2	99
Boulders, sandy clay	9	101	Sandy clay	21	120
Sand and boulders, hard	60	161	Clay	3	123
Sand, soft	13	174	TOTAL DEPTH		123
Sand and boulders, clay streaks, rough	15	189	(D-13-30)25bac		
Blue shale and few boulders	104	293	Top soil	4	4
Blue shale with brown sandy clay streaks, small boulders	20	313	Caliche	24	28
Sand, quartz with blue shale streaks	6	319	Fine sand	3	31
Sand, small gravel, with large boulders	16	335	Clay	33	64
Sand, hard, with soft streaks	10	345	Coarse sand and gravel	25	89
Sand, small gravel, hard streaks, and boulders	11	356	Clay	4	93
Blue and gray shale, sandy	7	363	Sand and gravel	11	104
Hard cemented sand with large boulders	5	368	Clay	11	115
Sand, soft, with hard streaks, some quartz (H ₂ O)	28	396	TOTAL DEPTH		115
Sand, hard, with soft streaks, thin layers shale, blue, gray, brown	6	402	(D-13-30)25bbd		
Hard cemented sand with hard rhyolite boulders	33	435	Top soil	3	3
Sand, hard, with soft streaks, some boulders	38	473	Caliche	25	28
Hard rhyolite with boulders	33	506	Dry sand	5	33
Sand, granite wash, some quartz, medium soft, with hard streaks (water)	11	517	Clay, light-yellow, water	32	65
Hard cemented sand with granite	13	530	Fine sand	9	74
Conglomerate of decomposed granite and rhyolite	75	605	Coarse gravel and coarse sand	15	89
Hard cemented sand with granite	10	615	Clay with coarse gravel	4	93
Rhyolite and granite, very hard	14	629	Coarse gravel and sand	15	108
TOTAL DEPTH		629	TOTAL DEPTH		108
(D-13-30)3bdc			(D-13-30)25bdc		
Soil, gravel	85	85	Sandy soil	4	4
Sand and gravel	30	115	Red sandy clay	61	65
Blue clay	485	600	Sand and gravel	15	80
Caliche	210	810	Red clay	65	145
Sand, gravel, boulders	50	860	Blue clay	5	150
TOTAL DEPTH		860	TOTAL DEPTH		150
(D-13-30)14ddd			(D-13-30)25cad		
Soil	8	8	Black sandy soil	6	6
Caliche	92	100	Red clay	70	76
Sand and gravel	20	120	Fine sand	15	91
Blue clay	580	700	Red clay	52	143
Caliche, hardpan	190	890	Coarse gravel	8	151
Sand, gravel, boulders	40	930	Blue clay	3	154
TOTAL DEPTH		930	TOTAL DEPTH		154
(D-13-30)15daa			(D-13-30)27acc		
Soil, some gravel	90	90	Top soil	3	3
Sand and gravel, water	35	125	Caliche	40	43
Blue clay	515	640	Sand and gravel	6	49
Caliche, hard streaks	280	920	Adobe mud	35	84
Sand, gravel, boulders	55	975	Sand, gravel and clay, 5 gpm	6	90
TOTAL DEPTH		975	Adobe mud	18	108
(D-13-30)19ccc			(D-13-30)28acc		
Top soil	4	4	Sand, gravel and clay (water)	14	122
Caliche	24	28	Caliche	16	138
Gravel, boulders, sandy	14	42	Clay, red	7	145
Clay	64	106	Adobe and caliche	37	182
Gravel and small boulders, sand, some water	15	121	Clay, blue	8	190
Clay	41	162	TOTAL DEPTH		190
Sand and cemented gravel (hard)	7	169	(D-13-30)28acc		
Blue clay	236	405	Surface soil	4	4
Blue and gray shale, mixed	105	510	Caliche	24	28
Sand, soft; water	18	528	Caliche and boulders	44	72
Sand cemented hard	14	542	Sand and small gravel (trace of water)	15	87
Blue and gray shale	63	605	Clay and gypsum	113	200
Conglomerate shale, blue, gray, boulders sandy	72	677	Gypsum	40	240
Sand quartz, medium soft	26	703	Blue shale	408	648
Sand quartz, some gravel, hard and soft streaks	127	830	Gray shale	113	761
Sand and quartz (hard)	6	836	Sand, hard	4	765
Sand quartz rhyolite, medium soft, some water	27	863	Conglomerate of soapstone, brown shale, little sandy	9	774
Sand and small gravel, soft, water	31	894	Conglomerate of sand, small gravel, and brown shale	14	788
Sand rhyolite, some quartz (hard); well tested at 926— no water; drilled deeper, +75 gpm	42	936	Sand	2	790
Hard red fine sand (too hard for water)	6	942	Conglomerate of sand, quartz, and shale streaks	50	840
Sand, red, medium soft	11	953	Sand, soft, with quartz (water)	12	852
Hard red sand	8	961	Sandy quartz, hard streaks	13	865
Rhyolite, gray sand (hard)	19	980	Sand, soft, with some boulders (water sand)	22	887
TOTAL DEPTH		980			

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-30)28acc—Continued			(D-13-31)28cad ² —Continued		
Sand, hard, cemented, with some large boulders	4	891	Shale, gray	4	472
Sand, soft streaks, some water	39	930	Mud, light	60	532
Cemented sand, hard	68	998	Conglomerate of sand, rock, clay	66	598
Hard sand with blue shale streaks, very thin	6	1,004	Sand, hard	106	604
Brown shale, sandy	29	1,033	Conglomerate, sand, rock, blue mud	131	735
Sand, gravel, and granite wash (water)	35	1,068	Sandy, clay, large gravels	10	745
Brown shale	6	1,074	Conglomerate, sand, rock, red	12	757
Sand, gravel, and boulders	34	1,108			
Rock with some broken sand (hard)	30	1,138	TOTAL DEPTH		757
Rhyolite (very hard)	82	1,220	(D-13-31)29dad		
Rhyolite, boulders, quartz, and some sand (white)	8	1,228	Soil and red clay	14	14
Granite boulders with some mica and brown shale	9	1,237	Sand, gravel, no water	16	30
Shale	28	1,265	Brown shale	37	67
Conglomerate sand, boulders, quartz	45	1,310	Water gravel, some water, not tested	4	71
Shale, red	7	1,317	Sand fill	19	90
Red shale and sand	16	1,333	Gravel	3	93
Sand (water)	21	1,354	Gravel and shale	5	98
TOTAL DEPTH		1,354	Blue shale	127	225
(D-13-30)35aca			Blue shale with hard gravel streaks	30	255
Top soil	2	2	Light-gray shale	45	300
Caliche	8	10	Light-gray shale with black streaks	10	310
Red clay	60	70	Gray sandy shale	35	345
Fine sand, water	5	75	Fine gray sand	5	350
Red clay	75	150	Gray gumbo with brown streaks	52	402
Light-gray clay	15	165	Brown sticky shale	2	404
Fine sand, water	5	170	Gravel	2	406
Gray clay	12	182	Brown shale with sand streaks	4	410
Blue clay	3	185	Light-gray shale	9	419
TOTAL DEPTH		185	Water sand and gravel. This is the first water that rose above the level of the surface strata. Water rose to within 20 feet of top.	15	434
(D-13-31)20aba			Brown shale	3	437
Dirt	55	55	Brown strata with sand streaks	41	478
Sand and gravel, water	45	100	Fine sand, some gravel	9	487
Blue clay	380	480	Red clay with sand and gravel streaks	15	502
Caliche, hard streaks	80	560	Water sand	16	518
Sand, gravel, boulders	37	597	Gravel with clay binding	7	525
TOTAL DEPTH		597	Sand	10	535
(D-13-31)20dda			Gravel with clay binding	5	540
Sand and caliche	60	60	TOTAL DEPTH		540
Gray clay	120	180	(D-13-31)30cab		
Blue clay	300	480	Surface fill	3	3
Conglomerate	80	560	White caliche	12	15
Sand and gravel	40	600	White caliche with streaks of red caliche	30	45
TOTAL DEPTH		600	Sandy brown clay—first water	22	67
(D-13-31)21caa			Sand and gravel	18	85
Red valley fill	55	55	Sandy brown clay	6	91
Sandy shale	15	70	Sand and gravel	3	94
Sticky shale	15	85	Sandy brown clay	60	154
Sandy—a little water, about 5 gpm	12	97	Blue sticky clay	216	370
Gray soapy gumbo shale	38	135	Brown sticky clay	110	480
Gumbo, apple-green	15	150	Sticky clay, thin streaks brown clay	30	510
Gray gumbo shale; caved bad from 97 feet; cased to 220 with 12-inch casing	85	235	Sticky clay (brown with streaks of gray)	80	590
Water sand and water	8	243	Fine sand (no change in water)	2	592
Blue sandy shale	17	260	Brown clay with streaks of white lime	53	645
Blue gumbo shale	60	320	Brown clay with blue clay	10	655
Light-red shale with fine sand	10	330	Fine sand (no change in water)	5	660
White gumbo shale or bentonite	25	355	Brown clay with streaks of white lime	45	705
Light-red sandy shale	15	370	Fine sand	5	710
Light-gray shale	3	373	Red clay, streaks of white lime	30	740
Light-red conglomerate gravel, some sand	47	420	Red clay, streaks of white lime	33	773
Conglomerate, water level 26 feet 3 inches	20	440	Sand, streaks of white lime	3	776
Conglomerate gravel sand with clay	466	906	Sand	9	785
Rhyolite	374	1,280	Red clay with streaks of cemented gravel	80	865
TOTAL DEPTH		1,280	Red clay with streaks of cemented gravel	10	875
(D-13-31)28cad ²			Sandy clay	10	885
Adobe	30	30	Cemented sand with streaks of red clay	15	900
Sandy clay	25	55	TOTAL DEPTH		900
Sand dry	13	68	(D-13-31)31acb		
Mud sticky	14	82	Top soil	4	4
Sand, some gravel, small show water	8	90	Yellow clay	63	67
Mud sticky	12	102	Coarse water gravel	23	90
Mud, blue in color	174	276	Yellow clay	21	111
Sand, little water	5	281	TOTAL DEPTH		111
Mud, blue	170	451	(D-13-31)31bad		
Sand, little more water	6	457	Soil and clay	65	65
Mud, light in color	11	468	Clay	5	70
			Sand and gravel, water, raising to within 65 feet of surface	75	145
			Blue clay and shale, foul water	430	575
			Fine sand, small flow water to surface	1	576

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-13-31)31bad—Continued			(D-14-31)11cca—Continued		
Joint clay, gray	84	660	Water and gravel	5	276
Fine sand, small flow of water to surface	2	662	Blue shale	137	413
Yellow clay with caliche pebbles	38	700	Sand and gravel	1	414
Coarse sand	5	705	Shale	18	432
Caliche and clay	65	770	Sand, gravel, and water	6	438
Coarse sand, no water	8	778	Sandy shale	24	462
Hard clay and conglomerate	67	845	Sandy shale	20	482
Coarse sand, flowing 125 gpm	15	860	Yellow clay	19	501
TOTAL DEPTH		860	Clay and gravel	14	515
(D-13-31)34cda			Sand and gravel	2	517
Top soil	15	15	Boulders	21	538
Blue clay	75	90	Yellow clay	5	543
Fine water sand. Did not rise in well	30	120	Sand, gravel, and water	8	551
Blue and brown clay	269	389	Water sand	1	552
Water gravel; fine gravel mixed with volcanic rock	141	530	Gravel	6	558
Blue clay	15	545	Sandy shale	5	563
Water gravel. Did not rise in well	215	760	Clay and gravel	8	571
TOTAL DEPTH		760	Sand, clay, and boulders	3	574
(D-14-31)3aba			Clay and gravel	7	581
Soil, clay, and gravel	80	80	Sand and gravel	4	585
Sand, gravel, and clay layers	80	160	Clay	7	592
Blue, brown, and green clay	240	400	Sand and gravel	5	597
Sand, gravel, and clay layers	335	735	Shale	2	599
TOTAL DEPTH		735	Clay and gravel	7	606
(D-14-31)3cdb			Sandy clay	9	615
Sedimentary	60	60	Water sand	3	618
Brown joint clay	340	400	Blue shale	12	630
Blue clay	150	550	Clay and gravel	7	637
Conglomerate	120	670	Sand and gravel	3	640
Sand and gravel with hard streaks, cemented	50	720	Blue shale	23	663
TOTAL DEPTH		720	Water sand	2	665
(D-14-31)4aba			Gray clay and gravel	7	672
Soil	3	3	Clay	2	674
Caliche	67	70	Clay and gravel	4	678
Gray clay	50	120	Gray shale	4	682
Blue clay	430	550	Fine sand	1	683
Conglomerate, sand, boulders	150	700	Clay and gravel	14	697
Sand, fine gravel	30	730	Boulders, gravel, sand, and water	15	712
TOTAL DEPTH		730	TOTAL DEPTH		712
(D-14-31)6adb			(D-14-31)14ddb		
Soil	3	3	Red clay	60	60
Red sandy clay	3	6	Water formation	30	90
Dry sand	4	10	Blue clay	410	500
Red sandy clay	25	35	Artesian water formation sands	255	755
Dry sand	10	45	TOTAL DEPTH		755
Red sandy clay	25	70	(D-14-13)15aaa		
Dry sand	2	72	Soil	4	4
Water sand	15	87	Caliche	71	75
Red clay	7	94	Gray clay	65	140
TOTAL DEPTH		94	Blue clay	430	570
(D-14-31)10aaa			Conglomerate	200	770
Top soil, red sandy loam	2	2	Sand and gravel	40	810
Red clay	98	100	TOTAL DEPTH		810
Sand and water	2	102	(D-14-31)16dcc		
Blue clay	433	535	Surface soil	3	3
Gravel and sand	9	544	Light-brown clay, silt, water	117	120
Conglomerate	71	615	Light-blue clay	203	323
Gravel and sand	6	621	Light-blue shale, first artesian strata	2	325
Conglomerate	51	672	Blue clay	47	372
Clay and conglomerate	58	730	Fine clean water sand	3	375
Gravel and sand	5	735	Blue clay	196	571
Conglomerate	15	750	Water-bearing sand. Trace of oil	11	582
TOTAL DEPTH		750	Brown clay	100	682
(D-14-31)11cca			Cemented sand and gravel	11	693
Top fill	71	71	Brown clay	21	714
Boulders and sand, some water	25	96	Sand and gravel	2	716
Clay	5	101	Clay	5	721
Shale	170	271	Sand, gravel, partially cemented	31	752
			Very fine cemented sand and gravel	130	882
			Fine water sand, artesian stratum	3	885
			Fine cemented sand	43	928
			Very fine sand, some clay	812	1,740
			Cemented sand, gravel, clay	70	1,810
			Cemented sand and gravel	190	2,000
			TOTAL DEPTH		2,000
(D-14-31)21bcc			(D-14-31)21bcc		
Top fill	71	71	Soil	7	7
Boulders and sand, some water	25	96	Caliche	13	20
Clay	5	101	Clay	5	25
Shale	170	271	Caliche	10	35

Table 2.--Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz.—Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-14-31)21bcc—Continued			(D-14-31)24aaa		
Sandy clay	5	40	Soil	3	3
Hard brown clay	20	60	Gravel	3	6
Red clay	35	95	Sand	4	10
Caliche	25	120	Brown clay	25	35
Red sticky clay	5	125	Gravel	5	40
Caliche	20	145	Brown clay	30	70
Red clay	5	150	Gravel	15	85
Gray clay	30	180	Water gravel	20	105
Blue clay	125	305	Brown clay	30	135
Gray clay	155	460	Blue-green clay	95	230
Brown clay	36	496	Gravel	5	235
Cemented sand	12	508	Blue-green clay	50	285
Brown clay	92	600	Sticky brown clay	20	305
Cemented sand	10	610	Hard ledges and sticky brown clay	25	330
Red sticky clay	15	625	Brown clay	10	340
Conglomerate	60	685	Blue-green clay	7	347
Cemented sand	5	690	Gravel	8	355
Conglomerate with sandy streaks	21	711	Sticky brown clay	33	388
TOTAL DEPTH		711	Gravel	4	392
(D-14-31)22adc			Conglomerate	21	413
Soil	3	3	Gravel	3	416
Clay	62	65	Conglomerate	17	433
Sand and gravel (water)	10	75	Gravel	3	436
Sandy clay	5	80	Conglomerate	1	437
Clay	10	90	Gravel	3	440
Yellow clay	35	125	Conglomerate	15	455
Blue clay	60	185	Gravel	5	460
Sand	5	190	Conglomerate	10	470
Sandy clay	15	205	Gravel	5	475
Blue clay	110	315	Conglomerate	25	500
Red clay	10	325	Gravel	5	505
Blue clay	5	330	Conglomerate	45	550
Brown clay	30	360	Gravel	5	555
Brown sandy clay	20	380	Conglomerate	26	581
Clay	10	390	Gravel	4	585
Sand and gravel	10	400	Conglomerate	15	600
Clay	60	460	Gravel	5	605
Sand	10	470	Conglomerate	55	660
Clay	20	490	TOTAL DEPTH		660
Sand	10	500	(D-14-31)27ccc		
Clay	60	560	Soil	4	4
Sandy clay	12	572	Caliche and clay	91	95
Clay	43	615	Gravel and sand	1	96
Sandy clay	30	645	Red clay	29	125
Sand and gravel	5	650	Gravel and sand	8	133
Sandy clay	5	655	Brown clay	12	145
Sand	5	660	Gravel and sand	1	146
Clay	30	690	Gray clay	18	164
Sand and gravel	15	705	Red clay	34	198
Clay	35	740	Gravel and sand	1	199
Sand and gravel	10	750	Blue shale	199	398
Clay	7	757	Gravel and sand	1	399
Sand and gravel	28	785	White clay	3	402
Clay	10	795	Red clay	16	418
Sand and gravel	5	800	Gravel and sand	1	419
TOTAL DEPTH		800	Red clay	20	439
(D-14-31)23 cdc			Gravel and sand	1	440
Soil	6	6	Red clay	21	461
Light clay	54	60	Gravel and sand	1	462
Water gravel	1	61	Gray clay	18	480
Light-cream clay	70	131	Gravel and sand	2	482
Blue clay	40	171	Red clay	25	507
Fine water sand; water rose to 33 feet	1	172	Gravel and sand	1	508
Blue clay	59	231	Red clay	29	537
Water gravel	1	232	Gravel and sand	1	538
Gray clay	61	293	Red clay	29	567
Red clay	47	340	Gray clay	37	604
Sand and gravel	4	344	Gravel and sand	3	607
Red clay	126	470	Brown clay	35	642
Gray clay	3	473	Gravel and sand	3	645
Red clay	45	518	Red clay	56	701
Water gravel	3	521	Gravel and sand	2	703
Red clay	19	540	Gray clay	18	721
Sand and gravel	20	560	Gravel and sand	3	724
Red clay	41	601	Red clay	10	734
Sand, clay, and gravel	21	622	Gravel and sand	4	738
Red clay	43	665	Brown clay	11	749
Gravel; water rose to 31 feet	10	675	Gravel and sand	2	751
Red clay	24	699	Red clay	11	762
Sand and gravel	35	734	Gravel and sand	2	764
Sand rock	1	735	Brown clay	14	778
Sand and gravel	9	744	Gravel and sand	2	780
TOTAL DEPTH		744	Red clay	12	792
(D-14-31)24aaa			Gravel and sand	2	794
Soil	3	3	Red clay	3	797
Gravel	3	6	Gravel and sand	3	800
Sand	4	10	TOTAL DEPTH		800
Brown clay	25	35			
Gravel	5	40			
Brown clay	30	70			
Gravel	15	85			
Water gravel	20	105			
Brown clay	30	135			
Blue-green clay	95	230			
Gravel	5	235			
Blue-green clay	50	285			
Sticky brown clay	20	305			
Hard ledges and sticky brown clay	25	330			
Brown clay	10	340			
Blue-green clay	7	347			
Gravel	8	355			
Sticky brown clay	33	388			
Gravel	4	392			
Conglomerate	21	413			
Gravel	3	416			
Conglomerate	17	433			
Gravel	3	436			
Conglomerate	1	437			
Gravel	3	440			
Conglomerate	15	455			
Gravel	5	460			
Conglomerate	10	470			
Gravel	5	475			
Conglomerate	25	500			
Gravel	5	505			
Conglomerate	45	550			
Gravel	5	555			
Conglomerate	26	581			
Gravel	4	585			
Conglomerate	15	600			
Gravel	5	605			
Conglomerate	55	660			

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-14-31)35bcc			(D-14-32)19baa		
Red clay	108	108	Soil	4	4
Water gravel	4	112	Red clay	76	80
Caliche and red clay	38	150	Bentonite	20	100
Red clay	30	180	Fine sand	10	110
Blue clay	220	400	Bentonite	130	240
Bentonite clay	118	518	Blue clay	40	280
Water gravel	2	520	Bentonite	10	290
Conglomerate	105	625	Blue clay	20	310
Water gravel	6	631	Sand and gravel	11	321
Conglomerate	47	678	Brown clay	39	360
Water gravel	6	684	Sand and gravel	20	380
Conglomerate	24	708	Red clay	25	405
Water gravel and sand	4	712	Gravel	20	425
Conglomerate	11	723	Red clay	5	430
Water gravel and sand	5	728	Sand and gravel	25	455
Conglomerate	4	732	Red clay	7	462
Alternating layers	18	750	Gravel	18	480
Conglomerate	25	775	Clay	3	483
Gravel	5	780	Gravel	9	492
Conglomerate	20	800	Clay	3	495
TOTAL DEPTH		800	Sand and gravel	15	510
(D-14-32)16cab ¹			(D-14-32)20dbb		
Top soil	10	10	Red sandy soil	3	3
Clay and gravel	125	135	Red clay	147	150
Gravel	25	160	Fine sand	1	151
Gravel and clay	35	195	Red clay	69	220
Sand and gravel (water)	5	200	Gravel	2	222
Gravel (water)	20	220	Red clay	8	230
Clay	5	225	Gravel	4	234
Sand and gravel (water)	10	235	Conglomerate	26	260
Clay and gravel	15	250	Gravel	5	265
TOTAL DEPTH		250	Conglomerate	15	280
(D-14-32)16cab ²			(D-14-32)30cbc		
Top soil	10	10	Made soil	50	50
Gravel	140	150	Coarse gravel	35	85
Gravel and clay	40	190	Gray clay	210	295
Gravel (water)	61	251	Red clay	35	330
TOTAL DEPTH		251	Cemented sand and boulders	5	335
(D-14-32)16cab ³			(D-15-31)11dcc		
Fill	4	4	Soil	4	4
Sandy clay	21	25	Clay and gravel	21	25
Gravel	3	28	Sand and gravel	7	32
Sandy clay	64	92	Sandy clay	43	75
White sand	14	106	Clay with sand and gravel streaks	30	105
Sand rock	5	111	Brown clay	29	134
Sand with some clay	33	144	Gravel and clay	20	154
Gravel	5	149	Gray clay	12	166
Sand with some clay	52	201	Brown clay	20	186
Sand and gravel (water)	7	208	Sandy clay; first water	2	188
Hard-packed sand (some water)	22	230	Brown clay	4	192
Sand and gravel (water)	87	317	Gravel and clay	21	213
Sand, gravel, and clay	12	329	Medium hard clay	5	218
Hard-packed sand (some water)	6	335	Sandy brown clay	2	220
Sand and gravel (water)	77	412	Conglomerate	36	256
Clay and gravel	8	420	Gray clay and conglomerate	23	279
Sand and gravel (water)	40	460	Brown clay and conglomerate	40	319
Red granite	5	465	Conglomerate	4	323
TOTAL DEPTH		465	(D-14-32)16cab ⁴		
(D-14-32)16cab ⁴			(D-14-32)16cab ⁴		
Sand, gravel, and clay	34	34	Sand, gravel, and clay	34	34
Clay	4	38	Clay	4	38
Sand, gravel, and clay	25	63	Sand, gravel, and clay	25	63
Sand and gravel	9	72	Sand and gravel	9	72
Sand, gravel, and clay	23	95	Sand, gravel, and clay	23	95
Gravel, sand, clay, some lime	14	109	Gravel, sand, clay, some lime	14	109
Lime rock	5	114	Lime rock	5	114
Sandy clay, ribs of conglomerate limestone	32	146	Sandy clay, ribs of conglomerate limestone	32	146
Cemented gravel and sandy clay with embedded thin layers of conglomerate	29	175	Cemented gravel and sandy clay with embedded thin layers of conglomerate	29	175
Sandy clay and gravel	15	190	Sandy clay and gravel	15	190
Sand, clay, and gravel	60	250	Sand, clay, and gravel	60	250
Sand and gravel	5	255	Sand and gravel	5	255
Conglomerate	149	404	Conglomerate	149	404
Conglomerate and granite	17	421	Conglomerate and granite	17	421
Conglomerate	29	450	Conglomerate	29	450
Conglomerate and sandstone	18	468	Conglomerate and sandstone	18	468
Hard rock	2	470	Hard rock	2	470
TOTAL DEPTH		470	TOTAL DEPTH		470

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-15-31)11dcc—Continued			(D-16-32)32cba—Continued		
Brown clay and conglomerate	20	343	Conglomerate and clay	30	670
Hard conglomerate	3	346	Sand and gravel (good water)	15	685
Brown clay and conglomerate	61	407	Conglomerate and sandy clay	70	755
Conglomerate	6	413	Red clay	30	785
Brown clay	43	456	Rock	5	790
Conglomerate	12	468	Conglomerate and clay	32	822
Conglomerate and brown clay	4	472	Sand and gravel	5	827
Gravel	16	488	Gravel and clay	2	829
Brown clay	4	492	Sand and gravel	6	835
Gravel; water	14	506	Clay	5	840
Clay with gravel streaks	8	514	TOTAL DEPTH		840
Clay and gravel conglomerate	99	613	(D-17-32)4dac		
Sand	4	617	Top soil	6	6
Clay with gravel conglomerate	59	676	Gravel	34	40
Gravel	11	687	Clay fill; some boulders	125	165
Clay	4	691	Good water gravel (first water)	12	177
Clay and gravel (conglomerate)	6	697	Clay with boulders	18	195
Clay	1	698	Gravel	25	220
Gravel with clay conglomerate	52	750	Clay with sand streaks	60	280
TOTAL DEPTH		750	Gravel and clay (second water)	35	315
(D-15-31)14ccc			Clay with boulders	11	326
Alluvial fill	217	217	TOTAL DEPTH		326
Sand gravel	27	244	(D-17-32)6aab		
Shale	78	322	Sandy, gravelly clay with a few caliche layers	190	190
Gravel	18	340	Sandy clay with some gravel	80	270
Shale	32	372	Sandy, gravelly clay	30	300
Gravel	49	421	Gravel and sand	40	340
Shale	20	441	Sand and clay layers	30	370
Gravel	20	461	Gravel and sand with clay layers	60	430
Shale	29	490	Sandy clay	30	460
Gravel	70	560	Gravel with a little sand	30	490
Shale	30	590	Sandy clay	30	520
Gravel	11	601	Gravel with a little sand	20	540
Shale	3	604	Sandy clay	20	560
TOTAL DEPTH		604	Gravel and coarse sand	30	590
(D-16-32)10ccb			Sand and clay layers with a little gravel	150	740
Sand	2	2	TOTAL DEPTH		740
Caliche	8	10	(D-18-32)35cba		
Sandy clay	40	50	Top soil	3	3
Sand	20	70	Caliche	5	8
Clay	10	80	Clay and shale	48	56
Sandy clay	12	92	Shale	34	90
Coarse water sand	8	100	Clay	4	94
Clay (red), water rose to 80 feet	10	110	Sand, gravel, water	14	108
Sand (water level, 75 feet)	70	180	Shale	27	135
Sandy clay	15	195	Gravel, water	25	160
Fine gravel	10	205	Shale and clay	20	180
Coarse sand	25	230	Clay	8	188
White clay	20	250	Gravel and sand, water	8	196
Sandy clay	10	260	Shale	34	230
Gravel and coarse sand	40	300	Shale and sand	15	245
Hard conglomerate	15	315	Sand and gravel, water	15	260
Coarse sand and gravel	25	340	Clay	10	270
Hard conglomerate	12	352	Sand shale	20	290
Hard conglomerate	18	370	Clay	6	296
Sand	20	390	TOTAL DEPTH		296
Conglomerate	5	395	(D-19-32)3acd		
Sandy clay	5	400	Top soil	4	4
TOTAL DEPTH		400	Sand	12	16
(D-16-32)32cba			Caliche	4	20
Soil	5	5	Shale	10	30
Clay and gravel	12	17	Clay and shale	30	60
Gravel and boulders	16	33	Sand and gravel, water seep	8	68
Red clay	7	40	Shale	32	100
Conglomerate rock and gravel	105	145	Clay and conglomerate, water	15	115
Hard brown sand rock	28	173	Clay and shale	35	150
Sandy clay	12	185	Gravel (water)	10	160
Rock, boulders, and clay	25	210	Clay and shale	25	185
Red clay	15	225	Gravel; water	5	190
Rock, gravel, and sand (water at 265 to 270)	45	270	Shale	30	220
Clay	5	275	Clay	20	240
Rock, conglomerate, sand, and gravel (water at 370 to 380)	130	405	Sand and gravel, water	15	255
Clay	7	412	Clay	15	270
Gravel (water)	3	415	Shale	15	285
Rock, hard sand, clay	10	425	Gravel; water	15	300
Sand (water)	3	428	Clay	15	315
Conglomerate, rock, sand, and gravel (possible water)	103	531	TOTAL DEPTH		315
Clay	4	535	(D-15-31)14ccc		
Gravel (possible water)	10	545	Alluvial fill	217	217
Conglomerate, clay, and boulders	10	555	Sand gravel	27	244
Sand and gravel (water)	13	568	Shale	78	322
Conglomerate, rock, and clay	29	597	Gravel	18	340
Conglomerate, sand, and gravel	43	640	Shale	32	372

Table 2. --Selected drillers' logs of wells in the San Simon basin, Cochise and Graham Counties, Ariz. --Continued

	Thick- ness (feet)	Depth (feet)		Thick- ness (feet)	Depth (feet)
(D-19-32)28ccc			(D-19-32)28ccc -- Continued		
Top soil	4	4	Hard clay	28	510
Caliche	10	14	TOTAL DEPTH		510
Dry gravel	8	22	(D-20-32)8bcc		
Clay	40	62	Soil	15	15
Sandy clay	42	104	Clay and gravel	165	180
Clay and gravel	32	136	Sand and small gravel; water	5	185
Clay	37	173	Clay	40	225
Coarse sand	4	177	Sand and gravel; water	21	246
Clay and embedded gravel	84	261	Red clay with gravel	24	270
Clay	12	273	Sand and gravel; water	5	275
Coarse sand	4	277	Red clay and gravel	17	292
Clay	20	297	Sand and gravel; water	13	305
Gravel	4	301	Red clay	17	322
Sandy clay	29	330	Sand and gravel; water	6	328
Gravel	3	333	Red clay and gravel	60	388
Clay and embedded gravel	28	361	Sand and gravel; water	10	398
Clay	10	371	Red clay	37	435
Gravel	7	378	Sand and gravel; water	14	449
Clay and embedded gravel	32	410	Solid rock, clay below	11	460
Fine sand	2	412	TOTAL DEPTH		460
Clay	11	423			
Large gravel	25	448			
Hard clay	20	468			
Gravel	14	482			

Table 3.--Chemical analyses of water from wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.

[Analyses in parts per million, except as indicated]

Well location	Date of collection	Depth (feet)	Temperature (F)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids		Hardness as CaCO ₃		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micro-mhos at 25 C)	pH	Remarks
															Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
<u>(D-10-28)</u>																							
36aac	9-11-46	1,925	106	.....	.....	.....	.....	.....	195	0	.....	200	11	0	.....	.....	.....	.....	.....	.....	1,600	...	
<u>(D-11-29)</u>																							
1cdc ²	8- 3-46	600	84	.....	4.0	0.5	223	193	34	189	50	14	.2	610	0.83	12	0	.....	.....	.....	1,060	...	
36cbb	8- 3-46	680	90	.....	10	.9	196	198	0	154	86	3.0	2.2	550	.75	28	0	.....	.....	.....	970	...	
<u>(D-13-28)</u>																							
4ddb	6-19-51	830	99	32	16	3.2	57	126	0	34	24	.8	1.8	231	.31	53	0	70	.....	.....	343	...	
Do	7-22-53	830	.....	.....	.....	.....	.....	.....	127	0	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	338	...	
Do	9- 9-54	830	92	.....	.....	.....	.....	.....	126	0	.....	25	.....	.....	.....	.....	.....	.....	.....	.....	344	...	
Do	7-20-55	830	98	.....	.....	.....	.....	.....	123	0	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	342	7.0	
Do	6- 5-57	830	99	.....	.....	.....	.....	.....	126	0	.....	26	.....	.....	.....	.....	51	0	.....	.....	354	7.1	
Do	6- 6-58	830	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	345	...	
9bcc	6- -51	700	.....	48	50	11	44	252	0	29	16	.6	6.7	329	.45	170	0	36	.....	.....	495	...	
Do	9- 3-53	700	87	23	39	8.7	86	191	0	24	25	.6	1.7	302	.41	134	0	85	.....	.....	423	...	
Do	9-17-63	700	89	40	52	12	69	216	0	57	63	.8	2.2	402	.55	180	3	45	2.2	.....	637	7.8	
<u>(D-13-29)</u>																							
6ccc	5- 2-41	835	80	.....	11	3.9	.....	74	14	62	28	1.5	...	224	.30	43	.....	77	.....	.....	390	...	
Do	4-10-46	835	80	.....	.....	.....	.....	108	0	.....	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	390	...	
Do	8-11-52	835	80	20	.....	.....	.....	103	0	.....	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	389	...	
Do	7-22-53	835	.....	.....	.....	.....	.....	131	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	426	...	
Do	9- 9-54	835	88	.....	.....	.....	.....	111	0	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	400	...	
18bdb	5- 2-41	860	78	.....	14	5.2	58	113	9.8	45	15	2.3	...	205	.28	56	0	.....	.....	.....	350	...	
24dcc	11-19-40	964	105	.....	2.0	4.8	.....	132	57	67	11	5.5	.2	340	.46	25	0	92	.....	.....	560	...	
Do	4-10-46	964	107	.....	3.0	1.1	124	142	53	47	12	4.0	.9	315	.43	12	0	.....	.....	.....	570	...	
<u>(D-13-30)</u>																							
3bdc	11-19-40	860	85	.....	4.5	6.6	114	136	0	94	17	20	1.0	324	.44	38	.....	87	.....	.....	510	...	
Do	2- 8-46	860	92	62	.....	.....	112	53	33	85	15	14	.....	.....	.....	2	.....	.....	.....	.....	520	...	
11bcc	11-19-40	950	90	.....	4.5	4.4	97	170	0	58	8	11	1.5	268	.36	29	.....	88	.....	.....	440	...	
14ddd	5- 1-41	930	90	.....	8.5	4.8	88	98	24	78	9.0	7.0	...	267	.36	41	.....	82	.....	.....	440	...	
15daa	4-29-41	975	95	.....	6.0	5.2	100	89	37	71	10	12	...	285	.39	36	.....	.....	.....	.....	490	...	
Do	4- 8-46	975	95	.....	1.8	.2	113	78	43	69	12	9.9	1.5	289	.39	6	0	.....	.....	.....	500	...	Boron 0.4.
23acc	2- 8-46	900	87	30	.....	.....	96	110	24	46	7.0	9.0	.....	.....	.....	3	.....	.....	.....	.....	450	...	

Table 3.--Chemical analyses of water from wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.—Continued

Well location	Date of collection	Depth (feet)	Temperature (F)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids		Hardness as CaCO ₃		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micro-mhos at 25°C)	pH	Remarks	
															Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate						
(D-13-30)— Continued																								
30bcb	11-19-40	960	104	.....	4.0	6.6	128		154	42	80	13	6.8	0.2	355	0.48	37	.....	88	.....	590	...	
(D-13-31)																								
18ccc ¹	11-20-40	.....	80	.....	5.0	4.8	95		184	0	65	5.0	4.6	.5	271	.37	32	.....	87	.....	430	...	
20daa	11-20-40	615	81	.....	50	7.4	32		152	0	80	10	1.0	1.5	257	.35	155	.....	31	.....	410	...	
Do	4- 8-46	615	84	.....	.....	.....	.....		159	0	.....	9.0	.4	.....	.....	.....	.....	.....	.....	.....	430	...	
Do	8-11-52	615	84	43	.....	.....	.....		153	0	.....	8.0	.....	.....	.....	.....	.....	.....	.....	.....	416	...	
20dda	11-19-40	600	.....	.....	2.0	4.8	128		132	57	67	11	5.5	.2	340	.....	25	.....	.....	.....	560	...	
30cca	12- 1-40	72	61	.....	30	11	186		174	0	232	89	4.7	2.8	642	.87	120	.....	77	.....	950	...	
33cdd	4-29-41	730	80	.....	28	7.0	48		126	5.9	69	6.0	3.4	.....	229	.31	99	.....	51	.....	390	...	
33dda ¹	4-30-41	600	79	.....	53	9.2	31		152	0	92	9.0	1.8	.....	271	.37	170	.....	28	.....	420	...	
33dda ²	4-30-41	700	80	.....	50	8.7	33		148	0	90	9.0	1.6	.....	265	.36	161	.....	31	.....	420	...	
Do	4-10-46	700	80	.....	.....	.....	.....		152	0	.....	9.0	.....	.....	.....	.....	.....	.....	.....	.....	430	...	
(D-14-30)																								
12aa	2- 7-46	.....	67	.....	.....	.....	.....		176	13	36	12	.....	.....	.....	.....	.....	.....	.....	.....	510	...	
12adb ²	2- 7-46	.....	87	97	3.5	1.2	108		130	15	56	15	14	.8	374	.51	14	.....	0	.....	480	...	Boron 0.4.
(D-14-31)																								
3cca	4-30-41	714	79	.....	48	8.7	31		150	0	82	7.0	1.8	.....	252	.34	156	.....	30	.....	410	...	
Do	2- 7-46	714	79	.....	.....	.....	.....		151	0	70	7.0	.....	.....	.....	.....	.....	.....	.....	.....	410	...	
4aba	4-29-41	730	80	.....	44	8.3	34		148	0	81	7.0	1.3	.....	249	.34	144	.....	34	.....	410	...	
10dba	5- 2-41	650	79	.....	54	9.2	22		148	0	77	11	1.4	.....	248	.34	173	.....	22	.....	420	...	
14dad	12- 9-40	700	81	.....	54	6.6	29		159	0	74	10	1.0	1.0	254	.35	162	.....	28	.....	420	...	
15bbc ¹	5- 1-41	822	78	.....	38	10	35		141	0	75	7.0	3.6	.....	238	.32	136	.....	36	.....	400	...	
15cdd	6-20-51	800	85	41	53	4.5	39		156	0	89	8.0	.4	2.7	315	.43	150	.....	22	36	.....	443	...
16dec	5- 1-41	2,000	88	.....	22	5.2	71		139	0	98	5.0	3.2	.....	272	.37	76	.....	67	.....	42	...	
Do	8-11-52	2,000	89	37	22	1.6	72		138	0	81	6.0	4.0	1.7	293	.40	62	.....	0	72	.....	430	...
Do	8- 6-53	2,000	89	.....	.....	.....	.....		140	0	.....	6.0	.....	.....	.....	.....	.....	.....	.....	.....	426	...	
Do	8-25-54	2,000	89	.....	.....	.....	.....		139	0	.....	7.0	.....	.....	.....	.....	.....	.....	.....	.....	448	...	
Do	9- 7-55	2,000	88	.....	.....	.....	.....		147	0	.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....	430	7.7	
Do	7-12-56	2,000	89	.....	.....	.....	.....		140	0	.....	7.0	.....	.....	.....	.....	.....	.....	.....	.....	427	7.5	
Do	6- 3-57	.....	.....	.....	.....	.....	.....		165	0	.....	9.0	.....	.....	.....	.....	47	.....	0	.....	578	7.0	
Do	6- 6-58	.....	.....	.....	.....	.....	.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	438	...	

Table 3.--Chemical analyses of water from wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.—Continued

Well location	Date of collection	Depth (feet)	Temperature (°F)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids		Hardness as CaCO ₃		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micro-mhos at 25° C)	pH	Remarks	
															Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate						
(D-14-31)—Continued																								
17bbc	12-11-40	.....	84	.....	11	3.1	69		130	0	56	5.0	6.1	2.0	216	0.29	40	.....	79	.....	360	...	
19bac	11-19-46	1,140	82	.....	.....	.....	.....		135	0	.....	32	...	...	.....	.....	.....	.....	.....	.....	620	...	
21bcc	9- 7-55	711	90	51	20	2.6	73		147	0	69	14	2.4	.6	305	.41	60	0	72	4.1	429	7.6		
24dcc	5- 2-41	630	77	.....	46	7.9	32		148	0	79	5.0	2.4	...	245	.33	147	.....	32	.....	410	...	
25dbc	12-11-40	630	78	.....	54	7.9	27		154	0	79	8.0	1.7	2.0	256	.....	167	.....	.....	.....	420	...	
Do	8-11-52	630	80	42	.....	.....	.....		160	0	.....	6.0	...	...	.....	.....	.....	.....	.....	.....	423	...	
Do	7-23-53	630	80	.....	.....	.....	.....		157	0	.....	7.0	...	...	.....	.....	.....	.....	.....	.....	430	...	
Do	7-20-55	630	77	40	52	10	27		160	0	79	8.0	.6	3.1	299	.41	170	40	25	.9	431	6.9		
Do	5-28-56	630	78	.....	.....	.....	.....		152	0	.....	7.0	...	...	.....	.....	.....	.....	.....	.....	421	7.4	
Do	6- 3-57	630	77	.....	.....	.....	.....		166	0	.....	8.5	...	...	.....	.....	158	22	.....	.....	445	...	
Do	6- 6-58	630	.....	.....	.....	.....	.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	435	...	
26bbc	5- 1-41	.....	82	.....	52	7.4	36		150	0	84	18	1.4	...	273	.37	160	.....	33	.....	430	...	
(D-15-31)																								
24aaa	10- 4-46	172	73	.....	.....	.....	.....		164	0	.....	11	...	...	.....	.....	.....	.....	.....	.....	480	...	
(D-15-32)																								
34dd	10- 2-46	280	65	.....	40	4.7	52		197	0	44	9.0	4.0	1.2	252	.34	120	0	.....	.....	430	...	
(D-16-32)																								
34cc	10- 1-46	168	67	.....	.....	.....	.....		195	0	.....	3.0	...	...	.....	.....	.....	.....	.....	.....	360	...	
(D-17-31)																								
25aa	10- 1-46	160	.....	.....	92	8.4	12		197	0	116	4.0	.5	1.3	331	.45	264	102	.....	.....	530	...	
(D-17-32)																								
6aa	10- 1-46	281	.....	.....	.....	.....	.....		179	0	.....	4.0	...	...	.....	.....	.....	.....	.....	.....	480	...	
(D-18-32)																								
11cbb	10- 1-46	172	68	.....	32	3.4	27		141	0	8.8	14	2.2	2.5	159	.22	94	0	.....	.....	290	...	
Hidalgo County, N. Mex.																								
T. 26 S., R. 21 W.																								
SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 19	10- 3-46	15	68	.....	.....	.....	.....		184	0	.....	9.0	...	...	.....	.....	.....	.....	.....	.....	400	...	
NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 21	10- 3-46	225	73	.....	14	3.1	164		331	0	62	30	6.9	9.8	453	0.62	.....	.....	.....	.....	750	...	

Table 3.--Chemical analyses of water from wells in the San Simon basin, Cochise and Graham Counties, Ariz., and Hidalgo County, N. Mex.—Continued

Well location	Date of collection	Depth (feet)	Temperature (°F)	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids		Hardness as CaCO ₃		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micro-mhos at 25 C)	pH	Remarks	
															Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate						
Hidalgo County, N. Mex.—Continued																								
T. 26 S., R. 21 W.— Continued																								
NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 31 ...	10- 3-46	76	73	.....	.....	.....	.....	.....	172	0	.....	10	6.0	...	.....	.....	.....	.....	.....	.....	.....	390	...	
T. 26 S., R. 22 W.																								
NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12 ...	10- 2-46	8	.....	.....	.....	.....	.....	.....	209	0	.....	10	...	.....	.....	.....	.....	.....	.....	.....	.....	450	...	
T. 27 S., R. 21 W.																								
SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 17 ...	10- 3-46	141	.....	.....	.....	.....	.....	.....	187	0	.....	8.0	...	.....	.....	.....	.....	.....	.....	.....	.....	380	...	
NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29 ...	10- 3-46	74	70	.....	.....	.....	.....	.....	168	0	.....	13	...	.....	.....	.....	.....	.....	.....	.....	.....	380	...	
T. 27 S., R. 22 W.																								
SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24 ...	10- 3-46	164	70	.....	.....	.....	.....	.....	147	0	.....	12	...	.....	.....	.....	.....	.....	.....	.....	.....	310	...	