The composition of the basin-fill aquifer to a large degree determines its permeability, which is an important control on the movement of the water. It appears that, despite a variable composition, water moves freely through the basin-fill aquifer in most areas of the valley. Beds of clay occur at shallow depths (15 to 40 feet) throughout much of the valley and are associated with hardpan development in many places. The beds probably do not form a continuous layer, but where present they retard the downward movement of water.

The hills and mountains surrounding the valley are composed of folded and faulted igneous, sedimentary, and metamorphic rocks that range in age from Precambrian to Tertiary. Numerous faults have been mapped in the bedrock flanking the valley (Knopf, 1963). These faults have been traced to the edge of the valley where they presumably continue in bedrock beneath or, possibly, cut some of the basin-fill deposits. Scott (1936) proposed a major fault (epicenter of the 1935 Helena earthquakes) trending west-northwest at the north edge of the present city limits of Helena. Better understanding of the fault system would aid in describing the character and distribution of the basin-fill deposits.

The depth to water was measured during July and August, 1971, in 229 wells (table 1). The altitude of the water level was calculated and used in drawing the water-level contours (fig. 3). The general direction of ground-water movement is shown by lines, which are nearly at right angles to the contours.

Recharge during July, August, and September is principally from irrigation water. A large irrigation supply canal (fig. 3) partly encircles the Helena valley. The source of the water is the Helena Valley Regulating Reservoir (built by the U.S. Bureau of Reclamation), which receives and stores water pumped from the Missouri River.

Other important sources of recharge are precipitation, stream losses, and ground-water inflow through the deposits along Tenmile, Prickly Pear, and Silver Creeks. Recharge from precipitation and stream loss is minimal during the winter, but increases during May to peak in June. The water-level contours (fig. 3) show that Tenmile Creek is a losing stream (water is moving from the creek into the aquifer) in the reach from 10N4W12d to 10N3W5d. Prickly Pear Creek is a losing stream from 10N3W25b to 10N3W22a. Recharge from lawn irrigation and effluent from septic tanks provide a relatively small part of the total amount of recharge.

Water levels in the Helena valley are usually highest during the irrigation season when they range from 2 to 30 feet below land surface in most of the area. The map (fig. 3) was drawn from data collected in July and August and therefore it shows the highest water level. Water levels decline during the fall and winter.

Table 1.--Record of wells

Explanation

Well number: See text for description of well-numbering system
Type of casing: P, pipe; C, concrete.
Method of lift: N, none; J, jet; S, submersible.
Type of power: N, none; E, electric.
Use of water: O, observation of water level; S, stock; I, irrigation; D, domestic; P, public; N, not being used; In, industrial; Gi, garden irrigation.
Type of well: Dn, driven; Dr, drilled; Du, dug.
Altitude of land surface: Expressed in feet above mean sea level and obtained from topographic maps.
Remarks: USBR, U.S. Bureau of Reclamation observation well; C, water sample collected for chemical analysis for common constituents; N, water sample collected for analysis for constituents that may indicate man's activities; T, water sample collected for trace element analysis; B, water sample collected for bacteria analysis.

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
10N2W6bcc	--	8.0	1.0	P	N	N	O	Dn	3,696	3.9	7-8-71	USBR
10N2W6dad	--	--	6.0	P	-	E	D	Dr	3,720	27.8	8-3-71	--
10N2W6dcd	--	34.0	6.0	P	J	E	D	Dr	3,703	4.4	7-29-71	--
10N2W7aaa	--	16.0	1.5	P	N	N	O	Dn	3,718	10.9	7-8-71	USBR
10N2W7aad	--	29.0	1.5	P	N	N	O	Dn	3,720	7.9	7-8-71	USBR
10N2W7ada	--	18.0	2.0	P	N	N	O	Dn	3,720	3.0	7-9-71	USBR
10N2W7baa	--	38.0	6.0	P	S	E	D	Dr	3,714	5.6	7-29-71	N, B
10N2W7bba	--	18.0	1.5	P	N	N	O	Dn	3,712	5.8	7-8-71	USBR
10N2W7bba2	--	40.0	6.0	P	S	E	D	Dr	3,714	4.9	7-29-71	--
10N2W7bbb	--	19.0	1.5	P	N	N	O	Dn	3,721	6.9	7-8-71	USBR
10N2W7bbc	--	19.0	1.5	P	N	N	O	Dn	3,721	9.7	7-8-71	USBR

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measure-ment	Remarks
10N2W7ddd	--	19.0	1.5	P	N	N	O	Dn	3,744	7.4	7-8-71	USBR
10N2W18abb	--	20.0	1.5	P	N	N	O	Dn	3,745	16.2	7-9-71	USBR
10N2W19aad	--	74.0	6.0	P	S	E	D	Dr	3,794	39.4	7-29-71	N, T, B
10N2W29bcc	--	80.0	6.0	P	-	E	-	Dr	3,861	32.9	8-3-71	N, T, B
10N2W31aba	--	--	6.0	P	-	E	D	Dr	3,897	--	--	T, B
10N3W1dcc	--	18.0	1.5	P	N	N	O	Dn	3,717	6.3	7- -71	USBR
10N3W2acc	--	3.0	1.0	P	N	N	O	Dn	3,695	2.6	7-9-71	USBR
10N3W2add	--	6.0	1.0	P	N	N	O	Dn	3,698	5.0	7-8-71	USBR
10N3W2bdd	--	40.0	6.0	P	-	E	-	Dr	3,696	4.0	8-4-71	N
10N3W2dcc	--	33.0	6.0	P	S	E	D	Dr	3,714	2.2	8-4-71	--
10N3W3abb	--	10.0	1.5	P	N	N	O	Dn	3,683	2.7	7- -71	USBR
10N3W3cab	--	43.6	6.0	P	J	E	D	Dr	3,693	4.8	7-30-71	C, B
10N3W3cac	1962	50.0	6.0	P	S	E	S	Dr	3,693	4.1	7-30-71	N
10N3W4abb	--	8.0	1.5	P	N	N	O	Dn	3,681	4.2	7- -71	USBR
10N3W5aba	1922	42.0	8.0	P	J	E	D	Dr	3,710	4.8	7- -71	C
10N3W5bac	1966	123.0	8.0	P	-	E	P	Dr	3,722	9.2	7-15-71	--
10N3W5bbb	--	--	6.0	P	J	E	P	Dr	3,724	17.2	7-14-71	--
10N3W5bda	--	9.0	1.0	P	N	N	O	Dn	3,720	8.0	7- -71	USBR
10N3W5cbc	--	70.0	6.0	P	J	E	D	Dr	3,742	27.2	7-21-71	--
10N3W5dcd	--	11.0	1.0	P	N	N	O	Dn	3,733	2.8	7- -71	USBR
10N3W6aad	1949	43.0	--	P	-	E	D	Dr	3,732	12.8	7-14-71	--
10N3W6acd	--	48.0	6.0	P	S	E	D	Dr	3,740	16.2	7-14-71	C
10N3W6add	--	45.0	6.0	P	-	E	D	Dr	3,736	21.0	7-14-71	N, B
10N3W6bbb	--	--	6.0	P	-	E	D	Dr	3,743	12.2	7-14-71	--
10N3W6bcc	--	--	6.0	P	-	E	D	Dr	3,755	19.6	7-14-71	N, B
10N3W6caa	--	45.0	6.0	P	-	E	D	Dr	3,752	19.1	7-14-71	N, B
10N3W6cba	1967	44.0	6.0	P	-	E	D	Dr	3,756	19.8	7- -71	--
10N3W6ccd	--	--	6.0	P	-	E	D	Dr	3,766	10.7	7-14-71	--
10N3W6cdc	--	65.0	6.0	P	S	E	D	Dr	3,766	10.4	7-14-71	N, B
10N3W6dab	--	43.0	6.0	P	-	E	D	Dr	3,741	13.6	7-15-71	--

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
10N3W6dca	--	42.0	6.0	P	S	E	D	Dr	3,749	14.2	7-15-71	N, B
10N3W6ddc	--	--	6.0	P	J	E	D	Dr	3,753	13.9	7-15-71	--
10N3W6ddd	--	45.0	6.0	P	S	E	D	Dr	3,749	9.8	7-16-71	--
10N3W7aaa	1970	40.0	6.0	P	S	E	D	Dr	3,752	8.3	7-16-71	N, B
10N3W7aab	--	50.0	--	C	-	-	D	Du	3,757	11.5	7-15-71	--
10N3W7abb	--	42.0	6.0	P	S	E	D	Dr	3,762	9.2	7- -71	C, B
10N3W7abb2	--	42.0	6.0	P	J	E	D	Dr	3,762	15.2	7-15-71	--
10N3W7abd	--	40.0	6.0	P	-	E	D	Dr	3,761	9.7	7-16-71	--
10N3W7acb	1968	45.0	6.0	P	S	E	D	Dr	3,772	7.6	7- -71	--
10N3W7acc	--	7.0	2.0	P	N	N	O	Dn	3,776	2.8	7- -71	USBR
10N3W7ada	--	--	6.0	P	S	E	D	Dr	3,759	7.7	7-16-71	--
10N3W7add	--	50.0	6.0	P	-	E	D	Dr	3,763	8.3	7-16-71	--
10N3W7add2	--	40.0	6.0	P	-	E	D	Dr	3,763	11.4	7-16-71	N, B
10N3W7baa	--	60.0	6.0	P	S	E	D	Dr	3,761	7.8	7- -71	--
10N3W7dbc	--	32.0	6.0	P	S	E	D	Dr	3,782	6.4	7- -71	N
10N3W7ddc	--	65.0	6.0	P	S	E	D	Dr	3,785	20.9	7-16-71	N, B
10N3W7ddd	--	53.0	6.0	P	S	E	D	Dr	3,782	22.2	7-16-71	--
10N3W8acc	1956	120.0	12.0	P	J	E	I	Dr	3,745	6.8	7-21-71	--
10N3W8adc	--	60.0	6.0	P	S	E	D	Dr	3,740	5.6	7-21-71	N, B
10N3W8bba	--	60.0	6.0	P	S	E	D	Dr	3,748	9.6	7-19-71	N, B
10N3W8bbb	--	15.0	48.0	C	-	E	I	Du	3,751	6.0	7-19-71	--
10N3W8bbc	1955	41.0	6.0	P	J	E	D	Dr	3,755	10.7	7-19-71	--
10N3W8ccd	1967	53.0	6.0	P	S	E	D	Dr	3,770	19.2	7-19-71	--
10N3W8cdd	1967	52.0	6.0	P	S	E	D	Dr	3,761	21.3	7-19-71	N, B
10N3W9dad	1962	8.0	48.0	C	-	E	I	Du	3,716	3.8	7-29-71	--
10N3W9dda	--	82	6.0	P	J	E	D	Dr	3,718	+ .6	7-29-71	N, B
10N3W10bad	--	12.0	12.0	P	N	N	N	Du	3,712	2.9	7-30-71	--
10N3W10dbc	--	8.0	1.0	P	N	N	O	Dn	3,720	3.6	7- -71	USBR
10N3W10dcd	--	3.0	1.0	P	N	N	O	Dn	3,732	2.8	7- -71	USBR
10N3W10ddc	--	50.0	6.0	P	S	E	D	Dr	3,736	4.4	7-29-71	--
10N3W11aaa	--	35.0	6.0	P	J	E	D	Dr	3,719	10.2	7-29-71	N

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measure-ment	Remarks
10N3W11aac	--	30.0	6.0	P	-	E	D	Dr	3,724	8.6	7-29-71	--
10N3W11acc	--	57.0	6.0	P	J	E	D	Dr	3,734	7.9	7-26-71	--
10N3W11cca	--	40.0	6.0	P	S	E	P	Dr	3,740	6.6	7-29-71	N, T, B
10N3W11daa	--	46.0	6.0	P	J	E	D	Dr	3,740	20.3	8-3-71	N, B
10N3W11dbd	1918	60.0	6.0	P	S	E	D	Dr	3,744	10.7	8-4-71	C, B
10N3W12aaa	--	35.0	6.0	P	-	E	D	Dr	3,720	6.7	7-29-71	N, T, B
10N3W12baa	--	53.0	6.0	P	-	E	D	Dr	3,719	7.7	7-29-71	--
10N3W12bbb	--	45.0	6.0	P	J	E	D	Dr	3,720	12.5	8-3-71	--
10N3W13bbb	--	40.0	36.0	C	N	N	N	Du	3,760	25.9	8-4-71	--
10N3W13cdd	--	64.0	6.0	P	S	E	D	Dr	3,794	37.8	7-29-71	N, B
10N3W14aac	1966	46.0	6.0	P	S	E	D	Dr	3,761	19.1	8-4-71	--
10N3W14add	--	61.0	6.0	P	-	-	D	Dr	3,773	22.0	8-3-71	N, B
10N3W15baa	--	20.0	48.0	C	J	E	I	Du	3,733	4.7	7-29-71	--
10N3W15bad	--	79.0	6.0	P	S	E	D	Dr	3,730	7.4	7-29-71	C, B
10N3W15bda	--	28.0	6.0	P	J	E	I	Dr	3,728	5.3	7-30-71	--
10N3W15bdb	--	8.0	2.0	P	N	N	O	Dn	3,726	6.6	7- -71	USBR
10N3W16adb	--	30.0	6.0	P	J	E	D	Dr	3,740	11.8	7-30-71	--
10N3W16dca	--	60.0	6.0	P	J	E	D	Dr	3,768	14.4	7-30-71	C, B
10N3W16ddc	--	50.0	6.0	P	J	E	D	Dr	3,777	28.6	7-30-71	--
10N3W17aba	--	60.0	6.0	P	J	E	D	Dr	3,761	10.6	7-21-71	C, B
10N3W17abb	--	67.0	6.0	P	S	E	D	Dr	3,770	20.4	7-21-71	--
10N3W17aca	--	40.0	1.5	P	N	N	O	Dn	3,773	31.4	7- -71	--
10N3W17ddc	--	189.0	8.0	P	J	E	D	Dr	3,813	54.9	7-19-71	--
10N3W18aaa	1954	40.0	6.0	P	J	E	I	Dr	3,786	22.5	7-16-71	--
10N3W18ada	1961	59.0	6.0	P	-	E	D	Dr	3,800	36.3	7- -71	--
10N3W18ada2	--	41.2	6.0	P	S	E	D	Dr	3,800	37.2	7- -71	N, B
10N3W18adb	--	90.0	6.0	C,P	J	E	D	Du,Dr	3,808	41.7	7-16-71	C
10N3W18baa	--	52.0	6.0	P	S	E	D	Dr	3,799	18.6	7- -71	N, B
10N3W18bac	--	56.0	6.0	P	S	E	D	Dr	3,801	14.3	7-19-71	--
10N3W18cbd	--	90.0	6.0	P	S	E	D	Dr	3,839	21.5	7-19-71	--
10N3W18ccc	--	53.0	6.0	P	J	E	D	Dr	3,860	36.9	7-19-71	N, B

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
10N3W18cdd	--	86.0	6.0	P	S	E	D	Dr	3,850	13.5	7-19-71	N, B
10N3W18dbb	--	40.0	4.0	P	J	E	D	Dr	3,840	39.5	7-19-71	N
10N3W18ddd	--	66.0	6.0	P	J	E	D	Dr	3,843	27.2	7-19-71	N, B
10N3W19aaa	--	--	6.0	P	-	E	P	Dr	3,856	29.2	7-20-71	--
10N3W19acc	--	23	48.0	C	J	E	Gi	Du	3,912	9.4	7-28-71	C
10N3W22bac	1909	55.0	48.0	C	J	E	S	Du	3,790	27.2	7-29-71	N
10N3W23aac	1935	98.0	6.0	P	J	E	In	Dr	3,803	30.4	8-4-71	--
10N3W23bbb	1955	40.0	6.0	P	J	E	D	Dr	3,775	13.4	7-29-71	N, B
10N3W24cbd	--	60.0	6.0	P	J	E	D	Dr	3,824	32.1	8-4-71	C, T, B
10N3W25bbb	--	60.0	8.0	P	J	E	I	Dr	3,839	30.4	8-4-71	N, T, B
10N3W26cab	1955	80.0	6.0	P	-	E	D	Dr	3,908	44.6	8-4-71	--
10N3W26cad	1962	111.0	6.0	P	J	E	D	Dr	3,930	11.0	8-4-71	--
10N3W26ccd	--	44.0	4.0	P	J	E	D	Dr	3,960	11.6	8-4-71	T
10N3W27ddc	--	43.0	12.0	P	N	N	N	Dr	3,980	27.9	8-4-71	--
10N4W1aab	--	76.0	6.0	P	S	E	D	Dr	3,756	17.6	7-20-71	N, B
10N4W12dad	--	--	6.0	P	S	E	D	Dr	3,801	4.9	7-21-71	N, B
10N4W12ddc	--	12.0	12.0	C	-	-	I	Du	3,810	5.1	7-20-71	--
10N4W13cbb	1968	35.0	6.0	P	J	E	P	Dr	3,850	6.5	7-21-71	N, B
10N4W13cdd	--	--	6.0	P	J	E	D	Dr	3,840	5.2	7-20-71	--
10N4W13dcd	--	63.0	6.0	P	J	E	D	Dr	3,850	30.8	7-20-71	--
10N4W13ddd	1957	63.0	6.0	P	J	E	D	Dr	3,860	40.4	7-21-71	--
10N4W14bba	1910	18.0	48.0	C	J	E	Gi	Du	3,900	9.1	7-22-71	N, B
10N4W15baa	--	--	6.0	P	S	E	D	Dr	3,950	29.8	7-21-71	N, B
10N4W15bbb	--	63.0	6.0	P	S	E	D	Dr	3,980	25.4	7-21-71	--
10N4W15dbb	1959	38.0	6.0	P	J	E	D	Dr	3,933	16.2	7-21-71	C
10N4W22aca	--	30.0	--	-	N	N	N	Du	3,935	13.1	8-13-71	--
10N4W23aad	1971	79.0	6.0	P	S	E	D	Dr	3,885	4.7	7-23-71	N, B
10N4W23bab	--	60.0	6.0	P	J	E	D	Dr	3,889	2.5	7-22-71	C, B
10N4W23bac	1946	8.0	48.0	C	N	N	N	Du	3,898	6.5	7-22-71	--
10N4W23bac2	1946	38.0	6.0	P	J	E	D	Dr	3,898	7.5	7-22-71	N

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
10N4W23dad	1971	93.0	6.0	P	S	E	D	Dr	3,980	67.8	7-28-71	--
10N4W23dbb	1969	47.0	6.0	P	J	E	D	Dr	3,920	38.0	7-23-71	--
11N2W30cca	--	13.0	2.0	P	N	N	O	Dn	3,665	6.4	7-8-71	USBR
11N2W31acc	--	--	6.0	P	J	E	D	Dr	3,684	2.6	8-2-71	--
11N2W31bbb	--	9.0	1.0	P	N	N	O	Dn	3,668	7.0	7-8-71	USBR
11N2W31bbc	--	12.0	1.5	P	N	N	O	Dn	3,670	3.9	7-8-71	USBR
11N2W31bcb	--	28.0	6.0	P	J	E	I	Dr	3,672	5.3	8-3-71	N
11N2W31bcc	--	8.0	1.0	P	N	N	O	Dn	3,675	4.2	7-9-71	USBR
11N2W31cac	--	--	18.0	C	N	N	N	Du	3,680	5.9	8-2-71	--
11N3W14cad	--	10.0	.5	P	N	N	O	Dn	3,680	3.9	7-30-71	USBR
11N3W14cbd	--	10.0	.5	P	N	N	O	Dn	3,685	3.5	7-30-71	USBR
11N3W15cdd	--	13.0	1.0	P	N	N	O	Dn	3,670	5.5	7-9-71	USBR
11N3W15dcd	--	13.0	1.0	P	N	N	O	Dn	3,670	6.7	7-9-71	USBR
11N3W17ccd	--	21.0	1.0	P	N	N	O	Dn	3,743	3.6	7- -71	USBR
11N3W17cdd	--	41.0	6.0	P	S	E	D	Dr	3,737	2.6	7-28-71	--
11N3W17ddd	--	12.0	1.5	P	N	N	O	Dn	3,717	7.1	7-7-71	USBR
11N3W18dcd	--	--	6.0	P	S	E	P	Dr	3,765	24.1	7-25-71	N, B
11N3W19add	--	5.0	1.0	P	N	N	O	Dn	3,745	3.5	7-9-71	USBR
11N3W19dbc	--	45.0	6.0	P	S	E	D	Dr	3,750	19.1	7-28-71	N
11N3W20cbc	--	9.0	1.0	P	N	N	O	Dn	3,736	1.2	7-7-71	USBR
11N3W20ccc	--	5.0	1.0	P	N	N	O	Dn	3,727	2.0	7-7-71	USBR
11N3W20ddc	--	9.0	1.5	P	N	N	O	Dn	3,706	2.3	7- -71	USBR
11N3W21baa	--	10.0	1.5	P	N	N	O	Dn	3,685	3.1	7- -71	USBR
11N3W21cab	--	10.0	1.0	P	N	N	O	Dn	3,685	7.7	7- -71	USBR
11N3W21ccb	--	10.0	1.5	P	N	N	O	Dn	3,695	8.2	7-7-71	USBR
11N3W21ccc	--	10.0	1.5	P	N	N	O	Dn	3,693	5.9	7- -71	USBR
11N3W21dcc	--	23.0	48.0	C	J	E	I	Du	3,678	2.7	7-30-71	C
11N3W21dda	--	10.0	1.5	P	N	N	O	Dn	3,670	4.2	7- -71	USBR
11N3W22ccc	--	14.0	1.0	P	N	N	O	Dn	3,660	6.1	7- -71	USBR
11N3W25dcb	--	10.0	1.0	P	N	N	O	Dn	3,663	.5	7- -71	USBR
11N3W25dda	--	10.0	1.0	P	N	N	O	Dn	3,666	4.8	7-8-71	USBR

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
11N3W25ddb	--	13.0	1.0	P	N	N	O	Dn	3,664	3.8	7-12-71	USBR
11N3W29abb	--	--	6.0	P	J	E	D	Dr	3,707	2.3	7-28-71	N, B
11N3W29acc	--	11.0	1.0	P	N	N	O	Dn	3,697	8.3	7-8-71	USBR
11N3W29baa	--	--	6.0	P	-	E	D	Dr	3,713	9.6	7-25-71	--
11N3W29bac	--	--	6.0	P	S	E	D	Dr	3,711	+ .7	7- -71	N, B
11N3W29bbb	--	--	6.0	P	S	E	D	Dr	3,720	+1.5	7-25-71	--
11N3W29bcc	--	12.0	2.0	P	N	N	O	Dn	3,713	3.9	7- -71	USBR
11N3W29ccb	--	40.0	6.0	P	S	E	S	Dr	3,706	6.7	7-25-71	N, B
11N3W30abb	--	50.0	6.0	P	N	N	N	Dr	3,740	15.9	7- -71	--
11N3W30daa	1971	10.0	4.0	-	N	N	O	Dn	3,715	5.7	7-25-71	N
11N3W30dad	--	52.0	6.0	P	J	E	D	Dr	3,714	2.3	7-25-71	C
11N3W30dbb	--	5.0	6.0	P	J	E	D	Dr	3,724	5.6	7-25-71	--
11N3W30dbc	1971	10.0	4.0	-	N	N	O	Dn	3,720	7.2	7-25-71	--
11N3W30dbd	--	57.0	6.0	P	J	E	D	Dr	3,718	4.7	7-25-71	N, B
11N3W30ddb	1971	10.0	4.0	-	N	N	O	Dn	3,711	6.2	7-25-71	--
11N3W31adc	--	48.0	6.0	P	S	E	D	Dr	3,712	5.7	7-25-71	--
11N3W31daa	--	47.0	6.0	P	S	E	D	Dr	3,715	11.3	7-25-71	--
11N3W31dab	--	--	6.0	P	S	E	D	Dr	3,718	8.6	7-25-71	--
11N3W31dbc	--	55.0	6.0	P	J	E	D	Dr	3,722	13.9	7-25-71	N, B
11N3W31dcc	--	--	6.0	P	J	E	D	Dr	3,732	10.1	7-26-71	N, B
11N3W31dcd	--	39.0	6.0	P	J	E	D	Dr	3,730	12.7	7-26-71	--
11N3W31dda	--	--	6.0	P	-	E	D	Dr	3,720	8.9	7-25-71	--
11N3W31dda2	--	54.0	6.0	P	S	E	D	Dr	3,721	9.8	--	N, T, B
11N3W31ddd	--	--	6.0	P	J	E	D	Dr	3,723	12.0	7-25-71	--
11N3W31ddd2	--	30.0	6.0	P	J	E	D	Dr	3,723	11.7	7-25-71	--
11N3W32aaa	--	54.0	6.0	P	S	E	D	Dr	3,685	.1	7-28-71	N, B
11N3W32aad	--	10.0	.5	P	N	N	O	Dn	3,688	5.3	7-28-71	USBR
11N3W32acc	--	9.0	1.0	P	N	N	O	Dn	3,703	8.8	7-8-71	USBR
11N3W32cab	--	--	6.0	P	S	E	D	Dn	3,708	6.2	7-23-71	C, B
11N3W32cac	1959	40.0	6.0	P	J	E	D	Dr	3,710	6.5	7-23-71	N, B
11N3W32cba	--	35.0	6.0	P	S	E	D	Dr	3,710	5.4	7-23-71	--

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
11N3W32cbb	--	30.5	6.0	P	S	E	D	Dr	3,713	4.3	7-23-71	N, B
11N3W32cbc	--	--	6.0	P	S	E	D	Dr	3,714	6.8	7-26-71	--
11N3W32ccd	--	40.0	6.0	P	J	E	D	Dr	3,720	8.8	7-23-71	N, B
11N3W32cdb	--	--	6.0	P	J	E	D	Dr	3,716	7.1	7-25-71	--
11N3W32cdd	1956	40.0	6.0	P	J	E	D	Dr	3,715	8.8	7-23-71	--
11N3W32daa	--	10.0	1.0	P	N	N	O	Dn	3,693	6.8	7- -71	USBR
11N3W32dab	--	12.0	.5	P	N	N	O	Dn	3,697	7.2	7-28-71	USBR
11N3W32dbb	1951	38.0	6.0	P	-	E	D	Dr	3,702	5.5	7-28-71	N, B
11N3W32dcc	--	10.0	1.0	P	N	N	O	Dn	3,713	7.2	7- -71	USBR
11N3W33cdd	--	45.0	6.0	P	S	E	D	Dr	3,682	4.0	7-30-71	N, B
11N3W33dac	--	25.0	6.0	P	J	E	D	Dr	3,679	8.2	7-30-71	C, B
11N3W34aaa	--	9.0	1.0	P	N	N	O	Dn	3,664	4.7	7- -71	USBR
11N3W34bac	--	8.0	1.0	P	N	N	O	Dn	3,668	5.8	7- -71	USBR
11N3W34ccc	--	8.0	1.5	P	N	N	O	Dn	3,679	5.3	7- -71	USBR
11N3W35ada	--	10.0	1.0	P	N	N	O	Dn	3,670	2.8	7- -71	USBR
11N3W35dda	--	9.0	1.0	P	N	N	O	Dn	3,678	3.8	7- -71	USBR
11N3W36ccd	--	45.0	6.0	P	S	E	D	Dr	3,684	3.7	8-3-71	N, T, B
11N4W13ccc	--	93.0	6.0	P	S	E	D	Dr	3,855	63.5	7-28-71	N, B
11N4W13ddd	--	85.0	6.0	P	J	E	D	Dr	3,801	64.6	7-28-71	C, B
11N4W24aad	--	100.0	6.0	P	J	E	D	Dr	3,792	31.4	7-26-71	--
11N4W24abb	--	100.0	6.0	P	S	E	D	Dr	3,820	76.7	7-28-71	--
11N4W24abd	--	100.0	6.0	P	S	E	D	Dr	3,810	73.3	7-28-71	--
11N4W24cab	--	100.0	6.0	P	J	E	D	Dr	3,822	68.8	7-26-71	--
11N4W24daa	--	90.0	6.0	P	J	E	D	Dr	3,788	59.1	7-28-71	N
11N4W25ada	--	50.0	6.0	P	J	E	D	Dr	3,758	32.9	7-26-71	--
11N4W25add	1965	57.0	6.0	P	J	E	D	Dr	3,755	24.2	7-26-71	--
11N4W25baa	--	90.0	6.0	P	S	E	D	Dr	3,796	62.2	7-26-71	N, B
11N4W25bab	--	100.0	6.0	P	S	E	D	Dr	3,813	92.4	7-26-71	--
11N4W25cdc	--	120.0	6.0	P	S	E	D	Dr	3,833	107.4	7-26-71	--
11N4W25daa	--	60.0	6.0	P	J	E	D	Dr	3,753	22.7	7-26-71	N, B
11N4W25dcd	--	--	6.0	P	S	E	D	Dr	3,770	46.6	7-26-71	--

Table 1.--Record of wells--Continued

Well number	Year drilled	Depth of well (feet)	Diameter of well (inches)	Type of casing	Method of lift	Type of power	Use of water	Type of well	Altitude of land surface (feet)	Depth to water below land surface (feet)	Date of measurement	Remarks
11N4W25ddc	--	74.0	6.0	P	S	E	D	Dr	3,750	27.0	7-26-71	N, B
11N4W36baa	--	110.0	6.0	P	S	E	D	Dr	3,800	72.1	7-26-71	N, B
11N4W36dad	--	8.0	1.0	P	N	N	O	Dn	3,735	4.5	7- -71	USBR