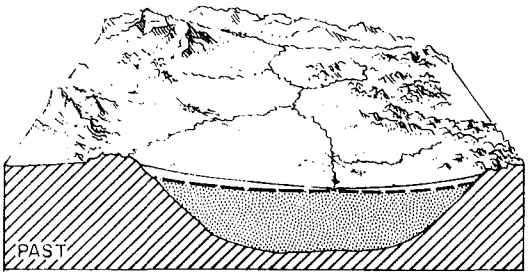
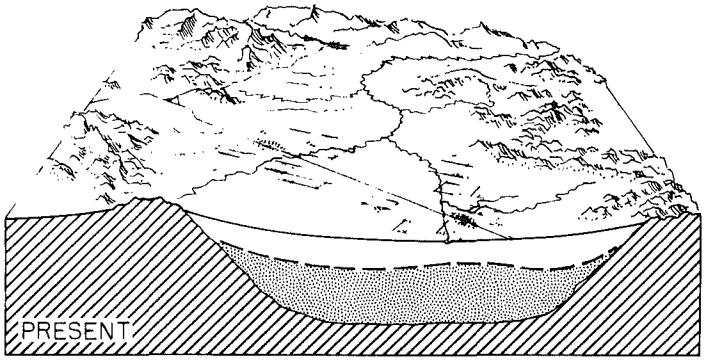
WATER-RESOURCES REPORT NUMBER TWENTY-ONE

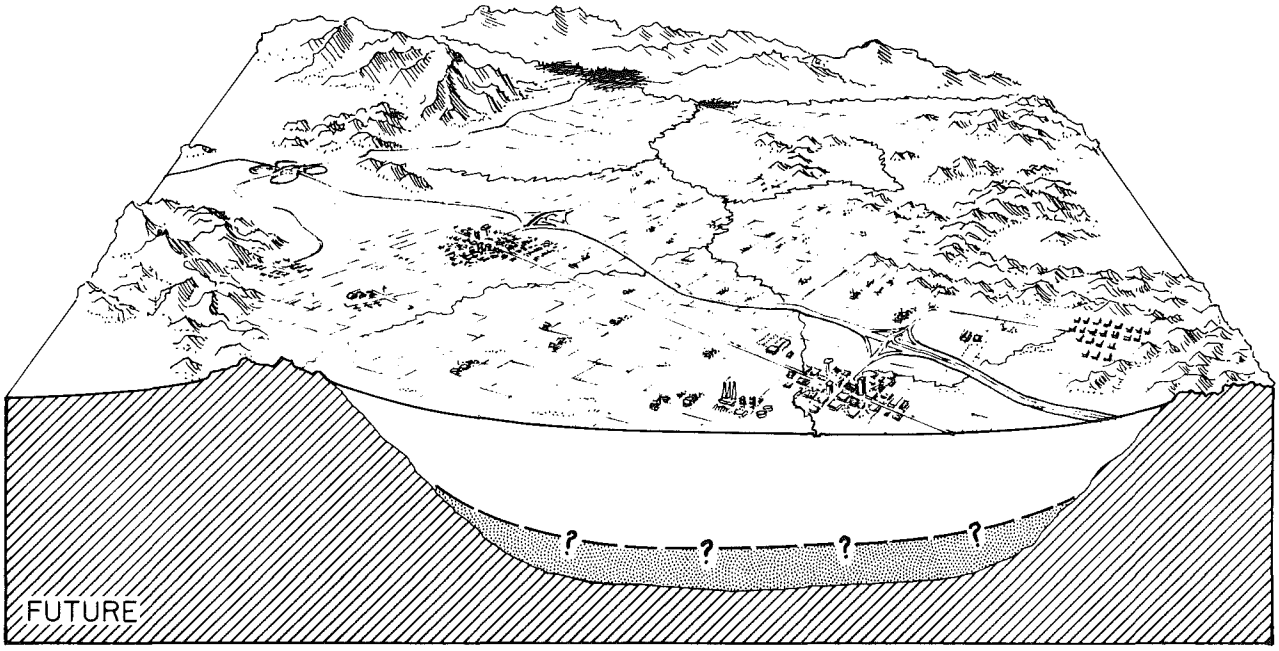
ARIZONA STATE LAND DEPARTMENT
OBED M. LASSEN, COMMISSIONER



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

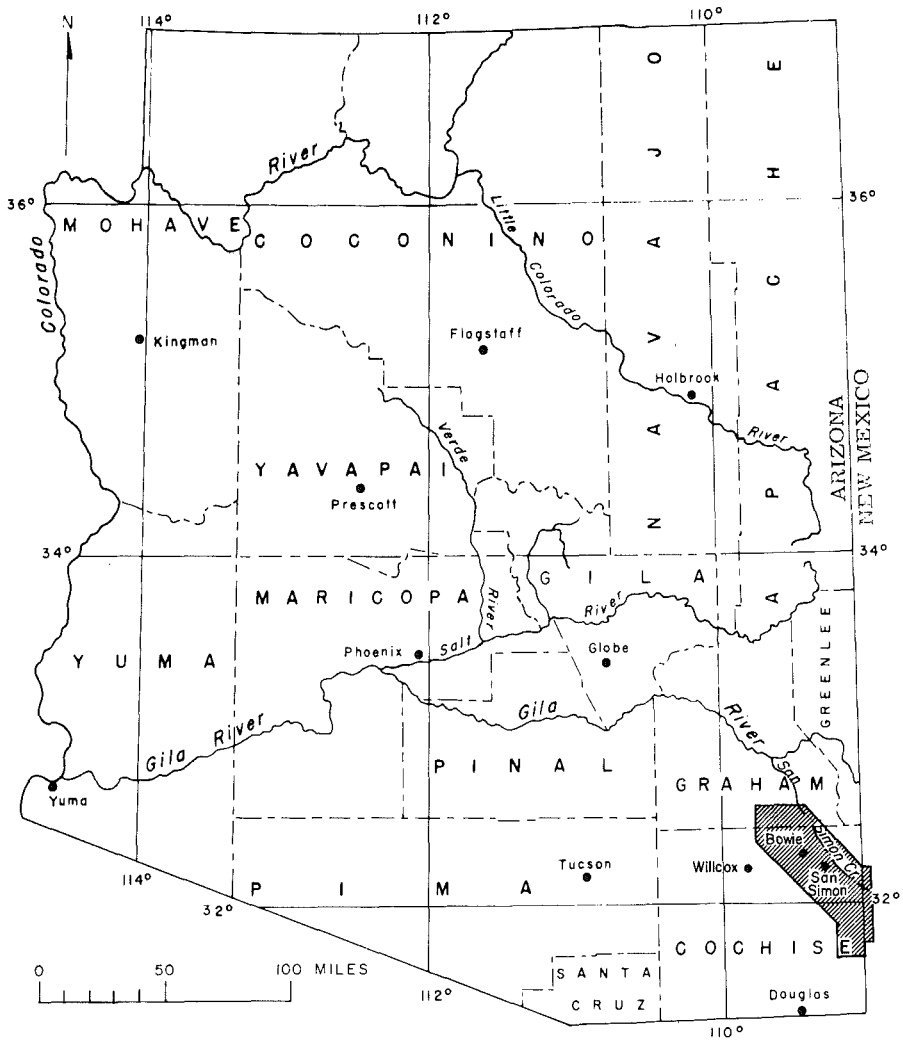


Figure 1. --Map showing location of San Simon basin.

(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 drawdowns 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

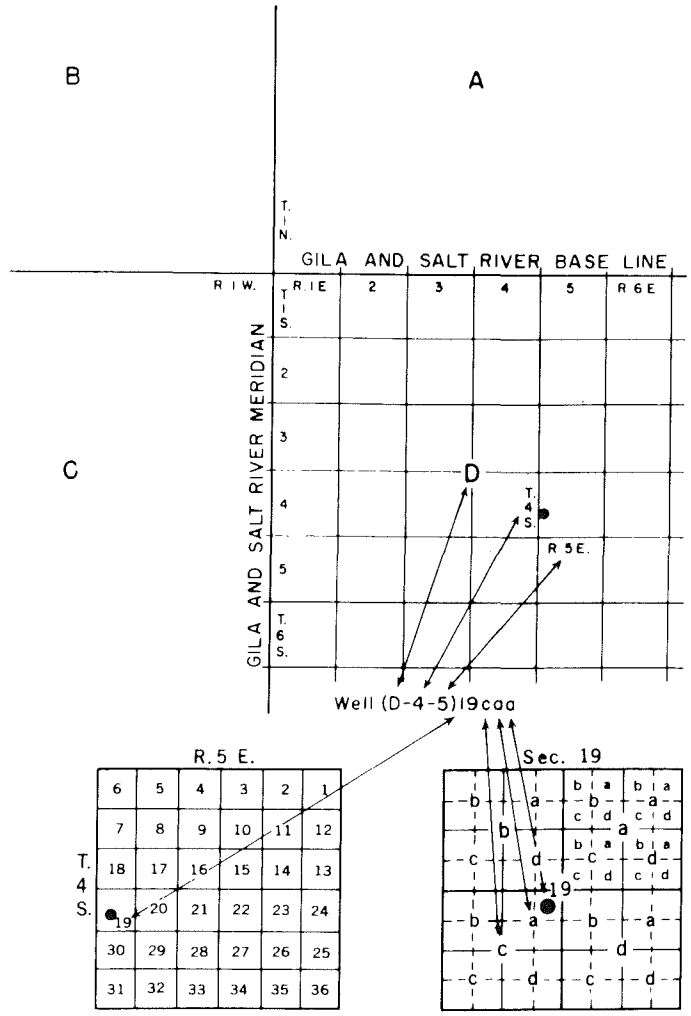
Acknowledgment is made to the many well owners, drillers, and others in the area for their excellent cooperation in furnishing information. Mr. Carmy G. Page, Cochise County Agricultural Agent, supplied estimates of irrigated acreage and wells in operation that were especially useful. The El Paso Natural 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.

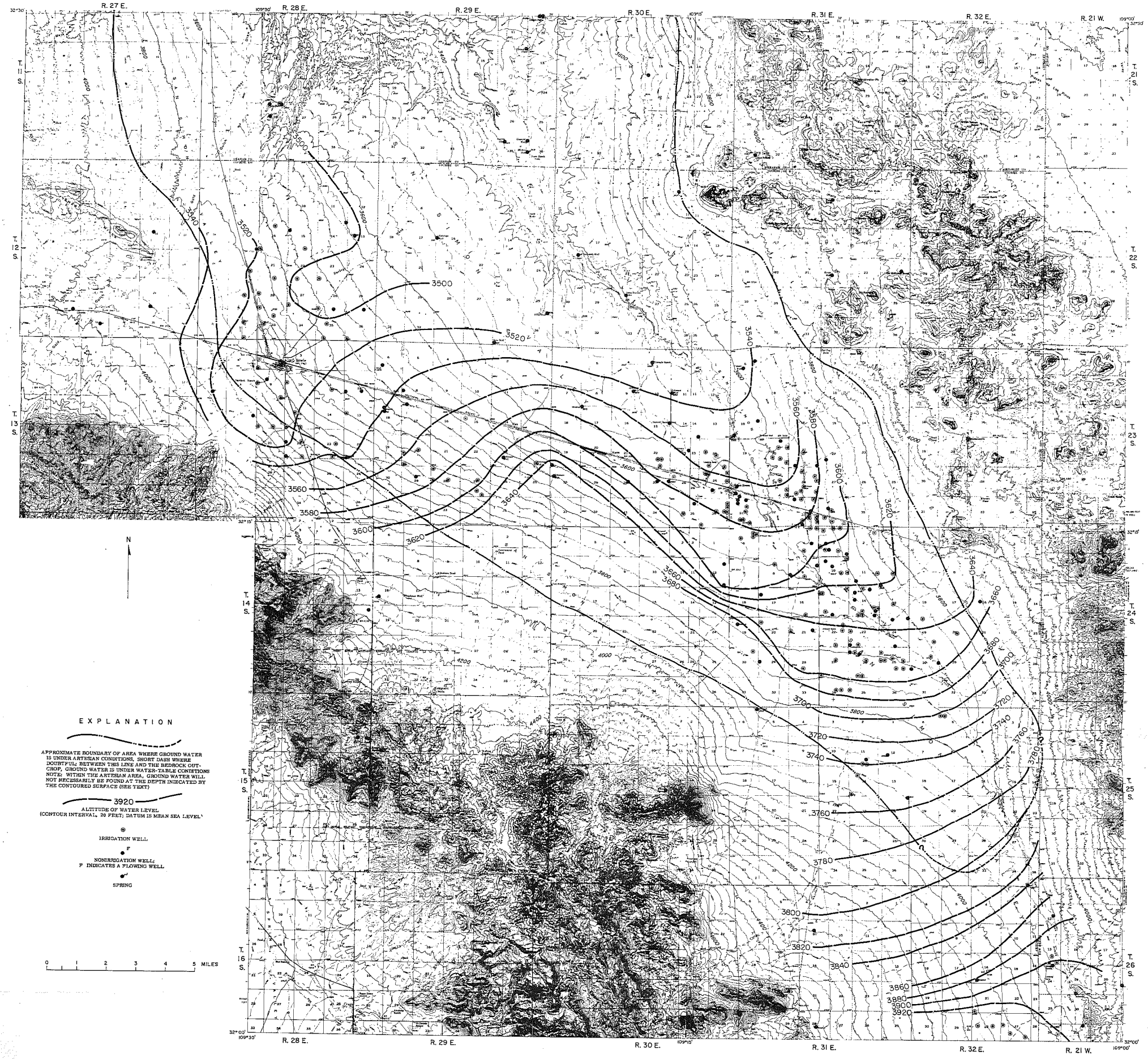


Figure 3.--Map of San Simon basin, showing location of wells and water-level contours for spring 1964. (In two sheets.)

Sheet 1 of figure 3

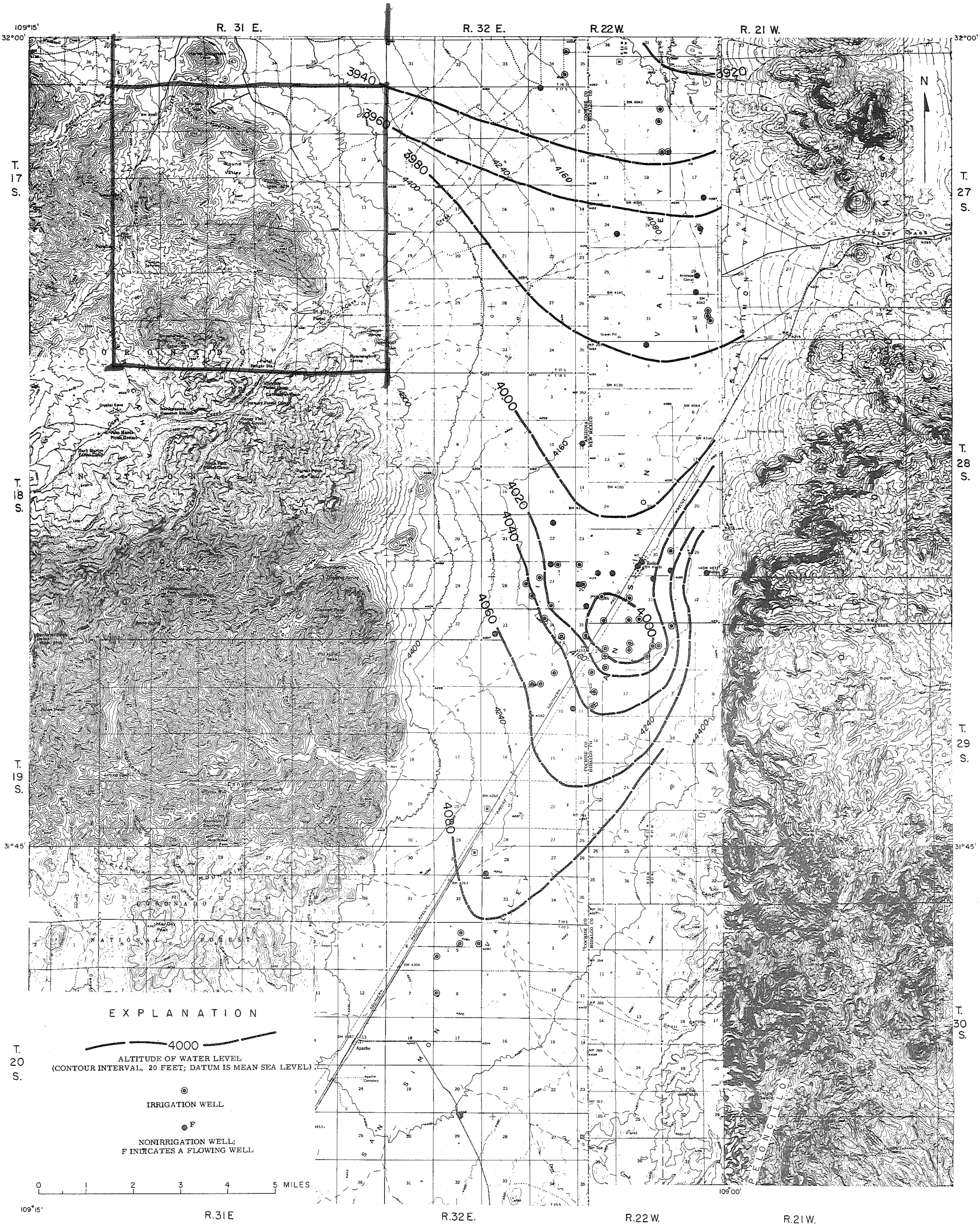


Figure 3.--Map of San Simon basin, showing location of wells and water-level contours for spring 1964. (In two sheets.)

Sheet 2 of figure 3

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

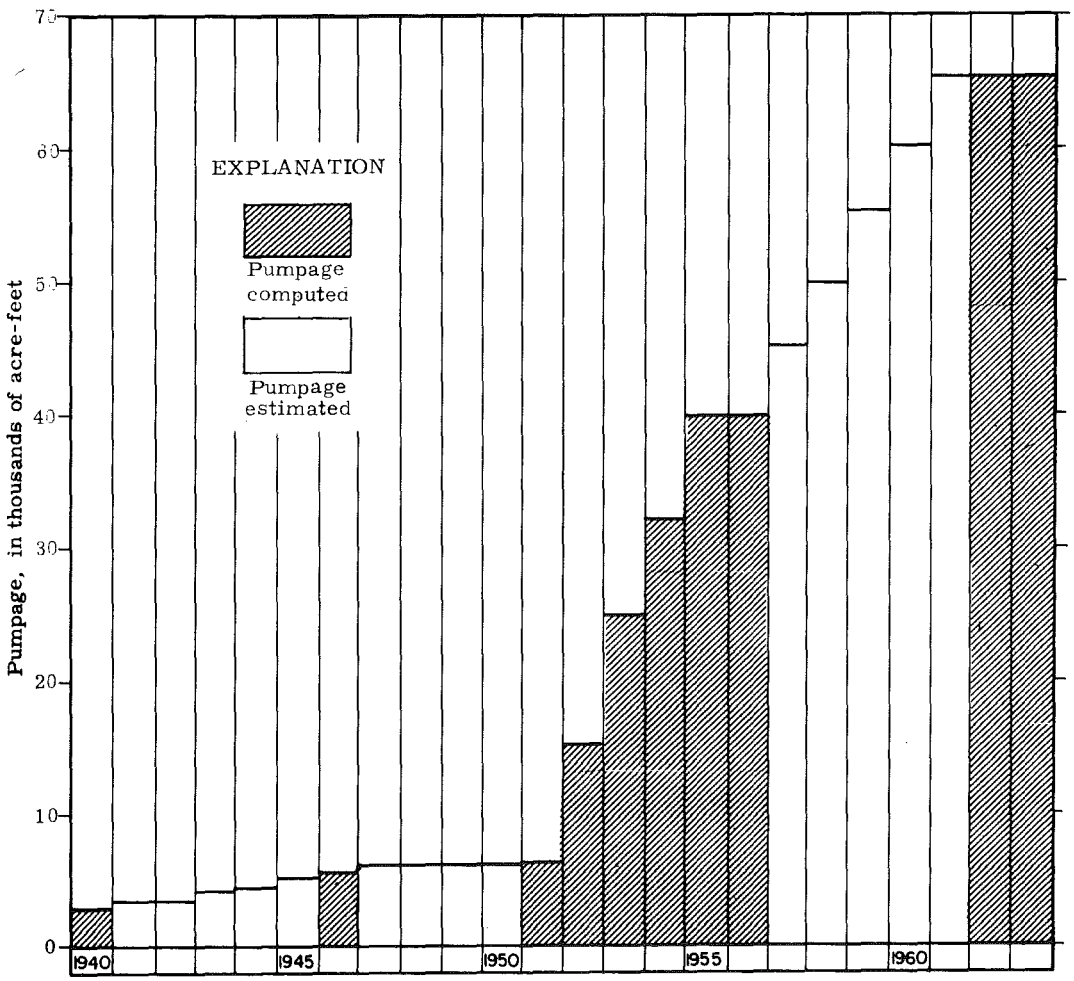


Figure 4.--Ground-water pumpage, San Simon basin.

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 Fl	8/46 11/62	70 3 E	....	8/46 11/62	N	S, I	
1cdc[2]	.....	600	5	.....	3,460	Fl Fl	8/46 11/52	40 40	....	8/46 11/52	N	S, I	C.
14aaa	1928	676	4	.....	3,450	+25.5 Fl	11/52 11/62	30 2 E	....	11/52 11/62	N	D, S	L.
35bbd	.....	.....	.....	.....	3,420	+77 0 R	11/52 11/62	3	.....	11/52	N	S	Shut-in pressure, about 34 pounds per square inch, 11/19/52.
36bbc	.....	.....	6	.....	3,420	+94.5	11/52	17 1 E	....	11/52 11/62	N	S	Shut-in pressure, about 42 pounds per square inch, 11/19/52.
36cbb	1924	680	5	.....	3,430	+30	8/46	24 17 1 E	....	8/46 11/52 11/62	N	D, S, I	C; L.
(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	72 116.37	12/15 3/63	.....	.....	.....	C, W	S	
14aaa	1953	.....	12	.....	3,620	92.67	5/53	.....	.....	.....	J, G	D, S	
15bcb	1953	1,000	16	.....	3,680	83.36 155.38	1/54 2/63	.....	.....	.....	T, B	D	
15dcc	1953	.....	16	.....	3,670	107.77	5/53	.....	.....	.....	T, NG	I	
16abc	1962	830	16	600-780 OH 780-830	3,695	216.40 166.02	9/62 2/63	.....	.....	.....	T, NG	I	L.
16ccc	1953	700	16	.....	3,725	98.18 190.91	5/53 2/63	740	.....	6/62	T, NG	I	
17ddd	.....	567	6	.....	3,730	70.0 189.48	12/15 2/63	.....	.....	.....	C, W	S	
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)21dcc	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	Fl 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	Fl Fl	10/15 11/52	21 3	....	10/15 11/52	N	S	C; L; abandoned, 1963.
15daa	1911	975	6	.....	3,580	Fl	4/46	11	.....	4/46	N	D	C; L.
19ccc	1952	980	.....	.....	3,640	Fl	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	Fl	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	Fl 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 Fl	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: Depth (feet)	Water level: Date measured (mo/yr)	Discharge data: Yield (gpm)	Discharge data: Drawdown (feet)	Discharge data: Date measured (mo/yr)	Type of lift	Use of water	Remarks
(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	Fl	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	Fl	4/46	5 E 240	....	4/46 6/62	T, E	I	
28cad[1]	1920	700	5	.....	3,640	Fl 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	Fl	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	Fl 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: Depth (feet)	Water level: Date measured (mo/yr)	Discharge data: Yield (gpm)	Discharge data: Drawdown (feet)	Discharge data: Date measured (mo/yr)	Type of lift	Use of water	Remarks
(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	Fl	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	Fl	10/15	.....	.....	.....	.....	D	
12adb[2]	1915	.....	10	.....	3,649	Fl +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	Fl	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	Fl Fl	10/15 11/46	45 3 E	....	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	Fl 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	L.
14ddc	.....	.....	5	.....	3,670	43.93	10/62	.....	.....	.....	N	N	
15aaa	.....	810	4	OH 140-810	3,660	Fl 45.92	4/42 1/57	15 E	.....	4/42	T, E	I	L.
15bbc[1]	1915	822	10	.....	3,660	Fl Fl 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 Fl	10/15 4/41	270 50	....	10/15 4/41	T, E	D, I	
15cca	1915	.....	6	.....	3,676	Fl 60 R	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	Fl 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 Fl	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	Fl	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	Fl 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	
11cdd	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)11cbb	.....	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.													
SE¼SW¼ sec. 19	.....	15	8	.....	4,000	12.15	10/46	.....	.....	.....	.....	.....	C; dug well.
NW¼SW¼ sec. 21	.....	225	.....	.....	4,050	154.42 158.58	3/51 2/63	.....	.....	.....	C, W	S	C.
NE¼NE¼ sec. 31.....	.....	76	6	.....	3,990	50.76	10/46	.....	.....	.....	C, W	D, S	C.
T. 26 S., R. 22 W.													
NE¼SE¼ 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: Depth (feet)	Water level: Date measured (mo/yr)	Discharge data: Yield (gpm)	Discharge data: Drawdown (feet)	Discharge data: Date measured (mo/yr)	Type of lift	Use of water	Remarks
Hidalgo County, N. Mex.--Continued													
T. 26 S., R. 22 W.--Continued													
SE¼SE¼ sec. 13	.....	200	.....	.....	3,910	32 R	12/62	.....	.....	.....	T, D	I	
SE¼SE¼ sec. 13	.....	170	.....	.....	3,910	6 R	12/62	.....	.....	.....	T, D	I	
NE¼NW¼NE¼ 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.													
NW¼NE¼NE¼ sec. 7	.....	400	16	.....	4,010	84.34 89.05	12/53 2/64	.....	.....	.....	T, E	I	
SW¼NE¼NE¼ sec. 7	.....	300	.....	.....	4,020	74.12	2/64	.....	.....	.....	T, E	I	
SW¼SE¼SE¼ sec. 7	.....	300	.....	.....	4,035	117.20	2/64	.....	.....	.....	T, E	I	
SE¼SE¼SE¼ sec. 7	1962	500	16	OH 300-500	4,035	104.88	2/64	.....	.....	.....	T, B	I	
SW¼SW¼SE¼ sec. 17	.....	141	6	.....	4,075	95.02	10/46	.....	.....	.....	C, W	S	C.
NW¼NW¼SE¼ sec. 20	.....	.....	6	.....	4,040	66.89	2/64	.....	.....	.....	N	N	
SE¼SE¼SW¼ sec. 29	1939	235	6	.....	4,060	75.80	10/46	.....	.....	.....	C, W	N	
NW¼NW¼SE¼ sec. 29	.....	74	6	.....	4,050	.....	.....	.....	.....	.....	C, W	S	C.
NW¼SE¼NE¼ sec. 32	.....	.....	.....	.....	4,050	.....	.....	.....	.....	.....	T, E	I	
SW¼SE¼NE¼ sec. 32	.....	.....	.....	.....	4,050	.....	.....	.....	.....	.....	T, E	I	
NW¼NE¼SE¼ sec. 32	.....	.....	.....	.....	4,050	69.87	2/64	.....	.....	.....	T, E	I	
T. 27 S., R. 22 W.													
SE¼NE¼SE¼ sec. 24	.....	164	6	.....	4,125	147.06 148.72	10/46 1/52	.....	.....	.....	C, W	S	C.
T. 28 S., R. 21 W.													
SE¼SW¼SE¼ sec. 29	.....	.....	.....	.....	4,230	176.85	2/64	.....	.....	.....	C, W	.....	
SE¼SE¼NE¼ sec. 30	.....	.....	16	.....	4,140	120.88 106.17	12/53 2/64	.....	.....	.....	T, NG	I	
SW¼NE¼SW¼ sec. 30	.....	.....	.....	.....	4,130	.....	.....	.....	.....	.....	.....	RR	
NE¼SW¼SW¼ sec. 30	.....	.....	.....	.....	4,130	.....	.....	.....	.....	.....	.....	RR	
SE¼NE¼SE¼ sec. 30	.....	.....	12	.....	4,130	94.70 101.38	1/54 2/64	.....	.....	.....	T, B	N	
SW¼SW¼NW¼ sec. 31	.....	.....	.....	.....	4,140	99.32 138.81	1/54 2/64	.....	.....	.....	T, NG	I	
SW¼SW¼SW¼ sec. 31	.....	.....	.....	.....	4,145	116.32 153.74	1/54 2/64	.....	.....	.....	T, NG	I	
SW¼SE¼SW¼ 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													
T. 28 S., R. 22 W.													
SE¼SW¼SW¼ sec. 25	.....	.....	.....	.....	4,135	.....	.....	.....	.....	.....	C, W	D, S	
SE¼SE¼SW¼ sec. 25	.....	.....	.....	.....	4,140	.....	.....	.....	.....	.....	T, NG	I	
SW¼SE¼NW¼ sec. 36	.....	.....	.....	.....	4,135	.....	.....	.....	.....	.....	T, NG	I	
SW¼SE¼SW¼ sec. 36	.....	.....	.....	.....	4,140	.....	.....	.....	.....	.....	T, NG	I	
T. 29 S., R. 21 W.													
NE¼NE¼NW¼ sec. 6	.....	.....	.....	.....	4,155	.....	.....	.....	.....	.....	T, NG	I	
SW¼SW¼NW¼ sec. 6	.....	.....	.....	.....	4,155	109.39 154.10	1/54 2/63	.....	.....	.....	T, NG	I	
SE¼SW¼NW¼ sec. 6	.....	.....	.....	.....	4,155	.....	.....	.....	.....	.....	T, NG	I	
T. 29 S., R. 22 W.													
SW¼SW¼NE¼ sec. 1	.....	350	.....	.....	4,155	108.06 162.43	1/54 2/64	.....	.....	.....	T, NG	I	
NW¼NW¼SW¼ sec. 1	.....	.....	.....	.....	4,155	.....	.....	.....	.....	.....	T, NG	I	
SW¼NW¼SW¼ sec. 1	.....	.....	.....	.....	4,160	.....	.....	.....	.....	.....	T, NG	I	
SW¼SW¼SW¼ sec. 1	.....	.....	.....	.....	4,165	112.72 156.56	1/54 2/64	.....	.....	.....	T, NG	I	
SE¼NE¼SE¼ sec. 1	.....	400	.....	.....	4,160	.....	.....	.....	.....	.....	T, NG	I	
NW¼NW¼SE¼ sec. 1	.....	350	.....	.....	4,155	.....	.....	.....	.....	.....	T, NG	I	
SW¼SE¼NE¼ sec. 11	1953	350	.....	.....	4,175	.....	.....	.....	.....	.....	T, NG	I	
SE¼NW¼SE¼ 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.

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

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

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

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

	Thickness (feet)	Depth (feet)
(D-13-28)16ccc		
Soil and sand	8	8
Shale and boulders	162	170
White shale	60	230
Sand and gravel	15	245
Sand, gravel, and shale	40	285
Sand, gravel, and water	10	295
Sand and gravel, caving in	5	300
Sand and gravel, started to run pipe	60	360
Sand and gravel	65	425
Brown shale	12	437
Sand and gravel	38	475
Sand and gravel, granite boulders	25	500
Granite boulders	10	510
Gravel and shale	30	540
Brown shale and granite boulders	35	575
Brown shale, gravel, and sand	25	600
Yellow shale, gravel, and sand	25	625
Gray shale, quartz, and gravel	25	650
Brown shale, gravel, and sand	25	675
Gray shale, gravel, and sand	150	825
Gravel and boulders	20	845
Brown shale and boulders	50	895
TOTAL DEPTH		895
(D-13-28)16dcc		
Soil and sand	15	15
Shale and boulders	170	185
White shale	25	210
Sand, gravel, and water	190	400
Brown shale	15	415
Sand, gravel, and granite boulders	80	495
Gravel and shale	25	520
Brown shale	40	560
Brown shale, gravel, and sand	20	580
Yellow shale, gravel, and sand	30	610
Gray shale, quartz, and gravel	30	640
Brown shale, gravel, and sand	20	660
Gray shale, gravel, and sand	11	671
TOTAL DEPTH		671
(D-13-28)22acc		
Top soil	6	6
Boulders and sand	99	105
Boulders and clay	32	137
Clay	15	152
Quartz	58	210
Sand, small gravel, boulders, soft at 230 feet (water)	82	292
Hard cemented sand with quartz	17	309
Sand and boulders, soft streaks, water	101	410
Hard cemented sand, granite boulders	20	430
Hard granite	35	465
TOTAL DEPTH		465
(D-13-28)22dcc		
Top soil	10	10
Sand, gravel, clay	20	30
Gravel, clay	30	60
Clay and gravel	38	98
Clay with gravel streaks	62	160
Shale	25	185
Gravel, water	15	200
Shale and gravel	40	240
Clay	35	275
Lime and conglomerate	10	285
Clay	10	295
Rock	10	305
Clay	25	330
Rock	10	340
Clay	17	357
Rock	13	370
Clay	12	382
Rock	13	395
Clay	5	400
Rock	31	431
Lime	1	432
Water sand	5	437
Clay	2	439
Quartz	2	441
Rock	9	450
Shale, gravel, and quicksand	6	456
Shale and gravel	19	475
Clay and gravel	2	477
Boulders	2	479
Boulders and clay	9	488
Boulders and clay	12	500
TOTAL DEPTH		500
(D-13-28)23acd		
Brown clay	10	10
Sandy brown clay	40	50
Brown clay	10	60
Brown clay with gravel	85	145
Water sand, fine	2	147
Green clay, fine gravel	68	215
Blue and green clay	32	247
White conglomerate	5	252
Blue and gray clay	40	292
Brown clay	35	327
Green clay	15	342
Brown clay	83	425
Conglomerate	7	432
Brown clay	6	438
Sand and gravel	6	444
Brown clay	5	449
Conglomerate, water gravel	45	494
Brown sand, hard	17	511
TOTAL DEPTH		511
(D-13-28)23dcc		
Top soil	1	1
Caliche	17	18
Boulders and rocks	27	45
Sand, hard	42	87
Sand and boulders	55	142
Sandy clay	31	173
Hard quartz	12	185
Quartz, hard	7	192
Blue clay, boulders	35	227
Quartz, sand, coarse (water)	24	251
Quartz, boulders, hard	14	265
Quartz, boulders, firm with soft streaks (H_2O)	67	332
Hard cemented sand with rhyolite boulders	35	367
Sand, quartz good	30	397
Hard sand	18	415
Sand, quartz with hard streaks	32	447
Cemented sand, medium hard to hard	38	485
Cemented sand with rhyolite, hard	28	513
Boulders, large, granite hard	17	530
TOTAL DEPTH		530
(D-13-28)24ccc		
Top soil	5	5
Sandy clay	45	50
Clay	100	150
Streaks of sand and clay	50	200
Fine sand	40	240
Clay	10	250
Streaks of gravel and clay	50	300
Clay	50	350
Streaks of gravel and clay	100	450
Gravel	30	480
Gravel and clay conglomerate	40	520
TOTAL DEPTH		520
(D-13-29)6cdb		
Clay fill	165	165
Blue shale	120	285
Clay	183	468
Sand and water, raised to 100 feet	14	482
Blue clay	10	492
Sand and some water	6	498
Clay and gravel	7	505
Sand and water	7	512
Sand and clay	6	518
Sand and water	8	526
Sand and clay	4	530
Sand	7	537
Sandstone	8	545
Gravel and water	6	551
Clay	27	578
Sand, gravel, and clay	14	592
Sand, clay, water raised to 11 feet	36	628
Hard sandstone and clay	77	705
Hard sandstone, clay, and water	55	760
Sand, gravel, clay, and some water	40	800
Sand	174	974
Sand rock	26	1,000
Sand rock	11	1,011
Conglomeration of R. shale, B. shale, and sand	9	1,020
Gray shale and sand	9	1,029
Bed sand with some red shale	22	1,051
Sand, hard streaks of quartz	147	1,198
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

	Thickness (feet)	Depth (feet)
(D-13-29)20acc		
Top soil	4	4
Clay and gravel	16	20
Sandy, clay, boulders	35	55
Sand, clay streaks, large boulders	25	80
Hard cemented sand, boulders, quartz	94	174
Sand and boulders, no water	24	198
Blue clay and few boulders	82	280
Sand, blue clay, light clay streaks	70	350
Sand, gravel, small boulders, water	186	536
Conglomerate, granite boulders, hard sand streaks	80	616
TOTAL DEPTH		616
(D-13-29)20cbb		
Brown clay	10	10
Sandy brown clay	35	45
Sand and gravel	10	55
Brown clay	90	145
Water sand	1	146
Green clay	66	212
Blue and green clay	33	245
Caliche	5	250
Blue and green clay	40	290
Brown clay	35	325
Green clay	15	340
Brown clay	80	420
Sand and gravel	5	425
Conglomerate	5	430
Brown clay	5	435
Sand and gravel	5	440
Brown clay	5	445
Conglomerate	45	490
Brown clay	5	495
Conglomerate	3	498
Sand and gravel	6	504
Conglomerate and pockets of gravel	36	540
Sand and gravel	5	545
Conglomerate	12	557
Sand and gravel	7	564
Conglomerate	2	566
Sand and gravel	4	570
Conglomerate	6	576
TOTAL DEPTH		576
(D-13-29)20ccc		
Top soil	2	2
Sand and gravel	13	15
Sandy clay	11	26
Boulders and clay	30	56
Hard cemented sand and boulders, quartz	112	168
Rhyolite boulders and clay, some sand, and quartzite	29	197
Blue clay and boulders, sandy	47	244
Sand, small gravel, with hard streaks (little water)	11	255
Boulders with sand and clay, bluish (water)	87	342
Sand, small gravel with thin yellow clay streaks	34	376
Conglomerate of sand, quartz, boulders, soft streaks	21	397
Sand and quartz, soft with hard streaks	65	462
Hard, rhyolite boulders, quartzite	58	520
Granite with some boulders	40	560
TOTAL DEPTH		560
(D-13-29)23cad		
Top soil	3	3
Caliche	7	10
Clay and boulders	20	30
Sand and boulders	25	55
Hard sand, boulders, and quartzite	116	171
Gray and blue shale	31	202
Blue shale	381	583
Sand, coarse; some water	58	641
Sand, quartzite, hard shale streaks	13	654
Sand, hard gray lime streaks	30	684
Hard rhyolite and quartzite, 1 foot of brown shale at 818 feet	134	818
Sand, rhyolite boulders, quartzite (water)	12	830
Very hard	11	841
Very hard	29	870
TOTAL DEPTH		870
(D-13-29)24dcc		
Top soil	3	3
Hardpan	3	6
Caliche	74	80
Sandy clay, gray	8	88
Brown clay, soft	7	95
(D-13-29)24dcc—Continued		
Sandy clay (water)	17	112
Lime clay	28	140
Brownish shale	8	148
Blue shale	180	328
Sandy blue shale	7	335
Blue shale, hard	245	580
Black shale, tough	48	628
Blue shale (trace of sand)	7	635
Blue shale	43	678
Brown shale, hard limestone	107	785
Black fine sandy clay	23	808
Gray shale, hard	6	814
Black sandy clay	10	824
Black silty clay (loose sand)	8	832
Sand and small gravel	8	840
Gray shale, hard	5	845
Gravel and sand	55	900
Gravel and sand with clay	30	930
Gravel and shale, hard	15	945
Gravel and shale, very hard	19	964
TOTAL DEPTH		964
(D-13-29)25cdc		
Top soil and brown clay	28	28
Brown sandy clay	147	175
Water sand	2	177
Blue clay	413	590
Water gravel	5	595
Conglomerate	35	630
Gravel and sand	7	637
Conglomerate	8	645
Gravel and sand	5	650
Conglomerate	20	670
Gravel and sand	8	678
Conglomerate	34	712
Gravel and sand	5	717
Conglomerate	8	725
Gravel and sand	7	732
Conglomerate	28	760
Gravel and sand	2	762
Conglomerate	6	768
Gravel and sand	7	775
Conglomerate	20	795
TOTAL DEPTH		795
(D-13-29)27dcd		
Top soil	4	4
Red clay and boulders	36	40
Sandy; clay and boulders	20	60
Sand and boulders, hard	72	132
Sand, few hard boulders (water)	23	155
Sandy (clay light) streaks, boulders	32	187
Blue shale, few boulders	78	265
Blue and gray shale	73	338
Gray shale, lot of boulders	70	408
Hard cemented sand	4	412
Sand, small gravel with boulders (water)	36	448
Sand, small gravel, quartzite, hard streaks	122	570
Rhyolite, quartzite, sandy, hard	38	608
TOTAL DEPTH		608
(D-13-29)28bbb		
Sandy loam	3	3
Red clay	181	184
Blue shale	26	210
Fine sand, a seep of water	1	211
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

	Thickness (feet)	Depth (feet)
(D-13-29)28bcc		
Top soil	4	4
Soil and sandy, some small gravel	27	31
Clay, small boulders	53	84
Sand	8	92
Boulders, sandy clay	9	101
Sand and boulders, hard	60	161
Sand, soft	13	174
Sand and boulders, clay streaks, rough	15	189
Blue shale and few boulders	104	293
Blue shale with brown sandy clay streaks, small boulders	20	313
Sand, quartz with blue shale streaks	6	319
Sand, small gravel, with large boulders	16	335
Sand, hard, with soft streaks	10	345
Sand, small gravel, hard streaks, and boulders	11	356
Blue and gray shale, sandy	7	363
Hard cemented sand with large boulders	5	368
Sand, soft, with hard streaks, some quartz (H_2O)	28	396
Sand, hard, with soft streaks, thin layers shale, blue, gray, brown	6	402
Hard cemented sand with hard rhyolite boulders	33	435
Sand, hard, with soft streaks, some boulders	38	473
Hard rhyolite with boulders	33	506
Sand, granite wash, some quartz, medium soft, with hard streaks (water)	11	517
Hard cemented sand with granite	13	530
Conglomerate of decomposed granite and rhyolite	75	605
Hard cemented sand with granite	10	615
Rhyolite and granite, very hard	14	629
TOTAL DEPTH		629
(D-13-30)3bdc		
Soil, gravel	85	85
Sand and gravel	30	115
Blue clay	485	600
Caliche	210	810
Sand, gravel, boulders	50	860
TOTAL DEPTH		860
(D-13-30)14ddd		
Soil	8	8
Caliche	92	100
Sand and gravel	20	120
Blue clay	580	700
Caliche, hardpan	190	890
Sand, gravel, boulders	40	930
TOTAL DEPTH		930
(D-13-30)15daa		
Soil, some gravel	90	90
Sand and gravel, water	35	125
Blue clay	515	640
Caliche, hard streaks	280	920
Sand, gravel, boulders	55	975
TOTAL DEPTH		975
(D-13-30)19ccc		
Top soil	4	4
Caliche	24	28
Gravel, boulders, sandy	14	42
Clay	64	106
Gravel and small boulders, sand, some water	15	121
Clay	41	162
Sand and cemented gravel (hard)	7	169
Blue clay	236	405
Blue and gray shale, mixed	105	510
Sand, soft; water	18	528
Sand cemented hard	14	542
Blue and gray shale	63	605
Conglomerate shale, blue, gray, boulders sandy	72	677
Sand quartz, medium soft	26	703
Sand quartz, some gravel, hard and soft streaks	127	830
Sand and quartz (hard)	6	836
Sand quartz rhyolite, medium soft, some water	27	863
Sand and small gravel, soft, water	31	894
Sand rhyolite, some quartz (hard); well tested at 926—no water; drilled deeper, +75 gpm	42	936
Hard red fine sand (too hard for water)	6	942
Sand, red, medium soft	11	953
Hard red sand	8	961
Rhyolite, gray sand (hard)	19	980
TOTAL DEPTH		980
(D-13-30)25add		
Water gravel, water rose to 67 feet	80	80
Coarse gravel	7	87
Clay	10	97
Water sand	2	99
Sandy clay	21	120
Clay	3	123
TOTAL DEPTH		123
(D-13-30)25bac		
Top soil	4	4
Caliche	24	28
Fine sand	3	31
Clay	33	64
Coarse sand and gravel	25	89
Clay	4	93
Sand and gravel	11	104
Clay	11	115
TOTAL DEPTH		115
(D-13-30)25bbd		
Top soil	3	3
Caliche	25	28
Dry sand	5	33
Clay, light-yellow, water	32	65
Fine sand	9	74
Coarse gravel and coarse sand	15	89
Clay with coarse gravel	4	93
Coarse gravel and sand	15	108
TOTAL DEPTH		108
(D-13-30)25bdc		
Sandy soil	4	4
Red sandy clay	61	65
Sand and gravel	15	80
Red clay	65	145
Blue clay	5	150
TOTAL DEPTH		150
(D-13-30)25cad		
Black sandy soil	6	6
Red clay	70	76
Fine sand	15	91
Red clay	52	143
Coarse gravel	8	151
Blue clay	3	154
TOTAL DEPTH		154
(D-13-30)27acc		
Top soil	3	3
Caliche	40	43
Sand and gravel	6	49
Adobe mud	35	84
Sand, gravel and clay, 5 gpm	6	90
Adobe mud	18	108
Sand, gravel and clay (water)	14	122
Caliche	16	138
Clay, red	7	145
Adobe and caliche	37	182
Clay, blue	8	190
TOTAL DEPTH		190
(D-13-30)28acc		
Surface soil	4	4
Caliche	24	28
Caliche and boulders	44	72
Sand and small gravel (trace of water)	15	87
Clay and gypsum	113	200
Gypsum	40	240
Blue shale	408	648
Gray shale	113	761
Sand, hard	4	765
Conglomerate of soapstone, brown shale, little sandy	9	774
Conglomerate of sand, small gravel, and brown shale	14	788
Sand	2	790
Conglomerate of sand, quartz, and shale streaks	50	840
Sand, soft, with quartz (water)	12	852
Sandy quartz, hard streaks	13	865
Sand, soft, with some boulders (water sand)	22	887

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

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

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

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

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

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

	Thickness (feet)	Depth (feet)
(D-14-31)35bcc		
Red clay	108	108
Water gravel	4	112
Caliche and red clay	38	150
Red clay	30	180
Blue clay	220	400
Bentonite clay	118	518
Water gravel	2	520
Conglomerate	105	625
Water gravel	6	631
Conglomerate	47	678
Water gravel	6	684
Conglomerate	24	708
Water gravel and sand	4	712
Conglomerate	11	723
Water gravel and sand	5	728
Conglomerate	4	732
Alternating layers	18	750
Conglomerate	25	775
Gravel	5	780
Conglomerate	20	800
TOTAL DEPTH		800
(D-14-32)16cab[1]		
Top soil	10	10
Clay and gravel	125	135
Gravel	25	160
Gravel and clay	35	195
Sand and gravel (water)	5	200
Gravel (water)	20	220
Clay	5	225
Sand and gravel (water)	10	235
Clay and gravel	15	250
TOTAL DEPTH		250
(D-14-32)16cab[2]		
Top soil	10	10
Gravel	140	150
Gravel and clay	40	190
Gravel (water)	61	251
TOTAL DEPTH		251
(D-14-32)16cab[3]		
Fill	4	4
Sandy clay	21	25
Gravel	3	28
Sandy clay	64	92
White sand	14	106
Sand rock	5	111
Sand with some clay	33	144
Gravel	5	149
Sand with some clay	52	201
Sand and gravel (water)	7	208
Hard-packed sand (some water)	22	230
Sand and gravel (water)	87	317
Sand, gravel, and clay	12	329
Hard-packed sand (some water)	6	335
Sand and gravel (water)	77	412
Clay and gravel	8	420
Sand and gravel (water)	40	460
Red granite	5	465
TOTAL DEPTH		465
(D-14-32)16cab[4]		
Sand, gravel, and clay	34	34
Clay	4	38
Sand, gravel, and clay	25	63
Sand and gravel	9	72
Sand, gravel, and clay	23	95
Gravel, sand, clay, some lime	14	109
Lime rock	5	114
Sandy clay, ribs of conglomerate limestone	32	146
Cemented gravel and sandy clay with embedded thin layers of conglomerate	29	175
Sandy clay and gravel	15	190
Sand, clay, and gravel	60	250
Sand and gravel	5	255
Conglomerate	149	404
Conglomerate and granite	17	421
Conglomerate	29	450
Conglomerate and sandstone	18	468
Hard rock	2	470
TOTAL DEPTH		470
(D-14-32)19baa		
Soil	4	4
Red clay	76	80
Bentonite	20	100
Fine sand	10	110
Bentonite	130	240
Blue clay	40	280
Bentonite	10	290
Blue clay	20	310
Sand and gravel	11	321
Brown clay	39	360
Sand and gravel	20	380
Red clay	25	405
Gravel	20	425
Red clay	5	430
Sand and gravel	25	455
Red clay	7	462
Gravel	18	480
Clay	3	483
Gravel	9	492
Clay	3	495
Sand and gravel	15	510
Clay	40	550
Conglomerate	110	660
Sand and gravel	15	675
Clay	35	710
Gravel	3	713
Red clay	37	750
TOTAL DEPTH		750
(D-14-32)20dbb		
Red sandy soil	3	3
Red clay	147	150
Fine sand	1	151
Red clay	69	220
Gravel	2	222
Red clay	8	230
Gravel	4	234
Conglomerate	26	260
Gravel	5	265
Conglomerate	15	280
Gravel	3	283
Conglomerate	57	340
Gravel	10	350
Conglomerate	5	355
Gravel	5	360
Conglomerate	20	380
Gravel	4	384
Conglomerate	36	420
Gravel	2	422
Conglomerate	50	472
Gravel	3	475
Conglomerate	45	520
Gravel	11	531
Conglomerate	81	612
Blue granite	29	641
TOTAL DEPTH		641
(D-14-32)30cbc		
Made soil	50	50
Coarse gravel	35	85
Gray clay	210	295
Red clay	35	330
Cemented sand and boulders	5	335
Blue clay	140	475
Quicksand	15	490
TOTAL DEPTH		490
(D-15-31)11dcc		
Soil	4	4
Clay and gravel	21	25
Sand and gravel	7	32
Sandy clay	43	75
Clay with sand and gravel streaks	30	105
Brown clay	29	134
Gravel and clay	20	154
Gray clay	12	166
Brown clay	20	186
Sandy clay; first water	2	188
Brown clay	4	192
Gravel and clay	21	213
Medium hard clay	5	218
Sandy brown clay	2	220
Conglomerate	36	256
Gray clay and conglomerate	23	279
Brown clay and conglomerate	40	319
Conglomerate	4	323

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

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

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

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

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: Parts per million	Dissolved solids: Tons per acre-foot	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25 C)	pH	Remarks
(D-10-28)																							
36aac	9-11-46	1,925	106	.....	.....	.....	.....		195	0	.....	200	11	0	.....	.....	.....	.....	.....	.....	1,600	...	
(D-11-29)																							
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	...	
(D-13-28)																							
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	
(D-13-29)																							
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	...	
(D-13-30)																							
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: Parts per million	Dissolved solids: Tons per acre-foot	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH	Remarks
(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	...	
16dcc	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: Parts per million	Dissolved solids: Tons per acre-foot	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH	Remarks
(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.																							
SE¼SW¼ sec. 19	10- 3-46	15	68	.....	.....	.....	.....		184	0	.....	9.0	...	...	.....	.....	.....	.....	....	.....	400	...	
NW¼SW¼ 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: Parts per million	Dissolved solids: Tons per acre-foot	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25 C)	pH	Remarks
Hidalgo County, N. Mex.—Continued																							
T. 26 S., R. 21 W.—Continued																							
NE¼NE¼ sec. 31 ...	10- 3-46	76	73	.....	.....	.....	.....	172	0	.....	10	6.0	...	.....	.....	.....	.....	....	.....	390	...	
T. 26 S., R. 22 W.																							
NE¼SE¼ sec. 12 ...	10- 2-46	8	.....	.....	.....	.....	.....	209	0	.....	10	...	...	.....	.....	.....	.....	....	.....	450	...	
T. 27 S., R. 21 W.																							
SW¼SW¼SE¼ sec. 17 ...	10- 3-46	141	.....	.....	.....	.....	.....	187	0	.....	8.0	...	...	.....	.....	.....	.....	....	.....	380	...	
NW¼NW¼SE¼ sec. 29 ...	10- 3-46	74	70	.....	.....	.....	.....	168	0	.....	13	...	...	.....	.....	.....	.....	....	.....	380	...	
T. 27 S., R. 22 W.																							
SE¼NE¼SE¼ sec. 24 ...	10- 3-46	164	70	.....	.....	.....	.....	147	0	.....	12	...	...	.....	.....	.....	.....	....	.....	310	...	